

QALoad 05.06

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Language Reference Commands and Error Codes

Customer Support, Accessibility, Glossary



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## Language Reference Commands

## Overview

### List of QALoad Language Reference Commands

The QALoad Language Reference provides command reference information for general and middleware-specific commands. Select one of the middleware groups to display from the following list:

- ADO
- Citrix
- ODBC
- Oracle OCI Version 7
- General Oracle
- Oracle OCI Version 8
- Oracle Forms Server
- QALoad
- SAP Versions 6.x
- SSL
- Uniface
- Winsock
- WWW

# ADO

## ADO Commands

### [ADO\\_Command\(n\)->Cancel](#)

Terminates the execution of an asynchronous method call.

### [ADO\\_Command\(n\)->CreateParameter](#)

Creates a new Parameter object with a specified name, type, direction, size, and value. Any values passed in the arguments are written to the corresponding Parameter properties. This method does not automatically append the Parameter object to the Parameters collection of a Command object.

### [ADO\\_Command\(n\)->Execute](#)

Executes the query specified in the CommandText property or CommandStream property of the object.

### [ADO\\_Command\(n\)->GetCommandStream](#)

Retrieves the value contained in the CommandStream property of this instance of the ADO Command object. The CommandStream property is retrieved using a pointer to a variant.

### [ADO\\_Command\(n\)->GetCommandText](#)

Retrieves the value of the CommandText property for this instance of the ADO Command object. A string is returned as its argument.

### [ADO\\_Command\(n\)->GetCommandTimeout](#)

Retrieves the value contained within the CommandTimeout property of this instance of the ADO Command object.

### [ADO\\_Command\(n\)->GetCommandType](#)

Retrieves the value contained in the CommandType property of the current instance of the Command object.

### [ADO\\_Command\(n\)->GetDialect](#)

Retrieves the value contained within the Dialect property of this instance of the ADO Command object.

### [ADO\\_Command\(n\)->GetName](#)

Allows the script to retrieve the value of the Name property for this instance of the ADO Command object.

### [ADO\\_Command\(n\)->GetNamedParameters](#)

Retrieves the NamedParameters property of the Command object.

### [ADO\\_Command\(n\)->GetParameters](#)

Retrieves provider parameter information for the stored procedure or parameterized query specified in the Command object.

### [ADO\\_Command\(n\)->GetPrepared](#)

Retrieves the VARIANT\_BOOL value contained within the Prepared property of this instance of the ADO Command object.

### [ADO\\_Command\(n\)->GetProperties](#)

Retrieves the complete set of properties for this particular instance of the Command object. PropertySets may change for different providers.

### [ADO\\_Command\(n\)->PutActiveConnection](#)

Determines the Connection object affected by the specified Command object or ADO Recordset.

### [ADO\\_Command\(n\)->PutCommandText](#)

Sets the value of the CommandText property for this instance of the ADO command object.

[ADO\\_Command\(n\)->PutCommandTimeout](#)

Sets the value contained within the CommandTimeout property of this instance of the ADO Command object.

[ADO\\_Command\(n\)->PutCommandType](#)

Sets the value for the CommandType property of the current instance of the Command object.

[ADO\\_Command\(n\)->PutDialect](#)

Sets the value of the Dialect property of this instance of the ADO Command object.

[ADO\\_Command\(n\)->PutName](#)

Enables the script to set the value of the Name property for this instance of the ADO Command object.

[ADO\\_Command\(n\)->PutNamedParameters](#)

Sets the value of the NamedParameters property of the command object.

[ADO\\_Command\(n\)->PutPrepared](#)

The PutPrepared method call sets the VARIANT\_BOOL value contained within the Prepared property of this instance of the ADO Command object.

[ADO\\_Command\(n\)->PutRefActiveConnection](#)

Determines the ADO Connect object affected by the specified ADO Command object or ADO Recordset. Also sets the pointer to the QALoad ADO Connect object for this instance of the actual ADO Command object.

[ADO\\_Connect\(n\)->BeginTrans](#)

Begins a new transaction.

[ADO\\_Connect\(n\)->Close](#)

Closes a Connection object.

[ADO\\_Connect\(n\)->CommitTrans](#)

Save changes, ends the transaction. May start a new transaction.

[ADO\\_Connect\(n\)->Execute](#)

Executes the query passed in the CommandText argument on the connection to the method.

[ADO\\_Connect\(n\)->GetAttributes](#)

GetAttributes is read/write. It's value is the sum of one or more XactAttributeEnum values. The default is zero (0).

[ADO\\_Connect\(n\)->GetCommandTimeout](#)

Returns the value of the timeout in a pointer to a long.

[ADO\\_Connect\(n\)->GetConnectionString](#)

GetConnectionString method retrieves the value of ConnectionString property of this instance of the ADO Connect object. The ConnectionString specifies a data source by passing argument=value statements. These are separated by semi-colons.

[ADO\\_Connect\(n\)->GetConnectionTimeout](#)

Use GetConnectionTimeout on a Connection object to cancel a connection attempt, if necessary, due to network or server delays. If the time interval specified in the Connection Timeout property setting runs out before a connection can be opened, an error occurs and the attempt to connect is cancelled. Set the property to zero to wait indefinitely.

[ADO\\_Connect\(n\)->GetCursorLocation](#)

Lets you choose a cursor location from those accessible to the provider.

[ADO\\_Connect\(n\)->GetDefaultDatabase](#)

Retrieves the value of the DefaultDatabase property from this instance of the ADO Connect object.

[ADO\\_Connect\(n\)->GetIsolationLevel](#)

Sets a Connection object's isolation level. Takes effect the next time the BeginTrans method is called.

**ADO\_Connect(n)->GetMode**

Sets or returns access permissions for the current connection. The GetMode property can only be set after the Connection object is closed.

**ADO\_Connect(n)->GetProvider**

Returns the provider name for a connection.

**ADO\_Connect(n)->GetState**

Determines the state of a specified object at any time.

**ADO\_Connect(n)->GetVersion**

Returns the version of ADO that is being used.

**ADO\_Connect(n)->Open**

Establishes the connection to the data source.

**ADO\_Connect(n)->OpenSchema**

Returns information about the data source. For example, tables, columns included in the tables, data types, etc.

**ADO\_Connect(n)->PutAttributes**

Sets the transaction attribute for this connection object.

**ADO\_Connect(n)->PutCommandTimeout**

PutCommandTimeout Sends a timeout in seconds before the command will timeout with an error.

**ADO\_Connect(n)->PutConnectionString**

Specifies a data source

**ADO\_Connect(n)->PutConnectionTimeout**

Use PutConnectionTimeout on a Connection object to abandon an attempt to connect due to network or server delays. If a connection is not made in the specified time, an error occurs and the attempt to connect is cancelled. Set the property to zero to wait indefinitely.

**ADO\_Connect(n)->PutCursorLocation**

Lets you choose a cursor library from those accessible to the provider.

**ADO\_Connect(n)->PutDefaultDatabase**

Sets the default database within a connection object.

**ADO\_Connect(n)->PutIsolationLevel**

Sets the isolation level of a Connection object.

**ADO\_Connect(n)->PutMode**

Sets the access permissions being used on the current connection.

**ADO\_Connect(n)->PutProvider**

Sets the provider name for a connection.

**ADO\_Connect(n)->RollbackTrans**

Reverses changes made in an open transaction and ends the transaction. This is linked with BeginTrans. This will only be seen in the script if a transaction fails for some reason. If it fails and you see this call, look over the script logic and see if the transaction can be committed.

**ADO\_Field(n)->AppendChunk**

A special data handling method that writes data, in chunks, to the Field object.

**ADO\_Field(n)->GetActualSize**

Retrieves the value contained within the ActualSize property of this instance of the ADO Field object.

**ADO\_Field(n)->GetAttributes**

Retrieves the value contained within the Attributes property of this instance of the ADO Field object.

**ADO\_Field(n)->GetChunk**

Retrieves chunks of binary or character data to an appropriate buffer.

[ADO\\_Field\(n\)->GetDataFormat](#)

Retrieves an IUnknown instance describing the data format for this field.

[ADO\\_Field\(n\)->GetDefinedSize](#)

Retrieves the value contained within the DefinedSize property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->GetName](#)

Retrieves the value contained within the Name property of this instance of the ADO Field object. Note that the actual ADO call has a BSTR as the argument; therefore, there is some data conversion occurring within this call.

[ADO\\_Field\(n\)->GetNumericScale](#)

Retrieves the value contained within the NumericScale property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->GetOriginalValue](#)

Retrieves the value contained within the Value property of this instance of the ADO Field object before any changes were made permanent by a call to an update method.

[ADO\\_Field\(n\)->GetPrecision](#)

Retrieves the value contained within the Precision property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->GetProperties](#)

The CAField object has a collection of property objects. Each property object corresponds to a characteristic of the ADO object specific to the provider.

[ADO\\_Field\(n\)->GetStatus](#)

Retrieves the value contained within the Status property of this instance of the ADO Field object. It takes a pointer to a long as an argument. Within this parameter, the Value of the status property of this instance of the Field object is returned.

[ADO\\_Field\(n\)->GetType](#)

Retrieves the value contained within the Type property of this instance of the ADO Field object. The Actual ADO call uses another enumerated type, DataTypeEnum, to handle the datatypes. Conversion to this type happens within the QALoad call.

[ADO\\_Field\(n\)->GetUnderlyingValue](#)

Specifies the current value of a Field object in the database, after any updates to the recordset.

[ADO\\_Field\(n\)->GetValue](#)

Retrieves the value of a ADO Field object into a pointer to a Variant. The argument will handle any type of data. This can be done by using the Variant datatype. Data is retrieved into a pointer to a Variant.

[ADO\\_Field\(n\)->PutAttributes](#)

The PutAttributes method call sets the value contained within the Attributes property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->PutDefinedSize](#)

Sets the value contained within the DefinedSize property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->PutNumericScale](#)

Sets the value contained within the NumericScale property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->PutPrecision](#)

Sets the value contained within the Precision property of this instance of the ADO Field object.

[ADO\\_Field\(n\)->PutRefDataFormat](#)

This updates the current value of the data format updates to the ADO Recordset.

[ADO\\_Field\(n\)->PutType](#)

Sets the value contained within the Type property of this instance of the ADO Field object.

**ADO\_Field(n)->PutValue**

Resets the value of this instance of the ADO Field object. This is the first step in updating a Recordset's value.

**ADO\_FieldSet(n)->Append**

Append creates and appends a new Field object to the ADO FieldSet. An ADO Recordset object is composed of ADO FieldSet objects. Appending ADO Fields to ADO FieldSet objects comprises a mechanism for updating or retrieving information from a Data Provider.

**ADO\_FieldSet(n)->Append15**

Append15 creates and appends a new field object to the ADO FieldSet. An ADO Recordset object is composed of ADO FieldSet objects. Appending ADO Fields to ADO FieldSet objects comprise a mechanism for updating or retrieving information from a Data Provider. The Append15 function does NOT allow the user to add the data to this ADO Field object. It creates the ADO Field object in the ADO FieldSet collection, but does not add in the data.

**ADO\_FieldSet(n)->CancelUpdate**

Cancels changes made to the current or new row of an ADO Recordset object, or the ADO Fieldset collection of an ADO Record object, before calling the Update method.

**ADO\_FieldSet(n)->Delete**

Deletes an object from the Fields collection.

**ADO\_FieldSet(n)->GetCount**

The method returns the number of ADO Field objects contained within the ADO FieldSet collection.

**ADO\_FieldSet(n)->GetItem**

This call retrieves a ADO Field object from this instance of the ADO FieldSet collection. The result of the call is that a ADO Field object is brought back to be manipulated within the script. ADO Field retrieval is a part of the variablization process.

**ADO\_FieldSet(n)->GetNewEnum**

Creates the ADO IEnumField object.

**ADO\_FieldSet(n)->Refresh**

Updates the objects in a collection to reflect objects available from, and specific to, the provider. Using the Refresh method on the ADO FieldSet collection has no visible effect.

**ADO\_FieldSet(n)->Resync**

Synchronizes the values of a Record object's Fields collection with the data source. The Count property is not affected by this method.

**ADO\_FieldSet(n)->Update**

Saves any changes you make to the ADO FieldSet collection of a Record object.

**ADO\_IEnum(n)->NextProperty**

Enumeration through collections of properties should be done very carefully, because in the example below, we will reset all of the properties to the same value. To reset different values, get rid of the loop and set each property individually.

**ADO\_IEnumField(n)->NextField**

Enumeration through collections of ADO Fields should be done very carefully, because in the example given below, the script checks the status of each of the different ADO Fields. In order to do more meaningful work, reset values of different ADO Fields then break them out of the look and use the PutValue call to place new values into the ADO Field objects.

**ADO\_IEnumParameter(n)->NextParameter**

Enumeration through collections of ADO Parameters should be done very carefully, because in the example given below, the script checks different values of each of the different ADO Parameters. In order to do some more meaningful work, resetting values of different ADO Parameters then break them out of the look and use the PutValue call to place new values into the ADO Parameter objects.

### [ADO\\_LoadVariant\(n\)](#)

Loads the value sValue, of type sType, into the Variant structure.

### [ADO\\_Parameter\(n\)->AppendChunk](#)

A special data handling method that writes data, in chunks, to the Parameter object.

### [ADO\\_Parameter\(n\)->GetAttributes](#)

Retrieves the value contained within the Attributes property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->GetDirection](#)

Retrieves the value contained within the Direction property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->GetName](#)

Retrieves the value contained within the Name property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->GetNumericScale](#)

Retrieves the value contained within the NumericScale property of this instance of the ADO Parameter object. Returns a Byte value indicating the number of decimal places to which numeric values will be resolved. The NumericScale property is read/write.

### [ADO\\_Parameter\(n\)->GetPrecision](#)

Retrieves the value contained within the Precision property of this instance of the ADO Parameter object. Returns a Byte value showing the maximum number of digits used to represent values for a numeric Parameter object. The Precision property is read/write.

### [ADO\\_Parameter\(n\)->GetSize](#)

Retrieves the value contained within the Size property of this instance of the ADO Field object.

### [ADO\\_Parameter\(n\)->GetValue](#)

Use the Value property to return data from ADO Parameter objects and to return parameter values with ADO Parameter objects.

### [ADO\\_Parameter\(n\)->PutAttributes](#)

This method call retrieves the value contained within the Attributes property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->PutDirection](#)

Indicates Parameter type: input, output, input and output, or the return value from a stored procedure.

### [ADO\\_Parameter\(n\)->PutName](#)

Sets the value contained within the Name property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->PutNumericScale](#)

Sets the value contained within the NumericScale property of this instance of the ADO Parameter object. Sends a byte value indicating the number of decimal places to which numeric values will be resolved. The NumericScale property is read/write.

### [ADO\\_Parameter\(n\)->PutPrecision](#)

Sets the value contained within the Precision property of this instance of the ADO Parameter object. Sends a byte value showing the maximum number of digits used to represent values for a numeric ADO Parameter object. The Precision property is read/ write.

### [ADO\\_Parameter\(n\)->PutSize](#)

Retrieves the value contained within the Size property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->PutType](#)

Sets the value contained within the Type property of this instance of the ADO Parameter object.

### [ADO\\_Parameter\(n\)->PutValue](#)

Sets the value contained within the Value property of this instance of the ADO Parameter object.

### [ADO\\_ParameterSet\(n\)->Append](#)

Appends a ADO Parameter object to the collection of ADO Parameters.



**ADO\_ParameterSet(n)->Delete**

Deletes an ADO Parameter object from the ADO ParameterSet collection.

**ADO\_ParameterSet(n)->GetCount**

The method returns the number of ADO Parameter objects contained within the ADO ParameterSet collection.

**ADO\_ParameterSet(n)->GetItem**

Locates a specific ADO Parameter in the ADO ParameterSet collection.

**ADO\_ParameterSet(n)->GetNewEnum**

In order to iterate through all of the ADO Parameters in an ADO ParameterSet collection, an ADOEnumParameter object is returned. The GetNewEnum call on the ADO ParameterSet object creates the ADO IEnumParameter object allowing the enumeration to take place.

**ADO\_ParameterSet(n)->Refresh**

Updates the objects in a collection to reflect objects available from, and specific to, the provider. Using the Refresh method on the ADO ParameterSet collection has no visible effect.

**ADO\_Property(n)->GetAttributes**

Describes column characteristics by setting or returning a Long value.

**ADO\_Property(n)->GetName**

Retrieves the value of the Name attribute of this instance of the Property object.

**ADO\_Property(n)->GetType**

Indicates a property's type as conveyed as a DataTypeEnum.

**ADO\_Property(n)->GetValue**

Sets or returns data from Field objects, parameter values with Parameter objects, or property settings with Property objects.

**ADO\_Property(n)->PutAttributes**

Sets the value contained within the Attributes property of this instance of the ADO Property object.

**ADO\_Property(n)->PutValue**

Sets or returns data from Field objects, parameter values with Parameter objects, or property settings with Property objects.

**ADO\_PropertySet(n)->GetCount**

The method returns the number of ADO Property objects contained within the ADO PropertySet collection.

**ADO\_PropertySet(n)->GetItem**

Retrieves a specific ADO Property in the ADO PropertySet collection.

**ADO\_PropertySet(n)->GetNewEnum**

In order to iterate through all of the ADO Propertys in an ADO PropertySet collection, an ADOEnum object is returned. The GetNewEnum call on the ADO PropertySet object creates the ADO IEnum object allowing the enumeration to take place.

**ADO\_PropertySet(n)->Refresh**

Updates the objects in a collection to reflect objects available from, and specific to, the provider. Using the Refresh method on the ADO PropertySet collection has no visible effect.

**ADO\_Record(n)->Cancel**

Cancels execution of a pending, asynchronous method call.

**ADO\_Record(n)->Close**

Use to close a Recordset, Record, or Stream object. Any associated data or exclusive access you may have had to the data through this particular object will be released. You can reopen the object later using the Open method.

[ADO\\_Record\(n\)->CopyRecord](#)

Copies a file or directory (including its contents) to another location.

[ADO\\_Record\(n\)->DeleteRecord](#)

Deletes a file or directory, and all its subdirectories.

[ADO\\_Record\(n\)->GetActiveConnection](#)

Use the ActiveConnection property to determine the ADO Connect object over which the specified ADO Record object will execute.

[ADO\\_Record\(n\)->GetChildren](#)

Returns an ADO Recordset, in the form of a Pointer to an ADO Recordset object, whose rows represent the files and subdirectories in the directory represented by this Record.

[ADO\\_Record\(n\)->GetFields](#)

Contains all the Field objects of an ADO Recordset or ADO Record object.

[ADO\\_Record\(n\)->GetMode](#)

Sets or returns the access permissions being used on the current connection by the provider.

[ADO\\_Record\(n\)->GetParentURL](#)

Sets the current value of the source property for this instance of the actual ADO Command object.

[ADO\\_Record\(n\)->GetRecordType](#)

This method is used to check the contents of the ADO RecordType property for this instance of ADO Record object, returning the RecordTypeEnum in a pointer to a long.

[ADO\\_Record\(n\)->GetSource](#)

Indicates the entity represented by the ADO Record object.

[ADO\\_Record\(n\)->GetState](#)

You can use the State property to determine the state of a given ADO Record object at any time.

[ADO\\_Record\(n\)->MoveRecord](#)

Moves a file, or a directory and its contents, to another location.

[ADO\\_Record\(n\)->Open](#)

Makes the call through to the Open method within the ADO Record object to open an existing ADO Record object, or create a new file or directory.

[ADO\\_Record\(n\)->PutActiveConnection](#)

PutActiveConnection is read/write when the ADO Record object is closed. It may contain a connection string or reference to an open ADO Connect object. When the ADO Record object is open and contains a reference to an open ADO Connect object, PutActiveConnection is read-only.

[ADO\\_Record\(n\)->PutMode](#)

Sets the access permissions being used on the current connection by the provider. You can only set this property when the ADO Connect object is closed.

[ADO\\_Record\(n\)->PutRefActiveConnection](#)

Specifies the ADO Connect object to be affected by the specified ADO Record object.

[ADO\\_Record\(n\)->PutRefSource](#)

Sets a Command object as the data source for a Recordset object.

[ADO\\_Record\(n\)->PutSource](#)

Sets the current value of the source property for this instance of the actual ADO Command object. The Source property must refer to an object existing within the scope of that ADO Connect.

[ADO\\_Recordset\(n\)->\\_xClone](#)

This is a hidden method. It is undocumented within MSDN. However, a logical assumption would be that it makes a clone of the calling ADO Recordset. This is given the arguments and the method name.

[ADO\\_Recordset\(n\)->\\_xResync](#)

This is a hidden method. It is undocumented within MSDN. However, a logical assumption would be that it resynchronizes the ADO Recordset with the underlying data provider. This is given the arguments and the method name.

[ADO\\_Recordset\(n\)->\\_xSave](#)

This is a hidden method. It is undocumented within MSDN. However, a logical assumption would be that it saves ADO Recordset data to the location given in the first argument. This is given the arguments and the method name.

[ADO\\_Recordset\(n\)->AddNew](#)

Creates a new record for an updatable ADO Recordset object.

[ADO\\_Recordset\(n\)->Cancel](#)

Cancels execution of a pending, asynchronous method call.

[ADO\\_Recordset\(n\)->CancelBatch](#)

Cancels any pending updates in an ADO Recordset that is in batch update mode.

[ADO\\_Recordset\(n\)->CancelUpdate](#)

Cancels any changes made to the current row or discards a new row of an ADO Recordset object before calling the Update method.

[ADO\\_Recordset\(n\)->Clone](#)

Duplicates an ADO Recordset object. Can specify that the clone be read-only.

[ADO\\_Recordset\(n\)->Close](#)

Closes an open object and any dependent objects.

[ADO\\_Recordset\(n\)->CompareBookmarks](#)

Compares two bookmarks. Returns an indication of their relative values.

[ADO\\_Recordset\(n\)->Delete](#)

Use to delete the current record or a group of records.

[ADO\\_Recordset\(n\)->Find](#)

Locates a row in an ADO Recordset that matches specified criteria.

[ADO\\_Recordset\(n\)->GetAbsolutePage](#)

Identifies, by page number, where the current record resides.

[ADO\\_Recordset\(n\)->GetAbsolutePosition](#)

Specifies the ordinal position of the current record of an ADO Recordset object.

[ADO\\_Recordset\(n\)->GetActiveCommand](#)

Specifies the ADO Command object which created an ADO Recordset object.

[ADO\\_Recordset\(n\)->GetActiveConnection](#)

For a Command, ADO Recordset, or ADO Record object, specifies the associated ADO Connect object.

[ADO\\_Recordset\(n\)->GetBOF](#)

Determines if an ADO Recordset object contains records or if you've gone beyond its limits while moving from record to record.

[ADO\\_Recordset\(n\)->GetBookmark](#)

Indicates a bookmark identifying an ADO Recordset object's current record, or sets the current record to that identified by a bookmark.

[ADO\\_Recordset\(n\)->GetCacheSize](#)

Specifies the number of records in the ADO Recordset that are cached locally.

[ADO\\_Recordset\(n\)->GetCollect](#)

This is a hidden method. It is undocumented within MSDN. If you are looking at incorporating this method, please examine the example below and do as you see fit.

[ADO\\_Recordset\(n\)->GetCursorLocation](#)

Specifies the location of the cursor service.

[ADO\\_Recordset\(n\)->GetCursorType](#)

Specifies the type of cursor to use when opening the ADO Recordset object.

[ADO\\_Recordset\(n\)->GetDataMember](#)

Specifies the data member to be retrieved from the object referenced by the DataSource property.

[ADO\\_Recordset\(n\)->GetDataSource](#)

Specifies an object containing data to be represented as an ADO Recordset object.

[ADO\\_Recordset\(n\)->GetEditMode](#)

Specifies the current record's editing status.

[ADO\\_Recordset\(n\)->GetEOF](#)

Indicates that the current record position is after the last record in an ADO Recordset object.

[ADO\\_Recordset\(n\)->GetFields](#)

Returns a container of an ADO Recordset or ADO Record object's Field objects.

[ADO\\_Recordset\(n\)->GetFilter](#)

Specifies a filter for data in an ADO Recordset.

[ADO\\_Recordset\(n\)->GetIndex](#)

This is a hidden method. It is undocumented within MSDN.

[ADO\\_Recordset\(n\)->GetLockType](#)

Specifies the type of locks placed on records during editing.

[ADO\\_Recordset\(n\)->GetMarshalOptions](#)

Specifies records to be marshaled back to the server.

[ADO\\_Recordset\(n\)->GetMaxRecords](#)

Specifies the maximum number of records to return to an ADO Recordset from a query.

[ADO\\_Recordset\(n\)->GetPageCount](#)

Specifies the number of pages of data contained in the ADO Recordset object.

[ADO\\_Recordset\(n\)->GetPageSize](#)

Indicates the number of records that make up a single page in the ADO Recordset.

[ADO\\_Recordset\(n\)->GetProperties](#)

The CAField object has a collection of property objects. Each property object corresponds to a characteristic of the ADO object specific to the provider.

[ADO\\_Recordset\(n\)->GetRecordCount](#)

Indicates the number of records in an ADO Recordset object.

[ADO\\_Recordset\(n\)->GetRows](#)

Retrieves multiple records of an ADO Recordset object into an array.

[ADO\\_Recordset\(n\)->GetSort](#)

Indicates one or more field names on which the ADO Recordset is sorted, and whether each field is sorted in ascending or descending order.

[ADO\\_Recordset\(n\)->GetSource](#)

Indicates the data source for a Recordset object.

[ADO\\_Recordset\(n\)->GetState](#)

Indicates for all applicable objects whether the state of the object is open or closed.

[ADO\\_Recordset\(n\)->GetStatus](#)

Indicates the status of the current record with respect to batch updates or other bulk operations.

**ADO\_Recordset(n)->GetStayInSync**

Indicates, in a hierarchical ADO Recordset object, whether the reference to the underlying child records (that is, the chapter) changes when the parent row position changes.

**ADO\_Recordset(n)->GetString**

Returns the ADO Recordset as a string.

**ADO\_Recordset(n)->Move**

Moves the position of the current record in an ADO Recordset object.

**ADO\_Recordset(n)->MoveFirst**

Use the MoveFirst method to move the current record position to the first record in the ADO Recordset.

**ADO\_Recordset(n)->MoveLast**

Use the MoveLast method to move the current record position to the last record in the ADO Recordset. The ADO Recordset object must support bookmarks or backward cursor movement; otherwise, the method call will generate an error.

**ADO\_Recordset(n)->MoveNext**

Use the MoveNext method to move the current record position one record forward (toward the bottom of the ADO Recordset). If the last record is the current record and you call the MoveNext method, ADO sets the current record to the position after the last record in the ADO Recordset (EOF is True). An attempt to move forward when the EOF property is already True generates an error.

**ADO\_Recordset(n)->MovePrevious**

Use the MovePrevious method to move the current record position one record backward (toward the top of the ADO Recordset). The ADO Recordset object must support bookmarks or backward cursor movement; otherwise, the method call will generate an error. If the first record is the current record and you call the MovePrevious method, ADO sets the current record to the position before the first record in the ADO Recordset (BOF is True).

**ADO\_Recordset(n)->NextRecordset**

Clears the current ADO Recordset object and returns the next ADO Recordset by advancing through a series of commands.

**ADO\_Recordset(n)->Open**

Using the Open method on an ADO Recordset object opens a cursor that represents records from a base table, the results of a query, or a previously saved ADO Recordset.

**ADO\_Recordset(n)->PutAbsolutePage**

Indicates on which page the current record resides.

**ADO\_Recordset(n)->PutAbsolutePosition**

Indicates the ordinal position of an ADO Recordset object's current record.

**ADO\_Recordset(n)->PutActiveConnection**

Indicates to which Connection object the specified Command, ADO Recordset, or Record object currently belongs.

**ADO\_Recordset(n)->PutBookmark**

Indicates a bookmark that uniquely identifies the current record in an ADO Recordset object or sets the current record in an ADO Recordset object to the record identified by a valid bookmark.

**ADO\_Recordset(n)->PutCacheSize**

Indicates the number of records in the ADO Recordset that are cached locally.

**ADO\_Recordset(n)->PutCollect**

This is a hidden method. It is undocumented within MSDN. If you are looking at incorporating this method, please examine the example below and do as you see fit. Neither QALoad support professionals nor development recommend adding this method to a script.

**ADO\_Recordset(n)->PutCursorLocation**

Indicates the location of the cursor service.

[ADO\\_Recordset\(n\)->PutCursorType](#)

Use the CursorType property to specify the type of cursor that should be used when opening the ADO Recordset object.

[ADO\\_Recordset\(n\)->PutDataMember](#)

Indicates the name of the data member that will be retrieved from the object referenced by the DataSource property.

[ADO\\_Recordset\(n\)->PutFilter](#)

Indicates a filter for data in an ADO Recordset.

[ADO\\_Recordset\(n\)->PutIndex](#)

This is a hidden method. It is undocumented within MSDN. If you are looking at incorporating this method, please examine the example below and do as you see fit.

[ADO\\_Recordset\(n\)->PutLockType](#)

Indicates the type of locks placed on records during editing.

[ADO\\_Recordset\(n\)->PutMarshalOptions](#)

Indicates which records are to be marshaled back to the server.

[ADO\\_Recordset\(n\)->PutMaxRecords](#)

Indicates the maximum number of records to return to an ADO Recordset from a query.

[ADO\\_Recordset\(n\)->PutPageSize](#)

Indicates how many records constitute one page in the ADO Recordset.

[ADO\\_Recordset\(n\)->PutRefActiveConnection](#)

Indicates to which ADO Connect object the specified ADO Command, ADO Recordset, or Record object currently belongs.

[ADO\\_Recordset\(n\)->PutRefDataSource](#)

Indicates an object that contains data to be represented as an ADO Recordset object.

[ADO\\_Recordset\(n\)->PutRefSource](#)

Sets a Command object as the data source for a Recordset object.

[ADO\\_Recordset\(n\)->PutSort](#)

Indicates one or more field names on which the ADO Recordset is sorted, and whether each field is sorted in ascending or descending order.

[ADO\\_Recordset\(n\)->PutSource](#)

Indicates the data source for an ADO Recordset object.

[ADO\\_Recordset\(n\)->PutStayInSync](#)

Indicates, in a hierarchical ADO Recordset object, whether the reference to the underlying child records (that is, the chapter) changes when the parent row position changes.

[ADO\\_Recordset\(n\)->ReQuery](#)

Updates the data in an ADO Recordset object by re-executing the query on which the object is based.

[ADO\\_Recordset\(n\)->Resync](#)

Refreshes the data in the current ADO Recordset object, or Fields collection of a Record object, from the underlying database.

[ADO\\_Recordset\(n\)->Save](#)

Saves the ADO Recordset in a file or ADO Stream object.

[ADO\\_Recordset\(n\)->Seek](#)

The SeekEnum is an Enumerated value giving the direction of the seek operation.

[ADO\\_Recordset\(n\)->Supports](#)

Determines whether a specified ADO Recordset object supports a particular type of functionality.

**ADO\_Recordset(n)->Update**

Saves any changes you make to the current row of an ADO Recordset object.

**ADO\_Recordset(n)->UpdateBatch**

Writes all pending batch updates within the ADO Recordset to disk.

**ADO\_Stream(n)->Cancel**

Cancels execution of a pending ADO Stream, asynchronous method call.

**ADO\_Stream(n)->Close**

Closes an open object and any dependent objects.

**ADO\_Stream(n)->CopyTo**

Copies the specified number of characters or bytes (depending on Type) in the ADO Stream to another ADO Stream object.

**ADO\_Stream(n)->Flush**

Forces the contents of the ADO Stream remaining in the ADO buffer to the underlying object with which the ADO Stream is associated.

**ADO\_Stream(n)->GetCharset**

Indicates the character set into which the contents of a text ADO Stream should be translated.

**ADO\_Stream(n)->GetEOS**

Indicates whether the current position is at the end of the ADO Stream.

**ADO\_Stream(n)->GetLineSeparator**

Indicates the binary character to be used as the line separator in text ADO Stream objects.

**ADO\_Stream(n)->GetMode**

Indicates the available permissions for modifying data in a Connection, Record, or ADO Stream object.

**ADO\_Stream(n)->GetPosition**

Indicates the current position within an ADO Stream object.

**ADO\_Stream(n)->GetSize**

Returns a Long value that specifies the size of the ADO Stream in number of bytes. The default value is the size of the ADO Stream, or -1 if the size of the ADO Stream is not known.

**ADO\_Stream(n)->GetState**

The ADO Stream object's State property can have a combination of values. For example, if a statement is executing, this property will have a combined value of adStateOpen and adStateExecuting.

**ADO\_Stream(n)->GetType**

Indicates the type of data contained in the ADO Stream (binary or text).

**ADO\_Stream(n)->LoadFromFile**

Loads the contents of an existing file into an ADO Stream.

**ADO\_Stream(n)->PutCharset**

Indicates the character set into which the contents of a text ADO Stream should be translated.

**ADO\_Stream(n)->PutLineSeparator**

Indicates the binary character to be used as the line separator in text ADO Stream objects.

**ADO\_Stream(n)->PutMode**

Indicates the available permissions for modifying data in a Connection, Record, or ADO Stream object.

**ADO\_Stream(n)->PutPosition**

Indicates the current position within an ADO Stream object.

**ADO\_Stream(n)->PutType**

Indicates the type of data contained in the ADO Stream (binary or text).

### ADO\_Stream(n)->Read

Reads a specified number of bytes from a binary ADO Stream object.

### ADO\_Stream(n)->ReadText

Reads specified number of characters from a text ADO Stream object.

### ADO\_Stream(n)->SaveToFile

Saves the number of bytes contents of the current ADO Stream to the file from the current position. It sends the second param number of bytes to that File.

### ADO\_Stream(n)->SetEOS

Sets the current position within the ADO Stream as the End of the ADO Stream

### ADO\_Stream(n)->SkipLine

Skips one entire line when reading a text ADO Stream.

### ADO\_Stream(n)->Write

Writes BINARY Data to the ADO Stream buffer.

### ADO\_Stream(n)->WriteText

Writes a specified text string to an ADO Stream object.

### ADOSTream(n)->Open

Opens an ADO Stream object to manipulate streams of binary or text data.

### ExtractVariantValue

Retrieves the contents of a variant and places that value in a string.

### PrintVariant

Decodes variant data and places this data into a string.

## ADO\_Command(n)->Cancel

Terminates the execution of an asynchronous method call.

### Syntax

```
ADO_Command(n)->Cancel();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Command(0)->CreateParameter( "ParamTest1", adEmpty, adParamInput, 0, pvValue,
ADOParameter[0] );
ADOParameter.Release( 0 );
ADO_LoadVariant( pvValue, "8", "A Test Value" );
ADO_Command(0)->CreateParameter( "TestParam2", adEmpty, adParamInputOutput, 100, pvValue,
```



```

ADOParameter[0] );
ADOParameter.Release( 0 );
ADO_Command(0)->Cancel();
ADO_Command(0)->PutPrepared( -1 );

```

## ADO\_Command(n)->CreateParameter

Creates a new Parameter object with a specified name, type, direction, size, and value.

Any values passed in the arguments are written to the corresponding Parameter properties. This method does not automatically append the Parameter object to the Parameters collection of a Command object.

CreateParameter lets you set additional properties whose values ADO validate when appending the Parameter object to the collection. If specifying a variable length data type in the Type argument, you must either pass a Size argument, or set the Size <mdprosize.htm> property of the Parameter object before appending it to the Parameters collection. Otherwise, an error occurs.

If you specify a numeric data type (adNumeric or adDecimal) in the Type argument, then you must also set the NumericScale <mdpronumericscale.htm> and Precision <mdproprecision.htm> properties.

### Syntax

```

ADO_Command(n)->CreateParameter( char* sName, ADODataTypeEnum Type,
ADOParameterDirectionEnum Direction, long nLength, VARIANT* pvValue, CAPParameter* pParameter
);

```

### Return Value

### Parameters

Parameter	Description												
n	Index to the object.												
sName	String containing the name of the parameter.												
Type	<p><i>ADODataTypeEnum</i> Enumerated type describing the data type. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adEmpty</td> <td>No data type specified</td> </tr> <tr> <td>adTinyInt</td> <td>Tiny integer</td> </tr> <tr> <td>adSmallInt</td> <td>Small integer</td> </tr> <tr> <td>adInteger</td> <td>Integer</td> </tr> <tr> <td>adBigInt</td> <td>Big integer</td> </tr> </tbody> </table>	Value	Description	adEmpty	No data type specified	adTinyInt	Tiny integer	adSmallInt	Small integer	adInteger	Integer	adBigInt	Big integer
Value	Description												
adEmpty	No data type specified												
adTinyInt	Tiny integer												
adSmallInt	Small integer												
adInteger	Integer												
adBigInt	Big integer												

adUnsignedTinyInt	Unsigned tiny integer
adUnsignedSmallInt	Unsigned small integer
adUnsignedInt	Unsigned integer
adUnsignedBigInt	Unsigned integer
adSingle	Single precision float
adDouble	Double precision float
adCurrency	Currency
adDecimal	Decimal
adNumeric	Numeric
adBoolean	Boolean
adError	Error
adUserDefined	User-defined data type
adVariant	Variant
adIDispatch	Pointer to IDispatch
adIUnknown	Pointer to IUnknown
adGUID	GUID
adDate	Date
adDBDate	DBDate
adDBTime	DBTime
adDBTimeStamp	DBTimestamp
adBSTR	BSTR
adChar	Char
adVarChar	VarChar
adLongVarChar	Long VarChar
adWChar	Wide Char
adVarWChar	VarWChar
adLongVarWChar	Long VarWChar
adBinary	Binary
adVarBinary	VarBinary

	<table> <tr> <td>adLongVarBinary</td> <td>Long VarBinary</td> </tr> <tr> <td>adChapter</td> <td>Chapter</td> </tr> <tr> <td>adFileTime</td> <td>FileTime</td> </tr> <tr> <td>adPropVariant</td> <td>Variant Property</td> </tr> <tr> <td>adVarNumeric</td> <td>VarNumeric</td> </tr> <tr> <td>adArray</td> <td>Array</td> </tr> </table>	adLongVarBinary	Long VarBinary	adChapter	Chapter	adFileTime	FileTime	adPropVariant	Variant Property	adVarNumeric	VarNumeric	adArray	Array
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adParamOutput	Parameter is output value												
adParamInputOutput	Parameter is input/output value												
adParamReturnValue	Parameter is return value												
nLength	Integer variable specifying the maximum length, in bytes, of the parameter.												
pvValue	Value of parameter at time of creation.												
pParameter	Created parameter.												

## Example

```
ADO_Command(0)->GetCommandType( pLong );
ADO_Command(0)->PutCommandType( adCmdUnknown );
ADO_Command(0)->GetState( pLong );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_Command(0)->CreateParameter( "ParamTest1", adEmpty, adParaminput, 0, pvValue,
ADOParameter[0] );
ADO_LoadVariant( pvValue, "8", "A Test Value" );
```

## ADO\_Command(n)->Execute

Executes the query specified in the CommandText property or CommandStream property of the object.

## Syntax

```
ADO_Command(n)->Execute( VARIANT* pvRecNo, VARIANT*
pvParamList, long nCommandType, CRecordset* pRecordset );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvRecNo	A long variable to which the provider returns the number of records that the operation affected.
pvParamList	A variant array of parameter values passed.
nCommandType	A long value that indicates how the provider should evaluate the CommandText property of the Command object.
pRecordset	QALoad wrapper object, returned ADORecordset.

## Example

```
ADO_Command(0)->Cancel();
ADO_Command(0)->PutPrepared( -1 );
ADO_LoadVariant( pvValue, "3", "-1" );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Command(0)->Execute( pvValue, pvSource, 1,
ADORecordset[0] );
```

## ADO\_Command(n)->GetCommandStream

Retrieves the value contained in the CommandStream property of this instance of the ADO Command object.

The CommandStream property is retrieved using a pointer to a variant.

## Syntax

```
ADO_Command(n)->GetCommandStream( VARIANT* pvValue );
```

## Parameters

Parameter	Description
n	An index to the object.

pvValue

A pointer to a variant into which the data is retrieved.

## Example

```
ADO_Command(0)->GetCommandStream( pvValue );
ADO_Command(0)->GetDialect( pvSource );
```

## ADO\_Command(n)->GetCommandText

Retrieves the value of the CommandText property for this instance of the ADO Command object. A string is returned as its argument.

The CommandText property is returned inside a CLoadString.

## Syntax

```
ADO_Command(n)->GetCommandText( CLoadString& sCommandText );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sCommandText	The CommandText property for which a value is to be returned.

## Example

```
ADO_Command(0)->PutCommandText("Select * from test_table" );
ADO_Command(0)->GetCommandText( sLoadStr );
ADO_Connect(0)>Open("PROVIDER=MSDASQL;dsn=FhLoadDB2;uid=sa; pwd="";database=Master;", "",
"", -1 );
```

## ADO\_Command(n)->GetCommandTimeout

Retrieves the value contained within the CommandTimeout property of this instance of the ADO Command object.

Use CommandTimeout on a Connection object or Command object to allow an Execute method call to be cancelled due to network or server delays. If the command does not execute before the time interval runs out, an error occurs and the command is cancelled. Set the property to zero to wait indefinitely.

## Syntax

```
ADO_Command(n)->GetCommandTimeout( long* pCommandTimeout );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pCommandTimeout	Pointer to a long containing the time interval.

### Example

```
ADO_Command(0)->GetCommandTimeout( pLong );
ADO_Command(0)->PutCommandTimeout( 250 );
```

## ADO\_Command(n)->GetCommandType

Retrieves the value contained in the CommandType property of the current instance of the Command object.

GetCommandType should always be combined with adCmdText or adCmdStoredProc, for example, adCmdText+adExecuteNoRecords. Note that using adExecuteNoRecords with the Open method or a Command object used by that method returns an error.

### Syntax

```
ADO_Command(n)->GetCommandType( long* plCommandType );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
plCommandType	Pointer to a long containing a command type Enum.

### Example

```
ADO_Command(0)->PutCommandTimeout( 30 );
ADO_Command(0)->GetCommandType( pLong );
ADO_Command(0)->PutCommandType( adCmdStoredProc );
```

## ADO\_Command(n)->GetDialect

Retrieves the value contained within the Dialect property of this instance of the ADO Command object.

The Dialect property contains a valid GUID (Globally Unique Identifier) that represents the dialect of the command text or stream. The default value for this property is {C8B521FB-5CF3-11CE-ADE5-00AA0044773D}, indicating that the provider should choose how to interpret the command text or stream.

### Syntax

```
ADO_Command(n)->GetDialect( CLoadString sDialect );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
sDialect	A CLoadString. Value of the Dialect property for this instance of the ADO Command.

### Example

```
ADO_Command(0)->PutName( "MyTest" );
ADO_Command(0)->GetName( sLoadStr );
ADO_Command(0)->PutDialect( "{C8B521FB-5CF3-11CE-ADE5-00AA0044773D}" );
ADO_Command(0)->GetDialect( sLoadStr );
ADO_Command(0)->PutCommandText( "Select * from test_table" );
ADO_Command(0)->GetCommandText( sLoadStr );
```

## ADO\_Command(n)->GetName

Allows the script to retrieve the value of the Name property for this instance of the ADO Command object.

### Syntax

```
ADO_Command(n)->GetName( CLoadString& sName );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
sName	A CLoadString. Value of the Name property for this instance of the ADO Command.

## Example

```

ADOConnect.Release( 0 );
ADO_Command(0)->PutName( "aTest" );
ADO_Command(0)->GetName( sLoadStr );
ADO_Command(0)->PutCommandText( "Select * from test_table" );
    
```

## ADO\_Command(n)->GetNamedParameters

Retrieves the NamedParameters property of the Command object.

When true, the Command object handles the parameters by name instead of by order. The method of retrieving parameters depends on the value of the NamedParameters property.

## Syntax

```

ADO_Command(n)->GetNamedParameters( VARIANT_BOOL* pnParameter );
    
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pnParameter	A short evaluating to either True (-1) or False (0).

## Example

```


ADO_Command(0)->PutCommandTimeout( 250 );
ADO_Command(0)->GetCommandTimeout( pLong );
ADO_Command(0)->PutCommandTimeout( 30 );
ADO_Command(0)->GetNamedParameters( pVTBOOL );
ADO_Command(0)->GetCommandType( pLong );
ADO_Command(0)->PutCommandType( adCmdStoredProc );
    
```



## ADO\_Command(n)->GetParameters

Retrieves provider parameter information for the stored procedure or parameterized query specified in the Command object.

A Command object has a collection of Parameters associated with it, holding zero or more Parameters within it. Using the Refresh method on a Command object's Parameters collection retrieves provider parameter information for the stored procedure or parameterized query specified in the Command object.

 **Note:** The n associated with the ADO\_Command object and that associated with the ADOConnect parameter reference different instances of different QALoad ADO replay objects.

### Syntax

```
ADO_Command(n)->GetParameters( CParameterSet* pParameterSet );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pParameterSet	An instance of the ADO ParameterSet object. This instance is being created and filled as a result of this call.

### Example

```
ADO_Command(0)->PutRefActiveConnection( ADOConnect[0] );
ADO_Command(0)->PutCommandType( adCmdStoredProc );
ADO_Command(0)->PutCommandText( "op_Getparamvb6" );
BeginCheckpoint("ADOCommand::GetParameters");
ADO_Command(0)->GetParameters( ADOParameterSet[0] );
EndCheckpoint("ADOCommand::GetParameters");
```

## ADO\_Command(n)->GetPrepared

Retrieves the VARIANT\_BOOL value contained within the Prepared property of this instance of the ADO Command object.

A VARIANT\_BOOL is a short evaluating to either True (-1) or False (0). As a result, the provider saves a compiled version of the query specified in the CommandText property before a Command object's first execution. This might slow down the initial execution; however, performance improves in subsequent executions because the provider uses the compiled version of the command.

### Syntax

```
ADO_Command(n)->GetPrepared( short* pPrepared );
```

## Return Value

### Parameters

Parameter	Description
n	An index to an object.
pPrepared	Pointer to the VARIANT_BOOL value contained in the Prepared property of this instance of the ADO Command object.

### Example

```
ADOParameter.Release( 0 );
ADO_Command(0)->Cancel();
ADO_Command(0)->PutPrepared( -1 );
```

## ADO\_Command(n)->GetProperties

Retrieves the complete set of properties for this particular instance of the Command object.

PropertySets may change for different providers.

### Syntax

```
ADO_Command(n)->GetProperties( CAPropertySet* pPropertySet );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pPropertySet	Set of CAProperty objects. Each CAProperty object contains a single characteristic, a piece of data, which partially describes the state of a particular instance of an object.


### Example

```
ADO_LoadVariant( pvValue, "8", "test_number" );
ADO_Command(0)->GetItem( pvValue, ADOCommand[0] );
ADO_Command(0)->GetProperties( ADOPropertySet[0] );
ADOPropertySet.Release( 0 );
```

## ADO\_Command(n)->PutActiveConnection

Determines the Connection object affected by the specified Command object or ADO Recordset.

A call to LoadVariant must be made before each call to PutActiveConnection. This instance of LoadVariant takes ADO Connect information and loads that into a pointer to a variant.

 Note: The n associated with the ADO\_Command object and the n associated with the ADOConnect parameter reference different instances of different QALoad ADO replay objects.

### Syntax

```
ADO_Command(n)->PutActiveConnection( VARIANT* pvConnection );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvConnection	Pointer to a variant containing the ADO Connection Object.

### Example

```
ADO_Command(2)->PutCommandText( "sp_GetParameterSet" );
ADO_Command(2)->PutCommandType( adCmdStoredProc );
LoadVariant( pvValue, ADOConnect[0] );
ADO_Command(2)->PutActiveConnection( pvValue );
BeginCheckpoint("ADOCommand::GetParameters");
ADO_Command(2)->GetParameters( ADOParameterSet[0] );
EndCheckpoint("ADOCommand::GetParameters");
```

## ADO\_Command(n)->PutCommandText

Sets the value of the CommandText property for this instance of the ADO command object.

One method of setting up a command, for instance a SQL statement of some sort, would be by using PutCommandText.

### Syntax

```
ADO_Command(n)->PutCommandText( char* sText );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
sText	The ANSI value of the CommandText property.

## Example

```
ADO_Command(0)->PutRefActiveConnection( ADOConnect[0] );
ADO_Command(0)->PutCommandType( adCmdStoredProc );
ADO_Command(0)->PutCommandText( "Select * from test_table" );
BeginCheckpoint( "ADOCommand::GetParameters" );
ADO_Command(0)->GetParameters( ADOParameterSet[0] );
EndCheckpoint( "ADOCommand::GetParameters" );
```

## ADO\_Command(n)->PutCommandTimeout

Sets the value contained within the CommandTimeout property of this instance of the ADO Command object.

Use CommandTimeout on a Connection or Command object to allow an Execute method call to be cancelled for network or server delays. If the command does not execute before the time interval runs out, an error occurs and the command is cancelled. Set the property to zero to wait indefinitely.

## Syntax

```
ADO_Command(n)->PutCommandTimeout( long nCommandTimeout );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nCommandTimeout	Timeout value (a non-negative integer) to set for this instance of the ADO Command object.

## Example

```
ADO_Connect(0)->PutConnectionString( "DSN=My;UID=sa; PWD=" " ;" );
BeginCheckpoint("ADOConnect::Open");
ADO_Connect(0)->Open( "", "", "", -1 );
EndCheckpoint("ADOConnect::Open");
ADO_Command(0)->PutCommandTimeout( 200 );
```

## ADO\_Command(n)->PutCommandType

Sets the value for the CommandType property of the current instance of the Command object.

This is generally done using an enumerated type. In this case, the CommandTypeEnum would be used. Since all of the different enumerated types within ADO essentially boil down to longs, longs are accepted as the argument.

 **Caution:** Randomly introducing numbers into the script for this operation has unpredictable results.

PutCommandType should always be combined with adCmdText or adCmdStoredProc, for example, adCmdText+adExecuteNoRecords. Using adExecuteNoRecords with the Open method, or a Command object used by that method, results in an error.

### Syntax

```
ADO_Command(n)->PutCommandType ( ADOCommandTypeEnum adCmdText );
```

### Return Value

### Parameters

Parameter	Description																
n	An index to the object.																
adCmdText	<p><i>ADOCommandTypeEnum</i></p> <p>The enumerated datatype identifies the type of Command. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adCmdUnspecified</td> <td>Does not specify the command type argument</td> </tr> <tr> <td>adCmdUnknown</td> <td>Default. Indicates that the type of command in the CommandText property is not known</td> </tr> <tr> <td>adCmdText</td> <td>Evaluates CommandText as a textual definition of a command or stored procedure call</td> </tr> <tr> <td>adCmdTable</td> <td>Evaluates CommandText as a table name whose columns are all returned by an internally generated SQL query</td> </tr> <tr> <td>adCmdStoredProc</td> <td>Evaluates CommandText as a stored procedure name</td> </tr> <tr> <td>adCmdFile</td> <td>Evaluates CommandText as the file name of a persistently stored Recordset</td> </tr> <tr> <td>adCmdTableDirect</td> <td>Evaluates CommandText as a table name whose columns are all returned</td> </tr> </tbody> </table>	Value	Description	adCmdUnspecified	Does not specify the command type argument	adCmdUnknown	Default. Indicates that the type of command in the CommandText property is not known	adCmdText	Evaluates CommandText as a textual definition of a command or stored procedure call	adCmdTable	Evaluates CommandText as a table name whose columns are all returned by an internally generated SQL query	adCmdStoredProc	Evaluates CommandText as a stored procedure name	adCmdFile	Evaluates CommandText as the file name of a persistently stored Recordset	adCmdTableDirect	Evaluates CommandText as a table name whose columns are all returned
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adCmdFile	Evaluates CommandText as the file name of a persistently stored Recordset																
adCmdTableDirect	Evaluates CommandText as a table name whose columns are all returned																

## Example

```
ADO_Command(0)->PutCommandTimeout( 30 );
ADO_Command(0)->GetCommandType( pLong );
ADO_Command(0)->PutCommandType( adCmdStoredProc );
```

## ADO\_Command(n)->PutDialect

Sets the value of the Dialect property of this instance of the ADO Command object.

The Dialect property contains a valid GUID (Globally Unique Identifier) that represents the dialect of the command text or stream. The default value for this property is {C8B521FB-5CF3-11CE-ADE5-00AA0044773D}, which indicates that the provider should choose how to interpret the command text or stream.

When the Dialect property is set, ADO validates the GUID and raises an error if the value supplied is not a valid GUID. Refer to your provider documentation to determine the GUID values supported by the Dialect property.

## Syntax

```
ADO_Command(n)->PutDialect( char* sDialect );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sDialect	A unique identifier for a dialect.

## Example

```
ADO_Command(0)->PutName( "MyTest" );
ADO_Command(0)->GetName( sLoadStr );
ADO_Command(0)->PutDialect( "{C8B521FB-5CF3-11CE-ADE5-00AA0044773D}" );
ADO_Command(0)->GetDialect( sLoadStr );
ADO_Command(0)->PutCommandText( "Select * from test_table" );
ADO_Command(0)->GetCommandText( sLoadStr );
```

## ADO\_Command(n)->PutName

Enables the script to set the value of the Name property for this instance of the ADO Command object.

## Syntax

```
ADO_Command(n)->PutName( char* sName );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sName	Value of the Name property for this instance of the ADO Command object.

## Example

```
ADOConnect.Release( 0 );
ADO_Command(0)->PutName( "aTest" );
ADO_Command(0)->GetName( sLoadStr );
ADO_Command(0)->PutCommandText( "Select * from test_table" );
```

## ADO\_Command(n)->PutNamedParameters

Sets the value of the NamedParameters property of the command object.

When true, the Command object handles the parameters by name instead of by order. The method of retrieving parameters depends on the value of the NamedParameters property.

## Syntax

```
ADO_Command(n)->PutNamedParameters( short nParameter );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
short nParameter	A short evaluating to either True (-1) or False (0).

## Example

```
ADO_Command(0)->GetCommandTimeout( pLong );
ADO_Command(0)->PutCommandTimeout( 30 );
ADO_Command(0)->GetNamedParameters( pVTBOOL );
ADO_Command(0)->PutNamedParameters( 0 );
```

## ADO\_Command(n)->PutPrepared

The PutPrepared method call sets the VARIANT\_BOOL value contained within the Prepared property of this instance of the ADO Command object.

A VARIANT\_BOOL is a short evaluating to either True (-1) or False (0).

### Syntax

```
ADO_Command(n)->PutPrepared( short flag );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
flag	TRUE (-1) or FALSE (0).


### Example

```
ADOParameter.Release( 0 );
ADO_Command(0)->Cancel();
ADO_Command(0)->PutPrepared( -1 );
```

## ADO\_Command(n)->PutRefActiveConnection

Determines the ADO Connect object affected by the specified ADO Command object or ADO Recordset.

It also sets the pointer to the QALoad ADO Connect object for this instance of the actual ADO Command object.

 Note: The n associated with the ADO Command object and the n associated with the ADOConnect parameter reference different instances of different QALoad ADO replay objects.

### Syntax

```
ADO_Command(n)->PutRefActiveConnection( CACConnect* pADOConnect );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------



n	An index to the object.
pADOConnect	The connection object (ADO Connect).

### Example

```
ADO_Command(1)->PutRefActiveConnection( ADOConnect[0] );
ADO_Command(1)->PutCommandType( adCmdStoredProc );
ADO_Command(1)->PutCommandText( "op_Getparamvb6_Batch" );
BeginCheckpoint( "ADOCommand::GetParameters" );
ADO_Command(1)->GetParameters( ADOParameterSet[0] );
EndCheckpoint( "ADOCommand::GetParameters" );
```

## ADO\_Connect(n)->BeginTrans

Begins a new transaction.

If your provider supports nested transactions, you can call the BeginTrans method within an open transaction to start a new, nested transaction. The method returns the level of nesting: 1 indicates a top-level transaction, 2 indicates a second-level transaction, and so forth.

### Syntax

```
ADO_Connect(n)->BeginTrans( long* pTransactionLevel );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pTransactionLevel	Pointer to a long containing the level of nesting used on this transaction.

### Example

```
ADO_Connect(1)->BeginTrans( pLong );
BeginCheckpoint( "ADOConnect::Execute" );
ADO_Connect(1)->Execute( "DELETE FROM Temp WHERE HI =" 291667 ", pvValue, -1,
ADORecordset[7] );
EndCheckpoint( "ADOConnect::Execute" );
ADORecordset.Release( 7, ADOBM );
```

## ADO\_Connect(n)->Close

Closes a Connection object.

This method closes a Connection object and any active Recordset objects associated with the Connection. Any Command object associated with the Connection object still exists, but is no longer associated with a Connection object.

 Note: There is currently no provision to independently track the Recordsets or command associated with each different Connection object.

## Syntax

```
ADO_Connect(n)->Close();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Connect( 1 )->Close( );
ADOConnect.Release( 1 );
```

## ADO\_Connect(n)->CommitTrans

Save changes, ends the transaction. May start a new transaction.

Only affects the most recently opened transaction. Close or rollback a transaction to resolve higher-level transactions.

After you call the BeginTrans method, the provider no longer instantaneously commits changes you make until you call CommitTrans or RollbackTrans to end the transaction.

## Syntax

```
ADO_Connect(n)->CommitTrans();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```

ADO_Connect(1)->BeginTrans ( pLong );
ADO_Recordset(18)->GetState ( pLong );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(FIRSTNAME)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(15)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(LASTNAME)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(11)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(ADDRESS)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(12)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_Recordset(27)->Close();
ADORecordset.Release( 27, ADOBM );
ADO_LoadVariant( pvSource, "8", "select max(lsystemID) from CITY" );'
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(13)->Open( pvSource, pvValue, adOpenForwardOnly, adLockReadOnly, -1 );
ADORecordset.Release( 13, ADOBM );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724" );
ADO_Recordset(19)->Update( pvValue, pvData );
ADO_Connect(1)->CommitTrans();

```

## ADO\_Connect(n)->Execute

Executes the query passed in the CommandText argument on the connection to the method.

If a row-returning query is specified, results are stored in a new ADO Recordset object. If a row-returning query is not specified, a closed ADO Recordset object is returned.

## Syntax

```

ADO_Connect->Execute( char* sCommand, VARIANT* pvRecsAffected, long options, CARecordSet*
pADORecordSet );

```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sCommand	An ANSI representation of the command string.
pvRecsAffected	A pointer to the variant returning the number of records affected by this call.
options	The options used to make this call run.
pADORecordSet	The QALoad object containing the new recordset created by this call. The Recordset that is returned is returned inside of the identified ADORecordset(#) object.

## Example

```
BeginCheckpoint("ADOConnect::Execute");
ADO_Connect->Execute( "Command", pvValue, #, ADORecordset(#) );
EndCheckpoint("ADOConnect::Execute");
ADORecordset.Release( 0, ADOBM );
```

## ADO\_Connect(n)->GetAttributes

GetAttributes is read/write. It's value is the sum of one or more XactAttributeEnum values. The default is zero (0).

### Syntax

```
ADO_Connect(n)->GetAttributes( long* pAttributes );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pAttributes	A pointer to a long.

### Example

```
ADO_Connect(0)->GetAttributes( pLong );
ADO_Connect(0)->PutAttributes( 262144 );
ADO_Connect(0)->PutAttributes( 393216 );
ADO_Connect(0)->GetAttributes( pLong );
```

## ADO\_Connect(n)->GetCommandTimeout

Returns the value of the timeout in a pointer to a long.

Use GetCommandTimeout on a Connection object or Command object to allow an Execute method call to be cancelled for network or server delays. If the command does not excute before the time interval runs out, an error occurs and the command is cancelled. Set the property to zero to wait indefinitely.

### Syntax

```
ADO_Connect(n)->GetCommandTimeout( long* pCommandTimeout );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pCommandTimeout	A pointer to a long.

## Example

```
ADO_Connect(0)->PutCommandTimeout( 15 );
ADO_Connect(0)->GetCommandTimeout( pLong );
ADO_Connect(0)->GetConnectionTimeout( pLong );
ADO_Connect(0)->PutConnectionTimeout( 250 );
```

## ADO\_Connect(n)->GetConnectionString

GetConnectionString method retrieves the value of ConnectionString property of this instance of the ADO Connect object.

The ConnectionString specifies a data source by passing argument=value statements. These are separated by semi-colons.

## Syntax

```
ADO_Connect(n)->GetConnectionString( CLoadString& sConnectionString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sConnectionString	This CLoadString retrieves the value of the ConnectionString property for this instance of ADO Connection.


## Example

```
ADO_Connect(0)->GetAttributes( pLong );
ADO_Connect(0)->PutAttributes( 0 );
ADO_Connect(0)->GetConnectionString( sLoadStr );
ADO_Connect(0)->PutConnectionString( "DSN=LoadTestBox;UID=SA;PWRD=H" );
```

## ADO\_Connect(n)->GetConnectionTimeout

Use GetConnectionTimeout on a Connection object to cancel a connection attempt, if necessary, due to network or server delays.

If the time interval specified in the Connection Timeout property setting runs out before a connection can be opened, an error occurs and the attempt to connect is cancelled. Set the property to zero to wait indefinitely.

 Note: Before using GetConnection Timeout, ensure that your provider supports ADO's ConnectionTimeout functionality.

### Syntax

```
ADO_Connect(n)->GetConnectionTimeout( long* pConnectTimeout );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pConnectTimeout	A pointer to a long returning the value in seconds of the connection timeout property of this ADOConnection object.

### Example

```
ADO_Connect(0)->PutCommandTimeout( 15 );
ADO_Connect(0)->GetCommandTimeout( pLong );
ADO_Connect(0)->GetConnectionTimeout( pLong );
ADO_Connect(0)->PutConnectionTimeout( 250 );
```

## ADO\_Connect(n)->GetCursorLocation

Enables selection of a cursor library from those accessible to the provider.

You can usually choose to use a client-side or server-side location. This setting only affects those connections made after setting the property. It has no effect on existing connections.

### Syntax

```
ADO_Connect(n)->GetCursorLocation( long* pCursorLocation );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pCursorLocation	A pointer to a long's representation of the CursorLocationEnum returned by the call. This is then sent back to the script for the user.

## Example

```
ADO_Connect(0)->GetCursorLocation( pLong );
ADO_Connect(0)->PutCursorLocation( adUseServer );
ADO_Connect(0)->GetCommandTimeout( pLong );
```

## ADO\_Connect(n)->GetDefaultDatabase

Retrieves the value of the DefaultDatabase property from this instance of the ADO Connect object.

## Syntax

```
ADO_Connect(n)->GetDefaultDatabase( CLoadString& sDBString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sDBString	The CLoadString that returns the DefaultDatabase information to the script.

## Example

```
ADO_Connect(0)->Open( "PROVIDER=MSDASQL;dsn=FhLoadDB2;uid=sa; pwd="" ;database=Master;" , "" ,
"" , -1 );
ADO_Connect(0)->GetDefaultDatabase( sLoadStr );
ADO_Connect(0)->PutDefaultDatabase( "pubs" );
```

## ADO\_Connect(n)-> GetIsolationLevel

Sets a Connection object's isolation level. Takes effect the next time the BeginTrans method is called.

## Syntax

```
ADO_Connect(n)-> GetIsolationLevel( pLong );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
long* pIsolationLevel	A pointer to a long returning the value of the isolation level property of this instance of the ADO Connection object.

### Example

```
ADO_Connect(0)->GetIsolationLevel( pLong );
ADO_Connect(0)->PutIsolationLevel( adXactSerializable );
```

## ADO\_Connect(n)->GetMode

Sets or returns access permissions for the current connection.

The GetMode property can only be set after the Connection object is closed.

### Syntax

```
ADO_Connect(n)->GetMode( long* pMode );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pMode	Retrieves the ConnectionModeEnum from the call and converts that to a long* to be returned to the script.

### Example

```
ADO_Connect(0)->PutIsolationLevel( adXactReadCommitted );
ADO_Connect(0)->GetMode( pLong );
ADO_Connect(0)->PutMode( (ConnectModeEnum)12 );
ADO_Connect(0)->GetProvider( sLoadStr6 );
```

## ADO\_Connect(n)->GetProvider

Returns the provider name for a connection.



You can also set this property using the contents of the Open method's ConnectionString property or argument. Note that you may get unwanted results if you specify a provider in more than one place while using the Open method. If a provider is not specified, this property defaults to MSDASQL.

When the connection is closed, GetProvider is read/write. When the connection is open, GetProvider is read-only. Before the setting can take effect, you must open the Connection object or access the Connection object's Properties collection. An invalid setting results in an error.

## Syntax

```
ADO_Connect(n)->GetProvider( CLoadString& sProvider );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sProvider	This CLoadString holds the Provider information returned by this call.

## Example

```
ADO_Connect(0)->PutIsolationLevel( adXactReadCommitted );
ADO_Connect(0)->GetMode( pLong );
ADO_Connect(0)->PutMode( (ConnectModeEnum)12 );
ADO_Connect(0)->GetProvider( sLoadStr );
```

## ADO\_Connect(n)->GetState

Determines the state of a specified object at any time.

This property can have a combination of values.

## Syntax

```
ADO_Connect(n)->GetState( long* pState );
```

## Return Value

0 for closed

1 for open

## Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
pState	A pointer to a long holding the state information (0 or 1).

### Example

```
ADO_Connect(0)->PutProvider( "MSDASQL" );
ADO_Connect(0)->GetState( pLong );
ADO_Connect(0)->GetVersion( sLoadStr );
```

## ADO\_Connect(n)->GetVersion

Returns the version of ADO that is being used.

The version is available as a dynamic property in the Properties collection.

### Syntax

```
ADO_Connect(n)->GetVersion( CLoadString& sVersion );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the pointer.
sVersion	The CLoadString string that returns version to the script.

### Example

```
ADO_Connect(0)->PutProvider( "MSDASQL" );
ADO_Connect(0)->GetState( pLong );
ADO_Connect(0)->GetVersion( sLoadStr );
```

## ADO\_Connect(n)->Open

Establishes the connection to the data source.

When successful, it creates a live connection against which you can issue commands.

### Syntax

```
ADO_Connect(n)->Open( char* sConnectionString, char* sUser, char* sPassword,
ADOConnectOptionEnum option );
```

## Return Value

## Parameters

Parameter	Description						
n	An index to the object.						
sConnectionString	The ConnectionString property automatically inherits the value used for the ConnectionString argument. Therefore, you can either set the ConnectionString property of the Connection object before opening it, or use the ConnectionString argument to set or override the current connection parameters during the Open method call.						
sUser	The UserID and Password arguments will override the values specified in ConnectionString.						
sPassword	See the User parameter.						
option	<p><i>ADODConnectOptionEnum</i></p> <p>A ConnectOptionEnum value that determines whether this method should return after (synchronously) or before (asynchronously) the connection is established. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adConnectUnspecified</td> <td>Unspecified connection option</td> </tr> <tr> <td>adAsyncConnect</td> <td>Asynchronous connect option</td> </tr> </tbody> </table>	Value	Description	adConnectUnspecified	Unspecified connection option	adAsyncConnect	Asynchronous connect option
Value	Description						
adConnectUnspecified	Unspecified connection option						
adAsyncConnect	Asynchronous connect option						

## Example

```
ADO_Connect(1)->PutConnectionString( "DSN=My;UID=sa; PWD="" ;" );
BeginCheckpoint("ADODConnect::Open");
ADO_Connect(1)->Open( "", "", "", -1 );
EndCheckpoint("ADODConnect::Open");
ADO_Connect(1)->PutCommandTimeout( 200 );
```

## ADO\_Connect(n)->OpenSchema

Returns information about the data source. For example, tables, columns included in the tables, and data types.

## Syntax

```
ADO_Connect(n)->OpenSchema( ADOSchemaEnum schema, VARIANT* pvRestrictions, VARIANT*
pvSchemaID, CARecordSet* pADODRecordset );
```

## Return Value


### Parameters

Parameter	Description																				
n	An index to the object.																				
schema	<p><i>ADOSchemaEnum</i> SchemaEnum describing the type of schema query to run. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adSchemaAsserts</td> <td>Returns the assertions defined in the catalog that are owned by a given user</td> </tr> <tr> <td>adSchemaCatalogs</td> <td>Returns the physical attributes associated with catalogs accessible from the DBMS</td> </tr> <tr> <td>adSchemaCharacterSets</td> <td>Returns the character sets defined in the catalog that are accessible to a given user</td> </tr> <tr> <td>adSchemaCheckConstraints</td> <td>Returns the check constraints defined in the catalog that are owned by a given user</td> </tr> <tr> <td>adSchemaCollations</td> <td>Returns the character collations defined in the catalog that are accessible to a given user</td> </tr> <tr> <td>adSchemaColumnPrivileges</td> <td>Returns the privileges on columns of tables defined in the catalog that are available to, or granted by, a given user</td> </tr> <tr> <td>adSchemaColumns</td> <td>Returns the columns of tables (including views) defined in the catalog that are accessible to a given user</td> </tr> <tr> <td>adSchemaColumnsDomainUsage</td> <td>Returns the columns defined in the catalog that are dependent on a domain defined in the catalog and owned by a given user</td> </tr> <tr> <td>adSchemaConstraintColumnUsage</td> <td>Returns the columns used by referential constraints, unique constraints, check constraints, and assertions, defined in the catalog and owned by a given user</td> </tr> </tbody> </table>	Value	Description	adSchemaAsserts	Returns the assertions defined in the catalog that are owned by a given user	adSchemaCatalogs	Returns the physical attributes associated with catalogs accessible from the DBMS	adSchemaCharacterSets	Returns the character sets defined in the catalog that are accessible to a given user	adSchemaCheckConstraints	Returns the check constraints defined in the catalog that are owned by a given user	adSchemaCollations	Returns the character collations defined in the catalog that are accessible to a given user	adSchemaColumnPrivileges	Returns the privileges on columns of tables defined in the catalog that are available to, or granted by, a given user	adSchemaColumns	Returns the columns of tables (including views) defined in the catalog that are accessible to a given user	adSchemaColumnsDomainUsage	Returns the columns defined in the catalog that are dependent on a domain defined in the catalog and owned by a given user	adSchemaConstraintColumnUsage	Returns the columns used by referential constraints, unique constraints, check constraints, and assertions, defined in the catalog and owned by a given user
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adSchemaConstraintColumnUsage	Returns the columns used by referential constraints, unique constraints, check constraints, and assertions, defined in the catalog and owned by a given user																				

<code>adSchemaConstraintTableUsage</code>	Returns the tables that are used by referential constraints, unique constraints, check constraints, and assertions defined in the catalog and owned by a given user
<code>adSchemaCubes</code>	Returns information about the available cubes in a schema (or the catalog, if the provider does not support schemas)
<code>adSchemaDBInfoKeywords</code>	Returns a list of provider-specific keywords
<code>adSchemaDBInfoLiterals</code>	Returns a list of provider-specific literals used in text commands
<code>adSchemaDimensions</code>	Returns information about the dimensions in a given cube. It has one row for each dimension
<code>adSchemaForeignKeys</code>	Returns the foreign key columns defined in the catalog by a given user
<code>adSchemaHierarchies</code>	Returns information about the hierarchies available in a dimension
<code>adSchemaIndexes</code>	Returns the indexes defined in the catalog that are owned by a given user
<code>adSchemaKeyColumnUsage</code>	Returns the columns defined in the catalog that are constrained as keys by a given user
<code>adSchemaLevels</code>	Returns information about the levels available in a dimension
<code>adSchemaMeasures</code>	Returns information about the available measures
<code>adSchemaMembers</code>	Returns information about the available members
<code>adSchemaPrimaryKeys</code>	Returns the primary key columns defined in the catalog by a given user
<code>adSchemaProcedureColumns</code>	Returns information about the columns of rowsets returned by procedures
<code>adSchemaProcedureParameters</code>	Returns information about the parameters and return codes of procedures
<code>adSchemaProcedures</code>	Returns the procedures defined in the catalog that are owned by a given user

<code>adSchemaProperties</code>	Returns information about the available properties for each level of the dimension
<code>adSchemaProviderSpecific</code>	Used if the provider defines its own nonstandard schema queries
<code>adSchemaProviderTypes</code>	Returns the (base) data types supported by the data provider
<code>adSchemaReferentialConstraints</code>	Returns the referential constraints defined in the catalog that are owned by a given user
<code>adSchemaSchemata</code>	Returns the schemas (database objects) that are owned by a given user
<code>adSchemaSQLLanguages</code>	Returns the conformance levels, options, and dialects supported by the SQL-implementation processing data defined in the catalog
<code>adSchemaStatistics</code>	Returns the statistics defined in the catalog that are owned by a given user
<code>adSchemaTableConstraints</code>	Returns the table constraints defined in the catalog that are owned by a given user
<code>adSchemaTablePrivileges</code>	Returns the privileges on tables defined in the catalog that are available to, or granted by, a given user
<code>adSchemaTables</code>	Returns the tables (including views) defined in the catalog that are accessible to a given user
<code>adSchemaTranslations</code>	Returns the character translations defined in the catalog that are accessible to a given user
<code>adSchemaTrustees</code>	Reserved for future use
<code>adSchemaUsagePrivileges</code>	Returns the USAGE privileges on objects defined in the catalog that are available to, or granted by, a given user
<code>adSchemaViewColumnUsage</code>	Returns the columns on which viewed tables, defined in the catalog and owned by a given user, are dependent
<code>adSchemaViews</code>	Returns the views defined in the catalog that are accessible to a given user
<code>adSchemaViewTableUsage</code>	Returns the tables on which viewed

	tables, defined in the catalog and owned by a given user, are dependent
pvRestrictions	An array of query constraints for each QueryType option, as listed in SchemaEnum.
pvSchemaID	This parameter is required if QueryType is set to adSchemaProviderSpecific; otherwise, it is not used.
pADOREcordset	The recordset composing the result set.

 Note: The Accompanying ADO\_LoadVariant calls are made to set the proper values for the VARIANTS pvValue and pvData. They are included automatically by QALoad 's conversion process.

## ADO\_Connect(n)->PutAttributes

Sets the transaction attribute for this connection object.

The number represented by the string in the call is used by ADO during the call.

### Syntax

```
ADO_Connect(n)->PutAttributes( long attribute );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
attribute	The sum of one or more XactAttributeEnum values. The default is 0. This property is read/write.

### Example

```
ADO_Connect(0)->GetAttributes( pLong );
ADO_Connect(0)->PutAttributes((XactAttributeEnum) 262144 );
ADO_Connect(0)->GetAttributes( pLong );
```

## ADO\_Connect(n)->PutCommandTimeout

PutCommandTimeout Sends a timeout in seconds before the command will timeout with an error.

Use PutCommandTimeout on a Connection object or Command object to allow an Execute method call to be cancelled due to network or server delays. If the command does not execute before the time interval runs out, an error occurs and the command is cancelled. Set the property to zero to wait indefinitely.

## Syntax

```
ADO_Connect(n)->PutCommandTimeout( long seconds );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
seconds	The number of seconds before an exception is generated by the command overrunning the timeout.

## Example

```
ADO_Connect(0)->PutCommandTimeout( 15 );
ADO_Connect(0)->GetCommandTimeout( pLong );
ADO_Connect(0)->GetConnectionTimeout( pLong );
ADO_Connect(0)->PutConnectionTimeout( 250 );
```

## ADO\_Connect(n)->PutConnectionString

Specifies a data source.

PutConnectionString passes detailed connection strings that include argument=value statements. Use semicolons to separate the argument=value statements.

## Syntax

```
ADO_Connect(n)->PutConnectionString( CLoadString& sConnectionString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sConnectionString	This ANSI string sets the value of the ConnectionString property for this instance of ADO Connection.




## Example

```
ADO_Connect(0)->GetAttributes( pLong );
ADO_Connect(0)->PutAttributes( 0 );
ADO_Connect(0)->GetConnectionString( sLoadStr );
ADO_Connect(0)->PutConnectionString( "DSN=LoadTestBox;UID=SA;PWD=H" );
```

## ADO\_Connect(n)->PutConnectionTimeout

Use PutConnectionTimeout on a Connection object to abandon an attempt to connect due to network or server delays.

If a connection is not made in the specified time, an error occurs and the attempt to connect is cancelled. Set the property to zero to wait indefinitely.

 **Note:** Before using PutConnection Timeout, ensure that your provider supports ADO's ConnectionTimeout functionality.

## Syntax

```
ADO_Connect(n)->PutConnectionTimeout( long seconds );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
seconds	The number of seconds to attempt a connection to the provider.

## Example

```
ADO_Connect(0)->PutCommandTimeout( 15 );
ADO_Connect(0)->GetCommandTimeout( pLong );
ADO_Connect(0)->GetConnectionTimeout( pLong );
ADO_Connect(0)->PutConnectionTimeout( 250 );
```

## ADO\_Connect(n)->PutCursorLocation

Lets you choose a cursor library from those accessible to the provider.

You can usually choose to use a client-side or server-side library. This setting only affects those connections made after setting the property. It has no effect on existing connections.

## Syntax

```
ADO_Connect(n)->PutCursorLocation( ADOCursorLocationEnum nCursorLoc );
```

## Return Value

## Parameters

Parameter	Description										
n	An index to the object.										
nCursorLoc	<p><i>ADOCursorLocationEnum</i></p> <p>A String representation of a CursorLocationEnum value. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adUseNone</td> <td>No specified cursor location</td> </tr> <tr> <td>adUseServer</td> <td>Server-side cursor</td> </tr> <tr> <td>adUseClient</td> <td>Client-side cursor</td> </tr> <tr> <td>adUseClientBatch</td> <td>Batch client-side cursor</td> </tr> </tbody> </table>	Value	Description	adUseNone	No specified cursor location	adUseServer	Server-side cursor	adUseClient	Client-side cursor	adUseClientBatch	Batch client-side cursor
Value	Description										
adUseNone	No specified cursor location										
adUseServer	Server-side cursor										
adUseClient	Client-side cursor										
adUseClientBatch	Batch client-side cursor										

## Example

```
ADO_Connect(0)->GetCursorLocation( pLong );
ADO_Connect(0)->PutCursorLocation( adUseServer );
ADO_Connect(0)->GetCommandTimeout( pLong );
```

## ADO\_Connect(n)->PutDefaultDatabase

Sets the default database within a connection object.

Access objects in a database other than the one specified in the DefaultDatabase property by qualifying object names with the desired database name. Upon connection, the provider writes default database information to the DefaultDatabase property.

## Syntax

```
ADO_Connect(n)->PutDefaultDatabase( char* sDBString );
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
sDBString	The name of the default database to set within the connection object.

## Example

```
ADO_Connect(0)->Open("PROVIDER=MSDASQL;dsn=FhLoadDB2;uid=sa;
                    pwd="";database=Master;", "", "", -1 );
ADO_Connect(0)->GetDefaultDatabase( sLoadStr );
ADO_Connect(0)->PutDefaultDatabase("pubs" );
```

## ADO\_Connect(n)->PutIsolationLevel

Sets the isolation level of a Connection object. The isolation level takes effect the next time you call BeginTrans.

The isolation level that is part of this call is represented as a string. This string representation translates into a number that is used by ADO internally.

## Syntax

```
ADO_Connect(n)->PutIsolationLevel( ADOIsolationLevelEnum nIsoLevel );
```

## Return Value

## Parameters

Parameter	Description														
n	An index to the object.														
nIsoLevel	<p><i>ADOIsolationLevelEnum</i></p> <p>The isolation level, either in numeric format or in the adXactSerializable format. Possible values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adXactUnspecified</td> <td>Unspecified isolation level</td> </tr> <tr> <td>adXactChaos</td> <td>No isolation level</td> </tr> <tr> <td>adXactReadUncommitted</td> <td>Read uncommitted isolation level</td> </tr> <tr> <td>adXactBrowse</td> <td>Browse isolation level</td> </tr> <tr> <td>adXactCursorStability</td> <td>Cursor stability isolation level</td> </tr> <tr> <td>adXactReadCommitted</td> <td>Read committed isolation level</td> </tr> </tbody> </table>	Value	Description	adXactUnspecified	Unspecified isolation level	adXactChaos	No isolation level	adXactReadUncommitted	Read uncommitted isolation level	adXactBrowse	Browse isolation level	adXactCursorStability	Cursor stability isolation level	adXactReadCommitted	Read committed isolation level
Value	Description														
adXactUnspecified	Unspecified isolation level														
adXactChaos	No isolation level														
adXactReadUncommitted	Read uncommitted isolation level														
adXactBrowse	Browse isolation level														
adXactCursorStability	Cursor stability isolation level														
adXactReadCommitted	Read committed isolation level														

	adXactRepeatableRead	Repeatable read isolation level
	adXactSerializable	Serializable isolation level
	adXactIsolated	Isolated

### Example

```
ADO_Connect(0)->GetIsolationLevel( pLong );
ADO_Connect(0)->PutIsolationLevel( adXactSerializable );
```

## ADO\_Connect(n)->PutMode

Sets the access permissions being used on the current connection.

 Note: This property can only be set when the Connection object is closed.

### Syntax

```
ADO_Connect(n)->PutMode( ADOConnectModeEnum nConnectMode );
```

### Return Value

### Parameters

Parameter	Description																
n	An index to the object.																
nConnectMode	<p><i>ADOConnectModeEnum</i></p> <p>Sets the ConnectModeEnum property for this instance of the ADO Connect object. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adModeUnknown</td> <td>Unknown connection mode</td> </tr> <tr> <td>adModeRead</td> <td>Read-only mode</td> </tr> <tr> <td>adModeWrite</td> <td>Write-only mode</td> </tr> <tr> <td>adModeReadWrite</td> <td>Read-write mode</td> </tr> <tr> <td>adModeShareDenyRead</td> <td>Exclusive read mode</td> </tr> <tr> <td>adModeShareDenyWrite</td> <td>Exclusive write mode</td> </tr> <tr> <td>adModeShareExclusive</td> <td>Exclusive read-write mode</td> </tr> </tbody> </table>	Value	Description	adModeUnknown	Unknown connection mode	adModeRead	Read-only mode	adModeWrite	Write-only mode	adModeReadWrite	Read-write mode	adModeShareDenyRead	Exclusive read mode	adModeShareDenyWrite	Exclusive write mode	adModeShareExclusive	Exclusive read-write mode
Value	Description																
adModeUnknown	Unknown connection mode																
adModeRead	Read-only mode																
adModeWrite	Write-only mode																
adModeReadWrite	Read-write mode																
adModeShareDenyRead	Exclusive read mode																
adModeShareDenyWrite	Exclusive write mode																
adModeShareExclusive	Exclusive read-write mode																

	<code>adModeShareDenyNone</code>	Non-exclusive mode
	<code>adModeRecursive</code>	Recursive mode

## Example

```
ADO_Connect(0)->PutIsolationLevel( adXactReadCommitted );
ADO_Connect(0)->GetMode( pLong );
ADO_Connect(0)->PutMode( (ConnectModeEnum)12 );
ADO_Connect(0)->GetProvider( sLoadStr6 );
```

## ADO\_Connect(n)->PutProvider

Sets the provider name for a connection.

You can also set this property using the contents of the Open method's `ConnectionString` property or argument. Note that you may get unwanted results if you specify a provider in more than one place while using the Open method. If a provider is not specified, this property defaults to `MSDASQL`.

When the connection is closed, `PutProvider` is read/write. When the connection is open, `PutProvider` is read only. Before the setting can take effect, you must open the Connection object or access the Connection object's `Properties` collection. An invalid setting results in an error.

## Syntax

```
ADO_Connect(n)->PutProvider( char* sProviderString );
```

## Return Value

## Parameters

Parameter	Description
<code>n</code>	An index to the object.
<code>sProviderString</code>	The name of the provider being used to access data.

## Example

```
ADO_Connect(0)->PutIsolationLevel( adXactReadCommitted );
ADO_Connect(0)->GetMode( pLong );
ADO_Connect(0)->PutMode( (ConnectModeEnum)12 );
ADO_Connect(0)->PutProvider( "MSDASQL" );
```

## ADO\_Connect(n)->RollbackTrans

Reverses changes made in an open transaction and ends the transaction.

This is linked with `BeginTrans`. This is seen only in the script if a transaction fails for some reason. If it fails and you see this call, look over the script logic and see if the transaction can be committed.

## Syntax

```
ADO_Connect(n)->RollbackTrans();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Connect(1)->BeginTrans( pLong );
ADO_Recordset(18)->GetState( pLong );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(FIRSTNAME)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(15)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(LASTNAME)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(11)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_LoadVariant( pvSource, "8", "SELECT rtrim(ADDRESS)" );
ADO_LoadVariant( pvValue, "", "", "" );
ADO_Recordset(12)->Open( pvSource, pvValue, adOpenForwardOnly, 0, 0 );
ADO_Recordset(27)->Close();
ADORecordset.Release( 27, ADOBM );
ADO_LoadVariant( pvSource, "8", "select max(1systemID) from CITY" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(13)->Open( pvSource, pvValue, adOpenForwardOnly, adLockReadOnly, -1 );
ADORecordset.Release( 13, ADOBM );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724" );
ADO_Recordset(19)->Update( pvValue, pvData );
ADO_Connect(1)->Rollback();
```

## ADO\_Field(n)->AppendChunk

Special data handling method that writes data in chunks to the Field object.

This is especially useful when memory is limited, since you can use this method to manipulate long values in manageable chunks. It may take numerous calls to AppendChunk to completely write the data to the appropriate field object. When writing data values using ADO, the datatype being used as the parameter with the data value is often a VARIANT datatype.

The first call to AppendChunk writes data to the field and overwrites any existing data. Subsequent calls add to the data. Note that if you append data to one field, then manipulate another field in the same record, ADO assumes you are finished with the first field. If you then attempt to append data to the first field, the existing data is overwritten.

The AppendChunk call is preceded immediately in the script by a call to ADO\_LoadVariant.

You can use the AppendChunk method in the Attributes property of a Field object if the adFldLong bit in the Attributes property is set to true.

## Syntax

```
ADO_Field(n)->AppendChunk( VARIANT* pvValue )
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvValue	This pointer to a variant contains a chunk of data to be written to the field object.

## Example

```
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "SUSERRESUME" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "8", "Roger Smith\n2114 Edgemere Court\nGrosse Pointe" ",
    MI 48263\n\n\nObjective:\n\n\nA job controlling the Universe"
    "which I can do from the comfort of my own home." );
ADO_Field(0)->AppendChunk( pvValue );
ADO_LoadVariant( pvValue, "8", "\n\nExperience:\n\nCEO for General Motors during"
    "the Reagan administration. CEO for General Electric during"
    "the Carter Administration .. \n" );
ADO_Field(0)->AppendChunk( pvValue ); /* Type: 8 - VT_BSTR Data: admin */
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724");
ADO_Recordset(18)->Update( pvValue, pvData );
```

## ADO\_Field(n)->GetActualSize

Retrieves the value contained within the `ActualSize` property of this instance of the ADO Field object.

`GetActualSize` returns a Long value. If your provider allows this property to reserve space for BLOB data, the default is zero.

`GetActualSize` is read-only. If ADO fails to identify the length of the object's value, this property returns `adUnknown`.

## Syntax

```
ADO_Field(n)->GetActualSize( long* pActualSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pActualSize	A pointer to a long, which contains the value of the ActualSize property of this instance of the ADO Field Object.

## Example

```
ADO_Field(3)->GetUnderlyingValue( pvValue );
ADO_Field(3)->GetName( sLoadStr );
ADO_Field(3)->GetActualSize( pLong );
```

## ADO\_Field(n)->GetAttributes

Retrieves the value contained within the Attributes property of this instance of the ADO Field object.

The Attributes property can be the sum of one or more FieldAttributeEnum values, and it is normally read-only. It is read/write if all of the following conditions are met:

- ! it is a new Field object
- ! it has been appended to the Fields collection of a Record
- ! the Value property for the Field has been specified
- ! the new Field has been added by the data provider (using the Fields collection's Update method)

## Syntax

```
ADO_Field(n)->GetAttributes( long* pAttributes );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pAttributes	A pointer to a long, which contains the value of the Attributes property of this instance of the ADO Field Object.

## Example

```
ADO_Field(1)->PutAttributes( 32 );
ADO_Field(1)->GetAttributes( pLong );
ADO_Field(1)->GetDefinedSize( pLong );
ADO_Field(1)->PutDefinedSize( 100 );
ADO_Field(1)->GetDefinedSize( pLong );
```



## ADO\_Field(n)->GetChunk

Retrieves chunks of binary or character data to an appropriate buffer.

This is a special function that may have to be called several times in order to properly handle the data being returned from the field object. Used on a Field object, this method returns all or part of the object's long binary or character data. Use this method to manipulate long values in manageable chunks of data.

Since the data is being returned from this call, the ADO\_LoadVariant is not called. The returned data is assigned to a variable. If the variable size is greater than the remaining data, only the data is returned. The variable is not padded with empty spaces. An empty field returns a null value.

If more than one call to GetChunk is necessary, each subsequent call starts retrieving data from the point where the previous call stopped. Note that if you retrieve data from one field and then manipulate another field, ADO assumes you are finished with the first field.

### Syntax

```
ADO_Field(n)->GetChunk( long nLength, VARIANT* pDataReturned );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nLength	Length of the chunk of data being retrieved.
pDataReturned	Pointer to the variant holding the chunk of retrieved data.

### Example

```
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "SUSERRESUME" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_Field(0)->GetChunk( 100, pvValue );
ADO_Field(0)->GetChunk( 100, pvValue );
```

## ADO\_Field(n)->GetDataFormat

Retrieves an IUnknown instance describing the data format for this field.

### Syntax

```
ADO_Field(n)->GetDataFormat( &IUnknown pDataFormat );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pDataFormat	Pointer to an IUnknown interface.

## Example

```
ADO_Field(1)->GetDataFormat( &pIUnknown );
ADO_Field(1)->GetAttributes( pLong );
ADO_Field(1)->GetDefinedSize( pLong );
```

## ADO\_Field(n)->GetDefinedSize

Retrieves the value contained within the DefinedSize property of this instance of the ADO Field object. Used to determine the data capacity of a Field object.

## Syntax

```
ADO_Field(n)->GetDefinedSize( long* pDefinedSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pDefinedSize	A pointer to a long with the value of the DefinedSize property of this Instance of the ADO Field object.

## Example

```
ADO_Field(1)->GetDataFormat( pIUnknown );
ADO_Field(1)->GetAttributes( pLong );
ADO_Field(1)->GetDefinedSize( pLong );
ADO_Field(1)->PutDefinedSize( 4 );
```

## ADO\_Field(n)->GetName

Retrieves the value contained within the Name property of this instance of the ADO Field object.

Note that the actual ADO call has a BSTR as the argument, so there is some data conversion occurring within this call. GetName is normally read-only. It is read/write if all of the following conditions are met:

- ! It is a new Field object
- ! The new Field object has been appended to the Fields collection of a Record

- ! The Value property for the Field has been specified
- ! The data provider has added the new Field (using the Fields collection's Update method)

## Syntax

```
ADO_Field(n)->GetName( CLoadString& sName );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sName	Value of the Name property for this ADO Field Object.

## Example

```
ADO_Field(3)->GetUnderlyingValue( pvValue );
ADO_Field(3)->GetName( sLoadStr );
ADO_Field(3)->GetActualSize( pLong );
```

## ADO\_Field(n)->GetNumericScale

Retrieves the value contained within the NumericScale property of this instance of the ADO Field object.

GetNumericScale sets or returns a byte value indicating the number of decimal places to which numeric values are resolved. GetNumericScale is normally read-only. It is read/write if all of the following conditions are met:

- ! it is on a new Field object
- ! the new Field object has been appended to the Fields collection of a Record
- ! the Value property for the Field has been specified
- ! the data provider has added the new Field (using the Fields collection's Update method)

## Syntax

```
ADO_Field(n)->GetNumericScale( unsigned char* sChar );
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
sChar	Pointer to an unsigned character

### Example

```
ADO_Field(1)->PutDefinedSize( 4 );
ADO_Field(2)->GetNumericScale( &cUChar );
ADO_Field(2)->PutNumericScale( 0x03 );
ADO_Field(2)->GetPrecision( pUChar );
ADO_Field(2)->PutPrecision( 0x07 );
```

## ADO\_Field(n)->GetOriginalValue

Retrieves the value contained within the Value property of this instance of the ADO Field object.

This occurs before any changes are made permanent by a call to an update method.

### Syntax

```
ADO_Field(n)->GetOriginalValue( VARIANT* pOriginalValue );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pOriginalValue	The pointer to the VARIANT in which the original value is returned.

### Example

```
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_Field(0)->GetOriginalValue( pvValue );
```

## ADO\_Field(n)->GetPrecision

Retrieves the value contained within the Precision property of this instance of the ADO Field object.

You can use it to determine the maximum number of digits used to represent a numeric Parameter or field object. Note that the data being returned is in the form of a pointer to an unsigned char. This is essentially a byte depicting the size of a column from 0 bytes to 256 bytes.

### Syntax

```
ADO_Field(n)->GetPrecision( unsigned char* sChar );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sChar	Pointer to an unsigned character

## Example

```
ADO_Field(1)->PutDefinedSize( 4 );
ADO_Field(2)->GetNumericScale( &cUChar );
ADO_Field(2)->PutNumericScale( 0x03 );
ADO_Field(2)->GetPrecision( pUChar );
ADO_Field(2)->PutPrecision( 0x07 );
```

## ADO\_Field(n)->GetProperties

Retrieves the complete set of properties for this particular instance of the Field object.

PropertySets may change for different providers.

The CAField object has a collection of property objects. Each property object corresponds to a characteristic of the ADO object specific to the provider.

## Syntax

```
ADO_Field(n)->GetProperties( CAPropertySet* pPropertySet );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pPropertySet	Set of CAProperty objects. Each CAProperty object contains a single characteristic, a piece of data, which partially describes the state of a particular instance of an object.

## Example

```
ADO_LoadVariant( pvValue, "8", "test_number" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_Field(0)->GetProperties( ADOPropertySet[0] );
ADOPropertySet.Release( 0 );
```

## ADO\_Field(n)->GetStatus

Retrieves the value contained within the Status property of this instance of the ADO Field object.

It takes a pointer to a long as an argument. Within this parameter, the value returned is the value of the status property of this instance of the Field object.

### Syntax

```
ADO_Field(n)->GetStatus( long* pStatus );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pStatus	Pointer to the value within the Status property of this instance of the ADO Field object.

### Example

```
ADO_Field(2)->GetStatus( pLong );
```

## ADO\_Field(n)->GetType

Retrieves the value contained within the Type property of this instance of the ADO Field object.

The Actual ADO call uses another enumerated type, DataTypeEnum, to handle the data types. Conversion to this type happens within the QALoad call.

GetType is read/write if all of the following conditions are met:

- ! it is a new Field object
- ! the new Field object has been appended to the Fields collection of a Record
- ! the Value property for the Field has been specified
- ! the data provider has added the new Field (using the Fields collection's Update method)

### Syntax

```
ADO_Field(n)->GetType( long* pType );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pType	A pointer to a long containing the data type of the field element.

## Example

```
ADO_Field(2)->PutPrecision( 0x00 );
ADO_Field(1)->GetType( pLong );
ADO_Field(1)->PutType( (DataTypeEnum)8 );
```

## ADO\_Field(n)->GetUnderlyingValue

Specifies the current value of a Field object in the database after any updates to the recordset.

This is the current value visible to your transaction. It may be the result of a recent update by another transaction. Note that this could be different from the OriginalValue property that was originally returned to the Recordset.

## Syntax

```
ADO_Field(n)->GetUnderlyingValue( VARIANT* pUnderlyingValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pUnderlyingValue	The pointer to the variant holding the underlying value returned from the call.

## Example

```
ADO_Field(3)->PutValue( pvValue );
ADO_Field(3)->GetUnderlyingValue( pvValue );
ADO_Field(3)->GetName( sLoadStr );
```

## ADO\_Field(n)->GetValue

Retrieves the value of an ADO Field object into a pointer to a Variant.

The argument handles any type of data by using the Variant datatype. Data is retrieved into a pointer to a Variant.

## Syntax

```
ADO_Field(n)->GetValue( VARIANT* pValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pValue	Pointer to the value contained within the Value property of this instance of the ADO Field object.

## Example

```
ADO_Field(3)->GetValue( pvValue );
LoadVariant( pvValue, "8", "T " );
ADO_Field(3)->PutValue( pvValue );
```

## ADO\_Field(n)->PutAttributes

The PutAttributes method call sets the value contained within the Attributes property of this instance of the ADO Field object.

This property can be the sum of one or more FieldAttributeEnum values. It is normally read-only; however, it can be read/write if all of the following conditions are present:

- ! it is a new Field object
- ! the new Field object has been appended to the Fields collection of a Record
- ! the Value property for the Field has been specified
- ! the new Field has been successfully added by the data provider (using the Field collection's Update method).

## Syntax

```
ADO_Field(n)-PutAttributes ( ADOFieldAttributeEnum nAttributes );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nAttributes	



<i>ADOFieldAttributeEnum</i>	
The field attribute. Valid values are:	
Value	Description
adFldUnspecified	Unspecified attribute
adFldMayDefer	MayDefer attribute
adFldUpdatable	Updatable attribute
adFldUnknownUpdatable	Unknown Updatable attribute
adFldFixed	FldFixed attribute
adFldIsNullable	IsNullable attribute
adFldMayBeNull	FldMayBeNull attribute
adFldLong	FldLong attribute
adFldRowID	FldRowID attribute
adFldRowVersion	RowVersion attribute
adFldCacheDeferred	FldCacheDeferred attribute
adFldIsChapter	FldIsChapter attribute
adFldNegativeScale	FldNegativeScale attribute
adFldIsRowURL	FldIsRowURL attribute
adFldIsDefaultStream	FldIsDefaultStream attribute
adFldIsCollection	FldIsCollection attribute

### Example

```
ADO_Field(1)->PutAttributes((FieldAttributeEnum)32 );
ADO_Field(1)->GetAttributes( pLong );
ADO_Field(1)->GetDefinedSize( pLong );
ADO_Field(1)->PutDefinedSize( 100 );
ADO_Field(1)->GetDefinedSize( pLong );
```

### ADO\_Field(n)->PutDefinedSize

Sets the value contained within the `DefinedSize` property of this instance of the ADO Field object.

Note that the `DefinedSize` and `ActualSize` properties are different. For example, if a `DefinedSize` property of 25 only contained a few characters, the `ActualSize` property value would be the length of those few characters.

## Syntax

```
ADO_Field(n)->PutDefinedSize( long nSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nSize	Size of the data contained within this field.

## Example

```
ADO_Field(1)->GetDataFormat( pIUnknown );
ADO_Field(1)->GetAttributes( pLong );
ADO_Field(1)->GetDefinedSize( pLong );
ADO_Field(1)->PutDefinedSize( 4 );
```

## ADO\_Field(n)->PutNumericScale

Sets the value contained within the NumericScale property of this instance of the ADO Field object.

PutNumericScale also sets or returns a byte value indicating the number of decimal places to which numeric values are resolved. PutNumericScale is normally read-only; however, it is read/write if all of the following conditions are met:

- ! it applies to a new Field object
- ! the new Field object has been appended to the Fields collection of a Record
- ! the Value property for the Field has been specified
- ! the data provider has added the new Field (using the Fields collection's Update method)

## Syntax

```
ADO_Field(n)->PutNumericScale( unsigned char ucNumericScale );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
ucNumericScale	Unsigned character being passed in its hexadecimal representation. Format: 0x## (Note that the range on the # is 0 - F -

0123456789ABCDEF)
-------------------

## Example

```
ADO_Field(1)->PutDefinedSize( 4 );
ADO_Field(2)->GetNumericScale( pUChar );
ADO_Field(2)->PutNumericScale( 0x03 );
ADO_Field(2)->GetPrecision( pUChar );
ADO_Field(2)->PutPrecision( 0x07 );
```

## ADO\_Field(n)->PutPrecision

Sets the value contained within the Precision property of this instance of the ADO Field object.

You can use this to determine the maximum number of digits used to represent a numeric Parameter or Field object.

## Syntax

```
ADO_Field(n)->PutPrecision( unsigned char ucPrecision );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
ucPrecision	Unsigned character being passed in its hexadecimal representation. Format: 0x## (Note that the range on the # is 0 - F - 0123456789ABCDEF)

## Example

```
ADO_Field(1)->PutDefinedSize( 4 );
ADO_Field(2)->GetNumericScale( pUChar );
ADO_Field(2)->PutNumericScale( 0x03 );
ADO_Field(2)->GetPrecision( pUChar );
ADO_Field(2)->PutPrecision( 0x07 );
```

## ADO\_Field(n)->PutRefDataFormat

This updates the current value of the data format updates to the ADO Recordset.

## Syntax

```
ADO_Field(n)->PutRefDataFormat( IUnknown* pIUnknown );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pIUnknown	Pointer to the IUnknown interface.

## ADO\_Field(n)->PutType

Sets the value contained within the Type property of this instance of the ADO Field object.

There is a conversion from the long argument to a `DataTypeEnum*`, which is accomplished through a cast. `PutType` is read/write for a new Field object that has been appended to a Record's Fields collection if the following conditions are met:

- ! the Value property for the Field has been specified
- ! the data provider has added the new Field (using the Fields collection's Update method).

### Syntax

```
ADO_Field(n)->PutType( ADODataTypeEnum nType );
```

## Return Value

### Parameters

Parameter	Description												
n	An index to the object.												
nType	<p><i>ADODataTypeEnum</i></p> <p>The datatype of the field element. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adEmpty</td> <td>No data type specified</td> </tr> <tr> <td>adTinyInt</td> <td>Tiny integer</td> </tr> <tr> <td>adSmallInt</td> <td>Small integer</td> </tr> <tr> <td>adInteger</td> <td>Integer</td> </tr> <tr> <td>adBigInt</td> <td>Big integer</td> </tr> </tbody> </table>	Value	Description	adEmpty	No data type specified	adTinyInt	Tiny integer	adSmallInt	Small integer	adInteger	Integer	adBigInt	Big integer
Value	Description												
adEmpty	No data type specified												
adTinyInt	Tiny integer												
adSmallInt	Small integer												
adInteger	Integer												
adBigInt	Big integer												

adUnsignedTinyInt	Unsigned tiny integer
adUnsignedSmallInt	Unsigned small integer
adUnsignedInt	Unsigned integer
adUnsignedBigInt	Unsigned integer
adSingle	Single precision float
adDouble	Double precision float
adCurrency	Currency
adDecimal	Decimal
adNumeric	Numeric
adBoolean	Boolean
adError	Error
adUserDefined	User-defined data type
adVariant	Variant
adIDispatch	Pointer to IDispatch
adIUnknown	Pointer to IUnknown
adGUID	GUID
adDate	Date
adDBDate	DBDate
adDBTime	DBTime
adDBTimeStamp	DBTimestamp
adBSTR	BSTR
adChar	Char
adVarChar	VarChar
adLongVarChar	Long VarChar
adWChar	Wide Char
adVarWChar	VarWChar
adLongVarWChar	Long VarWChar
adBinary	Binary
adVarBinary	VarBinary

	adLongVarBinary	Long VarBinary
	adChapter	Chapter
	adFileTime	FileTime
	adPropVariant	Variant Property
	adVarNumeric	VarNumeric
	adArray	Array

### Example

```
ADO_Field(2)->PutPrecision( 0x00 );
ADO_Field(1)->GetType( pLong );
ADO_Field(1)->PutType( (DataTypeEnum)8 );
```

## ADO\_Field(n)->PutValue

Resets the value of this instance of the ADO Field object. This is the first step in updating a Recordset's value.

In order to accommodate any type of data, ADO uses the Variant datatype with PutValue.

 **Note:** This call, and all other calls that use the Variant datatypes, have to use an accompanying Setup function call, the call to ADO\_LoadVariant.

### Syntax

```
ADO_Field(n)->PutValue( VARIANT* pvValue );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvValue	The pointer to the variant that returns the data contained in the ADO Field object.

### Example

```
ADO_Recordset(2)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "active" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "8", "Y" );
ADO_Field(0)->PutValue( pvValue );
```

```

ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
ADO_LoadVariant( pvValue, "10", "2147614724" ); // VT_ERROR;
ADO_LoadVariant( pvData, "10", "2147614724" ); // VT_ERROR;
ADO_Recordset(2)->Update( pvValue, pvData );
ADO_Recordset(2)->Close();
ADORecordset.Release( 2, ADOBM );

```

## ADO\_FieldSet(n)->Append

Creates and appends a new Field object to the ADO FieldSet.

An ADO Recordset object is composed of ADO FieldSet objects. Appending ADO Fields to ADO FieldSet objects comprises a mechanism for updating or retrieving information from a Data Provider.

### Syntax

```

ADO_FieldSet(n)->Append( char* sNameString, ADODataTypeEnum nDT, long nDefinedSize,
ADOFieldAttributeEnum nFA, VARIANT* pvFieldValue );

```

### Return Value

### Parameters

Parameter	Description																		
n	An index to the object.																		
sNameString	The name of the Field being added to the collection of fields.																		
nDT	<p><i>ADODataTypeEnum</i></p> <p>The Data type of the field being added to the collection. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adEmpty</td> <td>No data type specified</td> </tr> <tr> <td>adTinyInt</td> <td>Tiny integer</td> </tr> <tr> <td>adSmallInt</td> <td>Small integer</td> </tr> <tr> <td>adInteger</td> <td>Integer</td> </tr> <tr> <td>adBigInt</td> <td>Big integer</td> </tr> <tr> <td>adUnsignedTinyInt</td> <td>Unsigned tiny integer</td> </tr> <tr> <td>adUnsignedSmallInt</td> <td>Unsigned small integer</td> </tr> <tr> <td>adUnsignedInt</td> <td>Unsigned integer</td> </tr> </tbody> </table>	Value	Description	adEmpty	No data type specified	adTinyInt	Tiny integer	adSmallInt	Small integer	adInteger	Integer	adBigInt	Big integer	adUnsignedTinyInt	Unsigned tiny integer	adUnsignedSmallInt	Unsigned small integer	adUnsignedInt	Unsigned integer
Value	Description																		
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<code>adDecimal</code>	Decimal
<code>adNumeric</code>	Numeric
<code>adBoolean</code>	Boolean
<code>adError</code>	Error
<code>adUserDefined</code>	User-defined data type
<code>adVariant</code>	Variant
<code>adIDispatch</code>	Pointer to IDispatch
<code>adIUnknown</code>	Pointer to IUnknown
<code>adGUID</code>	GUID
<code>adDate</code>	Date
<code>adDBDate</code>	DBDate
<code>adDBTime</code>	DBTime
<code>adDBTimeStamp</code>	DBTimeStamp
<code>adBSTR</code>	BSTR
<code>adChar</code>	Char
<code>adVarChar</code>	VarChar
<code>adLongVarChar</code>	Long VarChar
<code>adWChar</code>	Wide Char
<code>adVarWChar</code>	VarWChar
<code>adLongVarWChar</code>	Long VarWChar
<code>adBinary</code>	Binary
<code>adVarBinary</code>	VarBinary
<code>adLongVarBinary</code>	Long VarBinary
<code>adChapter</code>	Chapter
<code>adFileTime</code>	FileTime



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<code>adFldIsCollection</code>	FldIsCollection attribute																																		
<code>pvFieldValue</code>	The Field's actual data in the form of a Pointer to a VARIANT.																																		

## Example

```
ADO_Recordset(1)->GetFields( ADOFieldSet[1] );
ADO_LoadVariant( pvValue, "8", "New ColumnData" );
ADO_FieldSet(1)->Append( "testfld1" ,adBSTR, 0 , adFldUnspecified, pvValue );
```

## ADO\_FieldSet(n)->Append15

Creates and appends a new field object to the ADO FieldSet.

An ADO Recordset object is composed of ADO FieldSet objects. Appending ADO Fields to ADO FieldSet objects comprise a mechanism for updating or retrieving information from a Data Provider. The Append15 function does NOT allow the user to add the data to this ADO Field object. It creates the ADO Field object in the ADO FieldSet collection, but does not add the data.

### Syntax

```
ADO_FieldSet(n)->Append15( char* sNameString, ADODataTypeEnum nDT, long nDefinedSize,
ADOFieldAttributeEnum nFA );
```

### Return Value

### Parameters

Parameter	Description																								
n	An index to the object.																								
sNameString	The name of the Field being added to the collection of fields.																								
nDT	<p><i>ADODataTypeEnum</i></p> <p>The Data type of the field being added to the collection. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adEmpty</td> <td>No data type specified</td> </tr> <tr> <td>adTinyInt</td> <td>Tiny integer</td> </tr> <tr> <td>adSmallInt</td> <td>Small integer</td> </tr> <tr> <td>adInteger</td> <td>Integer</td> </tr> <tr> <td>adBigInt</td> <td>Big integer</td> </tr> <tr> <td>adUnsignedTinyInt</td> <td>Unsigned tiny integer</td> </tr> <tr> <td>adUnsignedSmallInt</td> <td>Unsigned small integer</td> </tr> <tr> <td>adUnsignedInt</td> <td>Unsigned integer</td> </tr> <tr> <td>adUnsignedBigInt</td> <td>Unsigned integer</td> </tr> <tr> <td>adSingle</td> <td>Single precision float</td> </tr> <tr> <td>adDouble</td> <td>Double precision float</td> </tr> </tbody> </table>	Value	Description	adEmpty	No data type specified	adTinyInt	Tiny integer	adSmallInt	Small integer	adInteger	Integer	adBigInt	Big integer	adUnsignedTinyInt	Unsigned tiny integer	adUnsignedSmallInt	Unsigned small integer	adUnsignedInt	Unsigned integer	adUnsignedBigInt	Unsigned integer	adSingle	Single precision float	adDouble	Double precision float
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adVarWChar	VarWChar
adLongVarWChar	Long VarWChar
adBinary	Binary
adVarBinary	VarBinary
adLongVarBinary	Long VarBinary
adChapter	Chapter
adFileTime	FileTime
adPropVariant	Variant Property
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adArray	Array

nDefinedSize	Size of the data for the field being added to the collection																																		
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### Example

```
ADO_Recordset(1)->GetFields( ADOFieldSet[1] );
ADO_FieldSet(1)->Append15( "testfld1", adBSTR, 0, adFldUn specified );
ADO_LoadVariant( pvValue, "8", "testfld1" );
ADO_FieldSet(1)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "8", "New ColumnData" );
ADO_FieldSet(1)->PutValue( pvValue );
```

### ADO\_FieldSet(n)->CancelUpdate

Cancels changes made to the current or new row of an ADO Recordset object, or the ADO Fieldset collection of an ADO Record object, before calling the Update method.

## Syntax

```
ADO_FieldSet(n)->CancelUpdate();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

None.

## ADO\_FieldSet(n)->Delete

Deletes an object from the Fields collection.

Takes the form of a Variant designating a Field object to delete. The Variant can be the name or ordinal position of the Field object.

## Syntax

```
ADO_FieldSet(n)->Delete( VARIANT* pvObject );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvObject	A pointer to a Variant. The variant depicts the field to remove.

## Example

```
ADO_Recordset(1)->GetFields( ADOFieldSet[1] ); LoadVariant( pvValue, "2", "1" );
ADO_FieldSet(1)->Delete( pvValue );
ADOFieldSet.Release( 1 );
```

## ADO\_FieldSet(n)->GetCount

Number of ADO Field objects contained within the ADO FieldSet collection.

### Syntax

```
ADO_FieldSet(n)->GetCount( long* pCount );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pCount	A Pointer to a long containing the number of ADO Field objects in this ADO FieldSet Collection.

### Example

```
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
ADO_FieldSet(0)->GetCount( pLong );
ADO_FieldSet(0)->Refresh();
```

## ADO\_FieldSet(n)->GetItem

Retrieves an ADO Field object from this instance of the ADO FieldSet collection.

The result of the call is that a ADO Field object is brought back to be manipulated within the script. ADO Field retrieval is a part of the variablization process. In the example, sSSN is declared as a local variable and is a key element used in several calls to the data provider. This is variablized within the script and linked to a datapool earlier in the script.

### Syntax

```
ADO_FieldSet(n)->GetItem( VARIANT* pvIndex, CAField* pField );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

pvIndex	This input parameter is used to pick the particular ADO Field instance from the ADO FieldSet collection.
pField	This output parameter is used to store away the ADO Field returned by this call.

## Example

```
ADO_Recordset(2)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "SSN" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "8", sSSN );
ADO_Field(0)->PutValue( pvValue );
ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724" );
ADO_Recordset(2)->Update( pvValue, pvData );
ADO_Recordset(2)->Close();
ADORecordset.Release( 2, ADOBM );
```

## ADO\_FieldSet(n)->GetNewEnum

Creates the ADO IEnumField object.

In order to iterate through each ADO Field in an ADO FieldSet collection, an ADOIEnumField object is returned. The GetNewEnum call on the ADO FieldSet object creates the ADO IEnumField object allowing the enumeration to take place.

## Syntax

```
ADO_FieldSet(n)->GetNewEnum( CAIEnumField* pADOIEnumField );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pADOIEnumField	ADO IEnumField object.

## Example

```
ADO_FieldSet(0)->GetNewEnum( ADOIEnumField[0] );
while( ADO_IEnumField(0)->NextField( 1, 0, ADOField[0] ) )
{
ADO_Field(0)->GetStatus( pLong );
ADOField.Release( 0 );
}
```

## ADO\_FieldSet(n)->Refresh

Updates the objects in a collection to reflect objects available from, and specific to, the provider. Using the Refresh method on the ADO FieldSet collection has no visible effect.

### Syntax

```
ADO_FieldSet(n)->Refresh();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
ADO_FieldSet(0)->GetCount( pLong );
ADO_FieldSet(0)->Refresh();
```

## ADO\_FieldSet(n)->Resync

Synchronizes the values of a Record object's Fields collection with the data source. The Count property is not affected by this method.

### Syntax

```
ADO_FieldSet(n)->Resync( ADOResyncEnum nResync );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nResync	<i>ADOResyncEnum</i> Resync option. Valid values are:



Value	Description
adResyncUnderlyingValues	Resync the underlying values only
adResyncAllValues	Resync all values

### Example

```
ADO_LoadVariant(pvValue, "8", "test_number" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADOField.Release( 0 );
ADO_FieldSet(0)->Update();
ADO_FieldSet(0)->Resync( adResyncAllValues );
```

## ADO\_FieldSet(n)->Update

Saves any changes you make to the ADO FieldSet collection of a Record object.

### Syntax

```
ADO_FieldSet(n)->Update();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADOField.Release( 0 );
ADO_LoadVariation( pvValue, "8", "test_number" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "2", "15" );
ADO_Field(0)->PutValue( pvValue );
ADOField.Release( 0 );
ADO_FieldSet(0)->Update();
```

## ADO\_IEnumField(n)->NextField

Enumeration through collections of ADO Fields should be done very carefully, because in the example given below, the script checks the status of each of the different ADO Fields. In order to do more meaningful work, reset values of different ADO Fields, then break them out of the loop and use the PutValue call to place new values into the ADO Field objects.

## Syntax

```
ADO_IEnumField(n)->NextField( 1, 0, ADOField(0) );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
BFetched	Retrieve this property: 0 FALSE 1 TRUE
BRetrieved	Has this been retrieved: 0 FALSE 1 TRUE
ADOField[n]	The instance of the ADO Field object that we are interested in.

## Example

```
ADO_FieldSet(0)->GetNewEnum( ADOIEnumField[0] );
while( ADO_IEnumField(0)->NextField( 1, 0, ADOField[0] ) )
{
ADO_Field(0)->GetStatus( pLong );
ADOField.Release( 0 );
}
ADOIEnumField.Release( 0 );
```

## ADO\_IEnum(n)->NextProperty

Enumeration through collections of properties should be done very carefully, because in the example below, we reset all of the properties to the same value. To reset different values, get rid of the loop and set each property individually.

## Syntax

```
ADO_IEnum(n)->NextProperty( <bFetched>, <bRetrieved>, ADOProperty(0) );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
BFetched	Retrieve this property 0 FALSE 1 TRUE.

BRetrieved	Has this been retrieved: 0 FALSE 1 TRUE.
ADOProperty[#]	The ADO Property returned to be worked on.

## Example

```
ADO_Connect(0)->GetProperties( ADOPropertySet[0] );
ADO_PropertySet(0)->GetNewEnum( ADOIEnum[0] );
while( ADO_IEnum(0)->NextProperty( 1, 0, ADOProperty[0] ) )
{
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
}
ADOIEnum.Release( 0 );
ADOPropertySet.Release( 0 );
```

## ADO\_IEnumParameter(n)->NextParameter

Enumeration through collections of ADO Parameters should be done very carefully, because in the example given below, the script checks different values of each of the different ADO Parameters. In order to do some more meaningful work, resetting values of different ADO Parameters then break them out of the look and use the PutValue call to place new values into the ADO Parameter objects.

## Syntax

```
ADO_IEnumParameter(n)->NextParameter( 1, 0, ADOPParameter[0] );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
BFetched	Retrieve this property 0 FALSE 1 TRUE
BRetrieved	Has this been retrieved: 0 FALSE 1 TRUE
ADOPParameter[n]	The ADO Parameter being returned to be worked on

## Example

```
ADO_Command(0)->GetParameters( ADOPParameterSet[0] );
ADO_ParameterSet(0)->GetNewEnum( ADOIEnumParameter[0] );
while( ADO_IEnumParameter(0)->NextParameter( 1, 0,
ADOPParameter[0] ) )
```

```
{
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( &CChar );
ADOParameter.Release( 0 );
}
ADOIEnumParameter.Release( 0 );
```

## ADO\_LoadVariant(n)

Loads the value sValue, of type sType, into the Variant structure.

### Syntax

```
ADO_LoadVariant ( <VariantName>, "<Type>", "<Value>");
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
VariantName	The variable that is being set up by this method.
Type	The VT_TYPE of the data. The VT_TYPE is the key to the information contained within any Variant data structure. It reveals which of the data elements within the variant structure contains data.
sValue	The actual data that is placed into whatever VT_TYPE is called for.
ADOCommand[#]	A pointer to a specific instance of ADO Command.

### Example

```
ADO_Connect(0)->GetProperties( ADOPropertySet[0] );
ADO_PropertySet(0)->GetNewEnum( ADOIEnum[0] );
while( ADO_IEnum(0)->NextProperty( 1, 0, ADOProperty[0] ) )
{
ADO_Property(0)
```

## ADO\_Parameter(n)->AppendChunk

A special data handling method that writes data in chunks to the Parameter object.

This is especially useful when memory is limited, since you can use this method to manipulate long values in manageable chunks. It may take numerous calls to AppendChunk to completely write the data to the appropriate object.

When writing data values using ADO, the datatype being used as the parameter with the data value is often a VARIANT datatype. The first call to AppendChunk writes data to the parameter and overwrites any

existing data. Subsequent calls add to the data. Note that if you append data to one parameter, then manipulate another parameter in the same record, ADO assumes you are finished with the first parameter. If you then attempt to append data to the first parameter, the existing data will be overwritten.

The AppendChunk call will be preceded immediately in the script by a call to ADO\_LoadVariant.

You can use the AppendChunk method in the Attributes property of a parameter object if the adFldLong bit in the Attributes property is set to true.

## Syntax

```
ADO_Parameter(n)->AppendChunk( VARIANT* pvValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvValue	The Variant containing the chunk of data to send to the ADO_Parameter object instance.

## Example

```
ADO_Parameter(0)->PutType( adBSTR );
ADO_LoadVariant( pvValue, "8", "a big chunk of data" );
BeginCheckpoint("ADODataBinder::AppendChunk");
ADO_Parameter(0)->AppendChunk( pvValue );
EndCheckpoint("ADODataBinder::AppendChunk");
ADO_LoadVariant( pvValue, "8", "some more data" );
BeginCheckpoint("ADODataBinder::AppendChunk");
ADO_Parameter(0)->AppendChunk( pvValue );
EndCheckpoint("ADODataBinder::AppendChunk");
```

## ADO\_Parameter(n)->GetAttributes

Retrieves the value contained within the Attributes property of this instance of the ADO Parameter object.

## Syntax

```
ADO_Parameter(n)->GetAttributes( long* pAttributes );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pAttributes	Pointer to a long containing the attribute or Direction value of the Parameter object.

### Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( pUChar );
```

## ADO\_Parameter(n)->GetDirection

Retrieves the value contained within the Direction property of this instance of the ADO Parameter object.

### Syntax

```
ADO_Parameter(n)->GetDirection( long* pDirection );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pDirection	Pointer to a long containing the attribute or Direction value of the Parameter object.

### Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( pUChar );
```

## ADO\_Parameter(n)->GetName

Retrieves the value contained within the Name property of this instance of the ADO Parameter object.

GetName is read/write for Parameter objects that haven't been appended to the Parameters collection. It is read-only for appended Parameter objects and all other objects. Note that within a collection, names do not have to be unique.

## Syntax

```
ADO_Parameter(n)->GetName( CLoadString& sName );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sName	A CLoadString value being returned with the name of the Parameter.

## Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( pUChar );
ADO_Parameter(0)->GetPrecision( pUChar );
ADO_Parameter(0)->GetSize( pLong );
ADO_Parameter(0)->GetType( pLong );
ADO_Parameter(0)->GetValue( pvValue );
```

## ADO\_Parameter(n)->GetNumericScale

Retrieves the value contained within the NumericScale property of this instance of the ADO Parameter object.

Returns a Byte value indicating the number of decimal places to which numeric values is resolved. The NumericScale property is read/write.

## Syntax

```
ADO_Parameter(n)->GetNumericScale( unsigned char* pucNumericScale );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pucNumericScale	The address of an unsigned character.

## Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( &cUChar );
ADO_Parameter(0)->GetPrecision( &cUChar );
ADO_Parameter(0)->GetSize( pLong );
ADO_Parameter(0)->GetType( pLong );
```

## ADO\_Parameter(n)->GetPrecision

Retrieves the value contained within the Precision property of this instance of the ADO Parameter object.

Returns a Byte value showing the maximum number of digits used to represent values for a numeric Parameter object. The Precision property is read/write.

## Syntax

```
ADO_Parameter(n)->GetPrecision( unsigned char* pucPrecision );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pucPrecision	The address of an unsigned character.

## Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( &cUChar );
ADO_Parameter(0)->GetPrecision( &cUChar );
ADO_Parameter(0)->GetSize( pLong );
ADO_Parameter(0)->GetType( pLong );
```

## ADO\_Parameter(n)->GetSize

Retrieves the value contained within the Size property of this instance of the ADO Field object.

GetSize indicates the maximum size of a Parameter object in bytes or characters. You can use it to determine the maximum size for values of Parameter object's Value property.

If the data type specified for a Parameter object is of variable length, set the object's Size property before appending it to the Parameters collection. If you do not, an error occurs.



## Syntax

```
ADO_Parameter(n)->GetSize( long* pSize );
```

## Return Value

## Parameter

Parameter	Description
n	An index to the object.
pSize	A pointer to a long containing the maximum size of the parameters data.

## Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( pUChar );
ADO_Parameter(0)->GetPrecision( pUChar );
ADO_Parameter(0)->GetSize( pLong );
ADO_Parameter(0)->GetType( pLong );
ADO_Parameter(0)->GetValue( pvValue );
```

## ADO\_Parameter(n)->GetValue

Returns data from ADO Parameter objects and from parameter values with ADO Parameter objects.

## Syntax

```
ADO_Parameter(n)->GetValue( VARIANT* pvValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvValue	Pointer to a variant used to retrieve data from the Parameter object.

## Example

```
ADO_Parameter(2)->PutSize( 8 );
ADO_Parameter(2)->PutType( adDouble );
ADO_LoadVariant( pvValue, "5", "5.6 " );
ADO_Parameter(2)->PutValue( pvValue );
ADO_Parameter(3)->GetValue( pvValue );
```

## ADO\_Parameter(n)->PutAttributes

This method call retrieves the value contained within the Attributes property of this instance of the ADO Parameter object.

PutAttributes is read/write. It's value can be the sum of one or more ParameterAttributesEnum values. The default is adParamSigned. The following are ParameterAttributesEnum values:

- ! adParamSigned
- ! adParamNullable
- ! adParamLong

## Syntax

```
ADO_Parameter(n)->PutAttributes( ParameterAttributesEnum nAttributes );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nAttributes	Special enumerated data type used.

## Example

```
ADO_Command(0)->Execute( pvValue, pvSource, -1,
ADORecordset[0] );
ADO_Parameter(0)->PutAttributes( adParamLong );
ADO_Parameter(0)->PutType( adBSTR );
```

## ADO\_Parameter(n)->PutDirection

Indicates Parameter type: input, output, input and output, or the return value from a stored procedure.

This method call sets the value contained within the Direction property of this instance of the ADO Parameter object.

## Syntax

```
ADO_Parameter(n)->PutDirection( ADOPParameterDirectionEnum nDirection );
```

## Return Value

## Parameters

Parameter	Description												
n	An index to the object.												
nDirection	<p><i>ADOParameterDirectionEnum</i></p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adParamUnknown</td> <td>Unknown parameter status</td> </tr> <tr> <td>adParamInput</td> <td>Parameter is input value</td> </tr> <tr> <td>adParamOutput</td> <td>Parameter is output value</td> </tr> <tr> <td>adParamInputOutput</td> <td>Parameter is input/output value</td> </tr> <tr> <td>adParamReturnValue</td> <td>Parameter is return value</td> </tr> </tbody> </table>	Value	Description	adParamUnknown	Unknown parameter status	adParamInput	Parameter is input value	adParamOutput	Parameter is output value	adParamInputOutput	Parameter is input/output value	adParamReturnValue	Parameter is return value
Value	Description												
adParamUnknown	Unknown parameter status												
adParamInput	Parameter is input value												
adParamOutput	Parameter is output value												
adParamInputOutput	Parameter is input/output value												
adParamReturnValue	Parameter is return value												

## Example

```
ADO_Parameter(0)->GetAttributes( pLong );
ADO_Parameter(0)->GetName( sLoadStr );
ADO_Parameter(0)->GetDirection( pLong );
ADO_Parameter(0)->GetNumericScale( &cUChar );
ADO_Parameter(1)->PutDirection( adParamOutput );
```

## ADO\_Parameter(n)->PutName

Sets the value contained within the Name property of this instance of the ADO Parameter object.

PutName is read/write for Parameter objects that are not appended to the Parameters collection. It is read-only for appended Parameter objects and all other objects. Note that names do not have to be unique within a collection.

## Syntax

```
ADO_Parameter(n)->PutName( char* sNameString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sNameString	A string containing the name of the parameter.

## Example

```
ADO_Parameter(2)->PutAttributes( 128 );
ADO_Parameter(2)->PutDirection( adParamOutput );
ADO_Parameter(2)->PutName( "testParam" );
ADO_Parameter(2)->PutNumericScale( 0x03 );
ADO_Parameter(2)->PutPrecision( 0x02 );
ADO_Parameter(2)->PutSize( 4 );
ADO_Parameter(2)->PutType( adDouble );
ADO_LoadVariant( pvValue, "5", "5.6 " );
ADO_Parameter(2)->PutValue( pvValue );
```

## ADO\_Parameter(n)->PutNumericScale

Sets the value contained within the NumericScale property of this instance of the ADO Parameter object.

Sends a byte value indicating the number of decimal places to which numeric values are resolved. The NumericScale property is read/write.

## Syntax

```
ADO_Parameter(n)->PutNumericScale( unsigned char nucNumericScale );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nucNumericScale	This byte value sets the numeric scale. Format: 0x##

## Example

```
ADO_Parameter(2)->PutAttributes( adParamLong );
ADO_Parameter(2)->PutDirection( adParamOutput );
ADO_Parameter(2)->PutName( "testParam" );
ADO_Parameter(2)->PutNumericScale( 0x03 );
ADO_Parameter(2)->PutPrecision( 0x02 );
ADO_Parameter(2)->PutSize( 4 );
```

## ADO\_Parameter(n)->PutPrecision

Sets the value contained within the Precision property of this instance of the ADO Parameter object.

Sends a byte value showing the maximum number of digits used to represent values for a numeric ADO Parameter object. The Precision property is read/ write.

### Syntax

```
ADO_Parameter(n)->PutPrecision( unsigned char nucPrecision );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nucPrecision	This byte value sets the precision. Format: 0x##

### Example

```
ADO_Parameter(2)->PutAttributes( adParamLong );
ADO_Parameter(2)->PutDirection( adParamOutput );
ADO_Parameter(2)->PutName( "testParam" );
ADO_Parameter(2)->PutNumericScale( 0x03 );
ADO_Parameter(2)->PutPrecision( 0x02 );
ADO_Parameter(2)->PutSize( 4 );
```

## ADO\_Parameter(n)->PutSize

Retrieves the value contained within the Size property of this instance of the ADO Parameter object.

Specifies the maximum size of a Parameter object in bytes or characters. You can use it to determine the maximum size for values of a Parameter object's Value property.

If the data type specified for a Parameter object is of variable length, set the object's Size property before appending it to the Parameters collection. If you do not, an error occurs.

### Syntax

```
ADO_Parameter(n)->PutSize( long nSize );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
nSize	A long integer representation of the size of the parameter.

## Example

```
ADO_Parameter(0)->GetSize( pLong );
ADO_Parameter(0)->GetType( pLong );
ADO_Parameter(1)->PutSize( 4 );
ADO_Parameter(1)->PutType(adInteger );
```

## ADO\_Parameter(n)->PutType

Sets the value contained within the Type property of this instance of the ADO Parameter object.

PutType is read/write when each of the following conditions are present:

- ! it is on a new Parameter object
- ! the new Parameter object has been appended to a Record's Fields collection
- ! the Parameter's Value property has been specified
- ! the data provider has added the new Parameter (using the Parameters collection's Update method)

## Syntax

```
ADO_Parameter(n)->PutType( ADODataTypeEnum nType );
```

## Return Value

## Parameters

Parameter	Description								
n	An index to the object.								
nType	<p><i>ADODataTypeEnum</i></p> <p>The datatype of the field element. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adEmpty</td> <td>No data type specified</td> </tr> <tr> <td>adTinyInt</td> <td>Tiny integer</td> </tr> <tr> <td>adSmallInt</td> <td>Small integer</td> </tr> </tbody> </table>	Value	Description	adEmpty	No data type specified	adTinyInt	Tiny integer	adSmallInt	Small integer
Value	Description								
adEmpty	No data type specified								
adTinyInt	Tiny integer								
adSmallInt	Small integer								

adInteger	Integer
adBigInt	Big integer
adUnsignedTinyInt	Unsigned tiny integer
adUnsignedSmallInt	Unsigned small integer
adUnsignedInt	Unsigned integer
adUnsignedBigInt	Unsigned integer
adSingle	Single precision float
adDouble	Double precision float
adCurrency	Currency
adDecimal	Decimal
adNumeric	Numeric
adBoolean	Boolean
adError	Error
adUserDefined	User-defined data type
adVariant	Variant
adIDispatch	Pointer to IDispatch
adIUnknown	Pointer to IUnknown
adGUID	GUID
adDate	Date
adDBDate	DBDate
adDBTime	DBTime
adDBTimeStamp	DBTimestamp
adBSTR	BSTR
adChar	Char
adVarChar	VarChar
adLongVarChar	Long VarChar
adWChar	Wide Char
adVarWChar	VarWChar
adLongVarWChar	Long VarWChar

adBinary	Binary
adVarBinary	VarBinary
adLongVarBinary	Long VarBinary
adChapter	Chapter
adFileTime	FileTime
adPropVariant	Variant Property
adVarNumeric	VarNumeric
adArray	Array

## Example

```
ADO_Parameter(2)->PutAttributes( 128 );
ADO_Parameter(2)->PutDirection( adParamOutput );
ADO_Parameter(2)->PutName( "testParam" );
ADO_Parameter(2)->PutNumericScale( 0x03 );
ADO_Parameter(2)->PutPrecision( 0x02 );
ADO_Parameter(2)->PutSize( 4 );
ADO_Parameter(2)->PutType( adDouble );
ADO_LoadVariant( pvValue, "5", "5.6 " );
ADO_Parameter(2)->PutValue( pvValue );
```

## ADO\_Parameter(n)->PutValue

Sets the value contained within the Value property of this instance of the ADO Parameter object.

PutValue can be used to set or return data from ADO Parameter objects, parameter values with ADO Parameter objects, or property settings with Property objects.

## Syntax

```
ADO_Parameter(n)->PutValue( VARIANT* pvValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvValue	The value being loaded into this parameter.



## Example

```
ADO_Parameter(2)->PutSize( 8 );
ADO_Parameter(2)->PutType( adDouble );
ADO_LoadVariant( pvValue, "5", "5.6 " );
ADO_Parameter(2)->PutValue( pvValue );
ADO_Parameter(3)->GetValue( pvValue );
ADO_Parameter(3)->GetValue( pvValue );
```

## ADO\_ParameterSet(n)->Append

Appends a ADO Parameter object to the collection of ADO Parameters.

ADO Parameters are created and given a value using CreateParameter calls, then the ADO Parameters are Appended to the ADO ParameterSet container.

## Syntax

```
ADO_ParameterSet(n)->Append( CParameter* pParam );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pParam	ADO Parameter object being added to this collection.

## Example

```
ADO_LoadVariant( pvValue, "8", "ParameterData0" );
ADO_Command(0)->CreateParameter( "Param3", adInteger, adParamInput,
                                0, pvValue, ADOParameter[0] );
ADO_LoadVariant( pvValue, "8", "ParameterData1" );
ADO_Command(0)->CreateParameter( "Param4", adInteger, adParamInput,
                                0, pvValue, ADOParameter[1] );
ADO_ParameterSet(0)->Append( ADOParameter[0] );
ADO_ParameterSet(0)->Append( ADOParameter[1] );
```

## ADO\_ParameterSet(n)->Delete

Deletes an ADO Parameter object from the ADO ParameterSet collection.

Takes the form of a Variant designating an ADO Parameter object to delete. The Variant can be the name or ordinal position of the ADO Parameter object.

## Syntax

```
ADO_ParameterSet(n)->Delete( VARIANT* pvIndex );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvIndex	A pointer to a variant containing information describing the ADO Parameter to be deleted from the ADO ParameterSet collection.

### Example

```
ADO_LoadVariant( pvValue, "2", "3" );
BeginCheckpoint("ADOParameterSet::Delete");
ADO_ParameterSet(0)->Delete( pvValue );
EndCheckpoint("ADOParameterSet::Delete");
```

## ADO\_ParameterSet(n)->GetCount

The method returns the number of ADO Parameter objects contained within the ADO ParameterSet collection.

### Syntax

```
ADO_ParameterSet(n)->GetCount( long* pnCount );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pnCount	A pointer to a long containing the number of ADO Parameter objects in this ADO ParameterSet Collection.

### Example

```
ADO_ParameterSet(0)->GetCount( pLong );
ADO_ParameterSet(0)->Refresh();
```

## ADO\_ParameterSet(n)->GetItem

Locates a specific ADO Parameter in the ADO ParameterSet collection.

An ADO ParameterSet collection is an array of ADO Parameter objects. GetItem indexes through the array to locate a specific object.

### Syntax

```
ADO_ParameterSet(n)->GetItem( VARIANT* pvIndex, CAPParameter* pParameter );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvIndex	The variant contains information about the parameter to retrieve from the collection.

### Example

```
BeginCheckpoint("ADOParameTerSet::GetItem");
ADO_ParameterSet(0)->GetItem( pvValue, ADOParameTer[0] );
EndCheckpoint("ADOParameTerSet::GetItem");
```

## ADO\_ParameterSet(n)->GetNewEnum

Creates the ADO IEnumParameter object.

In order to iterate through all of the ADO Parameters in an ADO ParameterSet collection, an ADOIEnumParameter object is returned. The GetNewEnum call on the ADO ParameterSet object creates the ADO IEnumParameter object allowing the enumeration to take place.

### Syntax

```
ADO_ParameterSet(n)->GetNewEnum( CAIEnumParameter* pADOIEnumParameter );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

pADOIEnumParameter	ADO IEnumParameter object.
--------------------	----------------------------

### Example

```
ADO_ParameterSet(0)->GetNewEnum( ADOIEnumParameter[0] );
while( ADO_IEnumParameter(0)->NextParameter( 1, 0, ADOParameter[0] ));
{
ADO_Parameter(0)->GetStatus( pLong );
ADOParameter.Release( 0 );
}
```

## ADO\_ParameterSet(n)->Refresh

Updates the objects in a collection to reflect objects available from, and specific to, the provider. Using the Refresh method on the ADO ParameterSet collection has no visible effect.

### Syntax

```
ADO_ParameterSet(n)->Refresh();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_ParameterSet(0)->GetCount( pLong );
ADO_ParameterSet(0)->Refresh();
```

## ADO\_Property(n)->GetAttributes

Describes column characteristics by setting or returning a Long value.

The value indicates characteristics of the table represented by the Column object. It can be a combination of ColumnAttributesEnum constants. The default value is zero (0).

### Syntax

```
ADO_Property(n)->GetAttributes( long* pAttributes );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pAttributes	A pointer to a long integer containing the value of the Attributes property.

## Example

```
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_Property(0)->GetValue( pvValue );

/* Type:8 - VT_BSTR Data: Master */

ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADO_LoadVariant( pvValue, "8", "Master" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
```

## ADO\_Property(n)->GetName

Retrieves the value of the Name attribute of this instance of the Property object.

## Syntax

```
ADO_Property(n)->GetName( CLoadString& sName );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sName	Value of the Name property for this instance of the ADO Property.

## Example

```
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_Property(0)->GetValue( pvValue );
ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADO_LoadVariant( pvValue, "8", "Master" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
```

## ADO\_Property(n)->GetType

Indicates a property's type as conveyed as a DataTypeEnum.

### Syntax

```
ADO_Property(n)->GetType( long* pType );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pType	A pointer to a long containing the DataTypeEnum value for the property.

### Example

```
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_Property(0)->GetValue( pvValue );
ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADO_LoadVariant( pvValue, "8", "Master" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
```

## ADO\_Property(n)->GetValue

Sets or returns data from Field objects, parameter values with Parameter objects, or property settings with Property objects.

 Note: You can use the Value property to set and return long binary data.

### Syntax

```
ADO_Property(n)->GetValue( VARIANT* pvValue );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
pvValue	A Pointer to a variant in which the value of this property will be returned.

## Example

```
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_Property(0)->GetValue( pvValue );
ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADO_LoadVariant( pvValue, "8", "Master" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
```

## ADO\_Property(n)->PutAttributes

Sets the value contained within the Attributes property of this instance of the ADO Property object.

### Syntax

```
ADO_Property(n)->PutAttributes( ADOPropertyAttributesEnum nAts );
```

### Return Value

### Parameters

Parameter	Description								
n	An index to the object.								
nAts	<p><i>ADOPropertyAttributesEnum</i></p> <p>The attribute type as PropertyAttributesEnum. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adPropNotSupported</td> <td>Indicates that the property is not supported by the provider</td> </tr> <tr> <td>adPropRequired</td> <td>Indicates that the user must specify a value for this property before the data source is initialized</td> </tr> <tr> <td>adPropOptional</td> <td>Indicates that the user does not need to specify a value</td> </tr> </tbody> </table>	Value	Description	adPropNotSupported	Indicates that the property is not supported by the provider	adPropRequired	Indicates that the user must specify a value for this property before the data source is initialized	adPropOptional	Indicates that the user does not need to specify a value
Value	Description								
adPropNotSupported	Indicates that the property is not supported by the provider								
adPropRequired	Indicates that the user must specify a value for this property before the data source is initialized								
adPropOptional	Indicates that the user does not need to specify a value								

		for this property before the data source is initialized
	adPropRead	Indicates that the user can read the property
	adPropWrite	Indicates that the user can set the property

n An index to the object.

nAts A long integer value that should reflect one of the following:

adPropNotSupported (value=0), adPropRequired (value=1), adPropOptional (value=2), adPropRead (value=512), adPropWrite (value=1024), or a combination of them.

## ADO\_Property(n)->PutValue

Sets or returns data from Field objects, parameter values with Parameter objects, or property settings with Property objects.

 Note: You can use the Value property to set and return long binary data.

### Syntax

```
ADO_Property(n)->PutValue( VARIANT* pvValue );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvValue	The pointer to the VARIANT retrieves the Value of the property that is in the get, and the value is set in the Put call.

### Example

```
ADO_Property(0)->GetAttributes( pLong );
ADO_Property(0)->GetName( sLoadStr );
ADO_Property(0)->GetType( pLong );
ADO_Property(0)->GetValue( pvValue );
ADO_LoadVariant( pvValue, "8", "A Test String" );
ADO_Property(0)->PutValue( pvValue );
ADO_LoadVariant( pvValue, "8", "Master" );
ADO_Property(0)->PutValue( pvValue );
ADOProperty.Release( 0 );
```



## ADO\_PropertySet(n)->GetCount

Returns the number of ADO Property objects contained within the ADO PropertySet collection.

### Syntax

```
ADO_PropertySet(n)->GetCount( long* pnCount );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pnCount	A pointer to a long containing the number of ADO Property objects in this ADO PropertySet Collection.

### Example

```
ADO_PropertySet(0)->GetCount( pLong );
ADO_PropertySet(0)->Refresh();
```

## ADO\_PropertySet(n)->GetItem

Retrieves a specific ADO Property in the ADO PropertySet collection.

An ADO PropertySet collection is an array of ADO Property objects. GetItem indexes through the array to locate a specific object.

### Syntax

```
ADO_PropertySet(n)->GetItem( VARIANT* pvIndex, CAProperty* pProperty );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvIndex	A pointer to a variant describing the property to be retrieved.
pProperty	An instance of an ADO Property object.

## Example

```
ADO_LoadVariant( pvValue, "2", "3" );
ADO_PropertySet(0)->GetItem( pvValue, ADOProperty[0] );
```

## ADO\_PropertySet(n)->GetNewEnum

Creates the ADO IEnum object.

In order to iterate through all of the ADO PropertySet in an ADO PropertySet collection, an ADO IEnum object is returned. The GetNewEnum call on the ADO PropertySet object creates the ADO IEnum object allowing the enumeration to take place.

## Syntax

```
ADO_PropertySet(n)->GetNewEnum( CAIEnumProperty* pADOIEnum );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pADOIEnum	ADO IEnum object.

## Example

```
ADO_PropertySet(0)->GetNewEnum( ADOIEnum [0] );
while( ADO_IEnum(0)->NextProperty( 1, 0, ADOProperty[0] ) )
{
ADO_Property(0)->GetStatus( pLong );
ADOProperty.Release( 0 );
}
```

## ADO\_PropertySet(n)->Refresh

Updates the objects in a collection to reflect objects available from, and specific to, the provider.

Using the Refresh method on the ADO PropertySet collection has no visible effect.

## Syntax

```
ADO_PropertySet(n)->Refresh();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_PropertySet(0)->GetCount( pLong );
ADO_PropertySet(0)->Refresh();
```

## ADO\_Record(n)->Cancel

Cancels execution of a pending, asynchronous method call.

## Syntax

```
ADO_Record(n)->Cancel();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Record(1)->CopyRecord( "Home", "Away", "sa", adCopyOverWrite, -1 );
ADO_Record(1)->Cancel();
```

## ADO\_Record(n)->Close

Use to close a Recordset, Record, or Stream object.

Any associated data or exclusive access you may have had to the data through this particular object is released. You can reopen the object later using the Open method.

## Syntax

```
ADO_Record(n)->Close();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Record(1)->CopyRecord( "C:\\Home", "D:\\Away", "sa", "sa", adCopyOverWrite, -1 );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->CopyRecord

Copies a file or directory (including its contents) to another location.

**i** Tip: Ensure that the values of Source and Destination are not identical or you will receive a run-time error. One of the server, path, or resource names must differ.

All subdirectories are copied recursively unless adCopyNonRecursive is specified. In a recursive operation, Destination must not be a subdirectory of Source; otherwise, the operation is not able to finish.

Insert your product name ( QALoad , for example)'s implementation of the CopyRecord method makes the call through to the CopyRecord method within the ADO Record object.

Note that the CopyRecordOptionsEnum is often in the form of a number. This occurs when the CopyRecordOptionsEnum is formed from a combination of values.

## Syntax

```
ADO_Record(n)->CopyRecord( char* sSourceString, char* sDestString, char* sUserString, char*
sPasswordString, ADOCopyRecordOptionsEnum nOptions, short bAsync );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sSourceString	String value containing a URL that specifies the entity that is to be copied.
sDestString	String value containing a URL that specifies the location to which the Source is copied.
sUserString	This is the user name used to determine whether a particular user has permission to use this information.
sPasswordString	A String value. The password for the particular user to verify that the user has permission to perform the operation.

nOptions	<p><i>ADOCopyRecordOptionsEnum</i></p> <p>Copy options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adMoveUnspecified</td> <td>Unspecified copy record option</td> </tr> <tr> <td>adMoveOverWrite</td> <td>Overwrite record at location</td> </tr> <tr> <td>adMoveDontUpdateLinks</td> <td>Don't update links when record copied</td> </tr> <tr> <td>adMoveAllowEmulation</td> <td>Allow emulation</td> </tr> </tbody> </table>	Value	Description	adMoveUnspecified	Unspecified copy record option	adMoveOverWrite	Overwrite record at location	adMoveDontUpdateLinks	Don't update links when record copied	adMoveAllowEmulation	Allow emulation
Value	Description										
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adMoveOverWrite	Overwrite record at location										
adMoveDontUpdateLinks	Don't update links when record copied										
adMoveAllowEmulation	Allow emulation										
bAsync	If this is an asynchronous operation.										

### Example

```
ADO_Record(1)->CopyRecord( "C:\\Home", "D:\\Away", "sa", "sa", adCopyOverWrite, -1 );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->DeleteRecord

Deletes a file or directory and all its subdirectories.

After this method is finished, any operations on the file or directory represented by this Record could fail. Close the Record after calling this method.

Insert your product name, QALoad, for example. The DeleteRecord method makes the call through to the DeleteRecord method within the ADO Record object.

### Syntax

```
ADO_Record(n)->DeleteRecord( char* sSourceString, short bAsync );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
sSourceString	A string value that contains a URL identifying the entity to be deleted, for example, the file or directory.
bAsync	Is this an asynchronous call ( -1 TRUE, 0 FALSE )

## Example

```
ADO_Record(1)->DeleteRecord( "\\\\QAServer\\Temp\\GeoffR", 0 );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->GetActiveConnection

Determines the ADO Connect object over which the specified ADO Record object executes.

### Syntax

```
ADO_Record(n)->GetActiveConnection( VARIANT* pvValue );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvValue	A Pointer to a Variant containing the ADO Connect object.

## Example

```
LoadVariant( pvValue, ADOConnect[1] );
ADO_Record(1)->GetActiveConnection( pvValue );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->GetChildren

Returns an ADO Recordset in the form of a Pointer to an ADO Recordset object.

The rows represent the files and subdirectories in the directory represented by this Record.

### Syntax

```
ADO_Record(n)->GetChildren( CARecordSet* pRecordSet );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
pRecordSet	This is the information retrieved from this call. The GetChildren call retrieves the data into a ADO Recordset pointer.

## Example

```
ADO_Record(1)->GetChildren( ADORecordset[1] );
ADO_Record(1)->Close();
```

## ADO\_Record(n)->GetFields

Contains all the Field objects of an ADO Recordset or ADO Record object.

Insert your product name, QALoad , for example. The GetFields method takes care of making the call through to the GetFields method within the ADO Record object. In this call, the ADO Fields object that is returned is wrapped within the ADO FieldSet object.

## Syntax

```
ADO_Record(n)->GetFields( CAFieldSet* pFieldSet );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pFieldSet	Set of fields that compose the record.

## Example

```
ADO_Record(1)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "dsn_name" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_Field(0)->GetValue( pvValue ); /* Type: 8 - VT_BSTR Data: FOCFG */
ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
ADO_Record(1)->MoveNext();
ADO_Record(1)->GetEOF( pVTBOOL );
ADO_Record(1)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "dsn_name" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_Field(0)->GetValue( pvValue ); /* Type: 8 - VT_BSTR Data: FOGRP */
ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
```

## ADO\_Record(n)->GetMode

Sets or returns the access permissions being used on the current connection by the provider.

Note that you can only set this property when the Connection object is closed.

### Syntax

```
ADO_Record(n)->GetMode( long* pMode );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pMode	Retrieves the ConnectionModeEnum from the call and converts that to a long* to be returned to the script.

### Example

```
ADO_Record(1)->GetMode( pLong );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->GetParentURL

Sets the current value of the source property for this instance of the actual ADO Command object.

This property depends on which source is used to open the Record object.

### Syntax

```
ADO_Record(n)->GetParentURL( CLoadString& sParent );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
sParent	CLoadString holding the parent URL retrieved by the call.



## Example

```
ADO_Record(1)->PutSource( "\\QAServer\MyDirectory" );
ADO_Record(1)->GetParentURL( sLoadStr );
ADO_Record(1)->Close();
ADORecord.Release( 1 );
```

## ADO\_Record(n)->GetRecordType

Checks the contents of the ADO RecordType property for this instance of ADO Record object. It returns the RecordTypeEnum in a pointer to a long.

## Syntax

```
ADO_Record(n)->GetRecordType( RecordTypeEnum *pRecordType );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pLong	Pointer to a long containing a RecordTypeEnum value.
pRecordType	Contains the following values <ul style="list-style-type: none"> <li>! adSimpleRecord (value=0)</li> <li>! adCollectionRecord (value=1)</li> <li>! adStructDoc (value=2)</li> </ul>

## Example

```
ADO_Record(1)->PutSource( "\\QAServer\MyDirectory" );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
ADORecord.Release( 1 );
```

## ADO\_Record(n)->GetSource

Indicates the entity represented by the ADO Record object.

The GetSource method retrieves the current value of the source property of the ADO Record object.

## Syntax

```
ADO_Record(n)->GetSource( VARIANT* pvValue );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvValue	Variant holding the value of the source of the Record object.

### Example

```
ADO_Record(1)->GetSource( pvValue );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
ADORecord.Release( 1 );
```

## ADO\_Record(n)->GetState

Determines the state of a given ADO Record object at any time.

### Syntax

```
ADO_Record(n)->GetState( long* pState );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pState	Pointer to a long integer holding the state of the Record object.

### Example

```
ADO_Record(1)->GetState( pLong );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
ADORecord.Release( 1 );
```

## ADO\_Record(n)->MoveRecord

Moves a file or a directory and its contents to another location.

A run-time error occurs if the values of Source and Destination are the same. At least one of the server, path, and resource names must differ.

All hypertext links are updated unless otherwise specified by Options. If an existing file or directory is identified, this method fails unless you specify `adMoveOverWrite`.

Note that the `MoveRecordOptionsEnum` is often in the form of a number. This occurs when the `MoveRecordOptionsEnum` is formed from a combination of values.

## Syntax

```
ADO_Record(n)->MoveRecord( char* sSourceString, char* sDestString, char* sUserString, char*
sPasswordString, ADOMoveRecordOptionsEnum nOptions, short bAsync );
```

## Return Value

## Parameters

Parameter	Description										
n	An index to the object.										
sSourceString	String value containing a URL that specifies the entity that is to be copied.										
sDestString	String value containing a URL that specifies the location to which the Source is copied.										
sUserString	This is the user name used to determine whether a particular user has permission to use this information.										
sPasswordString	A String value. The password for the particular user to verify that the user has permission to perform the operation.										
nOptions	<p><i>ADOMoveRecordOptionsEnum</i></p> <p>Move options. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>adMoveUnspecified</code></td> <td>Unspecified move record option</td> </tr> <tr> <td><code>adMoveOverWrite</code></td> <td>Overwrite record at location</td> </tr> <tr> <td><code>adMoveDontUpdateLinks</code></td> <td>Don't update links when record moved</td> </tr> <tr> <td><code>adMoveAllowEmulation</code></td> <td>Allow emulation</td> </tr> </tbody> </table>	Value	Description	<code>adMoveUnspecified</code>	Unspecified move record option	<code>adMoveOverWrite</code>	Overwrite record at location	<code>adMoveDontUpdateLinks</code>	Don't update links when record moved	<code>adMoveAllowEmulation</code>	Allow emulation
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<code>adMoveDontUpdateLinks</code>	Don't update links when record moved										
<code>adMoveAllowEmulation</code>	Allow emulation										
bAsync	If this is an asynchronous operation.										

## Example

```
ADO_Record(1)->MoveRecord( "C:\\\Home", "D:\\\Away", "sa", "sa", adCopyOverWrite, -1 );
ADO_Record(1)->Cancel();
ADO_Record(1)->Close();
```

## ADO\_Record(n)->Open

Makes the call through to the Open method within the ADO Record object to open an existing ADO Record object, or create a new file or directory.

If the entity represented by the Record object can't be accessed with a URL, the values of the ParentURL property and the field accessed with the adRecordURL constant are null.

 **Note:** The two SetupVariantValue calls must be present. They also present opportunities for variablization of the scripts.

## Syntax

```
ADO_Record(n)->Open( VARIANT* pvSource, VARIANT* pvActiveConnection, ADOConnectModeEnum nMode, ADORecordCreateOptionsEnum nCreateOptions, ADORecordOpenOptionsEnum nOpenOptions, char* sUserName, char* sPassword );
```

## Return Value

## Parameters

Parameter	Description										
n	An index to the object.										
pvSource	A pointer to a variant that may represent the URL of the entity to be represented by this ADO Record object, an ADO Command, an open ADO Recordset or another ADO Record object, a string containing a SQL SELECT statement, or a table name.										
pvActiveConnection	A pointer to a variant that represents the connect string or open ADO Connect object.										
nMode	<p><i>ADOConnectModeEnum</i></p> <p>A ConnectModeEnum value, whose default value is adModeUnknown, that specifies the access mode for the resultant Record object. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adModeUnknown</td> <td>Unknown connection mode</td> </tr> <tr> <td>adModeRead</td> <td>Read-only mode</td> </tr> <tr> <td>adModeWrite</td> <td>Write-only mode</td> </tr> <tr> <td>adModeReadWrite</td> <td>Read-write mode</td> </tr> </tbody> </table>	Value	Description	adModeUnknown	Unknown connection mode	adModeRead	Read-only mode	adModeWrite	Write-only mode	adModeReadWrite	Read-write mode
Value	Description										
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	<p>adModeShareDenyRead      Exclusive read mode</p> <p>adModeShareDenyWrite    Exclusive write mode</p> <p>adModeShareExclusive    Exclusive read-write mode</p> <p>adModeShareDenyNone    Non-exclusive mode</p> <p>adModeRecursive          Recursive mode</p>														
nCreateOptions	<p><i>ADORecordCreateOptionsEnum</i></p> <p>A RecordCreateOptionsEnum value, whose default value is adFailIfNotExists, that specifies whether an existing file or directory should be opened, or a new file or directory should be created. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adFailIfNotExists</td> <td>Default. Results in a run-time error if Source points to a non-existent node</td> </tr> <tr> <td>adCreateNonCollection</td> <td>Creates a new Record of type adSimpleRecord</td> </tr> <tr> <td>adCreateCollection</td> <td>Creates a new Record at the node specified by Source parameter, instead of opening an existing Record</td> </tr> <tr> <td>adOpenIfExists</td> <td>Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc</td> </tr> <tr> <td>adCreateOverwrite</td> <td>Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc</td> </tr> <tr> <td>adCreateStructDoc</td> <td>Creates a new Record of type adStructDoc, instead of opening an existing Record</td> </tr> </tbody> </table>	Value	Description	adFailIfNotExists	Default. Results in a run-time error if Source points to a non-existent node	adCreateNonCollection	Creates a new Record of type adSimpleRecord	adCreateCollection	Creates a new Record at the node specified by Source parameter, instead of opening an existing Record	adOpenIfExists	Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc	adCreateOverwrite	Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc	adCreateStructDoc	Creates a new Record of type adStructDoc, instead of opening an existing Record
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adCreateNonCollection	Creates a new Record of type adSimpleRecord														
adCreateCollection	Creates a new Record at the node specified by Source parameter, instead of opening an existing Record														
adOpenIfExists	Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc														
adCreateOverwrite	Modifies the creation flags adCreateCollection, adCreateNonCollection, and adCreateStructDoc														
adCreateStructDoc	Creates a new Record of type adStructDoc, instead of opening an existing Record														
nOpenOptions	<p><i>ADORecordOpenOptionsEnum</i></p> <p>A RecordOpenOptionsEnum value, whose default value is adOpenRecordUnspecified, that specifies options for opening the ADO Record. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adOpenRecordUnspecified</td> <td>Default. Indicates no options are specified</td> </tr> <tr> <td>adOpenAsync</td> <td>Indicates that the Record object is opened in asynchronous mode</td> </tr> </tbody> </table>	Value	Description	adOpenRecordUnspecified	Default. Indicates no options are specified	adOpenAsync	Indicates that the Record object is opened in asynchronous mode								
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adOpenRecordUnspecified	Default. Indicates no options are specified														
adOpenAsync	Indicates that the Record object is opened in asynchronous mode														

	adDelayFetchStream	Indicates to the provider that the default stream associated with the Record need not be retrieved initially
	adDelayFetchFields	Indicates to the provider that the fields associated with the Record need not be retrieved initially, but can be retrieved at the first attempt to access the field
	adOpenExecuteCommand	Indicates that the Source string contains command text that should be executed
	adOpenOutput	Indicates that if the source points to a node that contains an executable script, then the opened Record will contain the results of the executed script
sUserName	A String value that contains the user ID that, if needed, authorizes access to Source.	
sPassword	A String value that contains the password that, if needed, verifies UserName.	

### Example

```
ADO_LoadVariant( pvSource, "8", "\\QAServer\ MyDirectory" );
ADO_LoadVariant( pvValue, "8", "\\QAServer\ BossDirectory" );
ADO_Record(1)->Open( pvSource, pvValue, adModeReadWrite, adCreateCollection, adOpenOutput,
"sa", "sa" );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```

### ADO\_Record(n)->PutActiveConnection

May contain a connection string or reference to an open ADO Connect object. PutActiveConnection is read/write when the ADO Record object is closed.

When the ADO Record object is open and contains a reference to an open ADO Connect object, PutActiveConnection is read-only.

### Syntax

```
ADO_Record(n)->PutActiveConnection( char* sConnectionString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sConnectionString	A Connection string.

## Example

```
ADO_Record(1)->PutActiveConnection( "DSN=QAServer; UID=sa; PWD=sa" );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```

## ADO\_Record(n)->PutMode

Sets the access permissions being used on the current connection by the provider.

You can only set this property when the ADO Connect object is closed.

## Syntax

```
ADO_Record(n)->PutMode( ADOConnectModeEnum nMode );
```

## Return Value

## Parameters

Parameter	Description								
n	An index to the object.								
nMode	<p><i>ADOConnectModeEnum</i></p> <p>A ConnectModeEnum value, whose default value is adModeUnknown, that specifies the access mode for the resultant Record object. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adModeUnknown</td> <td>Unknown connection mode</td> </tr> <tr> <td>adModeRead</td> <td>Read-only mode</td> </tr> <tr> <td>adModeWrite</td> <td>Write-only mode</td> </tr> </tbody> </table>	Value	Description	adModeUnknown	Unknown connection mode	adModeRead	Read-only mode	adModeWrite	Write-only mode
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adModeUnknown	Unknown connection mode								
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adModeWrite	Write-only mode								

	<code>adModeReadWrite</code>	Read-write mode
	<code>adModeShareDenyRead</code>	Exclusive read mode
	<code>adModeShareDenyWrite</code>	Exclusive write mode
	<code>adModeShareExclusive</code>	Exclusive read-write mode
	<code>adModeShareDenyNone</code>	Non-exclusive mode
	<code>adModeRecursive</code>	Recursive mode

### Example

```
ADO_Record(1)->PutMode( adModeShareDenyNone );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```

## ADO\_Record(n)->PutRefActiveConnection

Specifies the ADO Connect object to be affected by the specified ADO Record object.

The Argument being passed to this call is an ADO Connect. This is resolved through the ADOConnect[#] operator call. In the example below, the ADO Record is associating itself with ADO Connect object index 2.

### Syntax

```
ADO_Record(n)->PutRefActiveConnection( CACConnect* pConnect );
```

### Return Value

### Parameters

Parameter	Description
<code>n</code>	An index to the object.
<code>pConnect</code>	An existing instance of an ADO Connect object.

### Example

```
ADO_Record(1)->PutRefActiveConnection( ADOConnect[2] );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```



## ADO\_Record(n)->PutRefSource

Sets the current value of the source property for this instance of the actual ADO Command object.

The Source property must refer to an object existing within the scope of that ADO Connect.

The Source property returns the Source argument of the ADO Record object Open method. It can contain an absolute or relative URL string. An absolute URL can be used without setting the ActiveConnection property to directly open the ADO Record object. An implicit ADO Connect object is created in this case.

### Syntax

```
ADO_Record(n)->PutRefSource( VARIANT* pvSource );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvSource	A VARIANT representation of a source.

### Example

```
ADO_Record(1)->PutRefSource( pvSource );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```

## ADO\_Record(n)->PutSource

Sets the current value of the source property for this instance of the actual ADO Command object.

The Source property must refer to an object existing within the scope of that ADO Connect.

The Source property returns the Source argument of the ADO Record object Open method. It can contain an absolute or relative URL string. An absolute URL can be used without setting the ActiveConnection property to directly open the ADO Record object. An implicit ADO Connect object is created in this case.

### Syntax

```
ADO_Record(n)->PutSource( char* sSourceString );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
sSourceString	A string representation of an absolute or relative URL.

## Example

```
ADO_Record(1)->PutSource( "\\\\QAServer\\Development Home.htm" );
ADO_Record(1)->GetRecordType( pLong );
ADO_Record(1)->Close();
```

## ADO\_Recordset(n)->AddNew

Creates a new record for an updatable ADO Recordset object.

After AddNew is called, the new record becomes current and remains so after you call the Update method. If the ADO Recordset object doesn't support bookmarks, you may not be able to access the new record after moving to another record. You may need to call the Requery method to make the new record accessible.

In the example below, an empty row is being added to the end of the just opened ADO Recordset.

## Syntax

```
ADO_Recordset(n)->AddNew( VARIANT* pvFieldList, VARIANT* pvValues );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvFieldList	A pointer to a Variant containing an Array of fields that compose the ADO Recordset.
pvValues	A pointer to an array of values corresponding to the array of fields.

## Example

```
ADO_LoadVariant( pvSource, "8", "select sPhone, sExtension,
                        sDescription" ", iRecordID, sStudentID from PHONE
                        where"sStudentID='S123456'" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(27)->Open( pvSource, pvValue, adOpenDynamic,
                        adLockBatchOptimistic, -1 );
ADO_Recordset(27)->GetEOF( pVTBOOL );
ADO_LoadVariant( pvSource, "10", "2147614724" );
```

```
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Recordset(27)->AddNew( pvSource, pvValue );
```

## ADO\_Recordset(n)->Cancel

Cancels execution of a pending, asynchronous method call.

### Syntax

```
ADO_Recordset(n)->Cancel();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Recordset(0)->PutCursorLocation( adUseServer );
ADO_LoadVariant( pvSource, "8", "SELECT * FROM test_table " );
LoadVariant( pvValue, ADOConnect[0] );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Cancel();
```

## ADO\_Recordset(n)->CancelBatch

Cancels any pending updates in an ADO Recordset that is in batch update mode.

If the ADO Recordset is in immediate update mode and you call CancelBatch without adAffectCurrent, an error results.

### Syntax

```
ADO_Recordset(n)->CancelBatch( ADOAffectEnum nAffect );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

n	An index to the object.										
nAffect	<p><i>ADOAffectEnum</i></p> <p>The recordset affect enumerator. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adAffectCurrent</td> <td>Affects current only</td> </tr> <tr> <td>adAffectGroup</td> <td>Affects group</td> </tr> <tr> <td>adAffectAll</td> <td>Affects all</td> </tr> <tr> <td>adAffectAllChapters</td> <td>Affects all chapters</td> </tr> </tbody> </table>	Value	Description	adAffectCurrent	Affects current only	adAffectGroup	Affects group	adAffectAll	Affects all	adAffectAllChapters	Affects all chapters
Value	Description										
adAffectCurrent	Affects current only										
adAffectGroup	Affects group										
adAffectAll	Affects all										
adAffectAllChapters	Affects all chapters										

### Example

```
ADO_Recordset(27)->Open( pvSource, pvValue, adOpenDynamic, adLockBatchOptimistic, -1 );
ADO_Recordset(27)->CancelBatch(adAffectCurrent );
```

## ADO\_Recordset(n)->CancelUpdate

Cancels any changes made to the current row or discards a new row of an ADO Recordset object before calling the Update method.

You can only cancel changes to a current or new row after calling the Update method under the following conditions:

- ! The changes are part of a transaction that you can roll back with the RollbackTrans method.
- ! The changes are part of a batch update.

### Syntax

```
ADO_Recordset(n)->CancelUpdate();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Recordset(27)->Open( pvSource, pvValue, adOpenDynamic, adLockBatchOptimistic, -1 );
ADO_Recordset(27)->CancelUpdate();
```

## ADO\_Recordset(n)->Clone

Duplicates an ADO Recordset object. Can specify that the clone be read-only.

Use to create duplicate ADO Recordset objects, especially if you want to maintain more than one current record in a given set of records. Using this method is more efficient than creating and opening a new ADO Recordset object with the same definition as the original.

### Syntax

```
ADO_Recordset(n)->Clone( ADOLockTypeEnum nLock, CRecordSet* pRecordSet, CADOLoadBookmark& cBookmarks );
```

### Return Value

### Parameters

Parameter	Description												
n	An index to the object.												
nLock	<p><i>ADOLockTypeEnum</i></p> <p>This is the type of locking that should occur to the recordset while the cloning operation is taking place. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adLockUnspecified</td> <td>Unspecified lock option</td> </tr> <tr> <td>adLockReadOnly</td> <td>Read-only lock</td> </tr> <tr> <td>adLockPessimistic</td> <td>Pessimistic lock</td> </tr> <tr> <td>adLockOptimistic</td> <td>Optimistic lock</td> </tr> <tr> <td>adLockBatchOptimistic</td> <td>Batch optimistic lock</td> </tr> </tbody> </table>	Value	Description	adLockUnspecified	Unspecified lock option	adLockReadOnly	Read-only lock	adLockPessimistic	Pessimistic lock	adLockOptimistic	Optimistic lock	adLockBatchOptimistic	Batch optimistic lock
Value	Description												
adLockUnspecified	Unspecified lock option												
adLockReadOnly	Read-only lock												
adLockPessimistic	Pessimistic lock												
adLockOptimistic	Optimistic lock												
adLockBatchOptimistic	Batch optimistic lock												
pRecordSet	This is the new instance of the ADO Recordset cloned from the calling ADO_Recordset(n).												
cBookmarks	The globally available container of LoadBookmarks.												

### Example

```
ADO_Recordset(1)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
ADO_Recordset(1)->GetEOF( pVTBOOL );
ADO_Recordset(1)->Clone(adLockOptimistic, ADORecordset[2], ADOBM );
```

## ADO\_Recordset(n)->Close

Closes an open object and any dependent objects.

When used to close an ADO Recordset, it releases the associated data and any exclusive access you may have had to the data through this object.

ActiveX Data Objects (ADO) comprises a series of objects, which have states. In the ADO Recordset and ADO Connect objects, it is important to close the object before releasing the object.

### Syntax

```
ADO_Recordset(n)->Close();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_LoadVariant( pvSource, "8", "SELECT * FROM Test_Table " );
LoadVariant( pvValue, ADOConnect[0] );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Close();
ADORecordset.Release( 0, ADOBM );
```

## ADO\_Recordset(n)->CompareBookmarks

Compares two bookmarks and returns an indication of their relative values.

Compared bookmarks must apply to the same ADO Recordset object or an ADO Recordset object and its clone. Bookmarks from different ADO Recordset objects can't be compared reliably, even when created from the same source or command. An ADO Recordset object's underlying provider must support comparisons.

### Syntax

```
ADO_Recordset(n)->CompareBookmarks( CLoadBookmark* pBM1, CLoadBookmark* pBM2, long* pCompare );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pBM1	A pointer to a CLoadBookmark.
pBM2	A pointer to a CLoadBookmark.
pCompare	A pointer to a long, containing the return value.

## Example

```
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
BeginCheckpoint("ADORecordset::CompareBookmarks");
ADO_Recordset(0)->CompareBookmarks( ADOBM[0], ADOBM[0], pLong );
EndCheckpoint("ADORecordset::CompareBookmarks");
```

## ADO\_Recordset(n)->Delete

Use to delete the current record or a group of records.

This method marks the current record or a group of records in an ADO Recordset object for deletion. If the object does not allow record deletion, an error occurs. In immediate update mode, deletions occur immediately.

## Syntax

```
ADO_Recordset(n)->Delete( ADOAffectEnum nAffect );
```

## Return Value

## Parameters

Parameter	Description						
n	An index to the object.						
nAffect	<p><i>ADOAffectEnum</i></p> <p>The recordset affect enumerator. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adAffectCurrent</td> <td>Affects current only</td> </tr> <tr> <td>adAffectGroup</td> <td>Affects group</td> </tr> </tbody> </table>	Value	Description	adAffectCurrent	Affects current only	adAffectGroup	Affects group
Value	Description						
adAffectCurrent	Affects current only						
adAffectGroup	Affects group						

	adAffectAll	Affects all
	adAffectAllChapters	Affects all chapters

### Example

```
ADO_Recordset(0)->AddNew( pvSource, pvValue );
EndCheckpoint("ADORecordset::AddNew");
BeginCheckpoint("ADORecordset::Find");
ADO_Recordset(0)->Find("test_number = 99", 0, adSearchForward, ADOBM[2] );
EndCheckpoint("ADORecordset::Find");
ADO_Recordset(0)->Delete( adAffectCurrent );
```

### ADO\_Recordset(n)->Find

Locates a row in an ADO Recordset that matches specified criteria.

You may specify the search direction, starting row, and offset from the starting row. When the criteria is met, the found record becomes the current row position. If not met, the current row position is set to the end or start of the ADO Recordset.

### Syntax

```
ADO_Recordset(n)->Find ( char* sSearchString, long nStartOffset, ADOSearchDirectionEnum
nUpOrDown, CLoadBookmark* pBMStart );
```

### Return Value

### Parameters

Parameter	Description				
n	An index to the object.Criteria String value containing a statement that specifies the column name, comparison operator, and value to use in the search.				
sSearchString	String value containing a statement that specifies the column name, comparison operator, and value to use in the search.				
nStartOffset	Long value specifying the row offset from the current row or Start bookmark to begin the search. Default is zero. The search starts on the current row, by default.				
nUpOrDown	<p><i>ADOSearchDirectionEnum</i></p> <p>(Optional) SearchDirectionEnum value specifying if the search should begin on the current or next available row in the direction of the search. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Value	Description		
Value	Description				



	adSearchForward	Search direction forward
	adSearchBackward	Search direction backward
pBMStart	(Optional) Variant bookmark that is the starting position for the search.	

## Example

```
ADO_Recordset(0)->AddNew( pvSource, pvValue );
EndCheckpoint("ADORecordset::AddNew");
BeginCheckpoint("ADORecordset::Find");
ADO_Recordset(0)->Find("test_number = 99", 0, adSearchForward, ADOBM[2] );
EndCheckpoint("ADORecordset::Find");
ADO_Recordset(0)->Delete( adAffectCurrent );
```

## ADO\_Recordset(n)->GetAbsolutePage

Identifies, by page number, where the current record resides.

### Syntax

```
ADO_Recordset(n)->GetAbsolutePage( long* pPage );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pPage	Pointer to a long returning the page number.

## Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->GetAbsolutePosition

Specifies the ordinal position of the current record of an ADO Recordset object.

Use this method to locate a record based on its ordinal position, or to determine the current record's ordinal position. This is only available if your provider supports the appropriate functionality.

## Syntax

```
ADO_Recordset(n)->GetAbsolutePosition( long* pAbsPos );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pAbsPos	Pointer to a long.

## Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->GetActiveCommand

Specifies the ADO Command object that created an ADO Recordset object.

A Null object reference is returned if the ADO Recordset was not created by an ADO Command object.

Use this property to determine the ADO Command object when only the ADO Recordset object is known. This function is only converted if there is an ADO Command object associated with this ADO Recordset. This is determined at conversion time.

## Syntax

```
ADO_Recordset(n)->GetActiveCommand( IDispatch** ppIDispatch );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
ppIDispatch	Pointer to pointer to IDispatch reference to object.

## ADO\_Recordset(n)->GetActiveConnection

For a Command, ADO Recordset, or ADO Record object, specifies the associated ADO Connect object.

This property is read-only for open ADO Recordset objects or those whose Source property is set to a valid Command object. Otherwise, it is read/write.

### Syntax

```
ADO_Recordset(n)->GetActiveConnection( VARIANT* pvConnection );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvConnection	Pointer to the Connection object.

### Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->GetBOF

Determines if an ADO Recordset object contains records or if you've gone beyond its limits while moving from record to record.

If the current record position is before the first record, GetBOF returns True (-1). If it is on or after the first record, GetBOF returns False (0).

### Syntax

```
ADO_Recordset(n)->GetBOF( VARIANT_BOOL* pBOF );
```

### Return Value

1 (True) if the current record position is before the first record.

0 (False) if the current is on or after the first record.

## Parameters

Parameter	Description
n	An index to the object.
pBOF	A pointer to a VARIANT_BOOL.

## Example

```
ADO_Recordset(0)->GetActiveConnection( pvValue );
ADO_Recordset(0)->GetBOF( pVTBOOL );
ADO_Recordset(0)->PutSource("Select * from test_table where " "keyval < 100" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(0)->PutActiveConnection( pvValue );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockPessimistic, -1 );
```

## ADO\_Recordset(n)->GetBookmark

Indicates a bookmark identifying an ADO Recordset object's current record, or sets the current record to that identified by a bookmark.

Use to save the position of the current record and return to it at any time. Bookmarks are available only in ADO Recordset objects that support bookmark functionality.

## Syntax

```
ADO_Recordset(n)->GetBookmark( CLoadBookmark* pBookmark );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pBookmark	A Pointer to a CLoadBookmark instance.

## Example

```
ADO_Recordset(0)->GetEOF( pVTBOOL );
ADO_Recordset(0)->GetBookmark( ADOBM[0] );
```

## ADO\_Recordset(n)->GetCacheSize

Specifies the number of records in the ADO Recordset that are cached locally.

Use to control how many records the provider keeps in its buffer and how many to retrieve at one time into local memory.

## Syntax

```
ADO_Recordset(n)->GetCacheSize( long* pSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pSize	Pointer to a long value of the number of records in the ADO Recordset cached locally.

## Example

```
ADO_Recordset(0)->PutPageSize( 4 );
ADO_Recordset(0)->GetPageSize( pLong );
ADO_Recordset(0)->GetCacheSize( pLong );
ADO_Recordset(0)->PutCacheSize( 6 );
```

## ADO\_Recordset(n)->GetCollect

This is a hidden method. It is undocumented within MSDN. If you are looking at incorporating this method, please examine the example below.

 **Note:** Compuware does not recommend adding this method to a script.

## Syntax

```
ADO_Recordset(n)->GetCollect( VARIANT* pvIndex, VARIANT* pvValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvIndex	A Pointer to a variant – perhaps the field name or ordinal.
pvData	A Pointer to a variant– perhaps the data for that field.

## Example

```
ADO_Recordset(5)->GetState( pLong );
ADO_LoadVariant( pvValue, "8", "sFirstName" );
ADO_Recordset(5)->GetCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sLastName" );
ADO_Recordset(5)->GetCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sMiddleInitial" );
ADO_Recordset(5)->GetCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sSSN" );
ADO_Recordset(5)->GetCollect( pvValue, pvData );
```

## ADO\_Recordset(n)->GetCursorLocation

Specifies the library that the cursor service uses.

Allows you to choose between various cursor libraries accessible to the provider. Normally, the library can be client-side or on the server.

### Syntax

```
ADO_Recordset(n)->GetCursorLocation( long* pCursorLoc );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pCursorLoc	A pointer to a long's representation of the CursorLocationEnum returned by the call. This is then sent back to the script for the user.

## Example

```
ADO_Recordset(0)->GetCacheSize( pLong );
ADO_Recordset(0)->PutCacheSize( 1 );
ADO_Recordset(0)->GetCursorLocation( pLong );
ADO_Recordset(0)->PutCursorLocation( adUseClient );
```

## ADO\_Recordset(n)->GetCursorType

Specifies the type of cursor to use when opening the ADO Recordset object.

If the CursorLocation property is set to adUseClient, the only setting supported is adOpenStatic. If an unsupported value is set, the closest supported CursorType will be used instead.

### Syntax

```
ADO_Recordset(n)->GetCursorType( long* pCursorType );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pCursorType	A pointer to a long's representation of the CursorLocationEnum returned by the call. This is then sent back to the script for the user.

## Example

```
ADO_Recordset(0)->GetCursorLocation( pLong );
ADO_Recordset(0)->PutCursorLocation( adUseServer );
ADO_Recordset(0)->GetCursorType( pLong );
ADO_Recordset(0)->PutCursorType( adOpenDynamic );
```

## ADO\_Recordset(n)->GetDataMember

Specifies the data member to be retrieved from the object referenced by the DataSource property.  
Creates data-bound controls with the Data Environment.

## Syntax

```
ADO_Recordset(n)->GetDataMember( CLoadString& sDataMember );
```

## Return Value

\

## Parameters

Parameter	Description
n	An index to the object.
sDataMember	A CLoadString containing a string representation of the data Member.

## Example

```
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenKeyset, adLockOptimistic, -1 );
ADO_Recordset(0)->GetDataMember( sLoadStr );
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
```

## ADO\_Recordset(n)->GetDataSource

Specifies an object containing data to be represented as an ADO Recordset object.

Creates data-bound controls with the Data Environment. GetDataSource takes a handle to an IUnknown as its argument. This is a pointer to a pointer. Please be careful dereferencing this element.

### Syntax

```
ADO_Recordset(n)->GetDataSource( IUnknown** ppIUnknown );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
ppIUnknown	A pointer to a pointer to a returned COM object.

### Example

```
ADO_Recordset(1)->GetDataSource( &pIUnknown );
ADO_Recordset(2)->GetActiveConnection( pvValue );
ADO_Recordset(2)->GetCursorType( pLong );
```

## ADO\_Recordset(n)->GetEditMode

Specifies the current record's editing status.

Indicates whether changes have been made to this buffer associated with the current record, or whether a new record has been created. Use to determine the current record's editing status.

### Syntax

```
ADO_Recordset(n)->GetEditMode( long* pEMode );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pEMode	A pointer to a long.



## Example

```
ADO_Recordset(0)->GetEditMode( pLong );
ADO_Recordset(0)->GetFilter( pvValue );
ADO_LoadVariant( pvValue, "8", "tinyint_col = 99" );
ADO_Recordset(0)->PutFilter( pvValue );
```

## ADO\_Recordset(n)->GetEOF

Indicates that the current record position is after the last record in an ADO Recordset object.

### Syntax

```
ADO_Recordset(n)->GetEOF( VARIANT_BOOL* pEOF );
```

### Return Value

1 (True) if the current record position is after the last record.

0 (False) if the current record is on or before the last record.

### Parameters

Parameter	Description
n	An index to the object.
pEOF	True (-1) or false (0).

## Example


```
BeginCheckpoint("ADOREcordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADOREcordset::Open");
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->GetEOF( pVTBOOL );
ADO_Recordset(0)->MoveNext();
```

## ADO\_Recordset(n)->GetFields

Returns a container of an ADO Recordset or ADO Record object's Field objects.

QALoad's implementation of the GetFields method takes care of making the call through to the GetFields method within the ADO Recordset object. The Argument is one of the ADOFieldSet elements.

Retrieves an ADO Recordset object's ADO FieldSet object. This is an important step in variablization.

 **Note:** This function is not currently being converted in the script; however, this method can be used in conjunction with ADO\_Field(n)->GetItem( ) to return data from a specific field of a particular recordset. It can be turned on or off using the QALoad Script Development Workbench's Convert Options wizard.

### Syntax

```
ADO_Recordset(n)->GetFields( CAFieldSet* pFieldSet );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pFieldSet	An instance of the container of fields for a particular recordset.

### Example

The following example illustrates returning the first field from the current recordset.

```
ADO_LoadVariant( pvSource, "8", "select * from test_table" );
ADO_LoadVariant( pvValue, "8", "PROVIDER=MSDASQL;
dsn=" FhLoadDB2;uid=sa;pwd=;database=Master;" );
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenDynamic, adLockPessimistic, 1 );
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
ADO_FieldSet(0)->GetCount( pLong );
ADO_FieldSet(0)->Refresh();
ADO_LoadVariant( pvValue, "2", "1" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
```

## ADO\_Recordset(n)->GetFilter

Specifies a filter for data in an ADO Recordset.

Use to screen out records in an ADO Recordset object. The filtered ADO Recordset becomes the current cursor.

### Syntax

```
ADO_Recordset(n)->GetFilter( VARIANT* pvFilter );
```

## Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvFilter	A pointer to a VARIANT.

### Example

```
ADO_Recordset(0)->GetEditMode( pLong );
ADO_Recordset(0)->GetFilter( pvValue );
```

```
ADO_LoadVariant( pvValue, "8", "tinyint_col = 99" );
ADO_Recordset(0)->PutFilter( pvValue );
```

## ADO\_Recordset(n)->GetIndex

This is a hidden method. It is undocumented within MSDN.

 Note: Neither QALoad support professionals nor development recommend adding this method to a script.

### Syntax

```
ADO_Recordset(n)->GetIndex( CLoadString& sIndex );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
sIndex	A CLoadString object encapsulating some string data.

## ADO\_Recordset(n)->GetLockType

Specifies the type of locks placed on records during editing.

Set before opening an ADO Recordset to determine what type of locking the provider should use when opening the ADO Recordset. Read the property to return the type of locking in us.

### Syntax

```
ADO_Recordset(n)->GetLockType( long* pLockType );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pLockType	A pointer to a long.

## Example

```
ADO_Recordset(0)->GetCursorType( pLong );
ADO_Recordset(0)->PutCursorType( adOpenForwardOnly );
ADO_Recordset(0)->GetLockType( pLong );
ADO_Recordset(0)->PutLockType( adLockOptimistic );
```

## ADO\_Recordset(n)->GetMarshalOptions

Specifies records to be marshaled back to the server.

### Syntax

```
ADO_Recordset(n)->GetMarshalOptions( long* pMO );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pMO	Pointer to a long.

## Example

```
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockPessimistic, -1 );
ADO_Recordset(0)->GetMarshalOptions( pLong );
ADO_Recordset(0)->PutPageSize( 4 );
```

## ADO\_Recordset(n)->GetMaxRecords

Specifies the maximum number of records to return to an ADO Recordset from a query.

Use to limit the number of records that the provider returns. The default, zero, indicates the provider returns all requested records.

### Syntax

```
ADO_Recordset(n)->GetMaxRecords( long* pMaxRecs );
```

### Return Value

## Parameters

Parameters	Description
n	An index to the object.
pMaxRecs	A pointer to a long.

## Example

```
ADO_Recordset(0)->GetLockType( pLong );
ADO_Recordset(0)->PutLockType( adLockReadOnly );
ADO_Recordset(0)->GetMaxRecords( pLong );
ADO_Recordset(0)->PutMaxRecords( 10 );
```

## ADO\_Recordset(n)->GetPageCount

Specifies the number of pages of data contained in the ADO Recordset object.

## Syntax

```
ADO_Recordset(n)->GetPageCount( long* pPages );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pPages	A pointer to a long.

## Example

```
ADO_Recordset(0)->PutPageSize( 4 );
ADO_Recordset(0)->GetPageCount( pLong );
ADO_Recordset(0)->GetAbsolutePage( pLong );
```

## ADO\_Recordset(n)->GetPageSize

Indicates the number of records that make up a single page in the ADO Recordset.

Use to determine how many records make up a logical page of data, which allows you to use the AbsolutePage property.

## Syntax

```
ADO_Recordset(n)->GetPageSize( long* pPSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pPSize	A pointer to a long.

## Example

```
ADO_Recordset(0)->GetMarshalOptions( pLong );
ADO_Recordset(0)->GetPageSize( pLong );
ADO_Recordset(0)->PutPageSize( 4 );
ADO_Recordset(0)->GetPageCount( pLong );
ADO_Recordset(0)->GetAbsolutePage( pLong );
```

## ADO\_Recordset(n)->GetProperties

Retrieves the complete set of properties for this particular instance of the Recordset object.

The CAField object has a collection of property objects. Each property object corresponds to a characteristic of the ADO object specific to the provider. Property sets may change for different providers.

## Syntax

```
ADO_Recordset(n)->GetProperties( CAPropertySet* pPropertySet );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pPropertySet	Set of CAProperty objects. Each CAProperty object contains a single characteristic, a piece of data, that partially describes the state of a particular instance of an object.

## Example

```
ADO_Recordset(0)->GetMaxRecords( pLong );
ADO_Recordset(0)->GetMaxRecords( pLong );
ADO_Recordset(0)->GetState( pLong );
ADO_Recordset(0)->GetProperties( ADOPropertySet[0] );
ADOPropertySet.Release( 0 );
```

## ADO\_Recordset(n)->GetRecordCount

Indicates the number of records in an ADO Recordset object.

If ADO cannot determine the number, or if the provider or cursor type doesn't support RecordCount, GetRecordCount returns -1. An error results if GetRecordCount is used on a closed ADO Recordset.

### Syntax

```
ADO_Recordset(n)->GetRecordCount( long* pNumRecs );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pNumRecs	A pointer to a long.

### Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->GetRows

Retrieves multiple records of an ADO Recordset object into an array.

### Versions

Versions of ADO\_Recordset(n)->GetRows are:

```
ADO_Recordset(n)->GetRows( long nNumRows, VARIANT* pvStart, VARIANT* pvFields, VARIANT*
pvReturnedRows );
```

```
ADO_Recordset(n)->GetRows( long nNumRows, CLoadBookmark* pBMStart, VARIANT* pvFields,
VARIANT* pvReturnedRows );
```

## ADO\_Recordset(n)->GetSort

Indicates one or more field names on which the ADO Recordset is sorted, and whether each field is sorted in ascending or descending order.

### Syntax

```
ADO_Recordset(n)->GetSort( CLoadString& sSort );
```

### Return Value

\

### Parameters

Parameter	Description
n	An index to the object.
sSort	A CLoadString containing the field to sort by.

## ADO\_Recordset(n)->GetSource

Indicates the data source for a Recordset object.

Use the Source property to specify a data source for a Recordset object using one of the following: a Command object variable, an SQL statement, a stored procedure, or a table name. The Variant that is passed into the function is initialized before the call is made so that it properly receives the variant information coming back from the call.

### Syntax

```
ADO_Recordset(n)->GetSource( VARIANT* pvValue );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvValue	A pointer to a VARIANT.



## Example

```
ADO_LoadVariant( pvValue, "3", "0" );
ADO_Recordset(0)->PutFilter( pvValue );
ADO_Recordset(0)->GetSource( pvSource );
ADO_Recordset(0)->GetStatus( pLong );
```

## ADO\_Recordset(n)->GetState

Indicates for all applicable objects whether the state of the object is open or closed.

Indicates for all applicable objects executing an asynchronous method, whether the current state of the object is connecting, executing, or retrieving.

## Syntax

```
ADO_Recordset(n)->GetState( long* pState );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pState	A pointer to a long.

## Example

```
ADO_Recordset(0)->PutMaxRecords( 0 );
ADO_Recordset(0)->GetState( pLong );
ADO_Recordset(0)->GetStayInSync( pVTBOOL );
```

## ADO\_Recordset(n)->GetStatus

Indicates the status of the current record with respect to batch updates or other bulk operations.

## Syntax

```
ADO_Recordset(n)->GetStatus( long* pStatus );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pStatus	A pointer to a long.

## Example

```
ADO_LoadVariant( pvValue, "3", "0" );
ADO_Recordset(0)->PutFilter( pvValue );
ADO_Recordset(0)->GetSource( pvSource );
ADO_Recordset(0)->GetStatus( pLong );
```

## ADO\_Recordset(n)->GetStayInSync

Indicates, in a hierarchical ADO Recordset object, whether the reference to the underlying child records (that is, the chapter) changes when the parent row position changes.

This property applies to hierarchical recordsets, such as those supported by the Microsoft Data Shaping Service for OLE DB. It must be set on the parent ADO Recordset before the child ADO Recordset is retrieved. This property simplifies navigating hierarchical recordsets.

Since the VARIANT\_BOOL datatype used by ADO is a direct mapping to the short datatype, QALoad uses the short datatype for this call.

## Syntax

```
ADO_Recordset(n)->GetStayInSync( short* pStayInSync );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pStayInSync	A pointer to a VARIANT_BOOL.

## Example

```
ADO_Recordset(0)->GetStayInSync( pVTBOOL );
ADO_Recordset(0)->PutStayInSync( FALSE );
ADO_LoadVariant( pvSource, "8", "select * from test_table where keyval < 100" );
ADO_LoadVariant( pvValue, "8", "PROVIDER=MSDASQL;dsn="
"fhLoadDB2;uid=sa;pwd=;database=Master;" );
BeginCheckpoint("ADOREcordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenUnspecified, adLockUnspecified, -1 );
EndCheckpoint("ADOREcordset::Open");
```

## ADO\_Recordset(n)->GetString

Returns the ADO Recordset as a string.

Row data, but no schema data, is saved to the string. Therefore, an ADO Recordset cannot be re-opened using this string.

### Syntax

```
ADO_Recordset(n)->GetString( ADOStringFormatEnum nStringFormat, long nNumRows, char*
sColDelimitString, char* sRowDelimitString, char* sNullExpString, CLoadString& sRetString );
```

### Return Value

### Parameters

Parameter	Description				
n	An index to the object.				
nStringFormat	<p><i>ADOStringFormatEnum</i></p> <p>The string format. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adClipString</td> <td>Clip String</td> </tr> </tbody> </table>	Value	Description	adClipString	Clip String
Value	Description				
adClipString	Clip String				
nNumRows	Number of rows to be saved to string.				
sColDelimitString	String with the column delimiter.				
sRowDelimitString	String with the row delimiter.				
sNullExpString	String with the NULL expression.				
sRetString	A CLoadString containing the string being returned.				

### Example

```
ADO_Recordset(0)->MoveFirst();
BeginCheckpoint("ADORecordset::GetString");
ADO_Recordset(0)->GetString( adClipString, -1, "", "", "", sLoadStr );
EndCheckpoint("ADORecordset::GetString");
ADO_LoadVariant( pvValue, "3", "1" );
BeginCheckpoint("ADORecordset::Move");
ADO_Recordset(0)->Move( 5, pvValue );
EndCheckpoint("ADORecordset::Move");
```

## ADO\_Recordset(n)->Move

Moves the position of the current record in an ADO Recordset object.

If the NumRecords argument is greater than zero, the current record position moves forward, toward the end of the ADO Recordset. If NumRecords is less than zero, the current record position moves backward, toward the beginning of the ADO Recordset.

If the Move call moves the current record position to a point before the first record, ADO sets the current record to the position before the first record in the recordset (BOF is True). An attempt to move backward when the BOF property is already True generates an error.

### Syntax

```
ADO_Recordset(n)->Move( long nNumRecs, VARIANT* pVar );
```

or

```
ADO_Recordset(n)->Move( long nNumRecs, CLoadBookmark* pBM );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nNumRecs	Specifies the number of records that the current record position moves.
pVar	VARIANT pointer to record value.
pBM	Pointer to CLoadBookmark object serving as the starting point.

### Example

```
BeginCheckpoint("ADORecordset::GetString");
ADO_Recordset(0)->GetString( adClipString, -1, "", "", "", sLoadStr );
EndCheckpoint("ADORecordset::GetString");
ADO_LoadVariant( pvValue, "3", "1" );
BeginCheckpoint("ADORecordset::Move");
ADO_Recordset(0)->Move( 5, pvValue );
EndCheckpoint("ADORecordset::Move");
```

## ADO\_Recordset(n)->MoveFirst

Use the MoveFirst method to move the current record position to the first record in the ADO Recordset.

### Syntax

```
ADO_Recordset(n)->MoveFirst();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_LoadVariant( pvSource, "8", "SELECT * From test_table " );
LoadVariant( pvValue, ADOConnect[0] );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->GetEOF( pVTBOOL );
ADO_Recordset(0)->MoveNext();
```

## ADO\_Recordset(n)->MoveLast

Use the MoveLast method to move the current record position to the last record in the ADO Recordset.

The ADO Recordset object must support bookmarks or backward cursor movement; otherwise, the method call generates an error.

## Syntax

```
ADO_Recordset(n)->MoveLast();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->MoveNext();
ADO_Recordset(0)->MovePrevious();
ADO_Recordset(0)->MoveLast();
```

## ADO\_Recordset(n)->MoveNext

Use the MoveNext method to move the current record position one record forward, toward the bottom of the ADO Recordset.

If the last record is the current record and you call the MoveNext method, ADO sets the current record to the position after the last record in the ADO Recordset (EOF is True). An attempt to move forward when the EOF property is already True generates an error.

### Syntax

```
ADO_Recordset(n)->MoveNext();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_LoadVariant( pvSource, "8", "SELECT * From test_table " );
LoadVariant( pvValue, ADOConnect[0] );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->GetEOF( pVTBOOL );
ADO_Recordset(0)->MoveNext();
```

## ADO\_Recordset(n)->MovePrevious

Moves the current record position one record backward, toward the top of the ADO Recordset.

The ADO Recordset object must support bookmarks or backward cursor movement; otherwise, the method call generates an error. If the first record is the current record and you call the MovePrevious method, ADO sets the current record to the position before the first record in the ADO Recordset (BOF is True).

### Syntax

```
ADO_Recordset(n)->MovePrevious();
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->MoveNext();
ADO_Recordset(0)->MovePrevious();
ADO_Recordset(0)->MoveLast();
```

## ADO\_Recordset(n)->NextRecordset

Clears the current ADO Recordset object and returns the next ADO Recordset by advancing through a series of commands.

Use the NextRecordset method to return the results of the next command in a compound command statement or of a stored procedure that returns multiple results. If you open an ADO Recordset object based on a compound command statement, for example, "SELECT \* FROM table1;SELECT \* FROM table2" using the Execute method on a Command or the Open method on an ADO Recordset, ADO executes only the first command and returns the results to recordset.

## Syntax

```
ADO_Recordset(n)->NextRecordset( VARIANT* pvAffects, CRecordSet* pADORecordSet );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvAffects	A pointer to a VARIANT.
pADORecordSet	ADORecordset instantiated by the returned data.

## ADO\_Recordset(n)->Open

Using the Open method on an ADO Recordset object opens a cursor that represents records from a base table, the results of a query, or a previously saved ADO Recordset.

## Syntax

```
ADO_Recordset(n)->Open( VARIANT* pvSource, VARIANT* pvConnect, ADOCursorTypeEnum nCursorType, ADOLockTypeEnum nLockType, ADOCommandTypeEnum nOptions );
```

## Return Value

## Parameters

Parameter	Description												
n	An index to the object.												
pvSource	A pointer to a VARIANT.												
pvConnect	A pointer to a VARIANT.												
nCursorType	<p><i>ADOCursorTypeEnum</i></p> <p>The CursorTypeEnum argument can be:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adOpenUnspecified</td> <td>Unspecified Cursor Open option</td> </tr> <tr> <td>adOpenForwardOnly</td> <td>Forward-only Cursor</td> </tr> <tr> <td>adOpenKeyset</td> <td>KeySet cursor</td> </tr> <tr> <td>adOpenDynamic</td> <td>Dynamic cursor</td> </tr> <tr> <td>adOpenStatic</td> <td>Static cursor</td> </tr> </tbody> </table>	Value	Description	adOpenUnspecified	Unspecified Cursor Open option	adOpenForwardOnly	Forward-only Cursor	adOpenKeyset	KeySet cursor	adOpenDynamic	Dynamic cursor	adOpenStatic	Static cursor
Value	Description												
adOpenUnspecified	Unspecified Cursor Open option												
adOpenForwardOnly	Forward-only Cursor												
adOpenKeyset	KeySet cursor												
adOpenDynamic	Dynamic cursor												
adOpenStatic	Static cursor												
nLockType	<p><i>ADOLockTypeEnum</i></p> <p>This is the type of locking that should occur to the recordset while the cloning operation is taking place. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adLockUnspecified</td> <td>Unspecified lock option</td> </tr> <tr> <td>adLockReadOnly</td> <td>Read-only lock</td> </tr> <tr> <td>adLockPessimistic</td> <td>Pessimistic lock</td> </tr> <tr> <td>adLockOptimistic</td> <td>Optimistic lock</td> </tr> <tr> <td>adLockBatchOptimistic</td> <td>Batch optimistic lock</td> </tr> </tbody> </table>	Value	Description	adLockUnspecified	Unspecified lock option	adLockReadOnly	Read-only lock	adLockPessimistic	Pessimistic lock	adLockOptimistic	Optimistic lock	adLockBatchOptimistic	Batch optimistic lock
Value	Description												
adLockUnspecified	Unspecified lock option												
adLockReadOnly	Read-only lock												
adLockPessimistic	Pessimistic lock												
adLockOptimistic	Optimistic lock												
adLockBatchOptimistic	Batch optimistic lock												
nOptions													



<i>ADOCmdTypeEnum</i>	
A CommandTypeEnum. Valid values are:	
Value	Description
adCmdUnspecified	Does not specify the command type argument
adCmdUnknown	Default. Indicates that the type of command in the CommandText property is not known
adCmdText	Evaluates CommandText as a textual definition of a command or stored procedure call
adCmdTable	Evaluates CommandText as a table name whose columns are all returned by an internally generated SQL query
adCmdStoredProc	Evaluates CommandText as a stored procedure name
adCmdFile	Evaluates CommandText as the file name of a persistently stored Recordset
adCmdTableDirect	Evaluates CommandText as a table name whose columns are all returned

## Example

```
ADO_LoadVariant( pvSource, "8", "SELECT * FROM Test_Table" );
LoadVariant( pvValue, ADOConnect[0] );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
EndCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Close();
ADORecordset.Release( 0, ADOBM );
```

## ADO\_Recordset(n)->PutAbsolutePage

Indicates on which page the current record resides.

Use the AbsolutePage property to identify the page number on which the current record of the ADO Recordset is located.

## Syntax

```
ADO_Recordset(n)->PutAbsolutePage( ADOPositionEnum nPage );
```

## Return Value

## Parameters

Parameter	Description								
n	An index to the object.								
nPage	<p><i>ADOPositionEnum</i></p> <p>The file position. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adPosUnknown</td> <td>Unknown record position</td> </tr> <tr> <td>adPosBOF</td> <td>Position at beginning of file</td> </tr> <tr> <td>adPosEOF</td> <td>Position at end of file</td> </tr> </tbody> </table>	Value	Description	adPosUnknown	Unknown record position	adPosBOF	Position at beginning of file	adPosEOF	Position at end of file
Value	Description								
adPosUnknown	Unknown record position								
adPosBOF	Position at beginning of file								
adPosEOF	Position at end of file								

## Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->PutAbsolutePosition

Indicates the ordinal position of an ADO Recordset object's current record.

Use the `AbsolutePosition` property to move to a record based on its ordinal position in the ADO Recordset object, or to determine the ordinal position of the current record. The provider must support the appropriate functionality for this property to be available.

## Syntax

```
ADO_Recordset(n)->PutAbsolutePosition( ADOPositionEnum nAbsPos );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nAbsPos	<p><i>ADOPositionEnum</i></p>

	The file position. Valid values are:	
	<b>Value</b>	<b>Description</b>
	adPosUnknown	Unknown record position
	adPosBOF	Position at beginning of file
	adPosEOF	Position at end of file

### Example

```
ADO_Recordset(0)->GetAbsolutePage( pLong );
ADO_Recordset(0)->PutAbsolutePage( (PositionEnum)9 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetAbsolutePosition( pLong );
ADO_Recordset(0)->PutAbsolutePosition( (PositionEnum)38 );
ADO_Recordset(0)->GetActiveConnection( pvValue );
```

## ADO\_Recordset(n)->PutActiveConnection

Indicates to which Connection object the specified Command, ADO Recordset or Record object, currently belongs.

For open ADO Recordset objects or for ADO Recordset objects whose Source property is set to a valid Command object, the ActiveConnection property is read-only. Otherwise, it is read/write.

### Syntax

```
ADO_Recordset(n)->PutActiveConnection( VARIANT* pvConnection );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvConnection	A pointer to a VARIANT.

### Example

```
ADO_Recordset(0)->GetActiveConnection( pvValue );
ADO_Recordset(0)->GetBOF( pVTBOOL );
ADO_Recordset(0)->PutSource("Select * from test_table where " "keyval < 100" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(0)->PutActiveConnection( pvValue );
ADO_LoadVariant( pvSource, "10", "2147614724" );
```

```
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockPessimistic, -1 );
```

## ADO\_Recordset(n)->PutBookmark

Indicates a bookmark that uniquely identifies the current record in an ADO Recordset object or sets the current record in an ADO Recordset object to the record identified by a valid bookmark.

Use the Bookmark property to save the position of the current record and return to that record at any time. Bookmarks are available only in ADO Recordset objects that support bookmark functionality.

### Syntax

```
ADO_Recordset(n)->PutBookmark( CLoadBookmark* pBookmark );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pBookmark	A CLoadBookmark object containing a bookmark associated with the element.

### Example

```
BeginCheckpoint("ADORecordset::GetBookmark");
ADO_Recordset(0)->GetBookmark( ADOBM[0] );
EndCheckpoint("ADORecordset::GetBookmark");
ADO_Recordset(0)->MoveLast();
BeginCheckpoint("ADORecordset::PutBookmark");
ADO_Recordset(0)->PutBookmark( ADOBM[0] );
EndCheckpoint("ADORecordset::PutBookmark");
```

## ADO\_Recordset(n)->PutCacheSize

Indicates the number of records in the ADO Recordset that are cached locally.

Use the CacheSize property to control how many records the provider keeps in its buffer and how many to retrieve at one time into local memory. For example, if the CacheSize is 10, after first opening the ADO Recordset object, the provider retrieves the first 10 records into local memory.

### Syntax

```
ADO_Recordset(n)->PutCacheSize( long nSize );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nSize	The size of the cache, a positive integer.

## Example

```
ADO_Recordset(0)->GetPageSize( pLong );
ADO_Recordset(0)->PutPageSize( 4 );
ADO_Recordset(0)->GetCacheSize( pLong );
ADO_Recordset(0)->PutCacheSize( 6 );
```

## ADO\_Recordset(n)->PutCollect

This is a hidden method. It is undocumented within MSDN. If you want to incorporate this method, examine the example below. Neither QALoad support professionals nor development recommend adding this method to a script.

## Syntax

```
ADO_Recordset(n)->PutCollect( VARIANT* pvIndex, VARIANT* pvValue );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvIndex	A Pointer to a variant – perhaps the field name or ordinal.
pvValue	A Pointer to a variant – perhaps the data for that field.

## Example

```
ADO_LoadVariant( pvValue, "8", "sSSN" );
ADO_LoadVariant( pvData, "8", "333555333" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sLastName" );
ADO_LoadVariant( pvData, "8", "Gifford" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sFirstName" );
```

```
ADO_LoadVariant( pvData, "8", "Roger" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sMiddleInitial" );
ADO_LoadVariant( pvData, "8", "X" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
```

## ADO\_Recordset(n)->PutCursorLocation

Indicates the location of the cursor service.

This property allows you to choose between various cursor libraries accessible to the provider. Usually, you can choose between using a client-side cursor library or one that is located on the server.

### Syntax

```
ADO_Recordset(n)->PutCursorLocation( ADOCursorLocationEnum nCursorLoc );
```

### Return Value

### Parameters

Parameter	Description										
n	An index to the object.										
nCursorLoc	<p><i>ADOCursorLocationEnum</i></p> <p>The place from which the cursor is drawn. It can be any one of the following:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adUseNone</td> <td>No specified cursor location</td> </tr> <tr> <td>adUseServer</td> <td>Server-side cursor</td> </tr> <tr> <td>adUseClient</td> <td>Client-side cursor</td> </tr> <tr> <td>adUseClientBatch</td> <td>Batch client-side cursor</td> </tr> </tbody> </table>	Value	Description	adUseNone	No specified cursor location	adUseServer	Server-side cursor	adUseClient	Client-side cursor	adUseClientBatch	Batch client-side cursor
Value	Description										
adUseNone	No specified cursor location										
adUseServer	Server-side cursor										
adUseClient	Client-side cursor										
adUseClientBatch	Batch client-side cursor										

### Example

```
ADO_Recordset(0)->GetCacheSize( pLong );
ADO_Recordset(0)->PutCacheSize( 1 );
ADO_Recordset(0)->GetCursorLocation( pLong );
ADO_Recordset(0)->PutCursorLocation( adUseClient );
```

## ADO\_Recordset(n)->PutCursorType

Specifies the type of cursor to use when opening the ADO Recordset object.

Only a setting of `adOpenStatic` is supported if the `CursorLocation` property is set to `adUseClient`. If an unsupported value is set, then no error results. The closest supported `CursorType` is used instead.

### Syntax

```
ADO_Recordset(n)->PutCursorType( ADOCursorTypeEnum nCursorType );
```

### Return Value

### Parameters

Parameter	Description												
n	An index to the object.												
nCursorType	<p><i>ADOCursorTypeEnum</i></p> <p>The <code>CursorTypeEnum</code> argument can be:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>adOpenUnspecified</code></td> <td>Unspecified Cursor Open option</td> </tr> <tr> <td><code>adOpenForwardOnly</code></td> <td>Forward-only Cursor</td> </tr> <tr> <td><code>adOpenKeyset</code></td> <td>KeySet cursor</td> </tr> <tr> <td><code>adOpenDynamic</code></td> <td>Dynamic cursor</td> </tr> <tr> <td><code>adOpenStatic</code></td> <td>Static cursor</td> </tr> </tbody> </table>	Value	Description	<code>adOpenUnspecified</code>	Unspecified Cursor Open option	<code>adOpenForwardOnly</code>	Forward-only Cursor	<code>adOpenKeyset</code>	KeySet cursor	<code>adOpenDynamic</code>	Dynamic cursor	<code>adOpenStatic</code>	Static cursor
Value	Description												
<code>adOpenUnspecified</code>	Unspecified Cursor Open option												
<code>adOpenForwardOnly</code>	Forward-only Cursor												
<code>adOpenKeyset</code>	KeySet cursor												
<code>adOpenDynamic</code>	Dynamic cursor												
<code>adOpenStatic</code>	Static cursor												

### Example

```
ADO_Recordset(0)->GetCursorLocation( pLong );
ADO_Recordset(0)->PutCursorLocation( adUseServer );
ADO_Recordset(0)->GetCursorType( pLong );
ADO_Recordset(0)->PutCursorType( adOpenDynamic );
```

## ADO\_Recordset(n)->PutDataMember

Indicates the name of the data member that is retrieved from the object referenced by the `DataSource` property.

This property is used to create data-bound controls with the Data Environment. The Data Environment maintains collections of data (data sources) containing named objects (data members) that are represented as an ADO Recordset object.

## Syntax

```
ADO_Recordset(n)->PutDataMember( char* sDataString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sDataString	Name of the data member being returned from the Recordset object.

## ADO\_Recordset(n)->PutFilter

Indicates a filter for data in an ADO Recordset.

Use the Filter property to selectively screen out records in an ADO Recordset object. The filtered ADO Recordset becomes the current cursor.

## Syntax

```
ADO_Recordset(n)->PutFilter( VARIANT* pvFilter );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvFilter	A pointer to a VARIANT.

## Example

```
ADO_Recordset(0)->GetEditMode( pLong );
ADO_Recordset(0)->GetFilter( pvValue );
ADO_LoadVariant( pvValue, "8", "tinyint_col = 99" );
ADO_Recordset(0)->PutFilter( pvValue );
```



## ADO\_Recordset(n)->PutIndex

This is a hidden method. It is undocumented within MSDN. If you want to incorporate this method, examine the example below. Neither QALoad support professionals nor development recommend adding this method to a script.

### Syntax

```
ADO_Recordset(n)->PutIndex( char* sIndexString );
```

### Return Value


### Parameters

Parameter	Description
n	An index to the object.
sIndexString	The Index on the recordset.

## ADO\_Recordset(n)->PutLockType

Indicates the type of locks placed on records during editing.

Set the LockType property before opening an ADO Recordset to specify what type of locking the provider should use when opening it. Read the property to return the type of locking in use on an open ADO Recordset object.

 Note: The LockTypeEnum argument can be any of several elements listed below, or it may be a cast number (LockTypeEnum)0. For best results when load testing, feel free to replace the lock type with adLockOptimistic.

```
adLockUnspecified
adLockReadOnly
adLockPessimistic
adLockOptimistic
adLockBatchOptimistic
```

### Syntax

```
ADO_Recordset(n)->PutLockType( LockTypeEnum nLockType );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
nLockType	An enumeration of lock types.

### Example

```
ADO_Recordset(0)->GetCursorType( pLong );
ADO_Recordset(0)->PutCursorType( adOpenForwardOnly );
ADO_Recordset(0)->GetLockType( pLong );
ADO_Recordset(0)->PutLockType( adLockOptimistic );
```

## ADO\_Recordset(n)->PutMarshalOptions

Indicates which records are to be marshaled back to the server.

### Syntax

```
ADO_Recordset(n)->PutMarshalOptions( ADOMarshalOptionsEnum nMO );
```

### Return Value

### Parameters

Parameter	Description						
n	An index to the object.						
nMO	<p><i>ADOMarshalOptionsEnum</i></p> <p>Indicator about records to send across. valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adMarshalAll</td> <td>Marshal all records</td> </tr> <tr> <td>adMarshalModifiedOnly</td> <td>Marshal only modified records</td> </tr> </tbody> </table>	Value	Description	adMarshalAll	Marshal all records	adMarshalModifiedOnly	Marshal only modified records
Value	Description						
adMarshalAll	Marshal all records						
adMarshalModifiedOnly	Marshal only modified records						

### Example

```
ADO_Recordset(2)->PutMarshalOptions( adMarshalModifiedOnly );
ADO_LoadVariant( pvValue, "8", "sSSN" );
ADO_LoadVariant( pvData, "8", "333555333" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sLastName" );
ADO_LoadVariant( pvData, "8", "Gifford" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
ADO_LoadVariant( pvValue, "8", "sFirstName" );
ADO_LoadVariant( pvData, "8", "Roger" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
```

```
ADO_LoadVariant( pvValue, "8", "sMiddleInitial" );
ADO_LoadVariant( pvData, "8", "X" );
ADO_Recordset(2)->PutCollect( pvValue, pvData );
```

## ADO\_Recordset(n)->PutMaxRecords

Indicates the maximum number of records to return to an ADO Recordset from a query.

Use the MaxRecords property to limit the number of ADO Records that the provider returns from the data source. The default setting of this property is zero, which means the provider returns all requested records.

### Syntax

```
ADO_Recordset(n)->PutMaxRecords( long nMaxRecs );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nMaxRecs	Maximum number of records to return from a Recordset query.

### Example

```
ADO_Recordset(0)->GetLockType( pLong );
ADO_Recordset(0)->PutLockType( adLockReadOnly );
ADO_Recordset(0)->GetMaxRecords( pLong );
ADO_Recordset(0)->PutMaxRecords( 10 );
```

## ADO\_Recordset(n)->PutPageSize

Indicates how many records constitute one page in the ADO Recordset.

Use the PageSize property to determine how many ADO Records make up a logical page of data. Establishing a page size allows you to use the AbsolutePage property to move to the first record of a particular page.

### Syntax

```
ADO_Recordset(n)->PutPageSize( long nPSize );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
nPSize	Number of records forming a page in the Recordset.

## Example

```
ADO_Recordset(0)->GetMarshalOptions( pLong );
ADO_Recordset(0)->GetPageSize( pLong );
ADO_Recordset(0)->PutPageSize( 4 );
ADO_Recordset(0)->GetPageCount( pLong );
ADO_Recordset(0)->GetAbsolutePage( pLong );
```

## ADO\_Recordset(n)->PutRefActiveConnection

Indicates to which ADO Connect object the specified ADO Command, ADO Recordset, or Record object, currently belongs.

For open ADO Recordset objects or for ADO Recordset objects whose Source property is set to a valid ADO Command object, the ActiveConnection property is read-only. Otherwise, it is read/write.

## Syntax

```
ADO_Recordset(n)->PutRefActiveConnection( VARIANT* pvConnection );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvConnection	The connection that is active.

## Example

```
ADO_Recordset(0)->GetActiveConnection( pvValue );
ADO_Recordset(0)->GetBOF( pVTBOOL );
ADO_Recordset(0)->PutSource("Select * from test_table where " "keyval < 100" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(0)->PutActiveConnection( pvValue );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenStatic, adLockPessimistic, -1 );
```

## ADO\_Recordset(n)->PutRefDataSource

Indicates an object that contains data to be represented as an ADO Recordset object.

This property is used to create data-bound controls with the Data Environment. The Data Environment maintains collections of data (data sources) containing named objects (data members) that will be represented as an ADO Recordset object.

### Syntax

```
ADO_Recordset(n)->PutRefDataSource( IUnknown* pIUnknown );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pIUnknown	A pointer to a COM object.

## ADO\_Recordset(n)->PutRefSource

Sets a Command object as the data source for a Recordset object.

Use the Source property to specify a data source for a Recordset object using one of the following: a Command object variable, SQL statement, stored procedure, or table name.

### Syntax

```
ADO_Recordset(n)->PutRefSource( VARIANT* pvSource );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvSource	A pointer to a variant that contains a reference to a valid Command object.

## Example

```
ADO_Recordset(0)->PutActiveConnection( pvValue );
LoadVariant( pvValue, ADOCommand[0] );
ADO_Recordset(0)->PutRefSource( pvValue );
ADO_LoadVariant( pvSource, "10", "2147614724" );
```

## ADO\_Recordset(n)->PutSort

Indicates one or more field names on which the ADO Recordset is sorted, and whether each field is sorted in ascending or descending order.

### Syntax

```
ADO_Recordset(n)->PutSort( char* sSortString );
```

### Return Value

#### Parameters

Parameter	Description
n	An index to the object.
sSortString	char*

## ADO\_Recordset(n)->PutSource

Indicates the data source for an ADO Recordset object.

Use the Source property to specify a data source for an ADO Recordset object using one of the following: a Command object variable, an SQL statement, a stored procedure, or a table name.

### Syntax

```
ADO_Recordset(n)->PutSource( char* sSourceString );
```

### Return Value

#### Parameters

Parameter	Description
n	An index to the object.
sSourceString	A char* representation of a data source.

## Example

```
ADO_Recordset(0)->PutSource( "Select sUID, sPWD, sPhone" "from USER Where lcase(sUID)='sa'
and sPWD = 'sa'" );
ADO_LoadVariant( pvSource, "8", "Select sUID, sPWD, sPhone" "from USER Where
lcase(sUID)='sa' and sPWD = 'sa'" );
LoadVariant( pvValue, ADOConnect[1] );
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenKeyset, adLockOptimistic, -1 );
ADO_Recordset(0)->GetRecordCount( pLong );
ADO_Recordset(0)->GetFields( ADOFieldSet[0] );
```

## ADO\_Recordset(n)->PutStayInSync

Indicates, in a hierarchical ADO Recordset object, whether the reference to the underlying child records (that is, the chapter) changes when the parent row position changes.

This property applies to hierarchical ADO Recordsets, such as those supported by the Microsoft Data Shaping Service for OLE DB. It must be set on the parent ADO Recordset before the child ADO Recordset is retrieved. This property simplifies navigating hierarchical ADO Recordsets.

## Syntax

```
ADO_Recordset(n)->PutStayInSync( short nStayInSync );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nStayInSync	TRUE or FALSE.

## Example

```
ADO_Recordset(0)->GetStayInSync( FALSE );
ADO_Recordset(0)->PutStayInSync( pVTBOOL );
ADO_LoadVariant( pvSource, "8", "select * from test_table where keyval < 100" ;
ADO_LoadVariant( pvValue, "8", "PROVIDER=MSDASQL;dsn="
"FhLoadDB2;uid=sa;pwd=;database=Master;" );
BeginCheckpoint("ADORecordset::Open");
ADO_Recordset(0)->Open( pvSource, pvValue, adOpenUnspecified, adLockUnspecified, -1 );
EndCheckpoint("ADORecordset::Open");
```

## ADO\_Recordset(n)->Requery

Updates the data in an ADO Recordset object by re-executing the query on which the object is based.

Use the Requery method to refresh the entire contents of an ADO Recordset object from the data source by reissuing the original command and retrieving the data a second time.

## Syntax

```
ADO_Recordset(n)->Requery( long nOptions );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nOptions	-1 TRUE or 0 FALSE

## Example

```
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->MoveNext();
ADO_Recordset(0)->MovePrevious();
ADO_Recordset(0)->MoveLast();
ADO_Recordset(0)->Requery( -1 );
ADO_Recordset(0)->Supports( (CursorOptionEnum)8388608, pVTBOOL );
ADO_Recordset(0)->Close();
```

## ADO\_Recordset(n)->Resync

Refreshes the data in the current ADO Recordset object, or Fields collection of a Record object, from the underlying database.

Use the Resync method to resynchronize records in the current ADO Recordset with the underlying database. This is useful if you are using either a static or forward-only cursor, but you want to see any changes in the underlying database.

## Syntax

```
ADO_Recordset(n)->Resync( ADOAffectEnum nAffect, ADOResyncEnum nResyncVals );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
nAffect	<i>ADOAffectEnum</i>



	<p>The recordset affect enumerator. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>adAffectCurrent</code></td> <td>Affects current only</td> </tr> <tr> <td><code>adAffectGroup</code></td> <td>Affects group</td> </tr> <tr> <td><code>adAffectAll</code></td> <td>Affects all</td> </tr> <tr> <td><code>adAffectAllChapters</code></td> <td>Affects all chapters</td> </tr> </tbody> </table>	Value	Description	<code>adAffectCurrent</code>	Affects current only	<code>adAffectGroup</code>	Affects group	<code>adAffectAll</code>	Affects all	<code>adAffectAllChapters</code>	Affects all chapters
Value	Description										
<code>adAffectCurrent</code>	Affects current only										
<code>adAffectGroup</code>	Affects group										
<code>adAffectAll</code>	Affects all										
<code>adAffectAllChapters</code>	Affects all chapters										
<code>nResyncVals</code>	<p><i>ADOResyncEnum</i> Resync option. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>adResyncUnderlyingValues</code></td> <td>Resync the underlying values only</td> </tr> <tr> <td><code>adResyncAllValues</code></td> <td>Resync all values</td> </tr> </tbody> </table>	Value	Description	<code>adResyncUnderlyingValues</code>	Resync the underlying values only	<code>adResyncAllValues</code>	Resync all values				
Value	Description										
<code>adResyncUnderlyingValues</code>	Resync the underlying values only										
<code>adResyncAllValues</code>	Resync all values										

## Example

```
ADO_Recordset(0)->Resync(adAffectAll, adResyncAllValues );
ADO_Recordset(0)->GetStayInSync( pVTBOOL );
```

## ADO\_Recordset(n)->Save

Saves the ADO Recordset in a file or ADO Stream object.

The `Save` method can only be invoked on an open ADO Recordset. Use the `Open` method to later restore the ADO Recordset from Destination.

If the `Filter` property is in effect for the ADO Recordset, then only the rows accessible under the filter are saved. If the ADO Recordset is hierarchical, then the current child ADO Recordset and its children are saved, including the parent ADO Recordset. If the `Save` method of a child ADO Recordset is called, the child and all its children are saved, but the parent is not.

The first time you save the ADO Recordset, it is optional to specify `Destination`. If you omit `Destination`, a new file is created with a name set to the value of the `Source` property of the ADO Recordset.

 **Note:** The second argument here can be given as `adPersistXML` or `adPersistADTG`.

## Syntax

```
ADO_Recordset(n)->Save( VARIANT* pvDestination, ADOPersistFormatEnum nPersistEnum );
```

## Return Value

## Parameters

Parameter	Description						
n	An index to the object.						
pvDestination	A pointer to a VARIANT.						
nPersistEnum	<p><i>ADOPersistFormatEnum</i></p> <p>The save format. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adPersistADTG</td> <td>Persist in ADTG format</td> </tr> <tr> <td>adPersistXML</td> <td>Persist in XML format</td> </tr> </tbody> </table>	Value	Description	adPersistADTG	Persist in ADTG format	adPersistXML	Persist in XML format
Value	Description						
adPersistADTG	Persist in ADTG format						
adPersistXML	Persist in XML format						

## Example

```
ADO_Recordset(0)->MovePrevious();
ADO_Recordset(0)->MoveLast();
ADO_Recordset(0)->Requery( -1 );
ADO_LoadVariant( pvValue, "8", "saver.xml" );
ADO_Recordset(0)->Save( pvValue, adPersistXML );
```

## ADO\_Recordset(n)->Seek

The `SeekEnum` is an Enumerated value giving the direction of the seek operation.

## Syntax

```
ADO_Recordset(n)->Seek( VARIANT* pvKeyValue, ADOSeekEnum nSeekOptions );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pvKeyValue	A pointer to a Variant containing an array of Variant values.
nSeekOptions	<p><i>ADOSeekEnum</i></p> <p>Direction of the seek. Valid values are:</p>

Value	Description
adSeekFirstEQ	Seek first equal record
adSeekLastEQ	Seek last equal record
adSeekAfterEQ	Seek record after found equal record
adSeekAfter	Seek after record
adSeekBeforeEQ	Seek before found equal record
adSeekBefore	Seek before record

## ADO\_Recordset(n)->Supports

Determines whether a specified ADO Recordset object supports a particular type of functionality.

If the ADO Recordset object supports the features whose corresponding constants are in CursorOptions, the Supports method returns True. Otherwise, it returns False.

### Syntax

```
ADO_Recordset(n)->Supports( ADOCursorOptionEnum nCursorOp, VARIANT_BOOL* pBool );
```

### Return Value

### Parameters

Parameter	Description												
n	An index to the object.												
nCursorOp	<p><i>ADOCursorOptionEnum</i></p> <p>Valid cursor type options are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adHoldRecords</td> <td>Hold Records</td> </tr> <tr> <td>adMovePrevious</td> <td>Move to previous record</td> </tr> <tr> <td>adAddNew</td> <td>Add new record</td> </tr> <tr> <td>adDelete</td> <td>Delete record</td> </tr> <tr> <td>adUpdate</td> <td>Update record</td> </tr> </tbody> </table>	Value	Description	adHoldRecords	Hold Records	adMovePrevious	Move to previous record	adAddNew	Add new record	adDelete	Delete record	adUpdate	Update record
Value	Description												
adHoldRecords	Hold Records												
adMovePrevious	Move to previous record												
adAddNew	Add new record												
adDelete	Delete record												
adUpdate	Update record												

	adBookmark	Bookmark record
	adApproxPosition	Get approximate position
	adUpdateBatch	Update batch
	adResync	Resynchronize recordset
	adNotify	Notify
	adFind	Find record
	adSeek	Seek record
	adIndex	Index of record
pBool	A pointer to a VARIANT_BOOL.	

### Example

```
ADO_Recordset(0)->MoveFirst();
ADO_Recordset(0)->MoveNext();
ADO_Recordset(0)->MovePrevious();
ADO_Recordset(0)->MoveLast();
ADO_Recordset(0)->Requery( -1 );
ADO_Recordset(0)->Supports( (CursorOptionEnum)8388608, pVTBOOL );
ADO_Recordset(0)->Close();
```

## ADO\_Recordset(n)->Update

Saves any changes you make to the current row of an ADO Recordset object.

Use the Update method to save any changes you make to the current record of an ADO Recordset object since calling the AddNew method or since changing any field values in an existing record. The ADO Recordset object must support updates.

### Syntax

```
ADO_Recordset(n)->Update( VARIANT* pvFields, VARIANT* pvValues );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pvFields	VARIANT pointer to the field(s) to be updated.
pvValues	VARIANT pointer to the value(s) to be updated.

## Example

```

ADO_Recordset(2)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "FirstName" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "3", "John" );
ADO_Field(0)->PutValue( pvValue );
ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
ADO_Recordset(2)->GetFields( ADOFieldSet[0] );
ADO_LoadVariant( pvValue, "8", "LastName" );
ADO_FieldSet(0)->GetItem( pvValue, ADOField[0] );
ADO_LoadVariant( pvValue, "8", "Doe" );
ADO_Field(0)->PutValue( pvValue );
ADOFieldSet.Release( 0 );
ADOField.Release( 0 );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724" );
ADO_Recordset(2)->Update( pvValue, pvData );
ADO_Recordset(2)->Close();

```

## ADO\_Recordset(n)->UpdateBatch

Writes all pending batch updates within the ADO Recordset to disk.

### Syntax

```
ADO_Recordset(n)->UpdateBatch( ADOAffectEnum nAffect );
```

### Return Value

### Parameters

Parameter	Description										
n	An index to the object.										
nAffect	<p><i>ADOAffectEnum</i></p> <p>The recordset affect enumerator. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adAffectCurrent</td> <td>Affects current only</td> </tr> <tr> <td>adAffectGroup</td> <td>Affects group</td> </tr> <tr> <td>adAffectAll</td> <td>Affects all</td> </tr> <tr> <td>adAffectAllChapters</td> <td>Affects all chapters</td> </tr> </tbody> </table>	Value	Description	adAffectCurrent	Affects current only	adAffectGroup	Affects group	adAffectAll	Affects all	adAffectAllChapters	Affects all chapters
Value	Description										
adAffectCurrent	Affects current only										
adAffectGroup	Affects group										
adAffectAll	Affects all										
adAffectAllChapters	Affects all chapters										

## Example

```
ADO_Recordset(0)->Delete( adAffectCurrent );
ADO_LoadVariant( pvValue, "10", "2147614724" );
ADO_LoadVariant( pvData, "10", "2147614724" );
BeginCheckpoint("ADORecordset::Update");
ADO_Recordset(0)->Update( pvValue, pvData );
EndCheckpoint("ADORecordset::Update");
BeginCheckpoint("ADORecordset::UpdateBatch");
ADO_Recordset(0)->UpdateBatch( adAffectAll );
EndCheckpoint("ADORecordset::UpdateBatch");
ADO_Recordset(0)->Supports( (CursorOptionEnum)8388608, pVTBOOL );
```

## ADO\_Recordset(n)->\_xClone

This is a hidden method. It is undocumented within MSDN. A logical assumption is that it makes a clone of the calling ADO Recordset. This is given the arguments and the method name.

 **Note:** Compuware does not recommend adding this method to a script.

## Syntax

```
ADO_Recordset(n)->_xClone( CRecordSet* pRecSet, CADOLoadBookmark& cBookmarks );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pRecSet	This is the new instance of the ADO Recordset cloned from the calling of this method.
cBookmarks	The global container of ADO Bookmarks.

## Example

```
ADO_Recordset(1)->Open( pvSource, pvValue, adOpenStatic, adLockOptimistic, -1 );
ADO_Recordset(1)->GetEOF( pVTBOOL );
ADO_Recordset(1)->_xClone( ADORecordset[2], ADOBM );
```

## ADO\_Recordset(n)->\_xResync

This is a hidden method. It is undocumented within MSDN. A logical assumption is that it re-synchronizes the ADO Recordset with the underlying data provider. This is given the arguments and the method name.

 **Note:** Compuware does not recommend adding this method to a script.

## Syntax

```
ADO_Recordset(n)->_xResync( ADOAffectEnum nAffect );
```

## Return Value

## Parameters

Parameter	Description										
n	An index to the object.										
nAffect	<p><i>ADOAffectEnum</i></p> <p>The recordset affect enumerator. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adAffectCurrent</td> <td>Affects current only</td> </tr> <tr> <td>adAffectGroup</td> <td>Affects group</td> </tr> <tr> <td>adAffectAll</td> <td>Affects all</td> </tr> <tr> <td>adAffectAllChapters</td> <td>Affects all chapters</td> </tr> </tbody> </table>	Value	Description	adAffectCurrent	Affects current only	adAffectGroup	Affects group	adAffectAll	Affects all	adAffectAllChapters	Affects all chapters
Value	Description										
adAffectCurrent	Affects current only										
adAffectGroup	Affects group										
adAffectAll	Affects all										
adAffectAllChapters	Affects all chapters										

## Example

```
ADO_Connect(1)->Execute( "DELETE FROM MyTemp", pvValue, -1, ADORecordset[4] );
ADO_Recordset(4)->_xResync( adAffectAll );
```

## ADO\_Recordset(n)->\_xSave

This is a hidden method. It is undocumented within MSDN. A logical assumption is that it saves ADO Recordset data to the location given in the first argument. This is given the arguments and the method name.

 Note: Compuware does not recommend adding this method to a script.

## Syntax

```
ADO_Recordset(n)->_xSave( char* sFileNameString, ADOPersistFormatEnum nPersistEnum );
```

## Return Value

## Parameters

Parameter	Description						
n	An index to the object.						
sFileNameString	The file to which the ADO Recordset information is being saved.						
nPersistEnum	<p><i>ADOPersistFormatEnum</i></p> <p>The save format. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adPersistADTG</td> <td>Persist in ADTG format</td> </tr> <tr> <td>adPersistXML</td> <td>Persist in XML format</td> </tr> </tbody> </table>	Value	Description	adPersistADTG	Persist in ADTG format	adPersistXML	Persist in XML format
Value	Description						
adPersistADTG	Persist in ADTG format						
adPersistXML	Persist in XML format						

## ADO\_Stream(n)->Cancel

Cancels execution of a pending ADO Stream, asynchronous method call.

### Syntax

```
ADO_Stream(n)->Cancel();
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(0)->Open(pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->Cancel();
ADO_Stream(0)->Close();
```

## ADO\_Stream(n)->Close

Closes an open object and any dependent objects.

Using the Close method to close an ADO Stream object releases the associated data and any exclusive access you may have had to the data through this particular object. You can later call the Open method to reopen the object with the same, or modified, attributes.



Close the ADO Stream and give up all rights you may have had to the data.

## Syntax

```
ADO_Stream(n)->Close();
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(0)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->Cancel();
ADO_Stream(0)->Close();
```

## ADO\_Stream(n)->CopyTo

Copies the specified number of characters or bytes, depending on Type, in the ADO Stream to another ADO Stream object.

This method copies the specified number of characters or bytes, starting from the current position specified by the Position property. If the specified number is more than the available number of bytes until EOS, then only characters or bytes from the current position to EOS are copied. If the value of NumChars is 1, or omitted, all characters or bytes starting from the current position are copied.

If there are existing characters or bytes in the destination ADO Stream, all contents beyond the point where the copy ends remain, and are not truncated. Position becomes the byte immediately following the last byte copied. If you want to truncate these bytes, call SetEOS.

## Syntax

```
ADO_Stream(n)->CopyTo( CStream* pDestStream, long nNumBytes );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.

pDestStream	An instance of an ADO Source object.
nNumBytes	A positive integer.

### Example

```
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->PutPosition( 0 );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(1)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->CopyTo( ADOSTream[1], 5 );
ADO_Stream(0)->ReadText( 20, sLoadStr );
```

## ADO\_Stream(n)->Flush

Forces the contents of the ADO Stream remaining in the ADO buffer to the underlying object with which the ADO Stream is associated.

This method may be used to send the contents of the ADO Stream buffer to the underlying object represented by the URL that is the source of the ADO Stream object. This method should be called when you want to ensure that all changes made to the contents of an ADO Stream have been written. However, with ADO it is not usually necessary to call Flush, as ADO continuously flushes its buffer as much as possible in the background.

Changes to the content of an ADO Stream are made automatically, and not cached until Flush is called.

### Syntax

```
ADO_Stream(n)->Flush();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Stream(0)->CopyTo( ADOSTream[1], 5 );
ADO_Stream(0)->ReadText( 20, sLoadStr );
ADO_Stream(1)->Flush();
ADO_Stream(0)->Cancel();
ADO_Stream(0)->Close();
```

## ADO\_Stream(n)->GetCharset

Indicates the character set into which the contents of a text ADO Stream should be translated.

In a text ADO Stream object, text data is stored as Unicode. The Charset property translates the data read from the ADO Stream into the specified character set. Similarly, data written to the ADO Stream in the specified character set is translated into Unicode for storage in the ADO Stream object.

## Syntax

```
ADO_Stream(n)->GetCharset( CLoadString& sCharset );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sCharset	A CLoadString object.

## Example

```
ADO_Stream(1)->Cancel();
ADO_Stream(1)->Close();
ADO_Stream(0)->GetCharset( sLoadStr );
ADO_Stream(0)->PutCharset( "Unicode" );
```

## ADO\_Stream(n)->GetEOS

Indicates whether the current position is at the end of the ADO Stream.

Returns a Boolean value that indicates whether the current position is at the end of the ADO Stream. EOS returns At replay, QALoad checks the current position in the stream to determine whether or not this is the end of the stream.

## Syntax

```
ADO_Stream(n)->GetEOS( VARIANT_BOOL* pEOS );
```

## Return Value

Bool

True if there are no more bytes in the ADO stream.

False if there are more bytes in the ADO stream following the current position.

## Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
pEOS	A pointer to a VARIANT_BOOL.

### Example

```
ADO_Stream(0)->CopyTo( ADOStream[1], 20 );
ADO_Stream(0)->ReadText( 20, sLoadStr );
ADO_Stream(1)->GetEOS( pVTBOOL );
ADO_Stream(1)->Flush();
```

## ADO\_Stream(n)->GetLineSeparator

Indicates the binary character to be used as the line separator in text ADO Stream objects.

LineSeparator is used only with text ADO Stream objects (Type is adTypeText). This property is ignored if Type is adTypeBinary.

### Syntax

```
ADO_Stream(n)->GetLineSeparator( long* pLineSeparator );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pLineSeparator	A pointer to a 4-byte integer.

### Example

```
ADO_Stream(1)->GetEOS( pVTBOOL );
ADO_Stream(1)->PutLineSeparator( adCR );
ADO_Stream(1)->GetLineSeparator( pLong );
ADO_Stream(1)->Flush();
```

## ADO\_Stream(n)->GetMode

Indicates the available permissions for modifying data in a Connection, Record, or ADO Stream object.

Use the Mode property to set or return the access permissions in use by the provider on the current connection. You can set the Mode property only when the Connection object is closed.

### Syntax

```
ADO_Stream(n)->GetMode( long* pMode );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pMode	A pointer to a 4-byte integer.

## Example

```
ADO_Stream(0)->GetLineSeparator( pLong );
ADO_Stream(0)->PutLineSeparator( adCRLF );
ADO_Stream(0)->GetState( pLong );
ADO_Stream(0)->GetMode( pLong );
ADO_Stream(0)->PutMode( adModeShareDenyNone );
```

## ADO\_Stream(n)->GetPosition

Indicates the current position within an ADO Stream object.

Sets or returns a Long value that specifies the offset, in number of bytes, of the current position from the beginning of the ADO Stream. The default is 0, which represents the first byte in the ADO Stream.

At replay, QALoad , checks the current position and feeds that position back to the user in the pointer.

## Syntax

```
ADO_Stream(n)->GetPosition( long* pPosition );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pPosition	A pointer to a 4-byte integer.

## Example

```
ADO_Stream(0)->GetPosition( pLong );
ADO_Stream(0)->PutPosition( 0 );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(1)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(1)->PutType( adTypeText );
ADO_Stream(0)->CopyTo( ADOStream[1], 20 );
```

## ADO\_Stream(n)->GetSize

Returns a Long value that specifies the size of the ADO Stream in number of bytes.

The default value is the size of the ADO Stream, or -1 if the size of the ADO Stream is not known. At replay, QALoad checks the size of the ADO Stream that is referenced by this call.

### Syntax

```
ADO_Stream(n)->GetSize( long* pSize );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
pSize	A pointer to a 4-byte integer.

### Example

```
ADO_Stream(0)->PutType( adTypeText );
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->PutPosition( 0 );
```

## ADO\_Stream(n)->GetState

Indicates the state of the ADO Stream object.

The ADO Stream object's State property can have a combination of values. For example, if a statement is executing, this property has a combined value of adStateOpen and adStateExecuting.

GetState returns 0 for a not open state and 1 for an open state.

### Syntax

```
ADO_Stream(n)->GetState( long* pState );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
pState	A pointer to a 4-byte integer.

## Example

```
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->GetState( pLong );
```

## ADO\_Stream(n)->GetType

Indicates the type of data contained in the ADO Stream, binary or text.

Sets or returns a StreamTypeEnum value that specifies the type of data contained in the ADO Stream object. The default value is adTypeText. However, if binary data is initially written to a new, empty ADO Stream, the Type is changed to adTypeBinary.

## Syntax

```
ADO_Stream(n)->GetType( long* pType );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
pType	A pointer to a 4-byte integer.

## Example

```
ADO_Stream(0)->GetPosition( pLong );
ADO_Stream(0)->PutPosition( 0 );
ADO_Stream(0)->GetType( pLong );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(1)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
```

## ADO\_Stream(n)->LoadFromFile

Loads the contents of an existing file into an ADO Stream.

This method may be used to load the contents of a local file into an ADO Stream object. This may be used to upload the contents of a local file to a server.

The ADO Stream object must already be open before calling LoadFromFile. This method does not change the binding of the ADO Stream object. It is still bound to the object specified by the URL with which the ADO Stream was originally opened. LoadFromFile overwrites the current contents of the ADO Stream object with data read from the file.

## Syntax

```
ADO_Stream(n)->LoadFromFile( char* sFileNameString );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sFileNameString	A string representation of a file name.

## Example

```
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(0)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->PutType( adTypeText );
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->GetState( pLong );
```

## ADO\_Stream(n)->Open

Opens an ADO Stream object to manipulate streams of binary or text data.

When a Record object is passed in as the source parameter, the User ID and Password parameters are not used because access to the Record object is already available. Similarly, the Mode of the Record object is transferred to the ADO Stream object.

When Source is not specified, the ADO Stream opened contains no data and has a Size of zero (0). To avoid losing any data that is written to this ADO Stream when the ADO Stream is closed, save the ADO Stream with the CopyTo or SaveToFile methods, or save it to another memory location.

While the ADO Stream is not open, it is possible to read all the read-only properties of the ADO Stream. If an ADO Stream is opened asynchronously, all subsequent operations (other than checking the State and other read-only properties) are blocked until the Open operation is completed.

Open the ADO Stream to manipulate binary or text data.

## Syntax

```
ADO_Stream(n)->Open( VARIANT* pvSource, ADOConnectModeEnum nMode, ADOStreamOpenOptionsEnum nOptions, char* sUserName, char* sPassword );
```



## Return Value

## Parameters

Parameter	Description																				
n	An index to the object.																				
pvSource	A pointer to a VARIANT.																				
nMode	<p><i>ADOCConnectModeEnum</i></p> <p>A ConnectModeEnum value, whose default value is adModeUnknown, that specifies the access mode for the resultant Record object. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adModeUnknown</td> <td>Unknown connection mode</td> </tr> <tr> <td>adModeRead</td> <td>Read-only mode</td> </tr> <tr> <td>adModeWrite</td> <td>Write-only mode</td> </tr> <tr> <td>adModeReadWrite</td> <td>Read-write mode</td> </tr> <tr> <td>adModeShareDenyRead</td> <td>Exclusive read mode</td> </tr> <tr> <td>adModeShareDenyWrite</td> <td>Exclusive write mode</td> </tr> <tr> <td>adModeShareExclusive</td> <td>Exclusive read-write mode</td> </tr> <tr> <td>adModeShareDenyNone</td> <td>Non-exclusive mode</td> </tr> <tr> <td>adModeRecursive</td> <td>Recursive mode</td> </tr> </tbody> </table>	Value	Description	adModeUnknown	Unknown connection mode	adModeRead	Read-only mode	adModeWrite	Write-only mode	adModeReadWrite	Read-write mode	adModeShareDenyRead	Exclusive read mode	adModeShareDenyWrite	Exclusive write mode	adModeShareExclusive	Exclusive read-write mode	adModeShareDenyNone	Non-exclusive mode	adModeRecursive	Recursive mode
Value	Description																				
adModeUnknown	Unknown connection mode																				
adModeRead	Read-only mode																				
adModeWrite	Write-only mode																				
adModeReadWrite	Read-write mode																				
adModeShareDenyRead	Exclusive read mode																				
adModeShareDenyWrite	Exclusive write mode																				
adModeShareExclusive	Exclusive read-write mode																				
adModeShareDenyNone	Non-exclusive mode																				
adModeRecursive	Recursive mode																				
nOptions	<p><i>ADOSTreamOpenOptionsEnum</i></p> <p>Stream open options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adOpenStreamUnspecified</td> <td>Unspecified stream open options</td> </tr> <tr> <td>adOpenStreamAsync</td> <td>Stream opened asynchronously</td> </tr> <tr> <td>adOpenStreamFromRecord</td> <td>Stream opened from record</td> </tr> </tbody> </table>	Value	Description	adOpenStreamUnspecified	Unspecified stream open options	adOpenStreamAsync	Stream opened asynchronously	adOpenStreamFromRecord	Stream opened from record												
Value	Description																				
adOpenStreamUnspecified	Unspecified stream open options																				
adOpenStreamAsync	Stream opened asynchronously																				
adOpenStreamFromRecord	Stream opened from record																				
sUserName	A user name string.																				
sPassword	A password string.																				

## Example

```
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(0)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->PutType( adTypeText );
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->GetState( pLong );
```

## ADO\_Stream(n)->PutCharset

Indicates the character set into which the contents of a text ADO Stream should be translated.

In a text ADO Stream object, text data is stored as Unicode. The Charset property translates the data read from the ADO Stream into the specified character set. Similarly, data written to the ADO Stream in the specified character set is translated into Unicode for storage in the ADO Stream object.

## Syntax

```
ADO_Stream(n)->PutCharset( char* sCharset );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object.
sCharset	A string representation of a character set.

## Example

```
ADO_Stream(0)->PutCharset( "ascii" );
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->GetState( pLong );
ADO_Stream(0)->PutPosition( 15 );
ADO_Stream(0)->GetPosition( pLong );
ADO_Stream(0)->PutPosition( 0 );
ADO_Stream(0)->GetType( pLong );
```

## ADO\_Stream(n)->PutLineSeparator

Indicates the binary character to be used as the line separator in text ADO Stream objects.

LineSeparator is used only with text ADO Stream objects (Type is adTypeText). This property is ignored if Type is adTypeBinary.

## Syntax

```
ADO_Stream(n)->PutLineSeparator( ADOLineSeparatorEnum nLineSeparator );
```

## Return Value

## Parameters

Parameter	Description								
n	An index to the object.								
nLineSeparator	<p><i>ADOLineSeparatorEnum</i></p> <p>Line separator options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adLF</td> <td>Linefeed</td> </tr> <tr> <td>adCR</td> <td>Carriage return</td> </tr> <tr> <td>adCRLF</td> <td>Carriage return and line feed</td> </tr> </tbody> </table>	Value	Description	adLF	Linefeed	adCR	Carriage return	adCRLF	Carriage return and line feed
Value	Description								
adLF	Linefeed								
adCR	Carriage return								
adCRLF	Carriage return and line feed								

## Example

```
ADO_Stream(0)->CopyTo( ADOStream[1], 20 );
ADO_Stream(0)->ReadText( 20, sLoadStr );
ADO_Stream(1)->GetEOS( pVTBOOL );
ADO_Stream(1)->PutLineSeparator( adCR );
```

## ADO\_Stream(n)->PutMode

Indicates the available permissions for modifying data in a Connection, Record, or ADO Stream object.

Use the Mode property to set or return the access permissions in use by the provider on the current connection.

 **Note:** You can set the Mode property only when the Connection object is closed.

## Syntax

```
ADO_Stream(n)->PutMode( ADOConnectModeEnum nMode );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object. nMode

<i>ADOCConnectModeEnum</i>	
A ConnectModeEnum value, whose default value is adModeUnknown, that specifies the access mode for the resultant Record object. Valid values are:	
Value	Description
adModeUnknown	Unknown connection mode
adModeRead	Read-only mode
adModeWrite	Write-only mode
adModeReadWrite	Read-write mode
adModeShareDenyRead	Exclusive read mode
adModeShareDenyWrite	Exclusive write mode
adModeShareExclusive	Exclusive read-write mode
adModeShareDenyNone	Non-exclusive mode
adModeRecursive	Recursive mode

### Example

```
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
ADO_Stream(0)->GetSize( pLong );
ADO_Stream(0)->GetState( pLong );
ADO_Stream(0)->PutMode( adModeShareDenyNone );
ADO_Stream(0)->PutPosition( 15 );
```

### ADO\_Stream(n)->PutPosition

Indicates the current position within an ADO Stream object.

Sets or returns a Long value that specifies the offset, in number of bytes, of the current position from the beginning of the ADO Stream. The default is 0, which represents the first byte in the ADO Stream. At replay, QALoad sets the current position in the ADO Stream.

### Syntax

```
ADO_Stream(n)->PutPosition( long nPosition );
```

### Return Value

## Parameters

Parameter	Description
n	An index to the object.
nPosition	The ADOSTream position

## Example

```
ADO_Stream(0)->PutPosition( 0 );
ADO_Stream(0)->GetType( pLong );
ADO_LoadVariant( pvSource, "10", "2147614724" );
ADO_Stream(1)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
```

## ADO\_Stream(n)->PutType

Indicates the type of data contained in the ADO Stream, binary or text.

Sets or returns a StreamTypeEnum value that specifies the type of data contained in the ADO Stream object. The default value is adTypeText. However, if binary data is initially written to a new, empty ADO Stream, the Type is changed to adTypeBinary.

## Syntax

```
ADO_Stream(n)->PutType( ADOSTreamTypeEnum nStreamType );
```

## Return Value

## Parameters

Parameter	Description						
n	An index to the object.						
nStreamType	<p><i>ADOSTreamTypeEnum</i> Stream options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adTypeBinary</td> <td>Binary stream</td> </tr> <tr> <td>adTypeText</td> <td>Text stream</td> </tr> </tbody> </table>	Value	Description	adTypeBinary	Binary stream	adTypeText	Text stream
Value	Description						
adTypeBinary	Binary stream						
adTypeText	Text stream						

## Example

```
ADO_Stream(0)->Open( pvSource, adModeUnknown, adOpenStreamUnspecified, "", "" );
ADO_Stream(0)->PutType( adTypeText );
```

```
ADO_Stream(0)->PutCharset( "ascii" );
ADO_Stream(0)->LoadFromFile( "D:\\Ward.txt" );
```

## ADO\_Stream(n)->Read

Reads a specified number of bytes from a binary ADO Stream object.

If NumBytes is more than the number of bytes left in the ADO Stream, only the bytes remaining are returned. The data read is not padded to match the length specified by NumBytes. If there are no bytes left to read, a variant with a null value is returned. Read cannot be used to read backwards.

### Syntax

```
ADO_Stream(n)->Read( long nNumBytes, VARIANT* pvBuffer );
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.
nNumBytes	A non negative integer value corresponding to the number of bytes to read.
pvBuffer	A pointer to a VARIANT buffer into which the data is read.

## ADO\_Stream(n)->ReadText

Reads specified number of characters from a text ADO Stream object.

If NumChar is more than the number of characters left in the ADO Stream, only the characters remaining are returned. The string read is not padded to match the length specified by NumChar. If there are no characters left to read, a variant whose value is null is returned.

ReadText cannot be used to read backwards.

### Syntax

```
ADO_Stream(n)->ReadText( long nNumChars, CLoadString& sDataRead );
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

n	An index to the object.
nNumChars	A non negative integer value corresponding to the number of characters to read.
sDataRead	A CLoadString into which the data is read.

## Example

```
ADO_Stream(1)->PutType( adTypeText );
ADO_Stream(0)->CopyTo( ADOSTream[1], 20 );
ADO_Stream(0)->ReadText( 20, sLoadStr );
ADO_Stream(1)->GetEOS( pVTBOOL );
```

## ADO\_Stream(n)->SaveToFile

Saves the number of bytes contents of the current ADO Stream to the file from the current position. It sends the second param number of bytes to that File.

SaveToFile may be used to copy the contents of an ADO Stream object to a local file. There is no change in the contents or properties of the ADO Stream object. The ADO Stream object must be open before calling SaveToFile.

This method does not change the association of the ADO Stream object to its underlying source. The ADO Stream object is still associated with the original URL that was its source when opened.

## Syntax

```
ADO_Stream(n)->SaveToFile( char* sFileNameString, ADOSaveOptionsEnum nOptions );
```

## Parameters

Parameter	Description						
n	An index to the object.						
sFileNameString	A String forming the name of the file to save the stream to.						
nOptions	<p><i>ADOSaveOptionsEnum</i></p> <p>Stream write options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adSaveCreateNotExist</td> <td>Save and create if non-existent</td> </tr> <tr> <td>adSaveCreateOverWrite</td> <td>Save and overwrite if exists</td> </tr> </tbody> </table>	Value	Description	adSaveCreateNotExist	Save and create if non-existent	adSaveCreateOverWrite	Save and overwrite if exists
Value	Description						
adSaveCreateNotExist	Save and create if non-existent						
adSaveCreateOverWrite	Save and overwrite if exists						

## Example

```
ADO_Stream(1)->PutType( adTypeText );
ADO_Stream(0)->CopyTo( ADOSTream[1], 20 );
```

```
ADO_Stream(0)->ReadText( 20, sLoadStr );
ADO_Stream(1)->GetEOS( pVTBOOL );
ADO_Stream(1)->PutLineSeparator( adCR );
ADO_Stream(1)->GetLineSeparator( pLong );
ADO_Stream(1)->SaveToFile( "D:\\StreamReceive.txt", adSaveCreateOverWrite );
ADO_Stream(1)->Flush();
```

## ADO\_Stream(n)->SetEOS

Sets the current position within the ADO Stream as the End of the ADO Stream.

SetEOS updates the value of the EOSpropert, by making the current Position the end of the ADO Stream. Any bytes or characters following the current position are truncated.

### Syntax

```
ADO_Stream(n)->SetEOS();
```

### Return Value

### Parameters

Parameter	Description
n	An index to the object.

### Example

```
ADO_Stream(1)->SaveToFile( "D:\\Streamward.txt", adSaveCreateOverWrite );
ADO_Stream(1)->GetPosition( pLong );
if( *pLong >=20 )
ADO_Stream(1)->SetEOS();
ADO_Stream(1)->Flush();
```

## ADO\_Stream(n)->SkipLine

Skip one entire line when reading a text ADO Stream.

All characters up to and including the next line separator are skipped. By default, the LineSeparator is adCRLF. If you attempt to skip past EOS, the current position simply remains at EOS.

Skip a line in the text buffer that is the ADO Stream.

### Syntax

```
ADO_Stream(n)->SkipLine();
```

### Return Value



## Parameters

Parameter	Description
n	An index to the object.

## Example

```
ADO_Stream(1)->PutType( adTypeText );
ADO_Stream(0)->CopyTo( ADOStream[1], 150 );
ADO_Stream(0)->ReadText( 50, sLoadStr );
ADO_Stream(0)->SkipLine();
ADO_Stream(1)->ReadText( 50, sLoadStr );
ADO_Stream(1)->GetEOS( pVTBOOL );
```

## ADO\_Stream(n)->Write

Writes BINARY Data to the ADO Stream buffer.

Specified bytes are written to the ADO Stream object without any intervening spaces between each byte. The current Position is set to the byte following the written data. The Write method does not truncate the rest of the data in a stream. If you want to truncate these bytes, call SetEOS.

If you write past the current EOS position, the Size of the ADO Stream is increased to contain any new bytes, and EOS moves to the new last byte in the ADO Stream.

## Syntax

```
ADO_Stream(n)->Write( VARIANT* pvWriteBuffer );
```

## Return Value

## Parameters

Parameter	Description
n	An index to the object. pvWriteBuffer Pointer to the binary data buffer.

## ADO\_Stream(n)->WriteText

Writes a specified text string to an ADO Stream object.

Specified strings are written to the ADO Stream object without any intervening spaces or characters between each string.

The current Position is set to the character following the written data. The WriteText method does not truncate the rest of the data in a stream. If you want to truncate these characters, call SetEOS.

## Syntax

```
ADO_Stream(n)->WriteText( char* sTextToWrite, ADOStreamWriteEnum nStreamWriteOptions );
```

## Return Value

## Parameters

Parameter	Description										
n	<p>An index to the object. sTextToWrite The text to write. nStreamWriteOptions</p> <p><i>ADOStreamWriteEnum</i></p> <p>Stream write options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>adWriteChar</td> <td>Write char</td> </tr> <tr> <td>adWriteLine</td> <td>Write line</td> </tr> <tr> <td>stWriteChar</td> <td>Stream write character</td> </tr> <tr> <td>stWriteLine</td> <td>Stream write line</td> </tr> </tbody> </table>	Value	Description	adWriteChar	Write char	adWriteLine	Write line	stWriteChar	Stream write character	stWriteLine	Stream write line
Value	Description										
adWriteChar	Write char										
adWriteLine	Write line										
stWriteChar	Stream write character										
stWriteLine	Stream write line										

## Example

```
ADO_Stream(1)->GetSize( pLong );
ADO_Stream(1)->PutPosition( *pLong );
ADO_Stream(1)->SetEOS();
ADO_Stream(1)->WriteText( "This is the way we drink water", adWriteLine );
```

# Citrix

## Citrix Commands

### `BeginBlock`

End of an if block of code.

### `CitrixInit`

Initializes Citrix replay middleware resources.

### `CitrixUninit`

Un-initializes the Citrix replay middleware resources. If the connection is still open, the function disconnects it.

### `CTX_Error_Handler`

Outputs a fatal error message to the Conductor, which causes the virtual user to either fail or report a warning.

### `CtxClick`

Clicks the specified button, using the specified modifier, at the current location.

### `CtxConnect`

Connects to the Citrix server with the specified hostname and output mode.

### `CtxConnectICA`

Connects to the Citrix server using an ICA file.

### `CtxConnectPubApp`

Connects to a published application on a Citrix server or Citrix server farm.

### `CtxConnectServer`

Connects to a Citrix server and possibly an application on the server.

### `CtxDisconnect`

Disconnects from the Citrix server.

### `CtxDoubleClick`

Double-clicks the mouse at the current location.

### `CtxFullBitmapExists`

Checks to see if the current full screen bitmap matches the hash code passed into the `BitmapHash` argument.

### `CtxKeyDown`

Inputs the keystroke specified by the `key` argument, which corresponds to the VK code.

### `CtxKeyUp`

Inputs the keystroke specified by the `key` argument, which corresponds to the VK code.

### `CtxMouseDown`

Presses the specified mouse button.

### `CtxMouseMove`

Moves the mouse to the given coordinates with the given button and modifier.

### `CtxMouseUp`

Releases the specified mouse button.

### `CtxPartialBitmapExists`

Checks to see if the current partial screen bitmap matches the hash code passed into the BitmapHash argument.

#### [CtxPing](#)

Sends a ping request and waits for the response.

#### [CtxPoint](#)

Moves the mouse to the specified location on the screen.

#### [CtxScreenEventExists](#)

Waits for the specified screen update to occur at the specified coordinates.

#### [CtxSetApplication](#)

Connects to the Citrix server with the specified application name and application working directory name.

#### [CtxSetCitrixPort](#)

Sets the port for the Citrix client to use to connect to the server.

#### [CtxSetConnectTimeout](#)

Sets the number of seconds to wait for connections to the server to complete.

#### [CtxSetDisconnectTimeout](#)

Sets the number of seconds to wait for disconnections from the server to complete.

#### [CtxSetDomainLoginInfo](#)

Connects to the Citrix server with the specified user name, password, and domain.

#### [CtxSetEnableCounters](#)

Enables or disables custom counters for Citrix client-side statistics.

#### [CtxSetEnableWildcardMatching](#)

Enables or disables wildcard and substring name comparisons for matching Citrix window creation events.

#### [CtxSetGracefulDisconnect](#)

Specifies whether or not a logoff should be issued before issuing a disconnect.

#### [CtxSetICAFile](#)

Uses the specified ICA file when connecting to a published application or desktop.

#### [CtxSetLoginInfo](#)

Connects to the Citrix server with the specified user name and password.

#### [CtxSetPingTimeout](#)

Sets the number of seconds to wait for a ping to be acknowledged.

#### [CtxWaitForFullBitmap](#)

Waits for a full screen bitmap to match the hash code passed into the BitmapHash argument.

#### [CtxWaitForPartialBitmap](#)

Waits for a partial screen bitmap to match the hash code passed into the BitmapHash argument.

#### [CtxSetWaitPointTimeout](#)

Sets the number of seconds to wait for a wait point.

#### [CtxSetWindowMatchTitle](#)

Sets the string to match the names of previously-created windows.

#### [CtxSetWindowRetries](#)

Sets the retry information for window verification.

#### [CtxSetWindowTimeout](#)

Sets the number of seconds to wait for windows to be activated and destroyed.

**CtxSetWindowVerification**

Enables or disables window verification for actions.

**CtxType**

Inputs the specified key strokes.

**CtxTypeChar**

Sends the specified ASCII character to the Citrix server.

**CtxTypeVK**

Sends the VK code that corresponds to a key typed by the user.

**CtxWaitForCaptionChange**

Waits for the specified window's caption to be changed.

**CtxWaitForScreenUpdate**

Waits for the specified screen update to occur at the specified coordinates.

**CtxWaitForWindowActive**

Waits for the specified window to be activated (brought to the foreground).

**CtxWaitForWindowCreate**

Waits for the specified window to be created.

**CtxWaitForWindowDestroy**

Waits for the specified window to be destroyed.

**CtxWaitForWindowLglIconChange**

Waits for the specified window's caption to be changed.

**CtxWaitForWindowMinimize**

Waits for the specified window to be minimized.

**CtxWaitForWindowMove**

Waits for the specified window to be moved to the specified coordinates.

**CtxWaitForWindowResize**

Waits for the specified window to be resized to the specified dimensions.

**CtxWaitForWindowSmIconChange**

Waits for the specified window's caption to be changed.

**CtxWaitForWindowStyleChange**

Waits for the specified window's style to be changed as specified.

**CtxWindowEventExists**

Checks to see if the specified window event has already occurred, and, if not, waits for the specified time for the event to occur.

**EndBlock**

End of an else block of code.

**BeginBlock**

End of an if block of code.

**Syntax**

```
void BeginBlock();
```

## Return Value

None

## Parameters

None

## Example

```
// Window CWI_5 ("Citrix License Warning Notice") created 1087837373.062
if(CtxWindowEventExists(EVT_STR_CTXWINDOWCREATE, 3000, CWI_5))
BeginBlock();
CtxWaitForWindowCreate(CWI_5, 46);
EndBlock();
```

## CitrixInit

Initializes the Citrix replay middleware resources.

## Syntax

```
void CitrixInit (int flags);
```

## Return Value

None

## Parameters

Parameter	Description
flags	Reserved

## Example

```
CitrixInit(2);
```

## CitrixUninit

Un-initializes the Citrix replay middleware resources. If the connection is still open, this function disconnects it.

## Syntax

```
void CitrixUninit();
```

## Return Value

None

## Parameters

None

## Example

```
CitrixUninit();
```

## CTX\_Error\_Handler

Outputs a fatal error message to the Conductor, which causes the virtual user to either fail or report a warning.

## Syntax

```
void CTX_error_handler(PLAYERINFO *pInfo, char *msg);
```

## Return Value

## Parameters

Parameter	Description
pInfo	Pointer to the PLAYERINFO struct, <i>sinfo</i> .
msg	Message to be passed to the Conductor.

## Example

```
{
    char buffer[1024];
    sprintf(buffer, "App did not start. Stop script now!");
    CTX_error_handler(s_info, buffer);
}
```

## CtxClick

Clicks the specified button, using the specified modifier, at the current location.

## Syntax

```
void CtxClick(const CtxWI* windowInfo, long holdTime, CtxMouseButtonEnum button, CtxKeyModifierEnum mod);
```

## Return Value

## Parameters

Parameter	Description												
windowInfo	Pointer to a Citrix Window Information object containing window data.												
holdTime	Number of milliseconds to hold down the button.												
button	<p><i>CtxMouseButtonEnum</i></p> <p>A mouse button to use for this action</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>No keyboard modifier was specified</td> </tr> <tr> <td>L_BUTTON</td> <td>The left mouse button</td> </tr> <tr> <td>R_BUTTON</td> <td>The right mouse button</td> </tr> <tr> <td>M_BUTTON</td> <td>The middle mouse button</td> </tr> </tbody> </table>	Value	Description	NONE	No keyboard modifier was specified	L_BUTTON	The left mouse button	R_BUTTON	The right mouse button	M_BUTTON	The middle mouse button		
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ALT	Alt key												
EXTENDED	An extended key												

## Example

```
CtxWI *CWI_7001c = new CtxWI(0x1001c, "Warning !!", 299, 139, 427, 351);
...
CtxClick(CWI_7001c, 109, L_BUTTON, NONE);
```



## CtxConnect

Connects to the Citrix server with the specified hostname and output mode.

### Syntax

```
void CtxConnect (const char* hostname, CtxConnectModeEnum outputmode);
```

### Return Value

### Parameters

Parameter	Description								
hostname	Name of the server to connect to.								
outputmode	<p><i>CtxConnectModeEnum</i></p> <p>Type of playback output/display. The following modes are available:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OUTPUT_MODE_NORMAL</td> <td>Seamless rendering and display with window management.</td> </tr> <tr> <td>OUTPUT_MODE_WINDOWLESS</td> <td>Graphics are not displayed.</td> </tr> <tr> <td>OUTPUT_MODE_RENDERLESS</td> <td>Graphics are not used or displayed and there is no window management.</td> </tr> </tbody> </table>	Value	Description	OUTPUT_MODE_NORMAL	Seamless rendering and display with window management.	OUTPUT_MODE_WINDOWLESS	Graphics are not displayed.	OUTPUT_MODE_RENDERLESS	Graphics are not used or displayed and there is no window management.
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OUTPUT_MODE_NORMAL	Seamless rendering and display with window management.								
OUTPUT_MODE_WINDOWLESS	Graphics are not displayed.								
OUTPUT_MODE_RENDERLESS	Graphics are not used or displayed and there is no window management.								

### Example

```
const char *CitrixServer      = "qaccitrix";
const int   CitrixOutputMode = OUTPUT_MODE_NORMAL;
...
CtxConnect(CitrixServer, CitrixOutputMode);
```

## CtxConnectICA

Connects to the Citrix server using an ICA file.

## Syntax

```
void CtxConnectICA (char* pszICAFile)
```

## Return Value

## Parameters

Parameter	Description
pszICAFile	ICA file name, excluding path.

## Example

```
/* Declare Variables */
const char *CitrixICAFilename = "Calculator2.ica";
BEGIN_TRANSACTION();
DO_SetTransactionStart();
CtxConnectICA(CitrixICAFilename);
```

## CtxConnectPubApp

Connects to a published application on a Citrix server or Citrix server farm.

## Syntax

```
void CtxConnectPubApp(char *pszPubAppName, char *pszCitrixServer)
```

## Return Value

## Parameters

Parameter	Description
pszPubAppName	Name of the published application.
pszCitrixServer	Name of the Citrix server.

## Example

```
/* Declare Variables */
```

```

const char *CitrixServer      = "dtw-labcitrix2";
const char *CitrixPubAppname = "Calc";
BEGIN_TRANSACTION();
DO_SetTransactionStart();
CtxConnectPubApp(CitrixPubAppname, CitrixServer);

```

## CtxConnectServer

Connects to a Citrix server and possibly an application on the server.

### Syntax

```
void CtxConnectServer (char *pszCitrixServer, char *pszApplication, char *pszWorkingDir)
```

### Return Value

### Parameters

Parameter	Description
pszCitrixServer	Name of the Citrix Server.
pszApplication	Name of the startup application.
pszWorkingDir	Working directory of the startup application.

### Example

```

/* Declare Variables */
const char *CitrixServer      = "qaccitrix";
const char *CitrixApplication = "calc.exe";
const char *CitrixAppWorkDir  = "c:\\";
BEGIN_TRANSACTION();
DO_SetTransactionStart();
CtxConnectServer(CitrixServer, CitrixApplication, CitrixAppWorkDir);

```

## CtxDisconnect

Disconnects from the Citrix server.

### Syntax

```
void CtxDisconnect();
```

## Return Value

None

## Parameters

None

## Example

```
CtxDisconnect();
```

## CtxDoubleClick

Double-clicks the mouse at the current location. If Window Verification is enabled, ensure that the specified window is in the foreground.

## Syntax

```
void CtxDoubleClick(const CtxWI* windowInfo);
```

## Return Value

## Parameters

Parameter	Description
windowInfo	Pointer to a Citrix Window Information object containing window data.

## Example

```
CtxWI *CWI_7001c = new CtxWI(0x1001c, "Warning !!", 299, 139, 427, 351);  
...  
CtxDoubleClick(CWI_7001c);
```

## CtxFullBitmapExists

Checks to see if the current full screen bitmap matches the hash code passed into the BitmapHash argument and, if not, waits for the specified time for the bitmap to match.

## Versions

Versions of `CtxFullBitmapExists` are:

```
BOOL CtxFullBitmapExists(char *BitmapHash, char *BitmapTitle, long lTimeout = 0)
```

```
BOOL CtxFullBitmapExists(char *BitmapHash, char *BitmapTitle)
```

## CtxKeyDown

Inputs the key stroke specified by the key argument, which corresponds to the VK code. Ensure that `wi` is the foreground window.

### Syntax

```
void CtxKeyDown(const CtxWI *wi, int key);
```

### Return Value

### Parameters

Parameter	Description
<code>wi</code>	Pointer to a Citrix Window Information object containing window data.
<code>key</code>	Virtual Key code to type.

### Example

```
CtxWI *CWI_2006c = new CtxWI(0x40034, "blah", 303, 208, 418, 145);
...
CtxKeyDown(CWI_2006c, 107); // '+'
DO_MSLEEP(93);
CtxKeyUp(CWI_2006c, 107); // '+'
```

## CtxKeyUp

Inputs the key stroke specified by the key argument, which corresponds to the VK code. Ensure that `wi` is the foreground window.

### Syntax

```
void CtxKeyUp(const CtxWI* wi, int key);
```

## Return Value

## Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
key	Virtual Key code to type.

## Example

```

CtxWI *CWI_2006c = new CtxWI(0x40034, "blah", 303, 208, 418, 145);
...
CtxKeyDown(CWI_2006c, 103); // '7'
DO_MSLEEP(93);
CtxKeyUp(CWI_2006c, 103); // '7'
    
```

## CtxMouseDown

Presses the specified mouse button.

## Syntax

```
void CtxMouseDown(const CtxWI* windowInfo, CtxMouseButtonEnum button, CtxKeyModifierEnum mod, long Xpos, long Ypos);
```

## Return Value

## Parameters

Parameter	Description						
windowInfo	Pointer to a Citrix Window Information object containing window data.						
button	<p><i>CtxMouseButtonEnum</i></p> <p>A mouse button to use for this action</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>No mouse button was specified</td> </tr> <tr> <td>L_BUTTON</td> <td>The left mouse button</td> </tr> </tbody> </table>	Value	Description	NONE	No mouse button was specified	L_BUTTON	The left mouse button
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NONE	No keyboard modifier was specified													
SHIFT	Shift key													
CONTROL	Control key													
ALT	Alt key													
EXTENDED	An extended key													
Xpos	Move the mouse to this X coordinate.													
Ypos	Move the mouse to this Y coordinate.													

## Example

```
CtxWI *CWI_2006c = new CtxWI(0x40034, "blah", 303, 208, 418, 145);
...
CtxMouseDown(CWI_2006c, L_BUTTON, NONE, 274, 316);
DO_MSLEEP(109);
CtxMouseUp(CWI_2006c, L_BUTTON, NONE, 274, 316);
```

## CtxMouseMove

Move the mouse to the specified location on the screen.

### Syntax

```
void CtxMouseMove(long x, long y);
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

x	Move the mouse to this X coordinate.
y	Move the mouse to this Y coordinate.

### Example

```
CtxMouseMove(274, 316);
```

## CtxMouseUp

Releases the specified mouse button.

### Syntax

```
void CtxMouseUp(const CtxWI* windowInfo, CtxMouseButtonEnum button, CtxKeyModifierEnum mod, long Xpos, long Ypos);
```

### Return Value

### Parameters

Parameter	Description										
windowInfo	Pointer to a Citrix Window Information object containing window data.										
button	<p><i>CtxMouseButtonEnum</i></p> <p>A mouse button to use for this action</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>No mouse button was specified</td> </tr> <tr> <td>L_BUTTON</td> <td>The left mouse button</td> </tr> <tr> <td>R_BUTTON</td> <td>The right mouse button</td> </tr> <tr> <td>M_BUTTON</td> <td>The middle mouse button</td> </tr> </tbody> </table>	Value	Description	NONE	No mouse button was specified	L_BUTTON	The left mouse button	R_BUTTON	The right mouse button	M_BUTTON	The middle mouse button
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Value	Description										
NONE	No keyboard modifier was specified										
SHIFT	Shift key										



	CONTROL	Control key
	ALT	Alt key
	EXTENDED	An extended key
Xpos	Move the mouse to this X coordinate.	
Ypos	Move the mouse to this Y coordinate.	

## Example

```
CtxWI *CWI_2006c = new CtxWI(0x40034, "blah", 303, 208, 418, 145);
...
CtxMouseDown(CWI_2006c, L_BUTTON, NONE, 274, 316);
DO_MSLEEP(109);
CtxMouseUp(CWI_2006c, L_BUTTON, NONE, 274, 316);
```

## CtxPartialBitmapExists

Checks to see if the current partial screen bitmap matches the hash code passed into the BitmapHash argument and, if not, waits for the specified time for the bitmap to match.

### Versions

Versions of CtxPartialBitmapExists are:

```
BOOL CtxPartialBitmapExists(char *BitmapHash, char *BitmapTitle, int x, int y, int width, int height, long lTimeout = 0)
```

```
BOOL CtxPartialBitmapExists(char *BitmapHash, char *BitmapTitle, int x, int y, int width, int height)
```

## CtxPing

Sends a ping request and wait for the response.

### Syntax

```
void CtxPing(const char* identifier);
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

identifier	A string to send to the server.
------------	---------------------------------

### Example

```
CtxPing("7");
```

## CtxPoint

Moves the mouse to the specified location on the screen.

### Syntax

```
void CtxPoint(long X, long Y);
```

### Return Value

### Parameters

Parameter	Description
X	X coordinate.
Y	Y coordinate.

### Example

```
CtxPoint(509, 422);
```

## CtxScreenEventExists

Checks to see if the specified screen event has already occurred and, if not, waits the specified time for the event to occur.

### Syntax

```
BOOL CtxScreenEventExists(CitrixScreenEventTypeEnum EventType, int nmWait, const char* EventInfo);
```

### Return Value

## Parameters

Parameter	Description				
EventType	<p><i>CitrixScreenEventTypeEnum</i></p> <p>Citrix screen event. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>EVT_STR_CTXSCREENUPDATE</td> <td>Screen Update</td> </tr> </tbody> </table>	Value	Description	EVT_STR_CTXSCREENUPDATE	Screen Update
Value	Description				
EVT_STR_CTXSCREENUPDATE	Screen Update				
nmWait	Amount of time in milliseconds to wait for the event.				
EventInfo	Coordinates and size of target screen update in the format: x y width height.				

## Example

```
CtxClick(CWI_2, 188, L_BUTTON, NONE); //1087322563.276
    if(CtxScreenEventExists(EVT_STR_CTXSCREENUPDATE,3000,"0 224 39 10"))
        BeginBlock();
        RR_printf("Screen Update Found Test1");
        EndBlock();
```

## CtxSetApplication

Specifies application name and working directory name to use on connection to the Citrix server.

A session is created on the server where only the specified application appears. The working directory parameter is optional. Specify NULL for no working directory.

## Syntax

```
void CtxSetApplication (const char* appName, const char* dirName);
```

## Return Value

## Parameters

Parameter	Description
appName	The application to start up after connecting.
dirName	The working directory for the application.

## Examples

```
//Create a session containing only the application called  
// application.exe. No working directory is specified.  
CtxSetApplication("c:\\stuff\\application.exe", NULL);
```

## CtxSetCitrixPort

Sets the port for the Citrix client to use to connect to the server.

### Syntax

```
void CtxSetCitrixPort (int port);
```

### Return Value

### Parameters

Parameter	Description
port	The port number.

### Example

```
CtxSetCitrixPort (1494);
```

## CtxSetConnectTimeout

Sets the number of seconds to wait for connections to the server to complete.

### Syntax

```
void CtxSetConnectTimeout(int timeout);
```

### Return Value

### Parameters

Parameter	Description
timeout	Number of seconds to wait when attempting to connect.

## Example

```
//Use a timeout of 1 minute, 30 seconds for connect
CtxSetConnectTimeout(90);
```

## CtxSetDisconnectTimeout

Sets the number of seconds to wait for disconnections from the server to complete.

## Syntax

```
void CtxSetDisconnectTimeout(int timeout);
```

## Return Value

## Parameters

Parameter	Description
timeout	Number of seconds to wait when attempting to disconnect.

## Example

```
//Use a timeout of 1 minute, 30 seconds for disconnect
CtxSetDisconnectTimeout(90);
```

## CtxSetDomainLoginInfo

Specifies user name, password, and domain to use on connection to the Citrix server.

## Syntax

```
void CtxSetDomainLoginInfo (const char *username, const char *password, const char *domain);
```

## Return Value

## Parameters

Parameter	Description
username	The user name to use when connecting.

password	The password to use when connecting.
domain	The domain to use when connecting.

### Example

```
const char *CitrixUsername="citrix";
// QALoad "encrypts" the password in the script. The
// login functions also support regular strings.
const char *CitrixPassword    ="~encr~657E06726F697206";
const char *CitrixDomain      ="domain3";
...
CtxSetDomainLoginInfo (CitrixUsername, CitrixPassword, CitrixDomain);
```

## CtxSetEnableCounters

Enables or disables custom counters for Citrix client-side statistics.

### Syntax

```
void CtxSetEnableCounters (BOOL enable);
```

### Return Value

### Parameters

Parameter	Description
enable	TRUE or FALSE

### Example

```
CtxSetEnableCounters (TRUE);
```

## CtxSetEnableWildcardMatching

Enables or disables wildcard and substring name comparisons for matching Citrix window creation events.

### Syntax

```
void CtxSetEnableWildcardMatching (BOOL enable);
```

## Return Value

## Parameters

Parameter	Description
enable	TRUE or FALSE

## Example

```
CtxSetEnableWildcardMatching (TRUE); //Wildcards are enabled for this script
BEGIN_TRANSACTION();
```

See [CtxSetWindowMatchTitle](#) for another example of wildcards.

## CtxSetGracefulDisconnect

Specifies whether or not a logoff should be issued before issuing a disconnect. If this is set to false, the Citrix server may need to be properly configured to handle the lingering sessions.

## Syntax

```
void CtxSetGracefulDisconnect(BOOL enable)
```

## Return Value

N/A

## Parameters

Parameter	Description
enable	TRUE - a logoff will be issued before issuing a disconnect. BOOL - No logoff will be issued before issuing a disconnect

## Example

The following is an example of using `CtxSetGracefulDisconnect`

```
CtxSetGracefulDisconnect( TRUE );
```

## CtxSetICAFile

Uses the specified ICA file when connecting to a published application or desktop.

The ICA file can be used to specify a number of configuration options. A Citrix MetaFrame administrator can provide an ICA file for your environment.

## Syntax

```
void CtxSetICAFile (const char *filename);
```

## Return Value

## Parameters

Parameter	Description
filename	The unqualified name or URL for the ICA file to use.

## Example

```
CtxSetICAFile ("published-app.ica");
```

## CtxSetLoginInfo

Specifies user name and password to be used on connection to the Citrix server with CtxConnect.

## Syntax

```
void CtxSetLoginInfo (const char *username, const char *password);
```

## Return Value

## Parameters

Parameter	Description
username	The user name to use when connecting.
password	The password to use when connecting.

## Example

```
const char *CitrixUsername = "citrix";
// QALoad "encrypts" the password in the script. The
// login functions also support regular strings.
const char *CitrixPassword ="~encr~657E06726F697206";
...
CtxSetLoginInfo (CitrixUsername, CitrixPassword);
```



## CtxSetOutputMode

Sets the output mode of the current script.

### Syntax

```
void CtxSetOutputMode(int iOutputMode)
```

### Return Value

### Parameters

Parameter	Description
iOutputMode	Output: OUTPUT_MODE_NORMAL OUTPUT_MODE_WINDOWLESS OUTPUT_MODE_RENDERLESS

### Example

```
/* Declare Variables */
const int CitrixOutputMode = OUTPUT_MODE_NORMAL;
/* Citrix replay settings */
CtxSetOutputMode(CitrixOutputMode);
```

## CtxSetPingTimeout

Sets the number of seconds to wait for a ping to be acknowledged.

### Syntax

```
void CtxSetPingTimeout (int timeout);
```

### Return Value

### Parameters

Parameter	Description
timeout	The number of seconds to wait for the ping to be acknowledged.

## Example

```
CtxSetPingTimeout (30);
```

## CtxSetWaitPointTimeout

Sets the number of seconds to wait for a wait point.

## Syntax

```
void CtxSetWaitPointTimeout (int timeout);
```

## Return Value

## Parameters

Parameter	Description
timeout	Number of seconds to wait for a waitpoint.

## Example

```
CtxSetWaitPointTimeout (30);
```

## CtxSetWindowMatchTitle

Sets the string to match the names of previously-created windows in the [CtxWaitForWindowCreate](#) method of the Citrix Window Information object.

This name is used for comparison if wildcards have been enabled by the [CtxSetEnableWildcardMatching](#) method call earlier in the script.

## Syntax

```
void CtxSetWindowMatchTitle (CtxWI* windowInfo, char* strWindowMatchName);
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

windowInfo	Pointer to a Citrix Window Information object that contains window data.
strWindowMatchName	A character string of the name to match with wildcards.

## Example

```
CtxSetWindowMatchTitle(CWI_1, "*Microsoft Word"); //Sets the wildcard match name

CtxWaitForWindowCreate(CWI_1); //With the match name set above, finding
//any current window with a title ending in "Microsoft Word" will match
//and allow this function to return successfully.
```

## CtxSetWindowRetries

Sets the retry information for window verification.

If a window does not exist initially, the middleware waits for the number of milliseconds specified before retrying. The verification takes place for the number of times specified.

## Syntax

```
void CtxSetWindowRetries(int retries, int waittime);
```

## Return Value

## Parameters

Parameter	Description
retries	The number of times to retry verifying the window.
waittime	The number of milliseconds to wait between retries.

## Example

```
//Use 3 retries with a 3-second delay
CtxSetWindowRetries(3, 3000);
```

## CtxSetWindowTimeout

Set the number of seconds to wait for windows to be activated and destroyed.

## Syntax

```
void CtxSetWindowTimeout (int timeout);
```

## Return Value

## Parameters

Parameter	Description
timeout	Number of seconds to wait for a window to be created.

## Example

```
CtxSetWindowTimeout (30);
```

## CtxSetWindowTitle

Sets the name of a previously-created window in the Citrix Window Information object.

## Syntax

```
void CtxSetWindowTitle(const CtxWI* windowInfo, const char *strWindowTitle);
```

## Return Value

## Parameters

Parameter	Description
windowInfo	Pointer to a Citrix Window Information object that contains window data.
strWindowTitle	Character string containing the new window title.

## Example

```
CtxWI *CWI_7 = new CtxWI(0x20122, "Untitled - Notepad", 72, 54, 481, 322);
CtxWaitForWindowCreate(CWI_7, 500);
// Update the window title after Notepad loads the file;
// this is necessary so following script commands which reference window CWI_7
// can properly match the window title.
CtxSetWindowTitle(CWI_7, "SampleFile.txt - Notepad");
```

## CtxSetWindowVerification

Enables or disables window verification for actions.

### Syntax

```
void CtxSetWindowVerification (BOOL enable);
```

### Return Value

### Parameters

Parameter	Description
enable	TRUE or FALSE

### Example

```
CtxSetWindowVerification (TRUE);
```

## CtxType

Inputs the specified key strokes. If Window Verification is enabled, ensure that `wi` is the foreground window.

### Syntax

```
void CtxType(const CtxWI *wi, char *text);
```

### Return Value

### Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
text	ASCII text to type into the window.

## Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "blah", 303, 208, 418, 145);
...
CtxType(CWI_40034, "HELLO");
```

## CtxTypeChar

Sends the specified ASCII character to the Citrix server.

Inputs the key stroke specified by the key argument, which corresponds to the character. Ensure that `wi` is the foreground window. This is equivalent to `CtxKeyDown(key)` and `CtxKeyUp(Key)`.

## Syntax

```
void CtxTypeChar(const CtxWI *wi, long vkey, CtxKeyModifierEnum mod);
```

## Return Value

## Parameters

Parameter	Description												
<code>wi</code>	Pointer to a Citrix Window Information object containing window data.												
<code>key</code>	Virtual Key code to type.												
<code>mod</code>	<p><i>CtxKeyModifierEnum</i></p> <p>The following modes are available:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>No keyboard modifier was specified</td> </tr> <tr> <td>SHIFT</td> <td>Shift key</td> </tr> <tr> <td>CONTROL</td> <td>Control key</td> </tr> <tr> <td>ALT</td> <td>Alt key</td> </tr> <tr> <td>EXTENDED</td> <td>An extended key</td> </tr> </tbody> </table>	Value	Description	NONE	No keyboard modifier was specified	SHIFT	Shift key	CONTROL	Control key	ALT	Alt key	EXTENDED	An extended key
Value	Description												
NONE	No keyboard modifier was specified												
SHIFT	Shift key												
CONTROL	Control key												
ALT	Alt key												
EXTENDED	An extended key												

## Example

```
CtxTypeChar(CWI_3001e, 'F', ALT); //Send ALT-F
```

## CtxTypeVK

Sends the VK code that corresponds to a key typed by the user.

Inputs the key stroke specified by the key argument, which corresponds to the VK code. Ensure that `wi` is the foreground window. This is equivalent to `CtxKeyDown(key)` and `CtxKeyUp(Key)`.

### Syntax

```
void CtxTypeVK(const CtxWI *wi, long vkey, CtxKeyModifierEnum mod);
```

### Return Value

### Parameters

Parameter	Description												
<code>wi</code>	Pointer to a Citrix Window Information object containing window data.												
<code>key</code>	Virtual Key code to type.												
<code>mod</code>	<p><i>CtxKeyModifierEnum</i></p> <p>The following modes are available:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>No keyboard modifier was specified</td> </tr> <tr> <td>SHIFT</td> <td>Shift key</td> </tr> <tr> <td>CONTROL</td> <td>Control key</td> </tr> <tr> <td>ALT</td> <td>Alt key</td> </tr> <tr> <td>EXTENDED</td> <td>An extended key</td> </tr> </tbody> </table>	Value	Description	NONE	No keyboard modifier was specified	SHIFT	Shift key	CONTROL	Control key	ALT	Alt key	EXTENDED	An extended key
Value	Description												
NONE	No keyboard modifier was specified												
SHIFT	Shift key												
CONTROL	Control key												
ALT	Alt key												
EXTENDED	An extended key												

### Example

```
CtxTypeVK(CWI_3001e, VK_RIGHT, EXTENDED); //Send the right arrow key
```

## CtxWaitForCaptionChange

Waits for the specified window's caption to be changed.

## Syntax

```
void CtxWaitForCaptionChange(const CtxWI *wi, const char *newcaption, long nmWait);
```

## Return Value

## Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
newcaption	String representing new window caption.
nmWait	Amount of time to wait for the event.

## Example

```
DO_MSLEEP (234);
// Wait for the title of the window that matches CWI_11 to change to "new title"
CtxWaitForCaptionChange (CWI_11, "new title", 2000);
DO_MSLEEP (125);
```

## CtxWaitForFullBitmap

Waits for a full screen bitmap to match the hash code passed into the BitmapHash argument.

## Versions

Versions of CtxWaitForFullBitmap are:

```
void CtxWaitForFullBitmap(char *BitmapHash, char *BitmapTitle, long ITimeoutOffset = 0)
```

```
void CtxWaitForFullBitmap(char *BitmapHash, char *BitmapTitle)
```

## CtxWaitForPartialBitmap

Waits for a partial screen bitmap to match the hash code passed into the BitmapHash argument.

## Versions

Versions of CtxWaitForPartialBitmap are:

```
void CtxWaitForPartialBitmap(char *BitmapHash, char *BitmapTitle, int x, int y, int width, int height, long ITimeoutOffset = 0)
```

```
void CtxWaitForPartialBitmap(char *BitmapHash, char *BitmapTitle, int x, int y, int width, int height)
```



## CtxWaitForScreenUpdate

Waits for the specified screen update to occur at the specified coordinates.

### Syntax

```
void CtxWaitForScreenUpdate(long x, long y, long w, long h, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
x	X coordinate
y	Y coordinate
w	Width of the screen update
h	Height of the screen update
nmWait	Amount of time in milliseconds to wait for the event

### Example

```
CtxWaitForScreenUpdate(154, 154, 253, 261, 500);
```

## CtxWaitForWindowActivate

Waits for the specified window to be activated (brought to the foreground).

### Syntax

```
void CtxWaitForWindowActivate(const CtxWI *wi, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
-----------	-------------

wi	Pointer to a Citrix Window Information object containing window data.
nmWait	Amount of time in milliseconds to wait for the event.

### Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowActivate(CWI_40034, 500);
```

## CtxWaitForWindowCreate

Waits for the specified window to be created.

### Syntax

```
void CtxWaitForWindowCreate(const CtxWI *wi, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
nmWait	Amount of time in milliseconds to wait for the event.

### Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowCreate(CWI_40034, 500);
```

## CtxWaitForWindowDestroy

Waits for the specified window to be destroyed.

### Syntax

```
void CtxWaitForWindowDestroy(const CtxWI *wi, long nmWait);
```

## Return Value

## Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
nmWait	Amount of time in milliseconds to wait for the event.

## Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowDestroy(CWI_40034, 500);
```

## CtxWaitForWindowLgIconChange

Waits for the specified window's large icon to be changed.

## Syntax

```
void CtxWaitForWindowLgIconChange(const CtxWI *wi, const char *hash, long nmWait);
```

## Return Value

## Parameters

Parameter	Description
*wi	Pointer to a Citrix Window Information object containing window data.
*hash	Unique hash of icon bitmap.
nmWait	Amount of time in milliseconds to wait for the event.

## Example

```
// Window CWI_13 ("Windows Task Manager") created 1101909450.125
CtxWaitForWindowCreate(CWI_13, 110);
CtxPoint(327, 2); //1101909452.531
CtxWaitForWindowLgIconChange(CWI_13, "c48b65c8b825324a5ff73638118fb8fc", 1218);
```

## CtxWaitForWindowMinimize

Waits for the specified window to be minimized.

### Syntax

```
void CtxWaitForWindowMinimize(const CtxWI *wi, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
nmWait	Amount of time in milliseconds to wait for the event.

### Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowMinimize(CWI_40034, 500);
```

## CtxWaitForWindowMove

Waits for the specified window to be moved to the specified coordinates.

### Syntax

```
void CtxWaitForWindowMove(const CtxWI *wi, long x, long y, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data
x	X coordinate

y	Y coordinate
nmWait	Amount of time in milliseconds to wait for the event

### Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowMove(CWI_40034, 132, 297, 2000);
```

## CtxWaitForWindowResize

Waits for the specified window to be resized to the specified dimensions.

### Syntax

```
void CtxWaitForWindowResize(const CtxWI *wi, long w, long h, long nmWait);
```

### Return Value

### Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
w	X coordinate.
h	Y coordinate.
nmWait	Amount of time in milliseconds to wait for the event.

### Example

```
CtxWI *CWI_40034 = new CtxWI(0x40034, "Please wait...", 303, 208, 418, 145);
...
CtxWaitForWindowResize(CWI_40034, 100, 200, 500);
```

## CtxWaitForWindowSmallIconChange

Waits for the specified window's small icon to be changed.

## Syntax

```
void CtxWaitForWindowSmIconChange(const CtxWI *wi, const char *hash, long nmWait);
```

## Return Value

## Parameters

Parameter	Description
*wi	Pointer to a Citrix Window Information object containing window data.
*hash	Unique hash of icon bitmap.
nmWait	Amount of time in milliseconds to wait for the event.

## Example

```
// Window CWI_13 ("Windows Task Manager") created 1101909450.125
CtxWaitForWindowCreate(CWI_13, 110);
CtxPoint(327, 2); //1101909452.531
CtxWaitForWindowSmIconChange(CWI_13, "924f75dd0db6ecb28d3e513053a8038e", 1391);
```

## CtxWaitForWindowStyleChange

Waits for the specified window's style to be changed as specified.

## Syntax

```
void CtxWaitForWindowStyleChange(const CtxWI *wi, long style, long extendedStyle, long nmWait);
```

## Return Value

## Parameters

Parameter	Description
wi	Pointer to a Citrix Window Information object containing window data.
style	Bit mask that corresponds to the window style.
extendedStyle	Bit mask that corresponds to the extended window style.

nmWait	Amount of time in milliseconds to wait for the event.
--------	---

## Example

```
Point (155, 1);
DO_MSLEEP (515);
//Wait for the window that matches CWI_11 to maximize
CtxWaitForWindowStyleChange (CWI_11, 0x14ca0044, 0x50100, 500);
DO_MSLEEP (11047);
```

## CtxWindowEventExists

Checks to see if the specified screen event has already occurred and, if not, waits for the specified time for the event to occur.

## Syntax

```
BOOL CtxWindowEventExists(CitrixWindowEventTypeEnum EventType, int nmWait, const CtxWI *wi);
```

## Return Value

## Parameters

Parameter	Description																		
EventType	<p><i>CitrixWindowEventTypeEnum</i></p> <p>Citrix window event. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>EVT_STR_CTXWINDOWCREATE</td> <td>WindowCreate</td> </tr> <tr> <td>EVT_STR_CTXWINDOWACTIVATE</td> <td>WindowActivate</td> </tr> <tr> <td>EVT_STR_CTXWINDOWMOVE</td> <td>WindowMove</td> </tr> <tr> <td>EVT_STR_CTXWINDOWDEACTIVATE</td> <td>WindowDeactivate</td> </tr> <tr> <td>EVT_STR_CTXWINDOWDESTROY</td> <td>WindowDestroy</td> </tr> <tr> <td>EVT_STR_CTXWINDOWSIZE</td> <td>WindowResize</td> </tr> <tr> <td>EVT_STR_CTXWINDOWMINIMIZE</td> <td>WindowMinimize</td> </tr> <tr> <td>EVT_STR_CTXWINDOWCAPTIONCHANGE</td> <td>WindowCaptionChange</td> </tr> </tbody> </table>	Value	Description	EVT_STR_CTXWINDOWCREATE	WindowCreate	EVT_STR_CTXWINDOWACTIVATE	WindowActivate	EVT_STR_CTXWINDOWMOVE	WindowMove	EVT_STR_CTXWINDOWDEACTIVATE	WindowDeactivate	EVT_STR_CTXWINDOWDESTROY	WindowDestroy	EVT_STR_CTXWINDOWSIZE	WindowResize	EVT_STR_CTXWINDOWMINIMIZE	WindowMinimize	EVT_STR_CTXWINDOWCAPTIONCHANGE	WindowCaptionChange
Value	Description																		
EVT_STR_CTXWINDOWCREATE	WindowCreate																		
EVT_STR_CTXWINDOWACTIVATE	WindowActivate																		
EVT_STR_CTXWINDOWMOVE	WindowMove																		
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	EVT_STR_CTXWINDOWSMALLICONCHANGE WindowSmallIconChange EVT_STR_CTXWINDOWLARGEICONCHANGE WindowLargeIconChange EVT_STR_CTXWINDOWSTYLECHANGE WindowStyleChange
nmWait	Amount of time in milliseconds to wait for the event.
wi	Pointer to a Citrix Window Information object containing window data.

## Example

```
// Window CWI_15 ("Open") destroyed 1087837404.827
if(CtxWindowEventExists(EVT_STR_CTXWINDOWCREATE,3000,CWI_16))
BeginBlock();
    CtxPoint(337, 265); //1087837404.905
    // Window CWI_16 ("11111111 - Microsoft Word") created 1087837404.905
    CtxWaitForWindowCreate(CWI_16, 31);
    // Window CWI_14 ("Document1 - Microsoft Word") destroyed 1087837404.905
    DO_MSLEEP(7547);
    CtxPoint(628, 9); //1087837414.592
    DO_MSLEEP(2141);
    CtxClick(CWI_16, 281, L_BUTTON, NONE); //1087837414.873
    DO_MSLEEP(234);
    // Window CWI_16 ("11111111 - Microsoft Word") destroyed 1087837415.108
    CtxPoint(113, 93); //1087837418.779
    // Window CWI_17 ("") created 1087837418.779
EndBlock();
```

## EndBlock

End of an else block of code.

## Syntax

```
void EndBlock();
```

## Return Value

None

## Parameters

None



## Example

```
// Window CWI_5 ("Citrix License Warning Notice") created 1087837373.062
if(CtxWindowEventExists(EVT_STR_CTXWINDOWCREATE, 3000, CWI_5))
BeginBlock();
CtxWaitForWindowCreate(CWI_5, 46);
EndBlock();
```

## ODBC

### ODBC Commands

#### [DO\\_FreeODBC](#)

Releases the memory used by QALoad's ODBC/DB2 driver. It should only be called once at the end of a script.

#### [DO\\_initODBC](#)

Initializes QALoad's internal ODBC variables. Must be called at the beginning of the script prior to any other calls.

#### [DO\\_LoadMem](#)

Fills the memory location described in a corresponding [DO\\_SQLBindParameter](#) call. The data, `sData`, is always represented as a string. [DO\\_LoadMem](#) enables sending multiple pieces of data into the same bind call by loading memory that was added with a [DO\\_SQLBindParameter](#) call.

#### [DO\\_SQLAllocConnect](#)

The connection handle must be allocated before the actual connection can take place. It is important that each [DO\\_SQLAllocConnect](#) call is matched up with a similar [DO\\_SQLFreeConnect](#), either inside of the transaction loop or outside of the transaction loop.

#### [DO\\_SQLAllocHandle](#)

Allocates handles. Replaces [DO\\_SQLAllocStmt](#).

#### [DO\\_SQLAllocStmt](#)

Allocates a statement handle and assigns it to a previously open connection.

#### [DO\\_SQLBindCol](#)

Binds application buffers to a specific column of a statement. The columns are identified by number in the result set.

#### [DO\\_SQLBindParameter](#)

Used to describe a memory location between the application and the database. This memory location is used to exchange data between the application and the database.

#### [DO\\_SQLCancel](#)

Cancels the processing of the present SQL statement.

#### [DO\\_SQLCloseCursor](#)

Closes a cursor associated with a handle and discards the results.

#### [DO\\_SQLColAttribute](#)

Returns descriptor information for a column in a result set.

#### [DO\\_SQLColumns](#)

Retrieves the column information of the selected tables.

#### [DO\\_SQLConnect](#)

Performs a connection to the database.

#### [DO\\_SQLCopyDesc](#)

If the values of the `SourceDescHandle` and `TargetDescHandle` parameters are associated with the same

driver, the driver copies all descriptor fields. This is true even if the drivers are on different connections or environments. If the values of the parameters are not associated with the same driver, only ODBC-defined fields are copied.

#### [DO\\_SQLDescribeCol](#)

Returns descriptor information to the statement handle.

#### [DO\\_SQLDisconnect](#)

Closes the connection from the application to the database server.

#### [DO\\_SQLDriverConnect](#)

Connects the application to the database.

#### [DO\\_SQLEndTran](#)

Provides the mechanism for all open transactions or all open transactions on a particular connection to be resolved.

#### [DO\\_SQLExecDirect](#)

Prepares and executes a SQL statement.

#### [DO\\_SQLExecute](#)

Executes a prepared command using the current values of the parameter marker variables, if any parameter markers exist in the command.

#### [DO\\_SQLFetch](#)

Retrieves a single row of data.

#### [DO\\_SQLFreeConnect](#)

Performs the cleanup of connection handles for ODBC/DB2 within a QALoad script.

#### [DO\\_SQLFreeHandle](#)

In ODBC, `DO_SQLFreeHandle` handles statement and descriptor cleanup. In DB2, `DO_SQLFreeHandle` handles the additional cleanup of connection handles. Each occurrence of `DO_SQLFreeHandle` must have a corresponding `DO_SQLAllocHandle`, either both within the transaction loop or both outside of the transaction loop.

#### [DO\\_SQLFreeStmt](#)

Stops processing associated with a specific `command_index` and:

#### [DO\\_SQLGetCursorName](#)

Use on an open ODBC/DB2 statement to return a `char *` containing the cursor active on a particular statement.

#### [DO\\_SQLGetData](#)

Retrieves data for a single column in the form of a string.

#### [DO\\_SQLGetDescField](#)

Returns the value of a field of a descriptor record.

#### [DO\\_SQLGetDescRec](#)

Returns the settings or values from fields of a descriptor record set by `DO_SQLSetDescRec`, including name, data type, and column or parameter data storage. Does not retrieve values for header fields.

#### [DO\\_SQLGetEnvAttr](#)

Gets a characteristic of an environment.

#### [DO\\_SQLGetTypeInfo](#)

Returns information about data types supported by the data source.

#### [DO\\_SQLNumResultCols](#)

Determines the number of columns being returned in a result set.

#### [DO\\_SQLParamData](#)

Used in conjunction with DO\_SQLPutData to supply parameter data at statement execution time.

#### [DO\\_SQLPrepare](#)

Prepares an SQL statement and associates the results with the command\_index. The command is not executed until the DO\_SQLExecute command is called.

#### [DO\\_SQLRetrieveParamValue](#)

Retrieves a value of a SQL\_PARAM\_INPUT\_OUTPUT or SQL\_PARAM\_OUTPUT parameter, following the execution of the corresponding SQL statement.

#### [DO\\_SQLRowCount](#)

Returns an integer indicating the number of rows affected by the last SQL statement associated with the specified command\_index.

#### [DO\\_SQLSetConnectAttr](#)

Sets a characteristic of the connection.

#### [DO\\_SQLSetConnectOption](#)

Sets options on the connection handle.

#### [DO\\_SQLSetCursorName](#)

Associates a cursor name with an active command\_index.

#### [DO\\_SQLSetDescField](#)

Sets a descriptor field. A call to DO\_SQLSetDescField can set a field of any descriptor type that can be set.

#### [DO\\_SQLSetDescRec](#)

Sets multiple descriptor fields with a single call.

#### [DO\\_SQLSetEnvAttr](#)

Sets different aspects of the ODBC environment.

#### [DO\\_SQLSetPos](#)

Sets cursor locking and direction properties.

#### [DO\\_SQLSetStmtAttr](#)

Sets statement attributes and, as a result, sets descriptor fields.

#### [DO\\_SQLSetStmtOption](#)

Sets the boundaries of a specific statement handle.

#### [DO\\_SQLSpecialColumns](#)

Retrieves information about columns within a specified table. DO\_SQLSpecialColumns retrieves the following information:

#### [DO\\_SQLStatistics](#)

Retrieves a list of statistics about a single table and the indexes associated with the table. The driver returns

the information as a result set.

#### [DO\\_SQLTables](#)

Returns the list of table names stored in a specific data source. The driver returns the information as a result set.

#### [DO\\_SQLTransact](#)

Requests a commit or rollback operation for all update, insert, and delete transactions in progress on all command indexes associated with a connection. Can also request that a commit or rollback operation be performed for all connections by specifying a connection index of -1.

#### [DO\\_substr](#)

Finds a value within a string.

#### [GetBindColumnData](#)

Retrieves data from one of the rows that are returned by `DO_SQLFetch` calls, after a combination of `DO_SQLSetStmtAttr` and `DO_SQLBindCol` calls.

## Using descriptors

Descriptors are new to ODBC with release ODBC 3.x. They are also present in DB2. They offer a way of tracking column metadata. Descriptors can be used for a number of different purposes, and can be shared by different statements. In most cases, an application doesn't require access to descriptors; however, in some cases accessing descriptors can simplify a number of operations.

There are four types of descriptors:

- ! Application Parameter Descriptor (APD)  
Contains either the input parameters set up by the application or the output columns following the execution of a CALL statement within SQL.
- ! Application Row Descriptor (ARD)  
Contains the row data as the row is presented to the application.
- ! Implementation Row Descriptor (IRD)  
Contains the row as it comes from the database.
- ! Implementation Parameter Descriptor (IPD)  
Contains the parameter elements after conversion heading to the database.

For more information on ODBC descriptors, refer to your ODBC 3.0 Programmer's Reference Volume and SDK Guide.

## Handling connection descriptors

It is important to note that `QALoad` processes descriptor handles in the same way it processes statement handles. Each connection handle is associated with a unique descriptor handle. Each time a descriptor is allocated during conversion, `QALoad` associates descriptors with connections the same way that ODBC and DB2 do.

## [DO\\_FreeODBC](#)

Releases the memory used by `QALoad`'s ODBC driver. It should only be called once at the end of a script.

## Syntax

```
DO_FreeODBC( PLAYERINFO* sInfo );
```

## Return Value

## Parameters

Parameter	Description
sInfo	Structure used by each virtual user.

## Example

```
END_TRANSACTION();
DO_FreeODBC( sInfo );
REPORT( SUCCESS );
EXIT();
```

## DO\_initODBC

Initializes QALoad 's internal ODBC variables. Must be called at the beginning of the script before any other calls.

## Syntax

```
DO_initODBC( int nVersion, PLAYER_INFO* sInfo );
```

## Return Value

## Parameters

Parameter	Description
nVersion	This argument deals with the version of ODBC. ODBC uses different functions to allocate and free different structures to handle different properties of connections, statements, and the environment. In order to handle the behavior properly, QALoad detects and passes the version number into the script.
sInfo	This needs to be passed in order to properly initialize the Thread Local Storage.

## Example

```
SET_ABORT_FUNCTION( abort_function );
DEFINE_TRANS_TYPE( "wilson.c" );
// Checkpoints have been included by the convert process
DefaultCheckpointsOn();
DO_initODBC( 3, sInfo );
```

## DO\_LoadMem

Fills the memory location described in a corresponding DO\_SQLBindParameter call.

The data, sData, is always represented as a string. DO\_LoadMem enables sending multiple pieces of data into the same bind call by loading memory that was added with a DO\_SQLBindParameter call.

## Syntax

```
DO_LoadMem( int nStmtIndex, int nParamNum, char* sData, int nBufLen );
```

## Return Value

## Parameters

Parameter	Description
nStmtIndex	Index into the table of statement handles.
nParamNum	Number of the parameter. This matches the value in DO_SQLBindCol.
sData	String representation of the data.
nBufLength	Length of the string.

## Example

```
DO_SQLPrepare( S0, sql_statement );
DO_SQLBindParameter( S0, 1, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 2, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 3, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 4, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 5, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_LoadMem( S0, 1, "22", 4 );
DO_LoadMem( S0, 2, "0", 4 );
DO_LoadMem( S0, 3, "0", 4 );
DO_LoadMem( S0, 4, "0", 4 );
DO_LoadMem( S0, 5, "0", 4 );
DO_SQLExecute( S0 );
```

## DO\_SQLAllocConnect

Allocates a connection handle.

The connection handle must be allocated before the actual connection can take place. It is important that each `DO_SQLAllocConnect` call is matched up with a similar `DO_SQLFreeConnect`, either inside the transaction loop or outside the transaction loop.

Use `DO_SQLAllocHandle` in place of `DO_SQLAllocConnect` if using ODBC version 3 or higher.

## Syntax

```
DO_SQLAllocConnect( int HDBCIndex );
```

## Return Value

## Parameters

Parameter	Description
ConnectionIndex	Points to a structure that ODBC uses to track different connection settings, statements within the connection, and descriptors allocated within the connection.

## Example

```
DO_SQLAllocConnect( C0 );
DO_SQLConnect( C0, "fhloaddb2", "sa", "" );
DO_SQLDisconnect( C0 );
DO_SQLFreeConnect( C0 );
```

## DO\_SQLAllocHandle

Allocates handles. Replaces `DO_SQLAllocSmt`.

Previous versions of ODBC used different statements to allocate different structures. ODBC 3.x uses a single handle allocation function instead, which is represented by `DO_SQLAllocHandle` in QALoad .

## Syntax

```
DO_SQLAllocHandle ( ODBCSQLHandleTypeEnum handleType, int IncomingIndex, int OutgoingIndex)
```

## Return Value

## Parameters

Parameter	Description
handleType	<i>ODBCSQLHandleTypeEnum</i> The type of handle to be allocated. Each handle takes different arguments.



	Valid values are:										
	<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_HANDLE_ENV</td> <td>Environment handle</td> </tr> <tr> <td>SQL_HANDLE_DBC</td> <td>Connection handle</td> </tr> <tr> <td>SQL_HANDLE_STMT</td> <td>Statement handle</td> </tr> <tr> <td>SQL_HANDLE_DESC</td> <td>Descriptor handle</td> </tr> </tbody> </table>	Value	Description	SQL_HANDLE_ENV	Environment handle	SQL_HANDLE_DBC	Connection handle	SQL_HANDLE_STMT	Statement handle	SQL_HANDLE_DESC	Descriptor handle
Value	Description										
SQL_HANDLE_ENV	Environment handle										
SQL_HANDLE_DBC	Connection handle										
SQL_HANDLE_STMT	Statement handle										
SQL_HANDLE_DESC	Descriptor handle										
IncomingIndex	The structure that the outgoing handle will belong to. An <i>environment</i> handle is the incoming handle for a connection. A <i>connection</i> handle is the incoming handle for statements and for descriptors. When allocating the environment, pass in the following value for the incoming handle argument: SQL_NULL_HANDLE.										
OutgoingIndex	Points to the location of the structure that will store information for each of the different structures that ODBC uses.										

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
DO_SQLBindCol( S0, 1, SQL_C_LONG, 4, 4 );
strcpy(sql_statement, /* >> 2 << */ "select MAX(keyval) from test_table");
DO_SQLExecDirect( S0, sql_statement );
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLAllocStmt

Allocates a statement handle and assigns it to a previously open connection.

## Syntax

```
DO_SQLAllocStmt( int nConnectionIndex, int nStatementIndex );
```

## Return Value

## Parameters

Parameter	Description
nConnectionIndex	Index into the table of ODBC connection handles.
nStatementIndex	Index into the table of ODBC statement handles.

## Example

```
DO_SQLSetConnectOption( C0, SQL_ACCESS_MODE, 0 );
DO_SQLAllocStmt( C0, S0 );
DO_SQLSetStmtOption( S0, SQL_QUERY_TIMEOUT, 60 );
```

## DO\_SQLBindCol

Binds application buffers to a specific column of a statement. The columns are identified by number in the result set.

## Syntax

```
DO_SQLBindCol( int StatementIndex, int ColumnNum, ODBCSQLCDataTypeEnum CDataType, long BufferLength, long pBufferLength );
```

## Return Value

## Parameters

Parameter	Description																								
StatementIndex	Index into the table of ODBC statement handles.																								
ColumnNum	Number of the result set column to bind.																								
CDataType	<p><i>ODBCSQLCDataTypeEnum</i> C data type. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_C_BIT</td> <td>Bit</td> </tr> <tr> <td>SQL_C_UTINYINT</td> <td>Unsigned tiny integer</td> </tr> <tr> <td>SQL_C_STINYINT</td> <td>Signed tiny integer</td> </tr> <tr> <td>SQL_C_TINYINT</td> <td>Tiny integer</td> </tr> <tr> <td>SQL_C_SSHORT</td> <td>Signed Short</td> </tr> <tr> <td>SQL_C_USHORT</td> <td>Unsigned short</td> </tr> <tr> <td>SQL_C_SHORT</td> <td>Short</td> </tr> <tr> <td>SQL_C_SLONG</td> <td>Signed long</td> </tr> <tr> <td>SQL_C_ULONG</td> <td>Unsigned long</td> </tr> <tr> <td>SQL_C_LONG</td> <td>Long</td> </tr> <tr> <td>SQL_C_CHAR</td> <td>Char</td> </tr> </tbody> </table>	Value	Description	SQL_C_BIT	Bit	SQL_C_UTINYINT	Unsigned tiny integer	SQL_C_STINYINT	Signed tiny integer	SQL_C_TINYINT	Tiny integer	SQL_C_SSHORT	Signed Short	SQL_C_USHORT	Unsigned short	SQL_C_SHORT	Short	SQL_C_SLONG	Signed long	SQL_C_ULONG	Unsigned long	SQL_C_LONG	Long	SQL_C_CHAR	Char
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	SQL_C_TIME	Time HH:MM:SS (for example: 17:28:01)
	SQL_C_TIMESTAMP	Timestamp YYYY:MM:DD:HH:MM:SS
BufferLength	The length of the buffer for the data that is being returned.	
PBufferLength	The length/indicator buffer to bind to the column.	

## Example

```

BEGIN_TRANSACTION();

DO_SQLAllocHandle( SQL_HANDLE_DBC, 0, C0 );
DO_SQLConnect( C0, "FHLOADDB2", "sa", "" );
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
DO_SQLSetStmtAttr( S0, SQL_ATTR_ROW_ARRAY_SIZE, 5, SQL_IS_UINTEGER ); // Changed from 5 to 0
DO_SQLSetStmtAttr( S0, SQL_ATTR_ROWS_FETCHED_PTR, 0, SQL_IS_POINTER );
DO_SQLSetStmtAttr( S0, SQL_ATTR_ROW_STATUS_PTR, 0, SQL_IS_POINTER );
DO_SQLBindCol( S0, 1, SQL_C_SLONG, 4, 0 );
DO_SQLBindCol( S0, 2, SQL_C_CHAR, 20, 0 );
DO_SQLBindParameter( S0, 1, SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 10, 0, 4, 4 );

DO_LoadMem( S0, 1, "1", 4 );

strcpy(sql_statement, /* >> 0 << */
"SELECT KEYVAL, VARCHAR_COL FROM TEST_TABLE WHERE KEYVAL > {01}");
DO_substr(sql_statement, 1, "200" );
DO_SQLExecDirect( S0, sql_statement );

// Retrieve the data
DO_SQLFetch( 0 );
RR__printf( GetBindColumnData( 0, 1, 1 ) );
RR__printf( GetBindColumnData( 0, 2, 1 ) );
RR__printf( GetBindColumnData( 0, 1, 2 ) );
RR__printf( GetBindColumnData( 0, 2, 2 ) );
RR__printf( GetBindColumnData( 0, 1, 3 ) );
RR__printf( GetBindColumnData( 0, 2, 3 ) );
RR__printf( GetBindColumnData( 0, 1, 4 ) );
RR__printf( GetBindColumnData( 0, 2, 4 ) );
RR__printf( GetBindColumnData( 0, 1, 5 ) );
RR__printf( GetBindColumnData( 0, 2, 5 ) );

```

## DO\_SQLBindParameter

Used to describe a memory location between the application and the database. This memory location is used to exchange data between the application and the database.

Bind parameters are identified in a SQL statement with the question mark (?) character. Each ? character is a separate bind parameter, with the first bind parameter starting at 1.

## Syntax

```
DO_SQLBindParameter( int CommandIndex, unsigned short nParamNum,
ODBCSQLBindParameterParamTypeEnum ParamType, ODBCSQLBindParameterCDataTypeEnum CDataType,
ODBCSQLBindParameterSQLDataTypeEnum DataType, long ColumnDefinition, short Scale, SDWORD
InputString, int cbValueMax );
```

## Return Value

## Parameters

Parameter	Description																						
CommandIndex	Index into the table of ODBC command handles.																						
nParamNum	Bind parameter number. The first parameter is 1.																						
ParamType	<p><i>ODBCSQLBindParameterParamTypeEnum</i>                      Defines the direction of the parameter. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_PARAM_INPUT</td> <td>Parameter is input only.</td> </tr> <tr> <td>SQL_PARAM_INPUT_OUTPUT</td> <td>Parameter is output only.</td> </tr> <tr> <td>SQL_PARAM_OUTPUT</td> <td>Parameter is input and output.</td> </tr> </tbody> </table>	Value	Description	SQL_PARAM_INPUT	Parameter is input only.	SQL_PARAM_INPUT_OUTPUT	Parameter is output only.	SQL_PARAM_OUTPUT	Parameter is input and output.														
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ColumnDefinition	Precision of the column. (The same as using the native ODBC call for the given C or SQL type.)
Scale	Scale of the column. (The same as using the native ODBC call for the given C or SQL type.)
InputString	A string that defines the input data to the bind call.
cbValueMax	The length of the output variable being passed.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
strcpy(sql_statement, "INSERT INTO dbo.TEST_TABLE (keyval, test_number, longvarchar_col)
VALUES (?, ?, ?)");
DO_SQLPrepare( S0, sql_statement );
DO_SQLBindParameter( S0, 1, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 2, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 3, SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR, 16, 0, 0,
SQL_DATA_AT_EXEC);
DO_LoadMem( S0, 1, "26293", 0 );
DO_LoadMem( S0, 2, "9", 0 );
DO_SQLExecute( S0 );
DO_SQLParamData( S0 );
DO_SQLPutData( S0, "AAA", -3 );
DO_SQLParamData( S0 );
DO_SQLEndTran( SQL_HANDLE_DBC, C0, SQL_COMMIT );
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLCancel

Cancels the processing of the present SQL statement.

This is rarely used within a script, although you could use it if only a subset of the rows are needed from a Select command.

## Syntax

```
DO_SQLCancel( int StatementIndex );
```

## Return Value

None

## Parameters

Parameter	Description
StatementIndex	Index into the table of ODBC statement handles.

## Example

```
DO_SQLCancel( S0 );
```

## DO\_SQLCloseCursor

Closes a cursor associated with a handle and discards the results.

This cleanup function interacts minimally with do\_odbc.

## Syntax

```
DO_SQLCloseCursor( int StatementIndex )
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of ODBC statement handles.

## Example

```
DO_SQLFreeStmt( S0, SQL_DROP );
DO_SQLFreeStmt( S1, SQL_CLOSE );
DO_SQLSetStmtAttr( S1, SQL_ATTR_NOSCAN, SQL_NOSCAN_OFF, );
strcpy(sql_statement, /* >> 5 << */ "SELECT keyval, test_number, test_type FROM
dbo.test.table");
DO_SQLExecDirect( S1, sql_statement );
DO_SQLCloseCursor( S1);
DO_SQLFreeHandle(S1);
```

## DO\_SQLColAttribute

Returns descriptor information for a column in a result set.

In ODBC 3.x, this function replaces `SQLColAttributes`. `SQLColAttribute` returns descriptor information as a character string, a 32-bit descriptor-dependent value, or an integer value.

The `SQLColAttribute` replaces `SQLColAttributes` because it interacts with Descriptor information that was not present in prior versions of ODBC.

## Syntax

```
DO_SQLColAttribute( int StatementIndex, int ColumnNum, SQLUSMALLINT ColumnAttribute,
SQLSMALLINT BufferLen )
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of ODBC statement handles.
ColumnNum	The column for the information.
ColumnAttribute	The attribute to be retrieved.
BufferLen	Amount of space for the information to be retrieved.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0);
DO_SQLBindParameter(S0, 1, SQL_PARAM_INPUT,
    SQL_C_ULONG, SQL_INTEGER,
    10, 0, "19", 4, 4 );
strcpy(sql_statement, /* >> 1 << */ "select
varchar_col, char_col, timestamp_col
from test_table where keyval < ?");
DO_SQLExecDirect( S0, sql_statement );
DO_SQLBindCol( S0, 1, SQL_C_CHAR, 50, 196658 );
DO_SQLBindCol( S0, 2, SQL_C_CHAR, 50, 50 );
DO_SQLBindCol( S0, 3, SQL_C_TIMESTAMP, 50, 2012741682 );
DO_SQLColAttribute( S0, 1, SQL_DESC_BASE_COLUMN_NAME, 50);
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLColumns

Retrieves the column information of the selected tables.

DO\_SQLColumns is used to retrieve information from a series of columns within a table. Use DO\_SQLNumResultsCols to sort through the result set.

## Syntax

```
DO_SQLColumns( int StatementIndex, UCHAR* QualifierName, UCHAR* TableOwner, UCHAR*
TableName, UCHAR* ColumnName );
```

## Return Value

The following information is retrieved for each matching column:

Column Name	Data Type	Comments
TABLE_QUALIFIER	Varchar(128)	Table qualifier identifier; NULL if not applicable to the data source.
TABLE_OWNER	Varchar(128)	Table owner identifier; NULL if not applicable to the data source.



TABLE_NAME	Varchar(128)	Table identifier.
COLUMN_NAME	Varchar(128)	Column identifier.
DATA_TYPE	Smallint	ODBC SQL data type.
TYPE_NAME	Varchar(128)	Data source-dependent data type name; for example, CHAR, VARCHAR, MONEY, LONG VARBINARY, or CHAR ( ) for bit data.
PRECISION	Integer	Precision of the column on the data source.
LENGTH	Integer	Transfer size of the data. The length in bytes of data transferred on an SQLGetData or SQLFetch operation if SQL_C_DEFAULT is specified. For numeric data, this size may be different than the size of the data stored on the data source. This value is the same as the PRECISION column for character or binary data.
SCALE	Smallint	Scale of the column on the data source.
RADIX	Smallint	Either 10 or 2. If it is 10, the values in PRECISION and SCALE give the number of decimal digits allowed for the column. If it is 2, the values in PRECISION and SCALE give the number of bits allowed in the column.
NULLABLE	Smallint	SQL_NO_NULLS if the column does not accept NULL values.
REMARKS	Varchar(254)	A description of the column.

## Parameters

Parameter	Description
StatementIndex	Index into the table of ODBC statement handles.
QualifierName	Table qualifier identifier (accepts search patterns).
TableOwner	Name of the table owner (accepts search patterns).
TableName	Table name (accepts search patterns).
ColumnName	Column name to retrieve (accepts search patterns).

## Example

```
DO_SQLAllocStmt( C0, S1 );
DO_SQLColumns( S1, "", "", "qctest", "" );
```

## DO\_SQLConnect

Performs a connection to the database.

The authorization string, if required by the database, must be present, since many drivers prompt the user for a password at runtime if the password is not present. This presents a problem when playing back multiple virtual users, as it is impractical for the test operator to respond to each prompt individually.

The call is for completeness only. QALoad translates a `SQLConnect` command into a `SQLDriverConnect` command. This facilitates the automatic detection of the Authorization string (password).

## Syntax

```
DO_SQLConnect( int ConnectionIndex, UCHAR* DSN, UCHAR* UDI, UCHAR* AuthStr );
```

## Return Value

## Parameters

Parameter	Description
ConnectionIndex	Index into the table of connections.
DSN	Data source name.
UID	User identifier.
AuthStr	Authorization string (password).

## Example

```
DO_SQLAllocConnect( C0 );
DO_SQLConnect( C0, "fhloaddb2", "sa", "" );
```

## DO\_SQLCopyDesc

Copies the fields of the source descriptor handle to the target descriptor handle.

If the values of the `SourceDescHandle` and `TargetDescHandle` parameters are associated with the same driver, the driver copies all descriptor fields. This is true even if the drivers are on different connections or environments.

If the values of the parameters are not associated with the same driver, only ODBC-defined fields are copied.

At this time QALoad does not store descriptor information. QALoad relies on ODBC to handle the calls and the descriptor data for the application.

## Syntax

```
DO_SQLCopyDesc( int SourceDescriptorHandleIndex, int TargetDescriptorHandle );
```

## Return Value

## Parameters

Parameter	Description
SourceDescriptorHandleIndex	The descriptor to copy over.
TargetDescriptorHandle	The descriptor receiving the copied information.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_DESC, C0, D1 );
DO_SQLAllocHandle( SQL_HANDLE_DESC, C0, D2 );
DO_SQLSetDescField( D1, 0, SQL_DESC_COUNT, 2, -6 );
DO_SQLSetDescRec( D1, 1, 4, 0, 4, 10, 0, 42919801, 1242388, 1242384 );
DO_SQLSetDescRec( D1, 2, 4, 0, 4, 10, 0, 42922201, 1242388, 1242384 );
DO_SQLCopyDesc( D1, D2 );
DO_SQLGetDescRec( D2, 1, 4 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D2 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D1 );
```

## DO\_SQLDescribeCol

Returns descriptor information to the statement handle.

The information is returned as a set of pointers describing the column name, column precision, column scale, and SQL type of the column. This information can be used as metadata for generic data handling.

## Syntax

```
DO_SQLDescribeCol( int StatementIndex, int ColumnNumber, int BufferLength )
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	The statement handle for the function call.
ColumnNumber	The number of the column in the table that SQLdescribeCol is retrieving information about. Column numbers start at 1 and advance from there.
BufferLength	The length of the buffer for the column name in bytes.

## Example

```
DO_SQLFreeStmt( S0, SQL_CLOSE );
DO_SQLSetStmtAttr( S0, SQL_ATTR_NOSCAN, SQL_NOSCAN_OFF, );
strcpy(sql_statement, /* >> 3 << */ "SELECT * FROM dbo.test.table");
DO_SQLExecDirect( S0, sql_statement );
pcol = DO_SQLNumResultCols( S0 );
DO_SQLDescribeCol( S0, 1, 129);
DO_SQLColAttribute( S0, 1, SQL_DESC_AUTO_UNIQUE_VALUE, 0);
DO_SQLColAttribute( S0, 1, SQL_DESC_FIXED_PREC_SCALE, 0);
DO_SQLColAttribute( S0, 1, SQL_DESC_UPDATABLE, 0);
DO_SQLDescribeCol( S0, 2, 129);
DO_SQLColAttribute( S0, 2, SQL_DESC_AUTO_UNIQUE_VALUE, 0);
DO_SQLColAttribute( S0, 2, SQL_DESC_FIXED_PREC_SCALE, 0);
DO_SQLColAttribute( S0, 2, SQL_DESC_UPDATABLE, 0);
DO_SQLDescribeCol( S0, 3, 129);
DO_SQLColAttribute( S0, 3, SQL_DESC_AUTO_UNIQUE_VALUE, 0);
DO_SQLColAttribute( S0, 3, SQL_DESC_FIXED_PREC_SCALE, 0);
DO_SQLColAttribute( S0, 3, SQL_DESC_UPDATABLE, 0);
```

## DO\_SQLDisconnect

Closes the connection from the application to the database server.

### Syntax

```
DO_SQLDisconnect( int ConnectionIndex );
```

### Return Value

### Parameters

Parameter	Description
ConnectionIndex	Index into the table of connections.

### Example

```
DO_SQLDisconnect( C0 );
```

## DO\_SQLDriverConnect

Connects the application to the database.

Normally, the format of the connection string can vary between databases and ODBC drivers, but generally includes, at a minimum, the dataset name (DSN), user ID (UID), and password (PWD). If a password is required for the connection, it is important to include it in DO\_SQLDriverConnect so the ODBC driver does not prompt the user at runtime for the connection string.

### Syntax

```
DO_SQLDriverConnect( int ConnectionIndex, UCHAR* ConnectionString );
```

## Return Value

## Parameters

Parameter	Description
ConnectionIndex	Index into the table of connections.
ConnectionString	Complete ODBC connection string (see description).

## Example

```
DO_SQLDriverConnect( C0, "DSN=Dan32;UID=dba;PWD=sql" );
```

## DO\_SQLEndTran

Provides the mechanism for all open transactions or all open transactions on a particular connection to be resolved.

## Syntax

```
DO_SQLEndTran( ODBCSQLTransactionHandleTypeEnum nHandleType, long nHandleIndex, ODBCSQLTransactTypeEnum nOperation );
```

## Return Value

## Parameters

Parameter	Description						
nHandleType	<p><i>ODBCSQLTransactionHandleTypeEnum</i></p> <p>The type of Handle on which the transaction is being committed or rolled back. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_HANDLE_ENV</td> <td>Environment handle</td> </tr> <tr> <td>SQL_HANDLE_DBC</td> <td>Connection handle</td> </tr> </tbody> </table>	Value	Description	SQL_HANDLE_ENV	Environment handle	SQL_HANDLE_DBC	Connection handle
Value	Description						
SQL_HANDLE_ENV	Environment handle						
SQL_HANDLE_DBC	Connection handle						
nHandleIndex	Index into the table of statement or connection handles, or -666 which is used as a marker for the Environment handle.						
nOperation	<p><i>ODBCSQLTransactTypeEnum</i></p> <p>SQL transaction type option. Valid values are:</p>						

	Value	Description
	SQL_COMMIT	Commit transaction
	SQL_ROLLBACK	Rollback transaction

## Example

The following example commits all of the transactions open on connection index 1:

```
DO_SQLExecDirect( S3, sql_statement );
DO_SQLEndTran( SQL_HANDLE_DBC, C1, SQL_COMMIT );
```

In order to resolve all transactions, the call to DO\_SQLEndTran has the value -666 as the handle index. This is a marker for the Environment handle.

```
DO_SQLEndTran( SQL_HANDLE_ENV, -666, SQL_COMMIT );
```

## DO\_SQLExecDirect

Prepares and executes a SQL statement.

### Syntax

```
DO_SQLExecDirect( int StatementIndex, UCHAR* SQLStatement );
```

### Return Value

### Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.
SQLStatement	SQL statement to be executed.

## Example

```
DO_SQLExecDirect( S0, "Select * from emp_tutorial" );
```

## DO\_SQLExecute

Executes a prepared command using the current values of the parameter marker variables if any parameter markers exist in the command.

### Syntax

```
DO_SQLExecute( int StatementIndex );
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.

## Example

```
DO_SQLPrepare( S0, sql_statement );
DO_LoadMem( S0, 1, "17", 4 ); \
DO_LoadMem( S0, 2, "1234", 4 );
DO_LoadMem( S0, 3, "1235", 4 );
DO_LoadMem( S0, 4, "1236", 4 );
DO_LoadMem( S0, 5, "1237", 4 );
DO_SQLExecute( S0 );
```

## DO\_SQLFetch

Retrieves a single row of data.

## Syntax

```
DO_SQLFetch( int StatementIndex )
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	The index of the statement handle.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
strcpy(sql_statement, /* >> 1 << */ "SELECT MAX(keyval) FROM TESTDB.TEST_TABLE");
DO_SQLExecDirect( S0, sql_statement );
while (DO_SQLFetch( S0 ) != SQL_NO_DATA_FOUND )
{
DO_SQLGetData( S0, 1, SQL_C_LONG, 4 );
strcpy(pReturnValue, GetFetchedData());
}
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLFreeConnect

Performs the cleanup of connection handles for ODBC within a QALoad script.

The handle cleanup that was being performed in DO\_SQLDisconnect is now being performed in DO\_SQLFreeConnect or in DO\_SQLFreeHandle.

### Syntax

```
DO_SQLFreeConnect( int ConnectionIndex );
```

### Return Value

### Parameters

Parameter	Description
ConnectionIndex	Points to a structure that ODBC uses to track different connection settings, statements within the connection, and descriptors allocated within the connection.

### Example

```
DO_SQLAllocConnect( C0 );
DO_SQLConnect( C0, "fhloadb2", "sa", "" );
DO_SQLDisconnect( C0 );
DO_SQLFreeConnect( C0 );
```

## DO\_SQLFreeHandle

In ODBC, DO\_SQLFreeHandle handles statement and descriptor cleanup.

Each occurrence of DO\_SQLFreeHandle must have a corresponding DO\_SQLAllocHandle, either within the transaction loop or outside of the transaction loop.

DO\_SQLFreeHandle replaces DO\_SQLFreeStmt. Like DO\_SQLAllocHandle, DO\_SQLFreeHandle takes different parameters than its predecessor. DO\_SQLFreeHandle is compatible with ODBC 3.x.

### Syntax

```
DO_SQLFreeHandle( ODBCSQLHandleTypeEnum HandleType, int HandleIndex )
```

### Return Value



## Parameters

Parameter	Description										
HandleType	<p><i>ODBCSQLHandleTypeEnum</i></p> <p>The type of handle to be allocated. Each handle takes different arguments. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_HANDLE_ENV</td> <td>Environment handle</td> </tr> <tr> <td>SQL_HANDLE_DBC</td> <td>Connection handle</td> </tr> <tr> <td>SQL_HANDLE_STMT</td> <td>Statement handle</td> </tr> <tr> <td>SQL_HANDLE_DESC</td> <td>Descriptor handle</td> </tr> </tbody> </table>	Value	Description	SQL_HANDLE_ENV	Environment handle	SQL_HANDLE_DBC	Connection handle	SQL_HANDLE_STMT	Statement handle	SQL_HANDLE_DESC	Descriptor handle
Value	Description										
SQL_HANDLE_ENV	Environment handle										
SQL_HANDLE_DBC	Connection handle										
SQL_HANDLE_STMT	Statement handle										
SQL_HANDLE_DESC	Descriptor handle										
HandleIndex	The address of the structure that ODBC should release from memory.										

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
DO_SQLBindCol( S0, 1, SQL_C_LONG, 4, 4 );
strcpy(sql_statement, /* >> 2 << */ "select MAX(keyval) from test_table");
DO_SQLExecDirect( S0, sql_statement );
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLFreeStmt

Stops processing associated with a specific `command_index` and:

- ! Closes any open cursors associated with the `command_index`.
- ! Discards pending results.
- ! Frees all resources associated with `command_index`.

Consult your ODBC reference manual for details regarding the option parameter.

## Syntax

```
DO_SQLFreeStmt( int StatementIndex, ODBCSQLFreeStmtOptionEnum Option );
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.

Option	<i>ODBCSQLFreeStmtOptionEnum</i> SQLFreeStmt option. Valid values are:	
	Value	Description
	SQL_CLOSE	Close the statement handle
	SQL_DROP	Drop the statement handle
	SQL_UNBIND	Unbind the statement binds
	SQL_RESET_PARAMS	Reset the statement parameters

### Example

```
DO_SQLFreeStmt( S0, SQL_DROP );
```

## DO\_SQLGetCursorName

Use on an open ODBC statement to return a char \* containing the cursor active on a particular statement.

This cursor can then be used in the execution of another query on another statement. Be aware that the pReturnValue must be freed by the script or a memory leak results.

### Syntax

```
DO_SQLGetCursorName ( int StatementIndex, short nBufferLength);
```

### Return Value

### Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.
nBufferLength	The length of the buffer in bytes.

### Example

In the following example, the pReturnValue is being placed in the sCursorName string immediately before the pReturnValue is freed.

```
char * DO_SQLGetCursor( <connection index>, <buffer length in bytes> );
```

An example on its correct use is as follows:

```
char sCursorName[19];
char *pReturnValue;
```

```

...
...
pReturnValue = DO_SQLGetCursorName( S1, 19 );
sprintf( sCursorName, "%s", pReturnValue );
free(pReturnValue);
strcpy(sql_statement, /* >> 3 << */ "UPDATE TESTDB.Test_Table set test_number = test_number
where current of ");
sprintf( sql_statement, "%s%s", sql_statement, sCursorName );
DO_SQLExecDirect( S2, sql_statement );

```

## DO\_SQLGetData

Retrieves data for a single column in the form of a string.

Call `DO_SQLGetData` after one or more rows have been retrieved from the result set by `DO_SQLFetch`. `DO_SQLGetData` allows large pieces of data to be returned by retrieving the data in parts if the variable length data is too large for a single call.

### Syntax

```
DO_SQLGetData( int nStmtIndex, int nColNum, int nCType, long nBufLen )
```

### Return Value

`DO_SQLGetData` can return the following values in the length/indicator buffer:

- ! Length of the data available to return
- ! `SQL_NO_TOTAL`
- ! `SQL_NULL_DATA`

### Parameters

Parameter	Description
<code>nStmtIndex</code>	The index of the statement handle.
<code>nColNum</code>	The column number being returned.
<code>nCType</code>	The datatype.
<code>nBufLen</code>	The length of the buffer the data is returned in.

### Example

```

strcpy(sql_statement, /* >> 1 << */ "SELECT MAX(keyval) FROM TESTDB.TEST_TABLE");
DO_SQLExecDirect( S0, sql_statement );
while ( DO_SQLFetch( S0 ) != SQL_NO_DATA_FOUND )
{
pReturnValue = DO_SQLGetData( S0, 1, SQL_C_LONG, 4 );
free(pReturnValue);
}

```

## DO\_SQLGetDescField

Returns the value of a field of a descriptor record.

Use DO\_SQLGetDescField to return the value of a descriptor record field. DO\_SQLGetDescField can return the value of any field in any descriptor type. Make repeated calls to DO\_SQLGetDescField to return settings from multiple fields of one or multiple descriptors in arbitrary order. DO\_SQLGetDescField can also return driver-defined descriptor fields.

### Syntax

```
DO_SQLGetDescField( int DescriptorIndex, short RecordNumber, short FieldID, long BufferLength, )
```

### Return Value

### Parameters

Parameter	Description
DescriptorIndex	Points to the descriptor structure in memory.
RecordNumber	The record number of the descriptor structure to be retrieved.
FieldID	The field of the descriptor record to be retrieved.
BufferLen	The length of a character string or SQL_NTS being returned. SQL_LEN_BINARY_ATTR ( macro) results if binary data is returned. SQL_IS_POINTER is Value, not binary or string data.

### Example

```
DO_SQLAllocHandle( SQL_HANDLE_DESC, C0, D0 );
strcpy(sql_statement, /* >> 1 << */ "UPDATE test_table SET integer_col = ? WHERE keyval = ?");
DO_SQLPrepare( S0, sql_statement );
DO_SQLSetDescRec( D0, 1, 4 );
DO_SQLSetDescRec( D0, 2, 4 );
DO_SQLGetDescField( D0, 1, SQL_DESC_CONCISE_TYPE, 261312 );
DO_SQLGetDescField( D0, 2, SQL_DESC_CONCISE_TYPE, 261312
```

## DO\_SQLGetDescRec

Returns the settings or values from fields of a descriptor record set by DO\_SQLSetDescRec.

These fields include name, data type, and column or parameter data storage. Does not retrieve values for header fields.

To prevent the return of a setting, set the corresponding parameter to a null pointer.

### Syntax

```
DO_SQLGetDescRec( int nDescIndex, SQLSMALLINT nRecordNumber, SQLSMALLINT nBufLen );
```

## Return Value

For a column or parameter, `DO_SQLGetDescRec` can retrieve the value of the following fields:

`SQL_DESC_NAME`

`SQL_DESC_TYPE`

`SQL_DESC_OCTET_LENGTH`

`SQL_DESC_DATETIME_INTERVAL_CODE` (types `SQL_DATETIME` and `SQL_INTERVAL`)

`SQL_DESC_PRECISION`

`SQL_DESC_SCALE`

`SQL_DESC_NULLABLE`

## Parameters

Parameter	Description
<code>nDescIndex</code>	Points to the location of the descriptor structure in memory.
<code>nRecordNumber</code>	The descriptor record with fields to be set.
<code>nBufLen</code>	Descriptor record buffer length.

## Example

```
DO_SQLSetDescRec( D1, 2, 4, 0, 4, 10, 0, 42922201, 1242388, 1242384 );
DO_SQLCopyDesc( D1, D2 );
DO_SQLGetDescRec( D2, 1, 4 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D2 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D1 );
```

## DO\_SQLGetEnvAttr

Gets a characteristic of an environment.

## Syntax

```
DO_SQLGetEnvAttr( SQLINTEGER nAttribute, SQLPOINTER strAttrValue, SQLINTEGER nBufferLength,
SQLINTEGER* nStringLength );
```

## Return Value

## Parameters

Parameter	Description
<code>nAttribute</code>	An environment attribute such as <code>SQL_ATTR_CONNECTTYPE</code> .
<code>StrAttrValue</code>	Current attribute value.
<code>nBufferLength</code>	Maximum size of attribute value.

nStringLength	Total number of bytes returned.
---------------	---------------------------------

### Example

```
int rc = DO_SQLGetEnvAttr( SQL_ATTR_CONNECTTYPE, &connecttype, 0, NULL );
```

## DO\_SQLGetTypeInfo

Returns information about data types supported by the data source.

### Syntax

```
DO_SQLGetTypeInfo( int StatementIndex, ODBCSQLGetTypeSQLTypeEnum SQLType );
```

### Return Value

Data is returned as a result set with the following columns:

Column name	Data type
TYPE_NAME	Varchar(128)
DATA_TYPE	Smallint
PRECISION	Integer
LITERAL_PREFIX	Varchar(128)
LITERAL_SUFFIX	Varchar(128)
CREATE_PARAMS	Varchar(128)
NULLABLE	Smallint
CASE_SENSITIVE	Smallint
SEARCHABLE	Smallint
MONEY	Smallint
AUTO_INCREMENT	Smallint
LOCAL_TYPE_NAME	Varchar(128)

For details on the commands above, consult an ODBC reference manual.

### Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.

SQLType	<i>ODBCSQLGetTypeSQLTypeEnum</i>	
	ODBC SQL data type. Valid values are:	
	Value	Description
	SQL_CHAR	Char
	SQL_DECIMAL	Decimal
	SQL_SMALLINT	Small integer
	SQL_REAL	Real
	SQL_VARCHAR	Varchar
	SQL_TIME	Time HH:MM:SS (for example: 17:28:01)
	SQL_LONGVARCHAR	Long Varchar
	SQL_VARBINARY	Var binary
	SQL_BIGINT	Big integer
	SQL_BIT	Bit
	SQL_NUMERIC	Numeric
	SQL_INTEGER	Integer
	SQL_FLOAT	Float
	SQL_DOUBLE	Double
	SQL_BINARY	Binary
	SQL_LONGVARBINARY	Long variable binary
	SQL_TINYINT	Tiny integer
	SQL_ALL_TYPES	All SQL data types.

## Example

```
DO_SQLAllocStmt( C0, S0 );
DO_SQLGetTypeInfo( S0, SQL_ALL_TYPES );
DO_SQLSetStmtOption( S0, SQL_ROWSET_SIZE, 16 );
DO_checkpoint( 9, 1 );
DO_SQLFreeStmt( S0, SQL_DROP );
```

## DO\_SQLNumResultCols

Determines the number of columns being returned in a result set.

This function returns an integer indicating the number of columns in the result set. Knowing the number of columns in the result set allows the application to use `SQLDescribeCol` and `SQLColAttributes`.

## Syntax

```
DO_SQLNumResultCols( int StatementIndex );
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.

## Example

```
int pcol = DO_SQLNumResultCols( S1 );
```

## DO\_SQLParamData

Used in conjunction with DO\_SQLPutData to supply parameter data at statement execution time.

## Syntax

```
int DO_SQLParamData( int nStatementIndex );
```

## Parameters

Parameter	Description
nStatementIndex	Index into the table of DB2 statement handles.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
strcpy(sql_statement, "INSERT INTO dbo.TEST_TABLE (keyval, test_number, longvarchar_col)
VALUES (?, ?, ?)");
DO_SQLPrepare( S0, sql_statement );
DO_SQLBindParameter( S0, 1, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 2, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 3, SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR, 16, 0, 0,
SQL_DATA_AT_EXEC);
DO_LoadMem( S0, 1, "26293", 0 );
DO_LoadMem( S0, 2, "9", 0 );
DO_SQLExecute( S0 );
DO_SQLParamData( S0 );
DO_SQLPutData( S0, "AAA", -3 );
DO_SQLParamData( S0 );
DO_SQLEndTran( SQL_HANDLE_DBC, C0, SQL_COMMIT );
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```



## DO\_SQLPrepare

Prepares a SQL statement and associates the results with the `command_index`. The command is not executed until the `DO_SQLExecute` command is called.

### Syntax

```
DO_SQLPrepare( int StatementIndex, UCHAR* SQLString );
```

### Return Value

### Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.
SQLString	Text of the SQL statement to execute.

### Example

```
char *sql_statement = "SELECT name from emp_tut";
DO_SQLPrepare( S1, sql_statement );
DO_SQLExecute ( S1 );
```

## DO\_SQLPutData

Use to place data into the database at run time.

You can also use this method to place data that is too large for a single bind. This method allows multiple calls to `SQLPutData()`.

### Syntax

```
DO_SQLPutData( int nStatementIndex, SQLPOINTER sData, long nIndLen);
```

### Return Value

### Parameters

Parameter	Description
nStatementIndex	Index to the table of statement handles.
sData	The actual data in string form.

nIndLen	The length of the data.
---------	-------------------------

### Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
strcpy(sql_statement, "INSERT INTO dbo.TEST_TABLE (keyval, test_number, longvarchar_col)
VALUES (?, ?, ?)");
DO_SQLPrepare( S0, sql_statement );
DO_SQLBindParameter( S0, 1, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 2, SQL_PARAM_INPUT, SQL_C_LONG, SQL_INTEGER, 0, 0, 4, 0);
DO_SQLBindParameter( S0, 3, SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR, 16, 0, 0,
SQL_DATA_AT_EXEC);
DO_LoadMem( S0, 1, "26293", 0 );
DO_LoadMem( S0, 2, "9", 0 );
DO_SQLExecute( S0 );
DO_SQLParamData( S0 );
DO_SQLPutData( S0, "AAA", -3 );
DO_SQLParamData( S0 );
DO_SQLEndTran( SQL_HANDLE_DBC, C0, SQL_COMMIT );
DO_SQLFreeHandle( SQL_HANDLE_STMT, S0 );
```

## DO\_SQLRetrieveParamValue

Retrieves a value of a SQL\_PARAM\_INPUT\_OUTPUT or SQL\_PARAM\_OUTPUT parameter, following the execution of the corresponding SQL statement.

### Syntax

```
DO_SQLRetrieveParamValue( int nStmtIndex, short nParamNumber );
```

### Return Value

### Parameters

Parameter	Description
nStmtIndex	Index into the table of ODBC statement handles.
nParamNumber	Index of the parameter.

### Example

```
char* sRow1 = NULL;
char* sRow2 = NULL;
char* sRow3 = NULL;
char* sRow4 = NULL;
DO_SQLBindParameter( S0, 1, SQL_PARAM_INPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 2, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4 );
DO_SQLBindParameter( S0, 3, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 4, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
DO_SQLBindParameter( S0, 5, SQL_PARAM_OUTPUT, SQL_C_ULONG, SQL_INTEGER, 0, 0, 4, 4 );
strcpy( sql_statement, "{call setup_rows (?,?,,?,?) }" );
```

```

DO_SQLPrepare( S0, sql_statement );
DO_LoadMem( S0, 1, "17", 4 );
DO_LoadMem( S0, 2, "1234", 4 );
DO_LoadMem( S0, 3, "1235", 4 );
DO_LoadMem( S0, 4, "1236", 4 );
DO_LoadMem( S0, 5, "1237", 4 );
DO_SQLExecute( s0 );
sRow1 = DO_SQLRetrieveParamValue( S0, 2 );
sRow2 = DO_SQLRetrieveParamValue( S0, 3 );
sRow3 = DO_SQLRetrieveParamValue( S0, 4 );
sRow4 = DO_SQLRetrieveParamValue( S0, 5 );

```

## DO\_SQLRowCount

Returns an integer indicating the number of rows affected by the last SQL statement associated with the specified command\_index.

For inserts, updates, and deletes, the SQLRowCount value is available immediately after the command is executed. For Select commands, the value of this function depends on the capabilities of the specific ODBC driver used.

### Syntax

```
DO_SQLRowCount( int nStatementIndex );
```

### Return Value

### Parameters

Parameter	Description
nStatementIndex	Index into the table of statement handles.

### Example

```

DO_SQLExecDirect( S1, sql_statement );
int pcrow = DO_SQLRowCount( S1 );
DO_SQLFreeStmt( S1, SQL_CLOSE );

```

## DO\_SQLSetConnectAttr

Sets a characteristic of the connection.

Connection attributes are characteristics of the connection. They can be set before or after connecting. Connection attributes become part of the connect handle structure.

### Syntax

```
DO_SQLSetConnectAttr( int nConnectionIndex, long nAttribute, void* nAttrValue, long nStringLength );
```

## Return Value

## Parameters

Parameter	Description
nConnectionIndex	Points to a structure that ODBC uses to track different connection settings, statements within the connection, and descriptors allocated within the connection.
nAttribute	For example: SQL_ATTR_AUTOCOMMIT is an attribute with set values SQL_TRUE or SQL_FALSE. Other connection attributes have different values. Note that QALoad does not allow SQL_ATTR_ENABLE_ASYNC to be true for ODBC. No asynchronous transactions will be handled.
nAttrValue	The value set for the attribute.
nStringLength	Can be a length pointer, or is ignored by ODBC.

## Example

```
DO_SQLAllocConnect( C0 );
DO_SQLConnect( C0, "fhloadb2", "sa", "" );
DO_SQLAllocHandle( SQL_HANDLE_DBC, 0, C1 );
DO_SQLSetConnectAttr( C1, SQL_ATTR_AUTOCOMMIT, "SQL_AUTOCOMMIT_OFF", SQL_NTS );
```

## DO\_SQLSetConnectOption

Sets options on the connection handle.

The following is a list of value option constants and the meanings of their respective value parameters.

Parameter	Value Type	Value Description
SQL_ACCESS_MODE	integer	Determines type of access this program uses.
SQL_AUTOCOMMIT	integer	0 = Autocommit off 1 = Autocommit on
SQL_LOGIN_TIMEOUT	integer	Number of seconds to wait for a login request to complete before returning to the application. The default is 15.
SQL_OPT_TRACE	integer	Integer value telling the Driver Manager whether or not to perform tracing. 0 = Tracing off (Default) 1 = Tracing on
SQL_OPT_TRACEFILE	string	Null-terminated character string containing the name of the trace file. If tracing is enabled, the Driver Manager writes to this file each time the application calls a function. If no trace file name is specified, the Driver Manager writes to SQL.LOG.
SQL_TRANSLATE_DLL	string	Null-terminated character string containing the name of a

		DLL containing the functions <code>SQLClientToDataSource</code> and <code>SQLDataSourceToClient</code> the driver loads and uses to perform tasks such as character set translation. This option may only be specified if the driver has connected to the data source.
<code>SQL_TRANSLATE_OPTION</code>	integer	32-bit flag value that is passed to the translate DLL. This option may only be specified if the driver has connected to the data source.
<code>SQL_TXN_ISOLATION</code>	integer	32-bit bitmask that sets the transaction isolation level for the current connection index. Refer to ODBC documentation for details on setting this parameter.

## Syntax

```
DO_SQLSetConnectOption( int ConnectionIndex, ODBCSQLSetConnectOptionEnum Option, UDWORD Value );
```

## Return Value

## Parameters

Parameter	Description												
<code>ConnectionIndex</code>	Index into a table of ODBC connection handles.												
<code>Option</code>	<p><i>ODBCSQLSetConnectOptionEnum</i></p> <p>One of the valid option constants. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>SQL_ACCESS_MODE</code></td> <td>Determines type of access this program uses</td> </tr> <tr> <td><code>SQL_AUTOCOMMIT</code></td> <td>0 = Autocommit off, 1 = Autocommit on</td> </tr> <tr> <td><code>SQL_LOGIN_TIMEOUT</code></td> <td>Number of seconds to wait for a login request to complete before returning to the application. The default is 15</td> </tr> <tr> <td><code>SQL_OPT_TRACE</code></td> <td>Integer value telling the Driver Manager whether or not to perform tracing. 0 = Tracing off (Default) 1 = Tracing on</td> </tr> <tr> <td><code>SQL_OPT_TRACEFILE</code></td> <td>Null-terminated character string containing the name of the trace file. If tracing is enabled, the Driver Manager writes to this file each time the application calls a function. If no trace file name is specified, the Driver Manager writes to <code>SQL.LOG</code></td> </tr> </tbody> </table>	Value	Description	<code>SQL_ACCESS_MODE</code>	Determines type of access this program uses	<code>SQL_AUTOCOMMIT</code>	0 = Autocommit off, 1 = Autocommit on	<code>SQL_LOGIN_TIMEOUT</code>	Number of seconds to wait for a login request to complete before returning to the application. The default is 15	<code>SQL_OPT_TRACE</code>	Integer value telling the Driver Manager whether or not to perform tracing. 0 = Tracing off (Default) 1 = Tracing on	<code>SQL_OPT_TRACEFILE</code>	Null-terminated character string containing the name of the trace file. If tracing is enabled, the Driver Manager writes to this file each time the application calls a function. If no trace file name is specified, the Driver Manager writes to <code>SQL.LOG</code>
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	SQL_TRANSLATE_DLL	Null-terminated character string containing the name of a DLL containing the functions SQLClientToDataSource and SQLDataSourceToClient the driver loads and uses to perform tasks such as character set translation. This option may only be specified if the driver has connected to the data source
	SQL_TRANSLATE_OPTION	32-bit flag value that is passed to the translate DLL. This option may only be specified if the driver has connected to the data source
	SQL_TXN_ISOLATION	32-bit bitmask that sets the transaction isolation level for the current connection index. Refer to ODBC documentation for details on setting this parameter
Value	Value associated with the option. Depending on the type of option used, it can either be NULL, an integer, or a pointer to a string.	

### Example

```
DO_SQLAllocStmt( C0, S0 );
DO_SQLSetStmtOption( S0, 1229, 0 );
DO_SQLSetStmtOption( S0, SQL_CONCURRENCY, 1);
DO_SQLSetConnectOption( C0, SQL_AUTOCOMMIT, 0 );
DO_SQLSetConnectOption( C0, SQL_TXN_ISOLATION, 1 );
DO_SQLFreeStmt( S0, SQL_CLOSE );
DO_SQLFreeStmt( S0, SQL_UNBIND );
```

## DO\_SQLSetCursorName

Associates a cursor name with an active command\_index.

The only SQL statements that accept cursor names are UPDATE and DELETE.

### Syntax

```
DO_SQLSetCursorName( int StatementIndex, UCHAR* CursorName );
```

### Return Value

### Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.
CursorName	Name of the cursor.

## Example

```
DO_SQLSetCursorName( S1, "C1" );
.....
DO_SQLPrepare( S1, "UPDATE EMPLOYEE SET date=? WHERE CURRENT OF C1" );
```

## DO\_SQLSetDescField

Sets a descriptor field. A call to `DO_SQLSetDescField` can set a field of any descriptor type that can be set.

Call `DO_SQLSetDescField` first when dealing with an explicitly allocated descriptor, as it allocates the rows of an explicitly allocated descriptor.

## Syntax

```
DO_SQLSetDescField( int DescriptorHandle, short RecordNumber, short FieldID, SQLPOINTER
Value, long BufferLen )
```

## Return Value

None

## Parameters

Parameter	Description
DescriptorHandle	Points to a structure used to describe rows of a result set, or a set of parameters to be bound to a statement.
RecordNumber	The record number of the descriptor.
FieldID	An attribute to set for the record.
Value	The value to set the FieldID to.
BufferLen	Length of the value coming in.

## Example

```
DO_SQLSetDescField( D0, 0, SQL_DESC_COUNT, 2, -6 );
DO_SQLSetDescRec( D0, 1, SQL_INTEGER, 0, 4, 10, 0, "10", 4, 4 );
DO_SQLSetDescRec( D0, 2, SQL_INTEGER, 0, 4, 10, 0, "10", 4, 4 );
DO_SQLCopyDesc( D0, D1 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D1 );
DO_SQLGetDescRec( D2, 1, 0 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D2 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D1 );
```

## DO\_SQLSetDescRec

Sets multiple descriptor fields with a single call.

Use `DO_SQLSetDescRec` to change fields affecting the binding of a column or parameter without calling `DO_SQLBindCol`, `DO_SQLBindParameter`, or `DO_SQLSetDescField`. `DO_SQLSetDescRec` can set fields on a descriptor not currently associated with a statement, sets more fields than `DO_SQLSetDescRec`, can set fields on both an APD and an IPD in one call, and does not require a descriptor handle.

Because descriptors are associated with connections, a descriptor can carry over from one statement to the next and can be associated with different statements for continued bindings.

## Syntax

```
DO_SQLSetDescRec( int nDescIndex, short nRecordNumber, short nField, short nSubType, long nLength, short nPrecision, short nScale, char* pData, long pStrLen, long pIndicator )
```

## Return Value

## Parameters

Parameter	Description
<code>nDescIndex</code>	Points to the location of the descriptor structure in memory.
<code>nRecordNumber</code>	The descriptor record with fields to be set.
<code>nFieldId</code>	The C data type of the field to be set.
<code>nSubType</code>	Applicable only for interval data types and for date and time data types, which have subtypes.
<code>nLength</code>	The length, in bytes, of a character string or binary datatype.
<code>nPrecision</code>	The maximum number of digits used by the column or parameter.
<code>nScale</code>	Scales the maximum number of digits to the right of the decimal point.
<code>pData</code>	Points to parameter or column value.
<code>pStrLen</code>	Points to a variable that will contain the total length in bytes of a dynamic argument.
<code>pIndicator</code>	Points to an indicator variable that contains <code>SQL_NULL_DATA</code> if the column value is a NULL. Otherwise the variable is 0.

## Example

```
DO_SQLSetDescField( D0, 0, SQL_DESC_COUNT, 2, -6 );
DO_SQLSetDescRec( D0, 1, SQL_INTEGER, 0, 4, 10, 0, "10", 4, 4 );
DO_SQLSetDescRec( D0, 2, SQL_INTEGER, 0, 4, 10, 0, "10", 4, 4 );
DO_SQLCopyDesc( D0, D1 );
DO_SQLFreeHandle( SQL_HANDLE_DESC, D1 );
```

## DO\_SQLSetEnvAttr

Sets different aspects of the ODBC environment.



For ODBC 3.x, call this function immediately after calling `DO_SQLAllocHandle` to alert the environment handle as to which set of calls, ODBC 2.x or ODBC 3.x, the application will adhere.

`DO_SQLSetEnvAttr` can only be called if a connection handle is not allocated on the environment. Environment attributes set by the application persist until `DO_SQLFreeHandle` is called on the environment.

Environment connection elements are set automatically in `DO_initODBC`.

## Syntax

```
DO_SQLSetEnvAttr( SQLINTEGER Attribute, void* AttributeValue, SQLINTEGER Indicator)
```

## Return Value

## Parameters

Parameter	Description
Attribute	The specific property the application is setting.
AttributeValue	The value of the specific property that the application is setting.
Indicator	Can be a length pointer, or is ignored by ODBC.

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_ENV, 0, c0 );
DO_SQLSetEnvAttr( SQL_ATTR_ODBC_VERSION, (SQLPOINTER)SQL_OV_ODBC2, -6 );
DO_SQLAllocHandle( SQL_HANDLE_STMT, c0, s0 );
```

## DO\_SQLSetPos

Positions a cursor within a retrieved block of data.

## Syntax

```
DO_SQLSetPos( int StatementIndex, UWORD nRow, UWORD nRefresh, UWORD nLock );
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.

nRow	Absolute position of the cursor within the retrieved block of data. nRow must be a value from 1 to the number of rows in the rowset.
nRefresh	Specifies whether or not to refresh the buffer value for the row specified by nRow. If TRUE (1), the driver refreshes the buffer value. If FALSE (0), the driver does not change the buffer value.
nLock	Specifies whether or not to lock the row for subsequent update operation. If TRUE (1), the driver requests a lock for the row. If FALSE (0), the driver applies the form of concurrency control specified in a call to DO_SQLSetScrollOptions.

### Example

```
int iRow = 1;
DO_SQLSetPos( S1, iRow, FALSE, FALSE );
```

## DO\_SQLSetStmtAttr

Sets statement attributes and, as a result, sets descriptor fields.

When calling DO\_SQLSetStmtAttr to set fields, rather than DO\_SQLSetDescField, it is not necessary to obtain a descriptor handle for the function call.

When using DO\_SQLSetStmtAttr, calling it for a statement can affect other statements if the statement's Application Parameter Descriptor (APD) or Application Row Descriptor (ARD) is explicitly allocated and associated with other statements.

DO\_SQLSetStmtAttr modifies the APD or ARD and those modifications apply to all statements with which the descriptor is associated. To avoid this, disassociate the descriptor from the other statement using DO\_SQLSetStmtAttr to change the descriptor handle of SQL\_ATTR\_APP\_ROW\_DESC or SQL\_ATTR\_APP\_PARAM\_DESC. Then call DO\_SQLSetStmtAttr again.

When setting a statement attribute also sets a descriptor field, the field is set only for the descriptors currently associated with the statement identified by the StatementHandle parameter. Subsequent attribute settings are not affected. When DO\_SQLSetDescField sets a descriptor field that is also a statement attribute, it also sets the corresponding statement attribute.

### Syntax

```
DO_SQLSetStmtAttr( int nStmtIndex, long nAttribute, long nAttrValue, long nStrLength );
```

### Return Value

### Parameters

Parameter	Description
nStmtIndex	Points to a structure that ODBC uses to track different statement settings and descriptor settings within the same connection handle as the statement.

nAttribute	Attribute. For example: SQL_ATTR_APP_ROW_DESC. Note that even at the statement level, QALoad does not permit asynchronous transactions.
nAttrValue	The value set for the attribute.
nStrLength	Attribute length

## Example

```
DO_SQLAllocHandle( SQL_HANDLE_STMT, C0, S0 );
DO_SQLAllocHandle( SQL_HANDLE_DESC, C0, D0 );
DO_SQLSetStmtAttr( S0, SQL_ATTR_APP_PARAM_DESC, D0, SQL_IS_POINTER );
DO_SQLSetDescField( D0, 0, SQL_DESC_COUNT, 2, -6 );
```

## DO\_SQLSetStmtOption

Sets the boundaries of a specific statement handle.

Following is a list of value option constants and the meanings of their respective value parameters.

Parameter	Description
SQLBindType	<p>A 32-bit value that sets the binding orientation used when DO_SQLExtendedFetch is called on the associated C.</p> <p>Column-wise binding is selected by supplying the defined constant SQL_BIND_BY_COLUMN for the argument vParam.</p> <p>Row-wise binding is selected by supplying a value for vParam specifying the length of a structure or an instance of a buffer into which result columns will be bound.</p> <p>The length specified in vParam must include space for all of the bound columns and any padding of the structure or buffer. This ensures that when the address of a bound column is incremented with the specified length, the result points to the beginning of the same column in the next row. When using the size of operator with structures or unions in ANSI C, this behavior is guaranteed.</p> <p>Column-wise binding is the default binding orientation for DO_SQLExtendedFetch.</p>
SQLMaxLength	A value corresponding to the maximum amount of data that can be retrieved from a single column with a LONG VARCHAR or LONG VARBINARY data type.
SQLMaxRows	A value corresponding to the maximum number of rows to return to the application for a SELECT command. If vParam equals 0 (Default), the driver returns all rows.
SQLNoScan	A value. If TRUE (1), the driver does not scan SQL strings for escape clauses. Instead, the driver sends the command directly to the data source. If FALSE (Default, value 0), the driver scans for escape clauses.
SQLQueryTimeout	A value corresponding to the number of seconds to wait for an SQL statement to execute before returning to the application. If vParam equals 0 (Default), there is no time out.

## Syntax

```
DO_SQLSetStmtOption( int StatementIndex, ODBCSQLSetStmtOptionEnum nOption, UDWORD nParam );
```

## Return Value

## Parameters

Parameter	Description														
StatementIndex	Index into the table of statement handles.														
nOption	<p><i>ODBCSQLSetStmtOptionEnum</i></p> <p>One of the valid option constants. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_QUERY_TIMEOUT</td> <td>An integer value corresponding to the number of seconds to wait for an SQL statement to execute before returning to the application. If vParam equals 0 (Default), there is no time out</td> </tr> <tr> <td>SQL_MAX_ROWS</td> <td>An integer value corresponding to the maximum number of rows to return to the application for a SELECT command. If vParam equals 0 (Default), the driver returns all rows</td> </tr> <tr> <td>SQL_NOSCAN</td> <td>An integer value. If TRUE (1), the driver does not scan SQL strings for escape clauses. Instead, the driver sends the command directly to the data source. If FALSE (Default, value 0), the driver scans for escape clauses</td> </tr> <tr> <td>SQL_MAX_LENGTH</td> <td>An integer value corresponding to the maximum amount of data that can be retrieved from a single column with a LONG VARCHAR or LONG VARBINARY data type</td> </tr> <tr> <td>SQL_ASYNC_ENABLE</td> <td>A 32-bit integer value that specifies whether a function called with the specified hstmt is executed asynchronously@ SQL_ASYNC_ENABLE_OFF = Off (Default), SQL_ASYNC_ENABLE_ON = On</td> </tr> <tr> <td>SQL_BIND_TYPE</td> <td>A 32-bit integer value that sets the binding orientation used when DO_SQLExtendedFetch is called on the associated C. Column-wise binding is selected by supplying the defined constant SQL_BIND_BY_COLUMN for the argument vParam. Row-wise binding is selected by supplying a value for vParam specifying the length of a structure or an instance of a buffer</td> </tr> </tbody> </table>	Value	Description	SQL_QUERY_TIMEOUT	An integer value corresponding to the number of seconds to wait for an SQL statement to execute before returning to the application. If vParam equals 0 (Default), there is no time out	SQL_MAX_ROWS	An integer value corresponding to the maximum number of rows to return to the application for a SELECT command. If vParam equals 0 (Default), the driver returns all rows	SQL_NOSCAN	An integer value. If TRUE (1), the driver does not scan SQL strings for escape clauses. Instead, the driver sends the command directly to the data source. If FALSE (Default, value 0), the driver scans for escape clauses	SQL_MAX_LENGTH	An integer value corresponding to the maximum amount of data that can be retrieved from a single column with a LONG VARCHAR or LONG VARBINARY data type	SQL_ASYNC_ENABLE	A 32-bit integer value that specifies whether a function called with the specified hstmt is executed asynchronously@ SQL_ASYNC_ENABLE_OFF = Off (Default), SQL_ASYNC_ENABLE_ON = On	SQL_BIND_TYPE	A 32-bit integer value that sets the binding orientation used when DO_SQLExtendedFetch is called on the associated C. Column-wise binding is selected by supplying the defined constant SQL_BIND_BY_COLUMN for the argument vParam. Row-wise binding is selected by supplying a value for vParam specifying the length of a structure or an instance of a buffer
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		into which result columns will be bound
SQL_CURSOR_TYPE		A 32-bit integer value that specifies the cursor type@SQL_CURSOR_FORWARD_ONLY = The cursor only scrolls forward. SQL_CURSOR_STATIC = The data in the result set is static. SQL_CURSOR_KEYSET_DRIVEN = The driver saves and uses the keys for the number of rows specified in the SQL_KEYSET_SIZE statement option. SQL_CURSOR_DYNAMIC = The driver only saves and uses the keys for the rows in the rowset. The default value is SQL_CURSOR_FORWARD_ONLY. This option cannot be specified for an open cursor and can also be set through the cursorKeyset argument in SQLSetScrollOptions
SQL_CONCURRENCY		A 32-bit integer value that specifies the cursor concurrency@SQL_CONCUR_READ_ONLY = Cursor is read-only. No updates are allowed. SQL_CONCUR_LOCK = Cursor uses the lowest level of locking sufficient to ensure that the row can be updated. SQL_CONCUR_ROWVER = Cursor uses optimistic concurrency control, comparing row versions, such as SQLBase ROWID or Sybase TIMESTAMP. SQL_CONCUR_VALUES = Cursor uses optimistic concurrency control, comparing values. The default value is SQL_CONCUR_READ_ONLY
SQL_KEYSET_SIZE		A 32-bit integer value that specifies the number of rows in the keyset for a keyset-driven cursor. If the keyset size is 0 (the default), the cursor is fully keyset-driven. If the keyset size is greater than 0, the cursor is mixed (keyset-driven within the keyset and dynamic outside of the keyset). The default keyset size is 0
SQL_ROWSET_SIZE		A 32-bit integer value that specifies the number of rows in the rowset. This is the number of rows returned by each call to SQLExtendedFetch. The default value is 1
SQL_SIMULATE_CURSOR		A 32-bit integer value that specifies whether drivers that simulate positioned update and delete statements guarantee that such statements affect only one single row
SQL_RETRIEVE_DATA		A 32-bit integer value@SQL_RD_ON = SQLExtendedFetch retrieves data after it positions the cursor to the specified location. This is the default. SQL_RD_OFF = SQLExtendedFetch does not retrieve data after it positions the cursor
SQL_USE_BOOKMARKS		A 32-bit integer value that specifies whether an

	application will use bookmarks with a cursor@ SQL_UB_OFF = Off (Default), SQL_UB_ON = On
nParam	The parameter value.

### Example

```
DO_SQLAllocStmt( C0, S0 );
DO_SQLSetStmtOption( S0, SQL_QUERY_TIMEOUT, 60 );
DO_SQLSetStmtOption( S0, SQL_ASYNC_ENABLE, 1 );
```

## DO\_SQLSpecialColumns

Retrieves information about columns within a specified table.

DO\_SQLSpecialColumns retrieves the following information:

- ! The optimal set of columns that uniquely identifies a row in the table.
- ! Columns that are automatically updated when any value in the row is updated by a transaction.
- ! The data is returned as a result set.

### Syntax

```
DO_SQLSpecialColumns( int StatementIndex, ODBCSQLSpecialColumnsColTypeEnum fColType, UCHAR*
szTableQualifier, UCHAR* szTableOwner, UCHAR* szTableName, ODBCSQLSpecialColumnsScopeEnum
fScope, ODBCSQLSpecialColumnsNullableEnum fNullable );
```

### Return Value

### Parameters

Parameter	Description				
StatementIndex	Index into the table of statement handles.				
fColType	<p><i>ODBCSQLSpecialColumnsColTypeEnum</i></p> <p>Type of column to return. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_BEST_ROWID</td> <td>Returns the optimal column or set of columns that, by retrieving values from the column or columns, allows any row in the specified table to be uniquely identified. A column can be either a pseudo column specifically designed for this purpose (as in ODBC ROWID or Ingres TID) or the column or columns of any unique index for the table.</td> </tr> </tbody> </table>	Value	Description	SQL_BEST_ROWID	Returns the optimal column or set of columns that, by retrieving values from the column or columns, allows any row in the specified table to be uniquely identified. A column can be either a pseudo column specifically designed for this purpose (as in ODBC ROWID or Ingres TID) or the column or columns of any unique index for the table.
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	SQL_ROWVER	Returns the column or columns in the specified table, if any, that are automatically updated by the data source when any value in the row is updated by any transaction (as in SQLBase ROWID or Sybase TIMESTAMP).								
SzTableQualifier	Qualifier name for the table.									
SzTableOwner	Owner name for the table.									
SzTableName	Table name.									
fScope	<p><i>ODBCSQLSpecialColumnsScopeEnum</i></p> <p>Minimum required scope of the ROWID. The returned ROWID may be of greater scope. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_SCOPE_CURROW</td> <td>The ROWID is guaranteed to be valid only while positioned on that row. A later reselect using ROWID may not return a row if the row was updated or deleted by another transaction</td> </tr> <tr> <td>SQL_SCOPE_TRANSACTION</td> <td>The ROWID is guaranteed to be valid for the duration of the current transaction</td> </tr> <tr> <td>SQL_SCOPE_SESSION</td> <td>The ROWID is guaranteed to be valid for the duration of the session (across transaction boundaries)</td> </tr> </tbody> </table>		Value	Description	SQL_SCOPE_CURROW	The ROWID is guaranteed to be valid only while positioned on that row. A later reselect using ROWID may not return a row if the row was updated or deleted by another transaction	SQL_SCOPE_TRANSACTION	The ROWID is guaranteed to be valid for the duration of the current transaction	SQL_SCOPE_SESSION	The ROWID is guaranteed to be valid for the duration of the session (across transaction boundaries)
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SQL_SCOPE_TRANSACTION	The ROWID is guaranteed to be valid for the duration of the current transaction									
SQL_SCOPE_SESSION	The ROWID is guaranteed to be valid for the duration of the session (across transaction boundaries)									
fNullable	<p><i>ODBCSQLSpecialColumnsNullableEnum</i></p> <p>Determines whether to return special columns that have NULL values. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_NO_NULLS</td> <td>Exclude special columns that can have NULL values</td> </tr> <tr> <td>SQL_NULLABLE</td> <td>Return special columns even if they can have NULL values</td> </tr> </tbody> </table>		Value	Description	SQL_NO_NULLS	Exclude special columns that can have NULL values	SQL_NULLABLE	Return special columns even if they can have NULL values		
Value	Description									
SQL_NO_NULLS	Exclude special columns that can have NULL values									
SQL_NULLABLE	Return special columns even if they can have NULL values									

## Example

```
DO_SQLSpecialColumns( S1, SQL_ROWVER, "", "", "qc_test", SQL_SCOPE_TRANSACTION, SQL_NULLABLE
);
int pcol = DO_SQLNumResultCols( S1 );
```

## DO\_SQLStatistics

Retrieves a list of statistics about a single table and the indexes associated with the table. The driver returns the information as a result set.

## Syntax

```
DO_SQLStatistics( int StatementIndex, UCHAR* szTableQualifier, UCHAR* szTableOwner, UCHAR* szTableName, ODBCSQLStatisticsUniqueEnum fUnique, ODBCSQLStatisticsAccuracyEnum fAccuracy );
```

## Return Value

## Parameter

Parameter	Description						
StatementIndex	Index into the table of statement handles.						
SzTableQualifier	Qualifier name.						
SzTableOwner	Owner name.						
SzTableName	Table name.						
fUnique	<p><i>ODBCSQLStatisticsUniqueEnum</i></p> <p>Type of index. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_INDEX_UNIQUE</td> <td>Unique value index</td> </tr> <tr> <td>SQL_INDEX_ALL</td> <td>Non-unique value index</td> </tr> </tbody> </table>	Value	Description	SQL_INDEX_UNIQUE	Unique value index	SQL_INDEX_ALL	Non-unique value index
Value	Description						
SQL_INDEX_UNIQUE	Unique value index						
SQL_INDEX_ALL	Non-unique value index						
fAccuracy	<p><i>ODBCSQLStatisticsAccuracyEnum</i></p> <p>Importance of the CARDINALITY and PAGES columns in result set. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_ENSURE</td> <td>Requests that the driver unconditionally retrieves the statistics</td> </tr> <tr> <td>SQL_QUICK</td> <td>Requests that the driver retrieves results only if they are readily available from the server. In this case, the driver does not ensure the values are current</td> </tr> </tbody> </table>	Value	Description	SQL_ENSURE	Requests that the driver unconditionally retrieves the statistics	SQL_QUICK	Requests that the driver retrieves results only if they are readily available from the server. In this case, the driver does not ensure the values are current
Value	Description						
SQL_ENSURE	Requests that the driver unconditionally retrieves the statistics						
SQL_QUICK	Requests that the driver retrieves results only if they are readily available from the server. In this case, the driver does not ensure the values are current						

## Example

```
DO_SQLStatistics( S0, "", "", "qc_test", SQL_INDEX_ALL, SQL_QUICK );
```

## DO\_SQLTables

Returns the list of table names stored in a specific data source. The driver returns the information as a result set.



The `szTableQualifier`, `szTableOwner`, and `szTableName` parameters accept search patterns. Refer to ODBC documentation regarding the use of search patterns.

## Syntax

```
DO_SQLTables( int StatementIndex, UCHAR* szTableQualifier, UCHAR* szTableOwner, UCHAR* szTableName, UCHAR* szTableType );
```

## Return Value

## Parameters

Parameter	Description
StatementIndex	Index into the table of statement handles.
SzTableQualifier	Qualifier name.
SzTableOwner	Owner name.
SzTableName	Table name.
SzTableType	List of table types to match. If <code>szTableType</code> is not an empty string, it must contain a list of comma-separated, single quoted values for the types of interest (for example: TABLE or VIEW). Valid table type identifiers may include TABLE, VIEW SYSTEM TABLE, ALIAS, SYNONYM, or other data source-specific identifiers.

## Example

```
DO_SQLTables( S0, "", "", "", "'TABLE','VIEW','SYSTEM TABLE','ALIAS','SYNONYM' " );
```

## DO\_SQLTransact

Requests a commit or rollback operation for all update, insert, and delete transactions in progress on all command indexes associated with a connection.

Can also request that a commit or rollback operation be performed for all connections by specifying a connection index of -1.

## Syntax

```
DO_SQLTransact( int ConnectionIndex, ODBCSQLTransactTypeEnum fType );
```

## Return Value

## Parameters

Parameter	Description						
ConnectionIndex	Index into a table of ODBC connection handles or -1 to indicate the operation should be performed on all connections.						
fType	<p><i>ODBCSQLTransactTypeEnum</i></p> <p>SQL transaction type option. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SQL_COMMIT</td> <td>Commit transaction</td> </tr> <tr> <td>SQL_ROLLBACK</td> <td>Rollback transaction</td> </tr> </tbody> </table>	Value	Description	SQL_COMMIT	Commit transaction	SQL_ROLLBACK	Rollback transaction
Value	Description						
SQL_COMMIT	Commit transaction						
SQL_ROLLBACK	Rollback transaction						

## Example

```
DO_SQLFreeStmt( C1, SQL_DROP );
DO_SQLTransact( S0, SQL_COMMIT );
```

## DO\_substr

Finds a value within a string.

## Syntax

```
DO_Substr( char* string, int placeholder, char* value );
```

## Return Value

## Parameters

Parameter	Description
String	The string to be searched.
Placeholder	Location in the string.
Value	The token to search for.

## Example

```
DO_SQLAllocStmt( C0, S0 );
DO_SQLSetStmtOption( S0, SQL_QUERY_TIMEOUT, 60 );
strcpy(sql_statement, "SELECT {1}, {2}, {3} FROM Customers");
DO_substr(sql_statement, 1, "CustomerID" );
DO_substr(sql_statement, 2, "CompanyName" );
DO_substr(sql_statement, 3, "ContactName" );
```

```
DO_SQLExecDirect( S0, sql_statement );
DO_SQLFreeStmt( S0, SQL_CLOSE );
```

## GetBindColumnData

Retrieves data from one of the rows that are returned by [DO\\_SQLFetch](#) calls, after a combination of [DO\\_SQLSetStmtAttr](#) and [DO\\_SQLBindCol](#) calls.

### Syntax

```
GetBindColumnData (int nIndex, int nColumn, int nRow);
```

### Return Value

char\* containing the data or an error

### Parameters

Parameter	Description
nIndex	The statement index.
nColumn	The column of data to return.
nRow	The row of data to return.

### Example

```
DO_SQLFetch( S0 );
RR__printf( GetBindColumnData( S0, 1, 1 ) );
RR__printf( GetBindColumnData( S0, 2, 1 ) );
RR__printf( GetBindColumnData( S0, 1, 2 ) );
RR__printf( GetBindColumnData( S0, 2, 2 ) );
RR__printf( GetBindColumnData( S0, 1, 3 ) );
RR__printf( GetBindColumnData( S0, 2, 3 ) );
RR__printf( GetBindColumnData( S0, 1, 4 ) );
RR__printf( GetBindColumnData( S0, 2, 4 ) );
RR__printf( GetBindColumnData( S0, 1, 5 ) );
RR__printf( GetBindColumnData( S0, 2, 5 ) );
```

# Oracle (OCI)

## General Oracle

### General Oracle Commands

#### [DO\\_free\\_data](#)

A required cleanup routine inserted into a script when it is generated and called before exiting the script. It should not be modified or moved.

#### [DO\\_freeitem](#)

Frees the memory associated with an ActiveData for Oracle variable. The ActiveData variable (source variable) may have been assigned by `DO_GetSelectData`, `DO_OC18GetSelectData`, `DO_strdup` or `DO_GetOutputData`.

#### [DO\\_GetOutputData](#)

Copies the data from a bind variable into a source variable. Use with both Oracle 7 and 8 binds.

#### [DO\\_makedate](#)

Binds dates into a SQL statement in C-based scripts

#### [DO\\_strdup](#)

Places the data retrieved by ActiveData for Oracle from a QALoad central datapool or a local datapool.

## DO\_free\_data

A required cleanup routine inserted into a script when it is generated and called before exiting the script. It should not be modified or moved.

### Syntax

```
DO_free_data();
```

### Return Value

### Parameters

None.

## DO\_freeitem

Frees the memory associated with an ActiveData for Oracle variable.

The ActiveData variable (source variable) may have been assigned by `DO_GetSelectData`, `DO_OC18GetSelectData`, `DO_strdup` or `DO_GetOutputData`.

The memory assigned for variables by ActiveData for Oracle is allocated from the program's free memory area (malloc). This function releases that memory. It is automatically placed in your script for all variables

created by the Oracle conversion program.

If you add your own variables, you should include a `DO_freeitem()` to release allocated memory at the end of the transaction loop.

## Syntax

```
DO_freeitem( char** name );
```

## Return Value

## Parameters

Parameter	Description
name	Pointer to source variable.

## DO\_GetOutputData

Copies the data from a bind variable into a source variable. Use with both Oracle 7 and 8 binds.

Source variables are created by `ActiveData` for Oracle so that `postbind` or `fetch` data from one portion of a script can be used as input to subsequent bind statements.

`DO_GetOutputData()` allocates memory for the contents of the source from the system's free memory pool (`malloc`).

If the `formatType` is `INT_FORMAT`, then the data is converted to an integer before formatting (using `atoi()`). This implies that the `formatString` contains a `%i`, `%d` or equivalent.

## Syntax

```
DO_GetOutputData( char** srcName, sword type, char* bindName, int length,
OracleFormatDataTypeEnum formatType, char* formatString, int addConstant );
```

## Return Value

## Parameters

Parameter	Description
srcName	Pointer to the address of a source variable. The function allocates memory for the source value, and copies its value into this variable. Note that this parameter is a <code>char **</code> .
type	External datatype of the <code>bindName</code> . Presently, only character and

	numeric data types are supported. Binary dates and rowID are not.								
bindName	Pointer to a variable that contains the bind data to be copied.								
length	Length of the bind data.								
formatType	<p><i>OracleFormatDataTypeEnum</i></p> <p>Data type to be used in the special format string. Acceptable values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>_NONE_</td> <td>No special formatting.</td> </tr> <tr> <td>INT_FORMAT</td> <td>Convert bind data to an integer before formatting.</td> </tr> <tr> <td>STRING_FORMAT</td> <td>Assume that the bind data is not numeric.</td> </tr> </tbody> </table>	Value	Description	_NONE_	No special formatting.	INT_FORMAT	Convert bind data to an integer before formatting.	STRING_FORMAT	Assume that the bind data is not numeric.
Value	Description								
_NONE_	No special formatting.								
INT_FORMAT	Convert bind data to an integer before formatting.								
STRING_FORMAT	Assume that the bind data is not numeric.								
formatString	A printf-style format. The data is formatted using this string. Only used if the formatType is INT_FORMAT or STRING_FORMAT.								
addConstant	If the formatType is INT_FORMAT, this value is added to the value of the bindName before conversion.								

### Example

```
DO_OCISstmtExecute( HNDL(6) ); /* Exec for statement 6 */
DO_GetOutputData(&PB_XHOME_TELE, _FIXED_CHAR,
    CHAR_2_XHOME_TELE_9, *pAlen[65],
    _NONE_, "", 0);
DO_GetOutputData(&PB_NEXT_ID, _FIXED_CHAR,
    CHAR_2_ID, *pAlen[65], INT_FORMAT,
    "%04i", ADD(1) );
```

### DO\_makedate

Binds dates into a SQL statement in C-based scripts

Since standard date formats differ between countries, QALoad implements a language/ country independent method of binding dates into a SQL statement. When DO\_makedate is used in conjunction with a DO\_BindV, dates are properly processed regardless of the currently selected date format. If QALoad detects a bind variable representing a date, it automatically declares a variable of type ORADATE and generates the appropriate DO\_makedate call.

### Syntax

```
DO_makedate( ORADATE* date_var, int year, int month, int day, int hour, int min, int second
);
```

### Return Value

## Parameters

Parameter	Description
date_var	Pointer to a variable of type ORADATE.
year	Four-digit year.
month	Two-digit month.
day	Two-digit day of the month.
hour	Hour in the day (0 to 23).
min	Minute within the hour (0-59).
second	Seconds within the minute (0-59).

## Example

This example shows how to get a date ready for use in a SQL statement:

```
ORADATE DATE_0_8;
...
DO_makedate( &DATE_0_8, 1995, 7, 12, 0, 0, 0 );
DO_BindV (CDA(0); "(text*):8, _DATE,7,NULL, (ub1*) &DATE_0_8, (ub1*) &DATE_0_8);
```

## DO\_strdup

Places the data retrieved by ActiveData for Oracle from a QALoad central datapool or a local datapool.

## Versions

Versions of DO\_strdup are:

```
DO_strdup( char** progVar, GET_DATA_FIELD( datapool_nbr, field_nbr ) );
```

```
DO_strdup( char** progVar, VARDATA( field_nbr ) );
```

## Oracle OCI Version 7

### Oracle OCI Version 7 Commands

#### [DO\\_autocommitoff](#)

Disables the automatic commit of every SQL data manipulation command.

#### [DO\\_autocommiton](#)

Enables the automatic commit of every SQL data manipulation command.

#### [DO\\_binddate](#)

Binds a date variable to a bind variable in a SQL statement.

#### [DO\\_BindForRowID](#)

Binds a rowID in an UPDATE or DELETE statement where the rowid originates from a previous SELECT FOR UPDATE statement.

#### [DO\\_bindnull](#)

Binds a NULL value to a bind variable in a SQL statement.

#### [DO\\_bindstring](#)

Binds a program variable to a bind variable in a SQL statement.

#### [DO\\_BindV](#)

Binds a program variable to a bind variable in a SQL statement.

#### [DO\\_cleanup](#)

Deallocates cursors, logon structures and allocated memory when the script is aborted.

#### [DO\\_commit](#)

Commits the current transaction.

#### [DO\\_FetchIters](#)

Identifies the number of fetch iterations that will be applied to the succeeding fetch loop. The Fetch Loop will execute (n) times according to the fetch iteration value.

#### [DO\\_get\\_select\\_variable](#)

Places the select-list item data recently fetched by DO\_process\_select\_list in a program variable, which may then be used in subsequent statements.

#### [DO\\_GetSelectData](#)

Copies the data retrieved from a SQL SELECT statement into a program variable.

#### [DO\\_init\\_alen](#)

A routine that initializes the pointer to the variable representing the length of data that is a parameter in DO\_ScalarBindA.

#### [DO\\_init\\_data](#)

A routine that allocates and initializes all of the logon data areas, cursor data areas, structures, and so on which are used to run the script.

#### [DO\\_init\\_indp](#)

A routine that initializes the pointer of the null indicator variable, which is a parameter of the DO\_Bindv



and `DO_ScalarBindA` calls.

#### `DO_oclose`

Disconnects a previously opened cursor, returning all resources back to the Oracle server.

#### `DO_oexec`

Executes the SQL statement associated with a cursor.

#### `DO_olog`

Establishes a connection between QALoad and an Oracle database.

#### `DO_ologof`

Closes a connection to the Oracle server, freeing its resources.

#### `DO_oopen`

Opens a cursor to the database.

#### `DO_oopt`

Sets rollback options for non-fatal errors on multi-row INSERT and UPDATE SQL statements and determines whether to wait for requested resources or return errors.

#### `DO_oparse`

Parses a SQL statement or a PL/SQL block and associates it with a cursor index.

#### `DO_process_select_list`

Fetches select-list data from the Oracle database. It is generally called repeatedly until there are no more rows satisfying the SQL select request.

#### `DO_rollback`

Rolls back the current transaction.

#### `DO_ScalarBindA`

Binds a program variable to a bind variable in a SQL statement.

#### `DO_SoftClose`

Closes a cursor without destroying its resources on the server.

## `DO_autocommitoff`

Disables the automatic commit of every SQL data manipulation command.

### Syntax

```
DO_autocommitoff(LDAIndex );
```

### Return Value

## Parameters

Parameter	Description
LDAIndex	Logon data area index.

## Equivalent OCI

ocof

## Example

```
DO_autocommitoff( LDA(0) );
```

## DO\_autocommiton

Enables the automatic commit of every SQL data manipulation command.

## Syntax

```
DO_autocommiton( LDAIndex );
```

## Return Value

## Parameters

Parameter	Description
LDAIndex	Logon data area index.

## Equivalent OCI

ocon

## Example

```
DO_autocommiton( LDA(0) );
```

## DO\_binddate

Binds a date variable to a bind variable in a SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:). DO\_binddate commands must be placed between the DO\_oparse and the DO\_oexec commands. To bind by position, instead of by name, preface the position with an @symbol.

## Syntax

```
DO_binddate( cursor, name, &oradate_structure );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.
name	Pointer to the name of the bind variable (null terminated string).
oradate_structure	<p>An ORADATE structure. This structure is defined in the header files provided by Oracle. The '&amp;' is the C address operator which specifies that the address or pointer to an ORADATE structure is being passed.</p> <p>year: Four-digit year.</p> <p>month: Two-digit month.</p> <p>day: Two-digit day of the month.</p> <p>hour: Hour in the day (0 to 23).</p> <p>min: Minute within the hour (0-59).</p> <p>second: Seconds within the minute (0-59).</p>

## Equivalent OCI

```
obndrv
```

## Example

This example shows a **Select** command with one bind variable:

```
/* ORADATE declarations follow */
ORADATE DATE_0_6;
DO_oparse( CDA(0), "SELECT EMP_ID FROM EMP_TUTORIAL WHERE HIRE_DATE >:hiredate " );
DO_makedate( &DATE_0_6, 1980, 12, 17, 0, 0, 0 );
DO_binddate( CDA(0), ":hiredate", &DATE_0_6 );
DO_oexec( CDA(0) );
```

## DO\_BindForUpdateRowID

Binds a rowID in an UPDATE or DELETE statement where the rowID originates from a previous SELECT FOR UPDATE statement.

## Syntax

```
DO_BindForUpdateRowID( cursor1, cursor0, bind_variable_name );
```

## Return Value

## Parameters

Parameter	Description
cursor1	Cursor index.
cursor0	Cursor index of the FOR UPDATE statement.
bind_variable	Name of a rowid bind variable.

## Example

```
DO_oopen( LDA(0), CDA(0) );
DO_oparse( CDA(0), "SELECT EMPNO, ENAME FROM EMP FOR UPDATE OF EMPNO, ENAME");
DO_oexec( CDA(0) );

n = DO_process_select_list( CDA(0), 3 );

DO_oopen( LDA(0), CDA(1) );
DO_oparse( CDA(1), "UPDATE EMP SET EMPNO=:empno, ENAME=:ename WHERE ROWID = :row_id");
DO_BindForUpdateRowID( CDA(1), CDA(0), ":row_id" );

DO_BindV(CDA(1), (text*)" :empno", _VARCHAR2,
          4, NULL, (ub1 *) "7421",
          (ub1 *) VARCHAR2_0_empno_0);
DO_BindV(CDA(1), (text*)" :ename", _VARCHAR2,
          4, NULL, (ub1 *) "WARD",
          (ub1 *) VARCHAR2_0_ename_1);
DO_oexec( CDA(1) );
```

## DO\_bindnull

Binds a NULL value to a bind variable in a SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:). The input value is set null. Bind statements must be placed after the DO\_oparse and before the DO\_oexec.

DO\_bindnull cannot be used with bind variables that return results, as in stored procedures OUTPUT parameters.

## Syntax

```
DO_bindnull( cursor, name );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.
name	The name of the bind variable as a null-terminated character string.

## Equivalent OCI

obndrv, obndrn

## Example

This example shows a `Select` command with two bind variables, `:empid` and `:id`, which are being bound to a `NULL` value.


```
DO_oparse( CDA(0), "SELECT EMP_ID FROM EMP_TUTORIAL WHERE EMP_ID =:empid AND EMP_DEPT_ID =
:id " );
DO_bindnull( CDA(0), ":empid" );
DO_bindnull( CDA(0), ":id" );
DO_oexec( CDA(0) );
```

## DO\_bindstring

Binds a program variable to a bind variable in a SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:). `DO_bindstring` must be called after the `DO_oparse` and before the `DO_oexec`. Once you have bound a variable, you can change the value and length and then call another `DO_oexec`.

`DO_bindstring` only supports the binding of strings, nulls, and dates. If you need to bind a numeric value, convert it first to a string before passing it to `DO_bindstring`. If needed, Oracle automatically converts character data types to numeric.

 **Note:** `DO_bindstring` is a deprecated command. Use `DO_BindV` or `DO_ScalarBindA`. `DO_bindstring` binds every data type as a fixed character and forces the Oracle server to make implicit database conversions. Also, you must variablize `OUTPUT` variables or they overwrite the input data held by string constants.

## Syntax

```
DO_bindstring( cursor, name, value );
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

cursor	Cursor table index.
name	Pointer to the name of the bind variable (null terminated).
value	Pointer to a string containing the value for the bind variable (null terminated).

## Equivalent OCI

obndrv, obndrn

## Example

This example shows a Select command with two bind variables, :empid and :id.

```
DO_oparse( CDA(0), "SELECT EMP_ID FROM EMP_TUTORIAL WHERE EMP_ID =:empid AND EMP_DEPT_ID =
:id " );
DO_bindstring( CDA(0), ":empid", "200" );
DO_bindstring( CDA(0), ":id", "100" );
DO_oexec( CDA(0) );
```

## DO\_BindV

Binds a program variable to a bind variable in a SQL statement.

A DO\_BindV is generated wherever an obndrv occurred in the capture file. DO\_BindV accurately reproduces the original bind call made by the application. This eliminates extra data conversion steps and improves handling of OUTPUT variables to Oracle stored procedures.

Bind variables are specified in SQL statements by preceding the variable names with a colon (:). DO\_BindV must be called after the DO\_oparse and before a DO\_oexec. Once you have bound a variable, you can change its value and length and execute it again without reparsing the SQL statement or rebinding the variable.

Currently, DO\_BindV is not supported for cursor, mlabel, packed-decimal, olabel, PCC-descriptor, and the new Oracle 8 datatypes.

## Syntax

```
DO_BindV(index, name, type, progvl, indp, input, progv);
```

## Return Value

## Parameters

Parameter	Description
index	Cursor table index.

name	Pointer to name of the bind variable (null terminated).
type	External datatype of bind variable.
progv1	Size of progv. This is the maximum size of the buffer. If binding an OUTPUT variable, progv1 must be at least as large as the expected output value.
indp	Pointer to a null indicator variable: plndp[0] points to make_indp[0], and make_indp holds the value of the null indicator. If make_indp[0]=SET_NULL, the input will be passed to Oracle as null. Otherwise, data is passed as shown in the bind call.
input	Pointer to buffer containing input data.
progv	Output data buffer.

## Equivalent OCI

obndrv, obndrn

## Example

This example shows a **Select** command with two bind variables, :empid and :id.

```
DO_oparse( CDA(0), "SELECT EMP_ID FROM EMP_TUTORIAL WHERE EMP_ID = :empid AND EMP_DEPT_ID = :id" );
make_indp[0]=0
DO_BindV(CDA(0), ":empid", _STRING, 48, pIndp[0], "200", STRING_0_empid_3);
make_indp[1]=0
DO_BindV (CDA(0), ":id", _STRING, 48, pIndp[1], "100", STRING_0_id_3);
DO_oexec ( CDA(0) );
```

## DO\_cleanup

Deallocates cursors, logon structures, and allocated memory when the script is aborted.

 **Note:** Do not modify or move this command.

## Syntax

```
sword DO_cleanup();
```

## Return Value

## Parameters

None.

## DO\_commit

Commits the current transaction.

### Syntax

```
DO_commit( LDAIndex );
```

### Return Value

### Parameters

Parameter	Description
LDAIndex	Logon data area index.

### Equivalent OCI

ocom

### Example

```
DO_commit( LDA(0) );
```

## DO\_FetchIters

Identifies the number of fetch iterations that are applied to the succeeding fetch loop. The Fetch Loop executes (*n*) times according to

the fetch iteration value.

The fetch iteration value is derived from the script capture's fetch iteration data for each `Select` statement. However, the Fetch Iteration Override in Oracle Convert Options may be used to replace all fetch iteration values in the script. The override range is 1-1000000. The default value for each convert activity is 0 (no override).

### Syntax

```
DO_FetchIters( cursorIndex, fetchIterationValue );
```

or

```
DO_FetchIters( statementHandleIndex, fetchIterationValue );
```

### Return Value



## Parameters

Parameter	Description
cursorIndex	An index to an allocated OCI7 cursor or Oracle 8 statement handle used in the previous call to <code>oparse</code> , <code>osql3</code> , <code>upipse</code> , <code>upiosq</code> , or <code>OCIStmtPrepare</code> .
fetchIterationValue	Number of iterations to be applied to the succeeding fetch-loop.
statementHandleIndex	An index to an allocated OCI7 cursor or Oracle 8 statement handle used in the previous call to <code>oparse</code> , <code>osql3</code> , <code>upipse</code> , <code>upiosq</code> , or <code>OCIStmtPrepare</code> .

## Example

The following OCI7 example shows how `DO_FetchIters` is used relative to the parse and fetch-loop:

```
DO_oparse( CDA(0), "select ename, empno, mgr from emp" );
DO_FetchIters( CDA(0), ITERS(4) );
DO_oexec( CDA(0) );
```

```
while (DO_process_select_list( CDA(0), 1 ))
//1 = the number of rows per iteration
{
}
```

The following OCI8 example shows how `DO_FetchIters` is used relative to the prepare and fetch-loop.

```
DO_OCISmtPrepare( HNDL(6), "select empno from emp", OCI_NTV_SYNTAX );
DO_FetchIters( HNDL(6), ITERS(13) );
DO_OCIDefine( HNDL(6), HNDL(1), 1, 1, _VARCHAR2, 4, IS_ATTRIBUTE );
DO_OCISmtExecute( HNDL(8), HNDL(6), HNDL(1), 1, OCI_DEFAULT );

while (DO_OCIProcessSelectList( HNDL(6), 1 ))
//1 = the number of rows per iteration
{
DO_OCI8GetSelectData(FETCH(1), COL(1), ROW(1), &FD_stmtnt_1_col_1_row_1, _NONE_, "", 0 );
}
```

## DO\_GetSelectData

Copies the data retrieved from a SQL SELECT statement into a program variable.

`DO_GetSelectData` processes the data retrieved by `DO_process_select_list()` by copying the value of the fetched data to another program variable. Typically, the program variable is also a source variable. Source variables are created by `ActiveData` for Oracle so that postbind and/or fetch data from one portion of a script can be used as input to subsequent bind statements.

 **Note:** If you are working with Oracle 8 select output data, use `DO_OCI8GetSelectData` instead.

If the `formatType` is `INT_FORMAT`, then the data is converted to an integer before formatting (using `atoi()`). This implies that the `formatString` contains a `%i`, `%d` or equivalent.

## Syntax

```
DO_GetSelectData( fetchCount, colnum, rowNum, srcName, formatType, formatString,
addConstant );
```

## Return Value

## Parameters

Parameter	Description
fetchCount	A number from 1-n indicating which fetch sequence to use to fetch the data. The script code for a fetch statement is generally output as a C-based while-loop. This loop will retrieve data until no more data is available. This parameter determines which iteration of that loop to use to retrieve the data.
colnum	Column number to use to fetch the data. The first column is 1.
rowNum	Row number to use to fetch the data. The first row number is 1.
srcName	Pointer to the address of a source variable. The function will allocate memory for the source value and copy its value into this variable. Note that this parameter is a char **.
formatType	Data type to be used in the special format string. Acceptable values are: _NONE_, No special formatting. INT_FORMAT, Convert bind data to an integer before formatting. STRING_FORMAT, Assume that the bind data is numeric.
formatString	A printf-style format. The data will be formatted using this string. Only used if the formatType is INT_FORMAT or STRING_FORMAT.
addConstant	If the formatType is INT_FORMAT, this value is added to the value of the fetch data before conversion.

## Example


The following example copies the fetched value of the first select-list item of the second row (in the first fetch iteration which retrieves 409 rows) to program variable `FD_stmtnt_3_col_1_row_2`.

It also copies the fetched value of the fifth select-list item of the second row (in the first fetch iteration) to program variable `FD_stmtnt_3_col_5_row_2`.

```
DO_oexec( CDA(1) ); /* Exec for statement 3 */
while ( DO_process_select_list( CDA(1), 409 ) )
{
DO_GetSelectData( FETCH(1), COL(1), ROW(2), &FD_stmtnt_3_col_1_row_2, _NONE_, "", 0 );
DO_GetSelectData( FETCH(1), COL(5), ROW(2), &FD_stmtnt_3_col_5_row_2, _NONE_, "", 0 );
} /* end of DO_process_select_list */
```

## DO\_get\_select\_variable

Places the select list item data recently fetched by `DO_process_select_list` in a program variable, which may then be used in subsequent statements.

 **Note:** `DO_process_select_list` is called repeatedly in a loop. Each call to `DO_process_select_list` fetches a number of rows into the script's internal buffer. The number of rows is specified in the second parameter of

`DO_process_select_list`. `DO_get_select_variable`, in turn, copies the fetched data from a specific row and the select list item into a program variable.

All select list items are converted by the server into a null terminated string format prior to being processed by your script. Therefore, dates and numbers appear as readable ASCII character strings.

The program does not check to verify that the length of the buffer is sufficiently large to contain the returned value.

## Syntax

```
DO_get_select_variable( pos, row, value );
```

## Return Value

## Parameters

Parameter	Description
pos	Variable to retrieve (starts at 1).
row	Row in the buffer to retrieve (starts at 1).
value	Pointer to a character array into which the data is placed.

## Example

This example shows how the first select-list item from the second fetched row is copied to the program variable `coname`.

```
char coname[128];
:
:
DO_oexec( CDA(0) ); /* Exec for statement 2 */
while ( DO_process_select_list( CDA(0), 30 ) )
{
DO_get_select_variable( 1, 2, coname );
}
```

## DO\_init\_alen

A routine that initializes the pointer to the variable representing the length of data that is a parameter in `DO_ScalarBindA`.

This is a required initialization routine that is inserted into a script when it is generated and called before synchronization. This function is not always called; for example, a script may not contain any `DO_ScalarBindA` calls, or the bind calls that are contained in the script do not utilize `pAlen`. This function should not be moved or modified.

## Syntax

```
DO_init_alen(make_alen, pAlen, ALEN_COUNT);
```

## Return Value

## Parameters

Parameter	Description
make_alen	A pointer to an array that holds the values of the length of data.
pAlen	A pointer to make_alen. Each element holds the pointer to the corresponding make_alen. In the example pAlen[0] = &make_alen[0], the contents of make_alen[0] are assigned before the call to DO_ScalarBindA.
ALEN_COUNT	The number of pAlen utilized in the script. If this number is incorrect, the script will fail. The number can be modified in the #define ALEN_COUNT at the beginning of the script. Every bind does not necessarily utilize a pAlen. For example, if the alen was captured as NULL, NULL replaces the use of pAlen.

## Example

```
#define ALEN_COUNT 20
:
sb2* pIndp[ALEN_COUNT]; /* sb2 is a signed integer */
sb2 make_alen[ALEN_COUNT];
:
DO_init_alen( make_alen, pAlen, ALEN_COUNT );
:
make_indp[1]=0;
make_alen[0]=90;
DO_ScalarBindA( CDA(3), ":id", _STRING, -1, pAlen[0], pIndp[1], "id", STRING_3_id_69 );
```

## DO\_init\_data

A routine that allocates and initializes all of the logon data areas, cursor data areas, structures, and so on, which are used to run the script.

This is a required initialization routine that is inserted into a script when it is generated and called before synchronization. It should not be modified or removed.

## Syntax

```
DO_init_data(s_info, LOGON_COUNT, CURSOR_COUNT, HANDLE_COUNT, DESCRIPTOR_COUNT);
```

## Return Value

## Parameters

Parameter	Description
s_info	Structure used by each virtual user.
LOGON_COUNT	The number of logons in the script. If this number is incorrect, the script will fail. The number can be modified in the #define LOGON_COUNT at the beginning of the script.
CURSOR_COUNT	The number of cursors opened in the script. If this number is incorrect, the script will fail. The number can be modified in the #define CURSOR_COUNT at the beginning of the script.
HANDLE_COUNT	The number of handles opened in the script. If this number is incorrect, the script will fail. The number can be modified in the #define HANDLE_COUNT at the beginning of the script.
DESCRIPTOR_COUNT	The number of descriptors opened in the script. If this number is incorrect, the script will fail. The number can be modified in the #define DESCRIPTOR_COUNT at the beginning of the script.

## Example

```
#define LOGON_COUNT 5
#define CURSOR_COUNT 35
#define HANDLE_COUNT 9
#define DESCRIPTOR_COUNT 1
:
:
DO_init_data( s_info, LOGON_COUNT, CURSOR_COUNT, HANDLE_COUNT, DESCRIPTOR_COUNT);
```

## DO\_init\_indp

A routine that initializes the pointer of the null indicator variable, which is a parameter of the DO\_Bindv and DO\_ScalarBindA calls.

This is a required initialization routine that is inserted into a script when it is generated and called before synchronization. This function should not be moved or modified.

## Syntax

```
DO_init_indp(make_indp, pIndp, INDP_COUNT);
```

## Return Value

## Parameters

Parameter	Description
make_indp	A pointer to an integer array that holds the values of the null indicator variable.

pIndp	A pointer to make_indp. Each element holds the pointer to the corresponding null indicator variable. In the example pIndp[0] = &make_indp[0], the contents of make_indp[0] is assigned before the call to DO_BindV or DO_ScalarBindA.
INDP_COUNT	The number of indicator variables utilized in the script. If this number is incorrect, the script will fail. The number can be modified in the #define INDP_COUNT at the beginning of the script. Every bind does not necessarily utilize a pIndp. If the null indicator was captured as NULL, NULL replaces the use of pIndp.

### Example

```
#define INDP_COUNT 20
sb2* pIndp[INDP_COUNT]; /* sb2 is a signed integer */
sb2 make_indp[INDP_COUNT];
DO_init_indp(make_indp,pIndp,INDP_COUNT);
```

### DO\_oclose

Disconnects a previously opened cursor, returning all resources back to the Oracle server.

### Syntax

```
DO_oclose( cursor );
```

### Return Value

### Parameters

Parameter	Description
cursor	Cursor table index.

### Equivalent OCI

```
oclose
```

### Example

```
DO_oclose( CDA(0) );
```

### DO\_oexec

Executes the SQL statement associated with a cursor.

Before calling DO\_oexec, the SQL statement must be parsed by calling DO\_Oparse using the same cursor.

## Syntax

```
DO_oexec( cursor );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.

## Equivalent OCI

oexec

## Example

This example shows parsing and execution of a SQL statement:

```
DO_oparse( CDA(1), "select id, coname from company" );
DO_oexec( CDA(1) );
```

## DO\_olog

Establishes a connection between QALoad and an Oracle database.

An application must log in to Oracle before it can perform any other operations. Multiple connections to one or more Oracle instances is supported.

A user ID string is made up of the user's login ID, password, and an Oracle connection string.

A forward slash ( / ) separates the password from the user ID, and the connection string is preceded by the @symbol.

## Syntax

```
DO_olog( LDAIndex, connect-string );
```

## Return Value

## Parameters

Parameter	Description
LDAIndex	Logon data area index.

<code>connect-string</code>	A null terminated string containing the Oracle login ID, password, and connection.
-----------------------------	--

### Equivalent OCI

`orlon`

### Example

This example shows a typical Oracle login sequence:

```
DO_olog( LDA(0), "scott/tiger@domain" );
```

### DO\_ologof

Closes a connection to the Oracle server, freeing its resources.

### Syntax

```
DO_ologof( LDAIndex );
```

### Return Value

### Parameters

Parameter	Description
<code>LDAIndex</code>	Logon data area index.

### Equivalent OCI

`ologof`

### Example

```
DO_ologof( LDA(0) );
```

### DO\_oopen

Opens a cursor to the database.

Processing commands such as `DO_oparse` and `DO_oexec` require an open cursor. There may be multiple open cursors at one time, so operations may be repeated without re-parsing the SQL statement. QALoad automatically manages cursor opens and closes.



## Syntax

```
DO_oopen( IdaIndex, cursor );
```

## Return Value

## Parameters

Parameter	Description
IdaIndex	Logon data area index.
cursor	Cursor table index (first index is 0).

## Equivalent OCI

oopen

## Example

This example shows how a cursor is opened, a command is executed, and the cursor is subsequently closed:

```
DO_oopen( LDA(0), CDA(1) );
DO_oparse( CDA(1), "select id, coname from company" );
DO_oexec( CDA(1) );
DO_process_select_list( CDA(1), 100 ); /* get 100 rows */
DO_oclose( CDA(1) );
```

## DO\_oopt

Sets rollback options for non-fatal errors on multi-row INSERT and UPDATE SQL statements and determines whether to wait for requested resources or return errors.

## Syntax

```
DO_oopt( cursor, rbopt, waitopt );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.
rbopt	0 = Rollback on any error. 2 = Rollback only the failing row.

waitopt	0 = Wait indefinitely for resources to be available. 4 = Return an error if a resource is requested, but not available.
---------	--

## Equivalent OCI

oopt

## DO\_oparse

Parses a SQL statement or a PL/SQL block and associates it with a cursor index.

QALoad scripts use deferred mode linking and DO\_oparse defers the parse. In this mode, SQL statements are not actually sent to the server until the DO\_oexec call. Therefore, SQL syntax errors are not reported at DO\_oparse, but rather at DO\_oexec.

## Syntax

```
DO_oparse( cursor, statement );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.
statement	Pointer to null terminated string containing the SQL statement.

## Equivalent OCI

oparse

## Example

This example shows a complete parse, execute, and fetch cycle for a SQL Select statement:

```
DO_oopen( LDA(0), CDA(1) );
DO_oparse( CDA(1), "select id, coname from company" );
DO_oexec( CDA(1) );
DO_process_select_list( CDA(1), 100 ); /* get 100 rows */
DO_oclose( CDA(1) );
```

## DO\_process\_select\_list

Fetches select-list data from the Oracle database. It is generally called repeatedly until there are no more rows satisfying the SQL select request.

The first time `DO_process_select_list` retrieves data for a SQL statement, it loops through all the returned fields (using `odescr`) and builds up a set of internal buffers to store the returned data. All data is returned as ASCII strings.

## Syntax

```
DO_process_select_list( cursor, rowcount );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor table index.
rowcount	Number of rows to fetch into the buffer.

## Equivalent OCI

`ofen`, `odescr`, and `odefin`

## Example

This example shows the `DO_process_select_list` being called repeatedly, so all the rows are read:

```
DO_oexec( CDA(0) ); /* Exec for statement 2 */
while ( DO_process_select_list( CDA(0), 30 ) ); /* Read all rows, 30 at a time. */
```

## DO\_rollback

Rolls back the current transaction.

## Syntax

```
DO_rollback( ldaIndex );
```

## Return Value

## Parameters

Parameter	Description
ldaIndex	Logon data area index.

## Equivalent OCI

orol

## Example

```
DO_rollback( LDA(0) );
```

## DO\_ScalarBindA

Binds a program variable to a bind variable in a SQL statement.

A DO\_ScalarBindA is generated wherever an obndra occurred in the capture file and the type of bind was a single (scalar) value, not an array. DO\_ScalarBindA accurately reproduces the original bind call made by the application.

This eliminates extra data conversion steps and improves handling of OUTPUT variables to Oracle stored procedures.

Bind variables are specified in SQL statements by preceding the variable names with a colon (:).

DO\_ScalarBindA must be called after the DO\_oparse and before a DO\_oexec. Once you have bound a variable, you can change its value and length and execute it again without reparsing the SQL statement or rebinding the variable.

Currently, DO\_ScalarBindA does not support packed decimal, PCC-descriptor, cursor, mslable, oslabel, and any new Oracle 8 datatypes.

## Syntax

```
DO_ScalarBindA (index, name, type, progvl, alen, indp, input, progv);
```

## Return Value

## Parameters

Parameter	Description
index	Cursor table index.
name	Pointer to name of the bind variable (null terminated).
type	External datatype of bind variable.
progvl	Size of progv. This is the maximum size of the buffer. If binding an OUTPUT variable, progvl must be at least as large as the expected output value.
alen	Pointer to variable representing length of data. palen[0] points to the value of make_alen[0].
indp	Pointer to a null indicator variable. plndp[0] points to the

	value of make_indp[0]; If make_indp=SET_NULL, null will be passed as the data for the input. Otherwise, the data is passed as shown in the bind call.
input	Pointer to buffer containing input data.
progv	Output data buffer.

## Equivalent OCI

obndra

## Example

This example shows a Select command with two bind variables, :empid and :id.

```
DO_oparse( CDA(0), "SELECT EMP_ID FROM EMP_TUTORIAL WHERE EMP_ID = :empid AND EMP_DEPT_ID = :id" );
make_indp[0]=0
DO_ScalarBindA(CDA(3), ":empid", _STRING, -1, NULL, pIndp[0], "200", STRING_3_empid_69);
make_indp[1]=0
make_alen[0]=90;
DO_ScalarBindA(CDA(3), ":id", _STRING, -1, pAlen[0], pIndp[1], "id", STRING_3_id_69);
DO_oexec( CDA(0) );
```

## DO\_SoftClose

Closes a cursor without destroying its resources on the server.

If the application is in the deferred mode, the cursor is not actually closed but is placed on a cursor-free list on the client. During any subsequent open cursor calls, the free list is checked first to satisfy the request. A soft close reduces communication with the server because it does not cancel the cursor. A SQL statement associated with the cursor remains valid until the cursor is reused to pause another SQL statement.

## Syntax

```
DO_SoftClose( cursor );
```

## Return Value

## Parameters

Parameter	Description
cursor	Cursor data area index.

## Example

This example shows how to use a soft close to execute a SQL statement again, then to parse and execute another SQL statement.

```
DO_ooopen( LDA(0), CDA(0) );
DO_oparse( CDA(0), "select * from emp");
DO_oexec( CDA(0) );
while( DO_process_select_list( CDA(0), 15 ) );

/* Soft close cursor */
DO_SoftClose( CDA(0) );

/* Reuse cursor to repeat statement */
DO_oexec( CDA(0) );
while( DO_process_select_list( CDA(0), 15 ) );

/* Reuse cursor to parse next statement */
DO_oparse( CDA(0), "select ename from emp where empno = 7788");
DO_oexec( CDA(0) );
while( DO_process_select_list( CDA(0), 15 );
DO_oclose( CDA(0) );
```

# Oracle OCI Version 8

## Oracle OCI Version 8 Commands

### [DO\\_OCIBindDate](#)

Binds a date variable (created by `DO_makedate`) to a bind variable in a SQL statement.

### [DO\\_OCIBindNull](#)

Binds a NULL value to a bind variable in a SQL statement.

### [DO\\_OCIBindString](#)

Binds a program variable to a bind variable in a SQL statement.

### [DO\\_OCIGetSelectData](#)

Copies the data retrieved from an Oracle8 SQL SELECT statement into a program variable.

### [DO\\_OCIBindAlen](#)

An Oracle8-specific routine that initializes the pointer to the variable representing the length of data that is a parameter in `DO_OCIBind`.

### [DO\\_OCIBindIndp](#)

An OCI8-specific routine that initializes the pointer of the null indicator variable, which is a parameter of the `DO_OCIBind`.

### [DO\\_OCISetAttr](#)

Sets a particular attribute for a previously allocated Oracle 8 OCI handle.

### [DO\\_OCIBind](#)

Binds a program variable to a bind variable in a SQL statement.

### [DO\\_OCICommit](#)

Commits the current Oracle8 transaction. A commit should be performed after all relevant SQL statements have been processed.

### [DO\\_OCIDefine](#)

Associates an item in a select-list to an Oracle external datatype and an output data buffer.

### [DO\\_OCIDescriptorAlloc](#)

Allocates and initializes an Oracle 8 OCI descriptor or LOB locator.

### [DO\\_OCIDescriptorFree](#)

De-allocates an Oracle 8 OCI descriptor or LOB locator.

### [DO\\_OCIEnvFreeAll](#)

De-allocates all environment handles before the end of an OCI8 script.

### [DO\\_OCIEnvInit](#)

Allocates and initializes an Oracle OCI8 environment handle.

### [DO\\_OCISetExecute](#)

Executes the SQL statement or a PL/SQL block previously associated with the Oracle 8 statement handle with `DO_OCISetPrepare`. Note that SQL syntax errors are reported at execution time.

#### [DO\\_OCISetHandleAlloc](#)

Allocates and initializes an Oracle 8 OCI handle.

#### [DO\\_OCISetHandleFree](#)

De-allocates an Oracle 8 OCI handle.

#### [DO\\_OCISetInitialize](#)

Initializes the Oracle OCI8 process environment. This command must be issued once in a QALoad script prior to any other Oracle8 script commands, and should be outside any QALoad transactions.

#### [DO\\_OCISetLdaToSvcCtx](#)

Toggles an Oracle 7 logon data area to an Oracle 8 service context handle. This should be done after using DO\_OCISetSvcCtxToLda to create Oracle 7 in a database session in Oracle 8.

#### [DO\\_OCISetLobRead](#)

Reads a LOB into a buffer.

#### [DO\\_OCISetLobWrite](#)

Writes the contents of a buffer into an Oracle 8 LOB.

#### [DO\\_OCISetLogoff](#)

Terminates an Oracle OCI8 logon session and connection created with DO\_OCISetLogon.

#### [DO\\_OCISetLogoffEx](#)

Terminates an Oracle OCI8 logon session and connection created with DO\_OCISetLogon.

#### [DO\\_OCISetLogon](#)

Creates a simple Oracle OCI8 logon connection and session for QALoad . Any application must log on to Oracle before performing any other Oracle operations.

#### [DO\\_OCISetProcessSelectList](#)

Fetches select-list data from an Oracle 8 database after an OCISetStmtExecute call. It is called repeatedly in a loop until there are no more rows satisfying the SQL select request.

#### [DO\\_OCISetProcessSelectList\\_EX](#)

Fetches select-list data from an Oracle 8 database after an OCISetStmtExecute call. It is called repeatedly in a loop until there are no more rows satisfying the SQL select request.

#### [DO\\_OCISetRollback](#)

Rolls back the current Oracle8 transaction.

#### [DO\\_OCISetServerAttach](#)

Creates a standard Oracle OCI8 database connection for QALoad . Note that individual Oracle 8 user logons are done with the DO\_OCISetServerAttach command.

#### [DO\\_OCISetServerDetach](#)

Detaches QALoad from the Oracle OCI8 data source connection previously attached to with the DO\_OCISetServerAttach command. Note that all users must be logged off with the DO\_OCISetSessionEnd command before this call.

#### [DO\\_OCISetSessionBegin](#)

Creates an Oracle OCI8 logon session for QALoad to a server previously attached to with DO\_OCISetServerAttach. Any application must log on to Oracle before performing any other Oracle operations.



**DO\_OCISessionEnd**

Terminates an Oracle user session previously created with the DO\_OCISessionBegin command.

**DO\_OCISmtExecute**

Executes the SQL statement or a PL/SQL block previously associated with the Oracle 8 statement handle with DO\_OCISmtPrepare. Note that SQL syntax errors are reported at execution time.

**DO\_OCISmtPrepare**

Prepares a SQL statement or a PL/SQL block and associates it with an Oracle 8 statement handle.

**DO\_OCISmtPrepare\_EX**

Prepares a SQL statement or a PL/SQL block and associates it with an Oracle 8 statement handle.

**DO\_OCISvcCtxToLda**

Toggles an Oracle 8 service context handle to an Oracle 7 logon data area. This allows Oracle 7 cursors to be created in a database session created in Oracle 8.

**DO\_OCITransCommit**

Commits the current Oracle 8 transaction. A commit should be performed after all relevant SQL statements have been processed.

**DO\_OCITransRollback**

Rolls back the current Oracle 8 transaction.

## Logging On and Off Oracle Net 8

### Command Sequence for Logging In to Oracle 8

```

/* NOTE: HNDL(0) is the environment handle. It should be previously specified in a
DO_OCIEnvInit call */

/* An error handle is used for Oracle8 error handling. HNDL(1) is the index to the new
error(OCI_HTYPE_ERROR) handle. */
DO_OCISetHandleAlloc( HNDL(0), HNDL(1), OCI_HTYPE_ERROR);

/* A server handle is allocated for DO_OCIServerAttach. HNDL(2) is the index to the new
server (OCI_HTYPE_SERVER) handle. */
DO_OCISetHandleAlloc( HNDL(0), HNDL(2), OCI_HTYPE_SERVER);

/* The DO_OCIServerAttach handle uses the server (HNDL(2)) handle previously allocated in
DO_OCISetHandleAlloc. Note that the TNS data source name is the third parameter in this call.
*/
DO_OCIServerAttach( HNDL(2), HNDL(1), "oracledb.world", 15, OCI_DEFAULT);

/* A service context handle is now allocated. HNDL(3) is the index to the new service
context (OCI_HTYPE_SVCCTX) handle. */
DO_OCISetHandleAlloc( HNDL(0), HNDL(3), OCI_HTYPE_SVCCTX);

/* The allocated service context handle (HNDL(3)) is now set as an attribute of the server
handle(HNDL(2)) in this DO_OCISetAttr call. Note that the error handle (HNDL(1)) is a
parameter in a DO_OCISetAttr call. */
DO_OCISetAttr( HNDL(3), OCI_HTYPE_SVCCTX, 0, 0, OCI_ATTR_SERVER, HNDL(1), HNDL(2));

/* A session handle is allocated for DO_OCISessionBegin. HNDL(3) is the index to the new
session (OCI_HTYPE_SESSION) handle. */
DO_OCISetHandleAlloc( HNDL(0), HNDL(4), OCI_HTYPE_SESSION);

/* The username is set as an attribute of the session handle (HNDL(4)). */
DO_OCISetAttr( HNDL(4), OCI_HTYPE_SESSION, "scott", 5, OCI_ATTR_USERNAME, HNDL(1),
IS_ATTRIBUTE);

```

```

/* The password is set as an attribute of the session handle (HNDL(4)). */
DO_OCISetAttr( HNDL(4), OCI_HTYPE_SESSION, "tiger", 5, OCI_ATTR_PASSWORD, HNDL(1),
IS_ATTRIBUTE);

/* The DO_OCISessionBegin call uses the service context handle (HNDL(3)) and the session
handle (HNDL(4)). . Note that the error handle (HNDL(1)) is a parameter in a
DO_OCISessionBegin call. The Credentials parameter is OCI_CRED_RDBMS, which means that
username and password must have been explicitly set in previous calls to DO_OCISetAttr. If
the user verification is integrated with external credentials, use OCI_CRED_EXT as this
value. When you use OCI_CRED_EXT, you will not have to set the username and password in
DO_OCISetAttr calls prior to DO_OCISessionBegin. */
DO_OCISessionBegin( HNDL(3), HNDL(1), HNDL(4), OCI_CRED_RDBMS, OCI_DEFAULT);

```

## Command Sequence for Logging Off Oracle 8

```

/* The DO_OCISessionEnd call uses the same service context handle (HNDL(3)) and session
handle (HNDL(4)) used in DO_OCISessionBegin. Note that the error handle (HNDL(1)) is a
parameter in a DO_OCISessionEnd call. */
DO_OCISessionEnd( HNDL(3), HNDL(1), HNDL(4), OCI_DEFAULT);

/* The session handle (HNDL(4)) is no longer needed, so it is de-allocated with the
DO_OCISetAttr call. */
DO_OCISetAttr( HNDL(4), OCI_HTYPE_SESSION);

/* The DO_OCIServerDetach call uses the same server handle (HNDL(2)) and service context
handle (HNDL(1)) used in the DO_OCIServerAttach call. Note that the error handle (HNDL(1))
is a parameter in a DO_OCIServerDetach call. */
DO_OCIServerDetach( HNDL(2), HNDL(1), OCI_DEFAULT);

/* The server handle (HNDL(2)) is no longer needed, so it is de-allocated with the
DO_OCISetAttr call. */
DO_OCISetAttr( HNDL(2), OCI_HTYPE_SERVER);

/* The service context handle (HNDL(3)) is no longer needed, so it is de-allocated with the
DO_OCISetAttr call. */
DO_OCISetAttr( HNDL(3), OCI_HTYPE_SVCCTX);

/* If the error handle (HNDL(1)) is no longer needed, it should be de-allocated with the
DO_OCISetAttr call. */
DO_OCISetAttr( HNDL(1), OCI_HTYPE_ERROR);

```

## Using QALoad Script Commands to Log On and Off an Oracle 8 Database

1. Create the appropriate handles and increment the HANDLE\_COUNT parameter in the QALoad script.
  - a. Find the number after HANDLE\_COUNT in the QALoad script. Note the current number, and then add four (4) to this number. Four is the count of the number of new handles we will be allocating for use by this logon and logoff example.  
For example if the following line is in the script:  
HANDLE\_COUNT 35  
edit it to read:  
HANDLE\_COUNT 39
  - b. Then, allocate a server handle, a service context handle, a session handle and an error handle (or you may use another pre-allocated error handle; this error handle must not be freed before all logoff commands are called).
  - c. Associate the numbers 35, 36, 37, and 38 (starting with the previous HANDLE\_COUNT and adding 1 for each new handle) with these new handles to be allocated, as shown in the following example:  
DO\_OCISetAttr( HNDL(36), OCI\_HTYPE\_SERVER);  
DO\_OCISetAttr( HNDL(37), OCI\_HTYPE\_SVCCTX);  
DO\_OCISetAttr( HNDL(38), OCI\_HTYPE\_SESSION);  
DO\_OCISetAttr( HNDL(35), OCI\_HTYPE\_ERROR);

2. Add the call to attach to the Oracle database (DO\_OCIServerAttach). The following examples shows the code for the DO\_OCIServerAttach call that uses the handles allocated in the previous step:  
`DO_OCIServerAttach( HNDL(36), HNDL(35), "oracledb.world", 15, OCI_DEFAULT);`
3. Set the allocated service context handle as an attribute to the server handle with calls to DO\_OCIServerAttach. Setting the service context handle as an attribute of the server handle allows the service context handle to be used in the DO\_OCISessionBegin call. Ensure the handle indexes are correct, and keep the other parameters the same as shown below:  
`DO_OCIServerAttach( HNDL(37), OCI_HTYPE_SVCCTX, 0, 0, OCI_ATTR_SERVER, HNDL(35), HNDL(36));`
4. If you are using Oracle security, set the session handle attributes. You will need to specify the username and password. Using the DO\_OCIServerAttach calls will tie the username and password as attributes to the session handle. Ensure that the UserName and UserNameLength parameters are set correctly for this first DO\_OCIServerAttach call, and the Password and PasswordLength attributes are set correctly for the second DO\_OCIServerAttach call, as shown below:  
`DO_OCIServerAttach( HNDL(38), OCI_HTYPE_SESSION, "scott", 5, OCI_ATTR_USERNAME, HNDL(35), IS_ATTRIBUTE);`  
`DO_OCIServerAttach( HNDL(38), OCI_HTYPE_SESSION, "tiger", 5, OCI_ATTR_PASSWORD, HNDL(35), IS_ATTRIBUTE);`
5. Start the Oracle session with a call to DO\_OCISessionBegin, as shown below. Note that the OCI\_CRED\_RDBMS parameter implies that the username and password are set with DO\_OCIServerAttach calls, if using integrated security, step 4 is not needed, and use OCI\_CRED\_EXT as the parameter:  
`DO_OCISessionBegin( HNDL(37), HNDL(35), HNDL(38), OCI_CRED_RDBMS, OCI_DEFAULT);`
6. After all SQL statements for the session have completed, log off the database as follows:
  - a. End the session with the DO\_OCISessionEnd call:  
`DO_OCISessionEnd( HNDL(37), HNDL(35), HNDL(38), OCI_DEFAULT);`
  - b. Disconnect from the server with the DO\_OCIServerDetach call:  
`DO_OCIServerDetach( HNDL(36), HNDL(35), OCI_DEFAULT);`
  - c. Free the allocated handles using DO\_OCIServerDetach, or a memory leak will develop in the application:  
`DO_OCIServerDetach( HNDL(38), OCI_HTYPE_SESSION);`  
`DO_OCIServerDetach( HNDL(36), OCI_HTYPE_SERVER);`  
`DO_OCIServerDetach( HNDL(37), OCI_HTYPE_SVCCTX);`  
`DO_OCIServerDetach( HNDL(35), OCI_HTYPE_ERROR);`

## Oracle SQL statements in Oracle 8 with QALoad script commands

### SQL Statement Types

QALoad scripts support the following standard SQL statements:

- ! SQL data manipulation language (DML) statements  
 Examples of DML statements include:  

```

@@2-8 QSELECT * FROM USER_TAB;
INSERT INTO EMP (VALUES "John Doe", "Accounting", 20, 500.00);
DELETE FROM DEPT WHERE DEPTNO = 100;
UPDATE EMP SET DEPTNO = 40 WHERE DEPTNO = 50;

```
- ! Anonymous PL/SQL blocks  
 An example of anonymous PL/SQL blocks includes:  

```

BEGIN UPDATE EMP SET PAY = 400.00; END;

```
- ! SQL data definition language (DDL) statements  
 An example of DDL statements includes:  

```

CREATE TABLE emp (empno NUMBER(5) PRIMARY KEY);

```
- ! PL/SQL stored procedure or function calls  
 An example of a PL/SQL stored procedure call includes:  

```

"BEGIN qaload_regtest.emptest(:pkey, :f1, " ":num2, :opkey, :of1, :onum2); END;

```

Note that QALoad does not support Oracle 8 objects, Oracle 8 user-defined types (UDTs) or Oracle 8 reference pointers.

[QALoad Script Command Sequence, Example 1: INSERT Statement](#)

[QALoad Script Command Sequence, Example 2: SELECT statement](#)

[QALoad Script Command Sequence, Example 3: PL/SQL Stored Procedure Call](#)

## Command sequence to read a LOB into a memory buffer

Following is a sample code sequence to read a 1024-byte LOB from a memory buffer into an Oracle 8 LOB parameter as part of an INSERT statement. Note that QALoad will create a temporary memory buffer and will populate it with meaningless data. Comments are added to commands where appropriate.

```
DO_OCISetHandleAlloc( HNDL(0), HNDL(5), OCI_HTYPE_STMT);

/* A special descriptor (often referred to as a lob locator) must be created for the lob
object. Note that the DESCRIPTOR_COUNT value in the script will need to be incremented by 1
and that the 2nd parameter in the call to DO_OCIDescriptorAlloc is DESC(n) where n is the
previous value in DESCRIPTOR_COUNT */
DO_OCIDescriptorAlloc( HNDL(0), DESC(0), OCI_DTYPE_LOB);

/* DO_OCISetHandlePrepare( HNDL(5), "INSERT INTO CLBTAB VALUES ( 'Test', " "EMPTY_CLOB())",
OCI_NTV_SYNTAX );

/* Note that since the LOB is empty, there is no bind call before the execute call. */
DO_OCISetHandleExecute( HNDL(5), 1, OCI_DEFAULT );

/* Use the DO_OCISetHandleWrite call to write the LOB data. Note that 1024 bytes are being written
to the LOB column of the inserted record. */
DO_OCISetHandleWrite(HNDL(3), HNDL(1), DESC(0), 1024, 1, 1024, 0, 0, 1 );

/* Once the LOB is written, the descriptor is freed with a call to DO_OCIDescriptorAlloc */
DO_OCIDescriptorFree( HNDL(0), OCI_DTYPE_LOB);
DO_OCISetHandleFree( HNDL(5), OCI_HTYPE_STMT);
```

## Command sequence to write a LOB from a memory buffer

Below is a sample code sequence to write a 1024-byte LOB from an Oracle 8 LOB to a memory buffer. Note that QALoad will create a temporary memory buffer to store the data. Comments are added to commands where appropriate.

```
DO_OCISetHandleAlloc( HNDL(0), HNDL(6), OCI_HTYPE_STMT);

/* A special descriptor (often referred to as a lob locator) must be created for the lob
object. Note that the DESCRIPTOR_COUNT value in the script will need to be incremented by 1
and that the 2nd parameter in the call to DO_OCIDescriptorAlloc is DESC(n) where n is the
previous value in DESCRIPTOR_COUNT */
DO_OCIDescriptorAlloc( HNDL(0), DESC(0), OCI_DTYPE_LOB);
DO_OCISetHandlePrepare( HNDL(6), "SELECT essay FROM CLBTAB WHERE name = 'Test' " "for update",
OCI_NTV_SYNTAX );

/* Since the LOB is an output from the SELECT statement, a DO_OCISetHandleDefine call must associate
the select parameter with the allocated descriptor. See DO_OCISetHandleDefine for more information.
*/
DO_OCISetHandleDefine(HNDL(6), HNDL(1), 1, 1, SQLT_CLOB, 0, DESC(0));
DO_OCISetHandleExecute( HNDL(6), 1, OCI_DEFAULT );

/* Use the DO_OCISetHandleRead call to read the LOB data from the database. Note that 1024 bytes
are being read from the LOB column of the fetched record. */
DO_OCISetHandleRead(HNDL(3), HNDL(1), DESC(0), 1000, 1, 1024, 0, 1 );

/* Once the LOB is read, the descriptor is freed with a call to DO_OCIDescriptorAlloc */
DO_OCIDescriptorFree( HNDL(0), OCI_DTYPE_LOB);
DO_OCISetHandleFree( HNDL(6), OCI_HTYPE_STMT);
```

## DO\_OCI8BindDate

Binds a date variable (created by DO\_makedate) to a bind variable in an SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:).

DO\_OCI8BindDate commands must be placed between the DO\_OCISmtPrepare command and the DO\_OCISmtExecute command. To bind by position, instead of by name, precede the position bind variable with an "@" symbol.

DO\_OCI8BindDate is a deprecated command. It is recommended that you use DO\_OCIBind instead.

### Syntax

```
DO_OCI8BindDate( int statementHandleIndex, text* BindVariableName, ub1* ORADATEStructPtr );
```

### Return Value

### Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle used as the handle in the previous call to OCISmtPrepare.
BindVariableName	The name of the bind variable as a character string.
&ORADATEStructPtr	A pointer to an ORADATE structure, define in Oracle's header files.

### Equivalent OCI

OCIBindByName, OCIBindByPos

### Example

The following example shows the fetch loop to retrieve data after a SQL statement is executed.

```
DO_OCI8BindDate( HNDL(5), ":CURDATE", &CURDATE1);
```

## DO\_OCI8BindNull

Binds a NULL value to a bind variable in an SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:).

DO\_OCI8BindString commands must be placed between the DO\_OCISmtPrepare command and the

DO\_OCISmtExecute command. To bind by position instead of by name, precede the position bind variable with an "@" symbol.

## Syntax

```
DO_OCISBindNull(int statementHandleIndex, text* BindVariableName );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle used as the handle in the previous call to OCISmtPrepare.
BindVariableName	The name of the bind variable as a null-terminated character string.

## Equivalent OCI

OCIBindByName, OCIBindByPos

## Example

The following example shows the :DUMMY bind variable being bound to a NULL value.

```
DO_OCISBindNull(HNDL(5), ":DUMMY");
```

## DO\_OCISBindString

Binds a program variable to a bind variable in an SQL statement.

Bind variables are specified in SQL statements by preceding the variable name with a colon (:). DO\_OCISBindString commands must be placed between the DO\_OCISmtPrepare command and the DO\_OCISmtExecute command. To bind by position instead of by name, precede the position bind variable with an "@" symbol.

DO\_OCISBindString only supports the binding of strings, nulls, or dates. If you need to bind a numeric value, convert it first to a string before passing it to DO\_OCISBindString. If needed, Oracle automatically converts character data types to numeric.

DO\_OCISBindString is a deprecated command. It is recommended that you use DO\_OCIBind instead.

DO\_OCISBindString binds every data type as a fixed character and forces the Oracle server to make implicit database conversions. Also, you must variablize OUTPUT variables or they will overwrite the input data held by string constants.

## Syntax

```
DO_OCI8BindString( int statementHandleIndex, text* BindVariableName, ub1* ValueString );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle used as the handle in the previous call to OCIStmtPrepare.
BindVariableName	The name of the bind variable as a null-terminated character string.
ValueString	A pointer to a string containing the value for the bind variable (null terminated).

## Equivalent OCI

OCIBindByName, OCIBindByPos

## Example

The following example shows the program variable CITYNAME being bound to the :CITY bind variable.

```
DO_OCI8BindString( HNDL(5), ":CITY", CITYNAME );
```

## DO\_OCI8GetSelectData

Copies the data retrieved from an Oracle8 SQL SELECT statement into a program variable.

DO\_OCI8GetSelectData processes the data retrieved by DO\_OCIProcessSelectList() by copying the value of the fetched data to another program variable. Typically, the program variable is also a source variable. Source variables are created by ActiveData for Oracle so that postbind and/or fetch data from one portion of a script can be used as input to subsequent bind statements.

 **Note:** If you are working with Oracle 7 select output data, use DO\_GetSelectData instead.

If the formatType is INT\_FORMAT, then the data is converted to an integer before formatting (using atoi()).

This implies that the formatString contains a %i, %d or equivalent.

## Syntax

```
DO_OCI8GetSelectData( int fetchCount, int colnum, int rowNum, char** srcName,
OracleFormatDataTypeEnum formatType, char* formatString, int addConstant);
```

## Return Value

## Parameters

Parameter	Description								
fetchCount	A number from 1-n indicating which fetch sequence to use to fetch the data. The script code for a fetch statement is generally output as a C-based while-loop. This loop retrieves data until no more data is available. This parameter tells which iteration of that loop to use to retrieve the data.								
colnum	Column number to use to fetch the data. The first column is 1.								
rowNum	Row number to use to fetch the data. The first row number is 1.								
srcName	Pointer to the address of a source variable. The function allocates memory for the source value and copy its value into this variable. Note that this parameter is a char**.								
formatType	<p><i>OracleFormatDataTypeEnum</i></p> <p>Data type to be used in the special format string. Acceptable values are:</p> <table border="0"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>_NONE_</code></td> <td>No special formatting.</td> </tr> <tr> <td><code>INT_FORMAT</code></td> <td>Convert bind data to an integer before formatting.</td> </tr> <tr> <td><code>STRING_FORMAT</code></td> <td>Assume that the bind data is not numeric.</td> </tr> </tbody> </table>	Value	Description	<code>_NONE_</code>	No special formatting.	<code>INT_FORMAT</code>	Convert bind data to an integer before formatting.	<code>STRING_FORMAT</code>	Assume that the bind data is not numeric.
Value	Description								
<code>_NONE_</code>	No special formatting.								
<code>INT_FORMAT</code>	Convert bind data to an integer before formatting.								
<code>STRING_FORMAT</code>	Assume that the bind data is not numeric.								
formatString	A printf-style format. The data is formatted using this string. Only used if the formatType is INT_FORMAT or STRING_FORMAT.								
addConstant	If the formatType is INT_FORMAT, this value is added to the value of the fetch data before conversion.								

## Example

The following example copies the fetched value of the first select-list item of the second row (in the first fetch iteration which retrieves 409 rows) to program variable `FD_stmtnt_3_col_1_row_2`. It also copies the fetched value of the fourth select-list item of the seventh row (in the first fetch iteration) to program variable `FD_stmtnt_3_col_4_row_7`.

```
DO_OCISstmtExecute( HNDL(6)); /* Exec for statement 3 */
while (DO_OCIProcessSelectList (HNDL(6), 409) )
{
DO_OCI8GetSelectData (FETCH(1), COL(1), ROW(2),
    &FD_stmtnt_3_col_1_row_2,
    _NONE_, "", 0);
DO_OCI8GetSelectData(FETCH(1), COL(4), ROW(7),
    &FD_stmtnt_3_col_4_row_7,
```



```

        INT_FORMAT, "%04i", ADD(3));
DO_OCI8GetSelectData (FETCH(1), COL(5), ROW(2),
        &FD_stmtnt_3_col_5_row_2,
        _NONE_, "", 0);
} /* end of DO_OCIProcessSelectList */

```

## DO\_OCI8InitIndp

An OCI8-specific routine that initializes the pointer of the null indicator variable, which is a parameter of the DO\_OCIBind.

This is a required initialization routine that is inserted into a script when it is generated and called before synchronization. This function should not be moved or modified.

### Syntax

```
DO_OCI8InitIndp( makeOCI8Indp, pOCI8Indp, OCI8_INDP_COUNT );
```

### Return Value

### Parameters

Parameter	Description
makeOCI8Indp	A pointer to an integer array that holds the values of the null indicator variable.
pOCI8Indp	A pointer to makeOCI8Indp. Each element holds the pointer to the corresponding null indicator variable. In the example pOCI8Indp[0] = &makeOCI8Indp[0], the contents of makeOCI8Indp[0] is assigned before the call to DO_OCIBind.
OCI8_INDP_COUNT	The number of indicator variables utilized in the script. If this number is incorrect, the script will fail. The number can be modified in the #define OCI8_INDP_COUNT at the beginning of the script. Every bind does not necessarily utilize a pOCI8Indp. If the null indicator was recorded as NULL, NULL replaces the use of pOCI8Indp.

### Example

```

#define OCI8_INDP_COUNT 20
:
:
sb2* pOCI8Indp [OCI8_INDP_COUNT]; /* sb2 is a signed integer
:
sb2 makeOCI8Indp [OCI8_INDP_COUNT];
:
:
DO_OCI8InitIndp( makeOCI8Indp, pOCI8Indp, OCI8_INDP_COUNT );
:
:
makeOCI8Indp[0]=0;
makeOCI8Alen[0]=4;
DO_OCIBind( HNDL(9), HNDL(2), "@2", _INTEGER, 4,

```

```
pOCI8Alen[0], pOCI8Indp[0], (ub1 *) "0",
(ub1 *) &INTEGER_9_2_0 );
```

## DO\_OCI8InitAlen

An Oracle 8-specific routine that initializes the pointer to the variable representing the length of data that is a parameter in DO\_OCI8Bind.

This is a required initialization routine that is inserted into a script when it is generated and called before synchronization. This function is not always called. For example, a script may not contain any DO\_OCI8Bind calls, or the bind calls that are contained in the script do not utilize pOCI8Alen. This function should not be moved or modified.

### Syntax

```
DO_OCI8InitAlen( makeOCI8Alen, pOCI8Alen, OCI8_ALEN_COUNT );
```

### Return Value

### Parameters

Parameter	Description
makeOCI8Alen	A pointer to an array that holds the values of the length of data.
pOCI8Alen	A pointer to makeOCI8Alen. Each element holds the pointer to the corresponding makeOCI8Alen. In the example, pOCI8Alen [0] = &makeOCI8Alen [0], the contents of makeOCI8Alen [0] are assigned before the call to DO_OCI8Bind.
OCI8_ALEN_COUNT	The number of pOCI8Alen utilized in the script. If this number is incorrect, the script will fail. The number can be modified in the #define OCI8_ALEN_COUNT at the beginning of the script. Every bind does not necessarily utilize a pOCI8Alen. For example, if the alen was captured as NULL, NULL replaces the use of pOCI8Alen.

### Example

```
#define OCI8_ALEN_COUNT 20
:
:
sb2*pOCI8Alen [OCI8_ALEN_COUNT]; /* sb2 is a signed integer */
sb2 makeOCI8Alen [OCI8_ALEN_COUNT];
:
:
DO_OCI8InitAlen( makeOCI8Alen, pOCI8Alen, OCI8_ALEN_COUNT );
:
:
makeOCI8Indp[0]=0;
makeOCI8Alen[0]= 4;
DO_OCI8Bind( HNDL(9), HNDL(2), "@2", _INTEGER,
```

```
4, pOCI8ALen[0], pOCI8Indp[0],
(ubl *) "0", (ubl *) &INTEGER_9_2_0 );
```

## DO\_OCISetAttr

Sets a particular attribute for a previously allocated Oracle 8 OCI handle.

### Syntax

```
DO_OCISetAttr( int targetHandleIndex, int targetHandleType, void* attributep, int
attributeSize, OCIAttributeTypeEnum attributeType, int errorHandleIndex, int
attributeHandleIndex );
```

### Return Value

### Parameters

Parameter	Description						
targetHandleIndex	An index to a previously allocated Oracle handle whose attribute is to be set.						
targetHandleType	The handle type.						
attributep	A pointer to the attribute value. This can be a character string or another handle in select instances.						
attributeSize	The size of the attribute value.						
attributeType	<p><i>OCIAttributeTypeEnum</i></p> <p>The type of attribute to set for the handle.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OCI_ATTR_USERNAME</td> <td>OCI8 username attribute.</td> </tr> <tr> <td>OCI_ATTR_PASSWORD</td> <td>OCI8 password attribute.</td> </tr> </tbody> </table>	Value	Description	OCI_ATTR_USERNAME	OCI8 username attribute.	OCI_ATTR_PASSWORD	OCI8 password attribute.
Value	Description						
OCI_ATTR_USERNAME	OCI8 username attribute.						
OCI_ATTR_PASSWORD	OCI8 password attribute.						
errorHandleIndex	An index to a previously allocated Oracle 8 error handle.						
attributeHandleIndex	An index to a previously allocated Oracle 8 attribute handle.						

### Equivalent OCI

OCIAttrSet

## Example

This example sets OCI\_ATTR\_USERNAME and OCI\_ATTR\_PASSWORD attributes of the session handle prior to calling DO\_OCISessionBegin to start an Oracle8 session on a previously attached database.

```
DO_OCISetAttr( HNDL(5), OCI_HTYPE_SESSION, "scott", 5,
OCI_ATTR_USERNAME, HNDL(1), IS_ATTRIBUTE);
DO_OCISetAttr( HNDL(5), OCI_HTYPE_SESSION, "tiger", 5,
OCI_ATTR_PASSWORD, HNDL(1), IS_ATTRIBUTE);
```

## DO\_OCIBind

Binds a program variable to a bind variable in an SQL statement.

A DO\_OCIBind is generated wherever a bind occurs in the capture file. Note that the binds only support single (scalar) values, not array values. DO\_OCIBind accurately reproduces the original bind call made by the application. This eliminates extra data conversion steps and improves handling of OUTPUT variables in Oracle stored procedures.

Bind variables are specified in SQL statements by preceding the variable names with a colon (:). DO\_OCIBind must be called after the DO\_OCISmtPrepare and before a DO\_OCISmtExecute.

Once you have bound a variable, you can change its value and length and execute it again without reparsing the SQL statement or rebinding the variable. Currently, DO\_OCIBind only supports the datatypes supported by DO\_ScalarBindA.

## Syntax

```
DO_OCIBind( int statementHandleIndex, int errorHandleIndex, text* BindVariable,
OCIExternalDataTypeEnum DataType, sword OutputBufferLength, ub2* OCI8ALen, sb2* OCI8Indp,
ubl* InputBuffer, ubl* OutputBuffer);
```

## Return Value

## Parameters

Parameter	Description		
statementHandleIndex	An index to the current allocated Oracle 8 statement handle used in the DO_OCISmtPrepare call.		
errorHandleIndex	An index to an allocated Oracle 8 error handle.		
BindVariable	A pointer to the name of the null-terminated bind variable string.		
DataType	<i>OCIExternalDataTypeEnum</i> External datatype of the bind variable. Valid Oracle external datatypes (with program variable types) include:  <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Value</td> <td style="width: 50%;">Description</td> </tr> </table>	Value	Description
Value	Description		

	SQLT_CHR	C Datatype:(char[n])
	SQLT_NUM	C Datatype:(unsigned char[21])
	SQLT_INT	C Datatype:(signed char)
	SQLT_FLT	C Datatype:(float, double)
	SQLT_STR	C Datatype:(char[n+1])
	SQLT_VNU	C Datatype:(char[22])
	SQLT_LNG	C Datatype:(char[n])
	SQLT_VCS	C Datatype:(char[n] + sizeof(short int))
	SQLT_DAT	C Datatype:(char[7])
	SQLT_VBI	C Datatype:(unsigned char[n + sizeof(short int)])
	SQLT_BIN	C Datatype:(unsigned char[n])
	SQLT_LBI	C Datatype:(unsigned char[n])
	SQLT_UIN	C Datatype:(unsigned)
	SQLT_LVC	C Datatype:(char[n + sizeof(int)])
	SQLT_LVB	C Datatype:(unsigned char[n + sizeof(int)])
	SQLT_AFC	C Datatype:(char[n])
	SQLT_AVC	C Datatype:(char[n + 1])
	SQLT_CLOB	Character (ASCII) LOB
	SQLT_BLOB	Binary LOB
	SQLT_FILE	File LOB
OutputBufferLength	Size of the output buffer. This is the maximum size of the OutputBuffer buffer. If binding a PL/ SQL OUTPUT variable, this value must be at least as large as the expected output variable.	
OCI8Alen	Pointer to a variable that contains the length of the bind data. This is an alternative method of defining the length of the output data. Use the makeOCI8Alen macro to create this pointer. OCI8Alen should only be used if it is necessary to determine the length of the bind value returned from a statement execute. For character strings, using the strlen on the OutputBuffer variable after the statement execute is an easier method of obtaining this length.	
OCI8Indp	Pointer to an indicator that the bind variable is NULL. Use the makeOCI8Indp macro to create this pointer. Using the DO_OCIBindNull call is a preferred way of binding a NULL value unless the bind variable is a PL/SQL OUTPUT variable.	

InputBuffer	Pointer to a buffer containing the input data.
OutputBuffer	Pointer to the output data buffer.

## Equivalent OCI

OCIBindByName, OCIBindByPos

## Example

```
DO_OCIBind(HNDL(5), HNDL(1), ":PKEY", _VARCHAR2, strlen(PB_PKEY), NULL, NULL, (ub1 *)
PB_PKEY, (ub1 *) VARCHAR2_6_PKEY_1);
```

## DO\_OCICommit

Commits the current Oracle8 transaction. A commit should be performed after all relevant SQL statements have been processed.

DO\_OCICommit is a deprecated command. It is recommended that you use DO\_OCITransCommit instead.

 Note: DO\_OCICommit should only be used in a single-user environment. For multi-user environments, use DO\_OCITransCommit.

## Syntax

```
DO_OCICommit(int errorHandleIndex, ub4 CommitType);
```

## Return Value

## Parameters

Parameter	Description
errorHandleIndex	An index to an allocated Oracle 8 error handle.
CommitType	The type of transaction to commit. This value should be set to the Oracle 8 reserved word OCI_DEFAULT for QALoad scripts.

## Equivalent OCI

OCITransCommit

## Example

The following example shows a SQL statement being committed after the execute and fetch loop.

```
DO_OCISmtExecute( HNDL(5) ); /* Exec for statement 3 */
DO_OCICommit( HNDL(5), HNDL(1), OCI_DEFAULT );
```

## DO\_OCIDefine

Associates an item in a select-list to an Oracle external datatype and an output data buffer.

### Syntax

```
DO_OCIDefine( int statementHandleIndex, int errorHandleIndex, ub4 fetchcount, ub4
SelectListPosition, ub4 DataType, sb4 BufferLength, int lobDescriptorIndex );
```

### Return Value

### Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle previously used in the call to DO_OCISstmtPrepare.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
FetchCount	The fetch count as defined in DO_OCIProcessSelectList. This value should be set to the value defined to DO_OCIProcessSelectList or to 1.
selectListPosition	The position of the item in the select list. The starting point is 1.
DataType	The Oracle external datatype.
BufferLength	The maximum data length for the output buffer for the defined value.
lobDescriptorIndex	An index to an previously allocated Oracle 8 lob locator, if the output is a BLOB, CLOB, or BFILE. If a lob locator is not used, the value is IS_ATTRIBUTE.

### Equivalent OCI

OCIDefineByPos

### Example

The following example shows the select-list item EMPNO being defined as having position 1 and a string type.

```
DO_OCISstmtPrepare( HNDL(5), "SELECT EMPNO FROM EMP", OCI_NTV_SYNTAX );
:
:
DO_OCIDefine(HNDL(5), HNDL(1), 1, 1, _STRING, 33, IS_ATTRIBUTE);
```

## DO\_OCIDescriptorAlloc

Allocates and initializes an Oracle 8 OCI descriptor or LOB locator.

### Syntax

```
DO_OCIDescriptorAlloc( int parentHandleIndex, int descriptorIndex, OCIDescriptorTypeEnum
descriptorType );
```

### Return Value

### Parameters

Parameter	Description								
parentHandleIndex	An index to an allocated Oracle 8 environment handle used as the parent handle in this call.								
descriptorIndex	An index to an Oracle descriptor to be allocated and initialized.								
descriptorType	<p><i>OCIDescriptorTypeEnum</i></p> <p>The descriptor type. The Oracle 8 descriptor types used by QALoad commands are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OCI_DTYPE_LOB</td> <td>OCI8 LOB Descriptor.</td> </tr> <tr> <td>OCI_DTYPE_BFILE</td> <td>OCI8 BFILE Descriptor.</td> </tr> <tr> <td>OCI_DTYPE_ROWID</td> <td>OCI8 ROWID Descriptor.</td> </tr> </tbody> </table> <p><a href="#">Equivalent OCI</a></p> <p>OCIDescriptorAlloc</p> <p><a href="#">Example</a></p> <pre>DO_OCIDescriptorAlloc(HNDL(0), DESC(0), OCI_DTYPE_LOB);</pre>	Value	Description	OCI_DTYPE_LOB	OCI8 LOB Descriptor.	OCI_DTYPE_BFILE	OCI8 BFILE Descriptor.	OCI_DTYPE_ROWID	OCI8 ROWID Descriptor.
Value	Description								
OCI_DTYPE_LOB	OCI8 LOB Descriptor.								
OCI_DTYPE_BFILE	OCI8 BFILE Descriptor.								
OCI_DTYPE_ROWID	OCI8 ROWID Descriptor.								

## DO\_OCIDescriptorFree

De-allocates an Oracle 8 OCI descriptor or LOB locator.

### Syntax

```
DO_OCIDescriptorFree( int descriptorIndex, OCIDescriptorTypeEnum descriptorType );
```



## Return Value

## Parameters

Parameter	Description								
descriptorIndex	An index to an Oracle descriptor to be de-allocated.								
descriptorType	<p><i>OCIDescriptorTypeEnum</i></p> <p>The descriptor type. The Oracle 8 descriptor types used by QALoad commands are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OCI_DTYPE_LOB</td> <td>OCI8 LOB Descriptor.</td> </tr> <tr> <td>OCI_DTYPE_BFILE</td> <td>OCI8 BFILE Descriptor.</td> </tr> <tr> <td>OCI_DTYPE_ROWID</td> <td>OCI8 ROWID Descriptor.</td> </tr> </tbody> </table>	Value	Description	OCI_DTYPE_LOB	OCI8 LOB Descriptor.	OCI_DTYPE_BFILE	OCI8 BFILE Descriptor.	OCI_DTYPE_ROWID	OCI8 ROWID Descriptor.
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OCI_DTYPE_LOB	OCI8 LOB Descriptor.								
OCI_DTYPE_BFILE	OCI8 BFILE Descriptor.								
OCI_DTYPE_ROWID	OCI8 ROWID Descriptor.								

## Equivalent OCI

OCIDescriptorFree

## Example

```
DO_OCIDescriptorFree(DESC(0), OCI_DTYPE_LOB);
```

## DO\_OCIEEnvFreeAll

De-allocates all environment handles before the end of an OCI8 script.

## Syntax

```
DO_OCIEEnvFreeAll();
```

## Return Value

## Parameters

None

## Equivalent OCI

None

## Example

```
DO_OCIEnvFreeAll();
:
DO_free_data();
REPORT(SUCCESS);
EXIT();
return(0);
```

## DO\_OCIEnvInit

Allocates and initializes an Oracle OCI8 environment handle.

## Syntax

```
DO_OCIEnvInit( int envHandleIndex, int mode );
```

## Return Value

## Parameters

Parameter	Description
envHandleIndex	An index to the environment handle. The mode value should be set to OCI_DEFAULT.
mode	Mode for OCI8 environment initialization.

## Equivalent OCI

OCIEnvInit

## Example

```
DO_OCIEnvInit(HNDL(0), OCI_DEFAULT);
```

## DO\_OCIEExecute

Executes the SQL statement or a PL/SQL block previously associated with the Oracle 8 statement handle with DO\_OCISmtPrepare. Note that SQL syntax errors are reported at execution time.

DO\_OCIEExecute is a deprecated command. It is recommended that you use DO\_OCISmtExecute instead.

## Syntax

```
DO_OCIEExecute( int statementHandleIndex, ub4 iters, ub4 mode );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle previously used in the call to DO_OCISstmtPrepare.
Iterations	The number of times this statement is executed for non-SELECT statements. This value can be set to 1 for SELECT statements if, and only if, all output variables were previously defined with DO_OCIDefine. This value should be set to 1.
mode	The mode for execution. The mode value should be set to the reserved word OCI_DEFAULT.

## Equivalent OCI

OCISstmtExecute

## Example

```
DO_OCIEExecute(HNDL(5), 1, OCI_DEFAULT);
```

## DO\_OCISHandleAlloc

Allocates and initializes an Oracle 8 OCI handle.

## Syntax

```
DO_OCISHandleAlloc( int parentHandleIndex, int handleIndex, OCISHandleTypeEnum handleType );
```

## Return Value

## Parameters

Parameter	Description
parentHandleIndex	An index to an allocated Oracle 8 environment handle used as the parent handle in this call.
handleIndex	An index to an Oracle handle to be allocated and initialized.

handleType	<p><i>OCIHandleTypeEnum</i></p> <p>The handle type. The following handle types in Oracle 8 are used by QALoad commands:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OCI_HTYPE_ERROR</td> <td>OCI8 Error handle</td> </tr> <tr> <td>OCI_HTYPE_SVCCTX</td> <td>OCI8 Service Context handle</td> </tr> <tr> <td>OCI_HTYPE_STMT</td> <td>OCI8 Statement handle</td> </tr> <tr> <td>OCI_HTYPE_DESCRIBE</td> <td>OCI8 Descriptor</td> </tr> <tr> <td>OCI_HTYPE_SERVER</td> <td>OCI8 Server handle</td> </tr> <tr> <td>OCI_HTYPE_SESSION</td> <td>OCI8 Session handle</td> </tr> <tr> <td>OCI_HTYPE_TRANS</td> <td>OCI8 Transaction handle</td> </tr> </tbody> </table>	Value	Description	OCI_HTYPE_ERROR	OCI8 Error handle	OCI_HTYPE_SVCCTX	OCI8 Service Context handle	OCI_HTYPE_STMT	OCI8 Statement handle	OCI_HTYPE_DESCRIBE	OCI8 Descriptor	OCI_HTYPE_SERVER	OCI8 Server handle	OCI_HTYPE_SESSION	OCI8 Session handle	OCI_HTYPE_TRANS	OCI8 Transaction handle
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OCI_HTYPE_SESSION	OCI8 Session handle																
OCI_HTYPE_TRANS	OCI8 Transaction handle																

## Equivalent OCI

OCIHandleAlloc

## Example

```
DO_OCISetHandleAlloc(HNDL(0), HNDL(1), OCI_HTYPE_ERROR);
```

## DO\_OCISetHandleFree

De-allocates an Oracle 8 OCI handle.

## Syntax

```
DO_OCISetHandleFree(int handleIndex, OCIHandleTypeEnum handleType );
```

## Parameters

Parameter	Description		
parentHandleIndex	An index to an allocated Oracle 8 environment handle used as the parent handle in this call.		
handleIndex	An index to an Oracle handle to be de-allocated.		
handleType	<p><i>OCIHandleTypeEnum</i></p> <p>The handle type. The following handle types in Oracle 8 are used by QALoad commands:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> </table>	Value	Description
Value	Description		

	OCI_HTYPE_ERROR	OCI8 Error handle
	OCI_HTYPE_SVCCTX	OCI8 Service Context handle
	OCI_HTYPE_STMT	OCI8 Statement handle
	OCI_HTYPE_DESCRIBE	OCI8 Descriptor
	OCI_HTYPE_SERVER	OCI8 Server handle
	OCI_HTYPE_SESSION	OCI8 Session handle
	OCI_HTYPE_TRANS	OCI8 Transaction handle

## Equivalent OCI

OCIHandleAlloc

## Example

```
DO_OCIFreeHandle(HNDL(1), OCI_HTYPE_ERROR);
```

## DO\_OCIIInitialize

Initializes the Oracle OCI8 process environment.

This command must be issued once in a QALoad script prior to any other Oracle8 script commands, and should be outside any QALoad transactions.

## Syntax

```
DO_OCIIInitialize( int mode );
```

## Return Value

## Parameters

Parameter	Description
mode	OCI8 process environment mode. The mode value should be set to OCI_DEFAULT.

## Equivalent OCI

OCIInitialize

## Example

```
DO_OCIIInitialize(OCI_DEFAULT);
```

## DO\_OCILdaToSvcCtx

Toggles an Oracle 7 logon data area to an Oracle 8 service context handle.

This should be done after using DO\_OCISvcCtxToLda to create Oracle 7 in a database session in Oracle 8.

## Syntax

```
DO_OCILdaToSvcCtx( int svcContextHandleIndex, int errorHandleIndex, int LdaIndex );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to the current allocated Oracle 8 service context handle.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
LdaIndex	An index to a Logon Data area.

## Equivalent OCI

```
OCILdaToSvcCtx
```

## Example

The following example shows using the Oracle7 logon data area (LDA) to create an Oracle8 service context handle using the DO\_OCILdaToSvcCtx call.

```
DO_OCILdaToSvcCtx ( HNDL(4), HNDL(2), LDA(0) );
```

## DO\_OCILobRead

Reads a LOB into a buffer.

## Syntax

```
DO_OCILobRead( int svcContextHandleIndex, int errorHandleIndex, int lobDescriptorIndex, ub4 ReadCount, ub4 LOBOffset, ub4 BufferLength, ub2 CharSetID, ub1 CharSetFrm );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to the current allocated Oracle 8 service context handle.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
lobDescriptorIndex	An index to an Oracle 8 LOB locator previously allocated with a DO_OCIDescriptorAlloc call.
ReadCount	On input, the number of characters (for CLOB) or bytes (for BLOB) to be read. This variable contains the actual number of bytes or characters read after the call.
LOBOffset	On input, the absolute offset from the beginning of the LOB file. For CLOBs, this is the number of characters from the beginning. For BLOBs, it is the numbers of bytes. The first position is 1.
BufferLength	The length of the buffer. This value is specified in bytes.
CharSetID	The character set ID of the buffer data.
CharSetFrm	The character set form of the buffer data.

## Equivalent OCI

OCILobRead

## Example

The following example will perform a LOB read of 1024 bytes from the database.

```
DO_OCIDescriptorAlloc( HNDL(0), DESC(0), OCI_DTYPE_LOB);
DO_OCISstmtPrepare( HNDL(5), "SELECT essay FROM CLBTAB WHERE name = 'Test' " "for update",
OCI_NTV_SYNTAX );
DO_OCIDefine(HNDL(5), HNDL(1), 1, 1, _CLOB, 0, DESC(0));
DO_OCIEExecute( HNDL(5), 1, OCI_DEFAULT );
DO_OCILobRead(HNDL(3), HNDL(1), DESC(0), 1000, 1, 1024, 0, 1 );
DO_OCIDescriptorFree( HNDL(0), OCI_DTYPE_LOB);
```

## DO\_OCILobWrite

Writes the contents of a buffer into an Oracle 8 LOB.

## Syntax

```
DO_OCILobWrite( int svcContextHandleIndex, int errorHandleIndex, int lobDescriptorIndex, ub4
ReadCount, ub4 LOBOffset, ub4 BufferLength, ub1 LOBPiece, ub1 CharSetID, ub2 CharSetFrm );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to the current allocated Oracle 8 service context handle.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
lobDescriptorIndex	An index to an Oracle 8 LOB locator previously allocated with a DO_OCIDescriptorAlloc call.
ReadCount	On input, the number of characters (for CLOB) or bytes (for BLOB) to be written. This variable contains the actual number of bytes or characters written after the call.
LOBOffset	On input, the absolute offset from the beginning of the LOB file. For CLOBs, this is the number of characters from the beginning. For BLOBs, it is the numbers of bytes. The first position is 1.
BufferLength	The length of the buffer. This value is specified in bytes.
LOBPiece	The piece of the LOB buffer being written.
CharSetID	The LOB character set ID of the buffer data.
CharSetFrm	The LOB Character set form of the buffer data.

## Equivalent OCI

OCILobWrite

## Example


The following example will perform a LOB write of 1024 bytes to the database.

```
DO_OCIDescriptorAlloc( HNDL(0), DESC(0), OCI_DTYPE_LOB);
DO_OCISstmtPrepare( HNDL(5), "INSERT INTO CLBTAB VALUES ( 'Jack', " "EMPTY_CLOB()",
OCI_NTV_SYNTAX );
DO_OCIDefine(HNDL(5), HNDL(1), 1, 1, _CLOB, 0, DESC(0));
DO_OCIEecute( HNDL(5), 1, OCI_DEFAULT );
DO_OCILobWrite(HNDL(3),HNDL(1),DESC(0), 1024, 1, 1024, 0, 0, 1 );
DO_OCIDescriptorFree( HNDL(0), OCI_DTYPE_LOB);
```

## DO\_OCILogoff

Terminates an Oracle OCI8 logon session and connection created with DO\_OCILogon.


DO\_OCILogoff is a deprecated command. It is recommended that you use DO\_OCILogoffEx instead.

 Note: DO\_OCILogoff logs off the most recent Oracle logon in the QALoad script. When using DO\_OCILogon/DO\_OCILogoff, make sure that there are no overlapping sessions.



## Syntax

```
DO_OCILogoff( int errHandleIndex );
```

 Note: svcContextHandleIndex is not a parameter to DO\_OCILogoff. If more than one Oracle Logon is in the script, subsequent logons should be logged off with DO\_OCILogoffEx.

## Return Value

## Parameters

Parameter	Description
errorHandleIndex	An index to an allocated Oracle 8 error handle.

## Equivalent OCI


OCILogoff

## Example

```
DO_OCILogoff(HNDL(1));
```

## DO\_OCILogoffEx

Terminates an Oracle OCI8 logon session and connection created with DO\_OCILogon.

 Note: DO\_OCILogoffEx will log off the Oracle logon in the QALoad script. When the script is using DO\_OCILogon/DO\_OCILogoffEx, QALoad playback uses OCIServerAttach, OCISessionBegin, OCIServerDetach, and OCISessionEnd calls to prevent threading issues. OCILogon and OCILogoff calls are not thread-safe.

## Syntax

```
DO_OCILogoffEx( int svcContextHandleIndex, int errHandleIndex );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to a service context handle previously used in an Oracle 8 logon.
errorHandleIndex	An index to an allocated Oracle 8 error handle.

## Equivalent OCI

OCILogoff

## Example


```
DO_OCILogoffEx (HNDL(3), HNDL(1));
```

## DO\_OCILogon

Creates a simple Oracle OCI8 logon connection and session for QALoad . Any application must log on to Oracle before performing any other Oracle operations.

For DO\_OCILogon, three components must be provided:

- ! User's login ID
- ! User's password
- ! Database name as recognized by Oracle Net8 software.

 Note: When the script is using DO\_OCILogon/DO\_OCILogoffEx, QALoad uses OCIserverAttach, OCIsessionBegin, OCIserverDetach, and OCIsessionEnd calls to prevent threading issues. OCIlogon and OCIlogoff calls are not thread-safe.

## Syntax

```
DO_OCILogon( int envHandleIndex, int errHandleIndex, int svcContextHandleIndex, text*
username, ub4 uname_len, text* password, ub4 passwd, text* dbname, ub4 dbname_len );
```

## Return Value

## Parameters

Parameter	Description
envHandleIndex	An index to the environment handle.
errHandleIndex	An index to an allocated Oracle 8 error handle.
svcContextHandleIndex	An index to an Oracle service context handle index. This handle is automatically allocated by this call, and is automatically deallocated by a DO_OCILogoffEx call.
username	Oracle 8 user login ID.
uname_len	Character length of user login ID.
password	Oracle 8 user password for login ID.
passwd	Character length of user password.

dbname	Name of the data source to connect to.
dbname_len	Character length of data source name.

## Equivalent OCI

OCILOGON

## Example

```
DO_OCILogon(HNDL(0), HNDL(1), "scott", 5, "tiger", 5, "oradb.world", 11);
```

## DO\_OCIProcessSelectList

Fetches select-list data from an Oracle 8 database after an OCIStmtExecute call. It is called repeatedly in a loop until there are no more rows satisfying the SQL select request.

If there are no DO\_OCIDefine calls before the DO\_OCISmtExecute call for the select statement, the call builds up a set of internal buffers to store the returned data (otherwise done by DO\_OCIDefine calls). All data is returned as ASCII strings.

## Syntax

```
DO_OCIProcessSelectList( int statementHandleIndex, int fetchcount );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle used as the handle in the previous calls to OCIStmtPrepare and OCIStmtExecute.
fetchCount	The count of rows to be returned per fetch loop iteration. The FetchCount value should be set to 1 unless the exact count of fetched rows is known. Note that the loop iterates until there are no more rows satisfying the SQL select request, not when the fetchCount value is reached.

## Equivalent OCI

OCIStmtFetch

## Example

The following example shows the DO\_OCIProcessSelectList () fetch loop retrieving data after a SQL statement is executed. Note that only 1 row is fetched per loop iteration. In addition, the fetched value is processed by DO\_OC18GetSelectData().

```
DO_OC1stmtExecute( HNDL(0), HNDL(5), HNDL(1), 1, OCI_DEFAULT );
while ( DO_OCIProcessSelectList(HNDL(5), 1 ) )
{
DO_OC18GetSelectData( FETCH(1),COL(1), ROW(1), &FD_stmtnt_4_col_1_row_1, _NONE_, "", 0 );
}
```

## DO\_OCIProcessSelectList\_EX

Fetches select-list data from an Oracle 8 database after an OC1stmtExecute call. It is called repeatedly in a loop until there are no more rows satisfying the SQL select request.

If there are no DO\_OC1Define calls before the DO\_OC1stmtExecute call for the select statement, the will builds up a set of internal buffers to store the returned data (otherwise done by DO\_OC1Define calls). All data is returned as ASCII strings.

DO\_OCIProcessSelectList\_EX extends the DO\_OCIProcessSelectList macro by accommodating nested OC18 logins. Beginning with QALoad 5.0, Compuware recommends that you use DO\_OCIProcessSelectList\_EX.

## Syntax

```
DO_OCIProcessSelectList_EX( int statementHandleIndex, int errorHandleIndex, int fetchcount );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle used as the handle in the previous calls to OC1stmtPrepare and OC1stmtExecute.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
fetchCount	The count of rows to be returned per fetch loop iteration. The FetchCount value should be set to 1 unless the exact count of fetched rows is known. Note that the loop iterates until there are no more rows satisfying the SQL select request, not when the fetchCount value is reached.

## Equivalent OCI

OC1stmtFetch

## Example

The following example shows the fetch loop retrieving data after a SQL statement is executed.

```
while (DO_OCIProcessSelectList_EX( HNDL(5), HNDL(2), 1 ) );
{
} /*end of DO_process_select_list */
```

## DO\_OCIRollback

Rolls back the current Oracle8 transaction.

DO\_OCIRollback is a deprecated command. It is recommended that you use DO\_OCITransRollback instead.

 Note: DO\_OCIRollback should only be used in a single-user environment. For multi-user environments, use DO\_OCITransRollback.

## Syntax

```
DO_OCIRollback ( int errorHandleIndex, ub4 CommitType );
```

## Return Value

## Parameters

Parameter	Description
errorHandleIndex	An index to an allocated Oracle 8 error handle.
CommitType	The type of transaction to roll back. This value should be set to the Oracle 8 reserved word OCI_DEFAULT for QALoad scripts.

## Equivalent OCI

OCITransRollback

## Example

The following example shows a SQL statement being rolled back after the execute.

```
DO_OCISmtPrepare( HNDL(5), "INSERT INTO MIKE.t_session ( session_key, user_key"
",login_time_stamp, session_number, session_seq ) VALUES (:1, :2, :3, :4" ", :5 )",
OCI_NTV_SYNTAX );
:
:
:
DO_OCISmtExecute ( HNDL(3), HNDL(5), 1, OCI_DEFAULT );
DO_OCIRollback( HNDL(1), OCI_DEFAULT );
```

## DO\_OCIServerAttach

Creates a standard Oracle OCI8 database connection for QALoad . Note that individual Oracle 8 user logons are done with the DO\_OCIServerAttach command.

Any application must log on to Oracle before performing any other Oracle operations. For DO\_OCIServerAttach, the connect string for a database (dblink parameter) must be provided.

### Syntax

```
DO_OCIServerAttach( int serverHandleIndex, int errHandleIndex, text* dblink, sb4 dblink_len, int mode );
```

### Return Value

### Parameters

Parameter	Description
serverHandleIndex	An index to an allocated Oracle 8 service handle.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
dblink	Name of the data source to connect to.
dblink_len	Character length of database name.
mode	The mode of operation.

### Equivalent OCI

OCIServerAttach

### Example

This example shows the commands necessary to attach to an Oracle8 database.

```
DO_OCIServerAttach( HNDL(0), HNDL(2), OCI_HTYPE_SERVER);
DO_OCIServerAttach( HNDL(0), HNDL(3), OCI_HTYPE_SVCCTX);
DO_OCIServerAttach(HNDL(2), HNDL(1), "oradb.world", 11, OCI_DEFAULT);
```

## DO\_OCIServerDetach

Detaches QALoad from the Oracle OCI8 data source connection previously attached to with the DO\_OCIServerAttach command.

Note that all users must be logged off with the DO\_OCISessionEnd command before this call.

## Syntax

```
DO_OCIServerDetach( int serverHandleIndex, int errHandleIndex, int mode );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to an allocated Oracle 8 service context handle previously used in a call to DO_OCIServerAttach.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
mode	Mode of operation for Oracle 8 session. The mode value should be set to OCI_DEFAULT.

## Equivalent OCI

OCIServerDetach

## Example

This command shows the process of detaching from an Oracle 8 server and freeing the respective handles.

```
DO_OCIServerDetach(HNDL(2), HNDL(1), OCI_DEFAULT);
DO_OCIServerDetach(HNDL(2), OCI_HTYPE_SERVER);
DO_OCIServerDetach(HNDL(1), OCI_HTYPE_ERROR);
```

## DO\_OCISessionBegin

Creates an Oracle OCI8 logon session for QALoad to a server previously attached to with DO\_OCIServerAttach.

Any application must log on to Oracle before performing any other Oracle operations.

## Syntax

```
DO_OCISessionBegin( int svcContextHandleIndex, int errHandleIndex, int sessionHandleIndex,
int credt, int mode );
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

svcContextHandleIndex	An index to an allocated Oracle 8 service context handle used previously in DO_OCIServerAttach.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
sessionHandleIndex	An index to an allocated Oracle 8 session handle.
credt	Credentials for attachment to Oracle server. The Credentials value should be set to OCI_CRED_RDBMS if the username and password are required to log into the Oracle 8 database. If the database uses integrated security, set Credentials to OCI_CRED_EXT.
mode	Mode of operation for Oracle 8 session. The mode value should be set to OCI_DEFAULT.

## Equivalent OCI

OCI\_SessionBegin

## Example

This example shows the commands needed to begin a user session on an Oracle 8 database that has been previously attached by DO\_OCIServerAttach.

```
DO_OCISessionBegin( HNDL(0), HNDL(3), OCI_HTYPE_SVCCTX);
DO_OCISessionBegin( HNDL(3), OCI_HTYPE_SVCCTX, 0, 0, OCI_ATTR_SERVER, HNDL(1), HNDL(2));
DO_OCISessionBegin( HNDL(0), HNDL(4), OCI_HTYPE_SESSION);
DO_OCISessionBegin( HNDL(4), OCI_HTYPE_SESSION, "scott", 5, OCI_ATTR_USERNAME, HNDL(1),
IS_ATTRIBUTE);
DO_OCISessionBegin( HNDL(4), OCI_HTYPE_SESSION, "tiger", 5, OCI_ATTR_PASSWORD, HNDL(1),
IS_ATTRIBUTE);
DO_OCISessionBegin(HNDL(3), HNDL(1), HNDL(4), OCI_CRED_RDBMS, OCI_DEFAULT);
```

## DO\_OCISessionEnd

Terminates an Oracle user session previously created with the DO\_OCISessionBegin command.

## Syntax

```
DO_OCISessionEnd( int svcContextHandleIndex, int errorHandleIndex, int sessionHandleIndex,
int mode );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to an allocated Oracle 8 service context handle previously used in the call to DO_OCISessionBegin.



errorHandleIndex	An index to an allocated Oracle 8 error handle.
sessionHandleIndex	An index to an allocated Oracle 8 session handle previously used in the call to DO_OCISessionBegin.
mode	The mode of operation. The mode value should be set to OCI_DEFAULT.

## Equivalent OCI

OCISessionEnd

## Example

In the following example, the session logged on with the user name Scott and password tiger is terminated by DO\_OCISessionEnd.

```
DO_OCISessionAlloc( HNDL(0), HNDL(4), OCI_HTYPE_SESSION );
DO_OCISessionAttrSet( HNDL(4), OCI_HTYPE_SESSION, "scott", 5, OCI_ATTR_USERNAME, HNDL(1),
IS_ATTRIBUTE );
DO_OCISessionAttrSet( HNDL(4), OCI_HTYPE_SESSION, "tiger", 5, OCI_ATTR_PASSWORD, HNDL(1),
IS_ATTRIBUTE );
:
:
DO_OCISessionBegin( HNDL(3), HNDL(1), HNDL(4),
OCI_CRED_RDBMS, OCI_DEFAULT );
DO_OCISessionEnd( HNDL(3), HNDL(1), HNDL(4), OCI_DEFAULT );
DO_OCISessionFree( HNDL(3), OCI_HTYPE_SVCCTX );
DO_OCISessionFree( HNDL(4), OCI_HTYPE_SESSION );
```

## DO\_OCISessionExecute

Executes the SQL statement or a PL/SQL block previously associated with the Oracle 8 statement handle with DO\_OCISessionPrepare. Note that SQL syntax errors are reported at execution time.

 **Note:** In multi-user environments, use this statement in place of DO\_OCISessionExecute.

## Syntax

```
DO_OCISessionExecute ( int svcContextHandleIndex, int statementHandleIndex, int
errorHandleIndex, ub4 iters, ub4 mode );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to a service context handle previously used in an Oracle 8 logon.
statementHandleIndex	An index to an allocated Oracle 8 statement handle previously used in the call to DO_OCISstmtPrepare.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
Iterations	The number of times this statement is executed for non-SELECT statements. This value can be set to 1 for SELECT statements if, and only if, all output variables were previously defined with DO_OCIDefine. This value should be set to 1.
mode	The mode for execution. The mode value should be set to the reserved word OCI_DEFAULT.

## Equivalent OCI

OCISstmtExecute

## Example

```
DO_OCISstmtExecute( HNDL (3), HNDL (5),HNDL (1), OCI_DEFAULT );
```

## DO\_OCISstmtPrepare

Prepares a SQL statement or a PL/SQL block and associates it with an Oracle 8 statement handle.

Oracle 8 SQL statements are not sent to the Oracle 8 server until execution time (handled by QALoad command DO\_OCISstmtExecute). SQL syntax errors are reported at execution time.

## Syntax

```
DO_OCISstmtPrepare( int statementHandleIndex, text* SQLStatement, ub4 OracleSyntax );
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle.
SQLStatement	A pointer to a null-terminated string containing the SQL statement.
OracleSyntax	A variable flag for the parsing syntax. This value should be

	OCI_NTV_SYNTAX. The value for OracleLanguage should be set to OCI_NTV_SYNTAX (which defers the parsing syntax to the Oracle database) unless you want to specify a parsing syntax explicitly. Other possible values are OCI_V7_SYNTAX and OCI_V8_SYNTAX for specifying a parsing syntax based on Oracle 7 and Oracle 8, respectively.
--	---

## Equivalent OCI

OCIStmtPrepare

## Example

The following example shows the preparation of a typical SQL statement.

```
DO_OCISmtPrepare(HNDL(5), "SELECT * FROM EMP;", OCI_NTV_SYNTAX);
```

## DO\_OCISmtPrepare\_EX

Prepares a SQL statement or a PL/SQL block and associates it with an Oracle 8 statement handle.

Oracle 8 SQL statements are not sent to the Oracle 8 server until execution time (handled by QALoad command DO\_OCISmtExecute). SQL syntax errors are reported at execution time.

DO\_OCISmtPrepare\_EX extends DO\_OCISmtPrepare macro by accommodating nested OCI8 logins. Starting with QALoad 5.0, Compuware recommends that you use DO\_OCISmtPrepare\_EX.

## Syntax

```
DO_OCISmtPrepare_EX( int statementHandleIndex, text* SQLStatement, int errorHandleIndex,
ub4 OracleSyntax);
```

## Return Value

## Parameters

Parameter	Description
statementHandleIndex	An index to an allocated Oracle 8 statement handle.
SQLStatement	A pointer to a null-terminated string containing the SQL statement.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
OracleSyntax	A variable flag for the parsing syntax. This value should be OCI_NTV_SYNTAX. The value for OracleLanguage should be set to OCI_NTV_SYNTAX (which defers the parsing syntax to the Oracle database) unless you want to specify a parsing syntax explicitly. Other possible values are OCI_V7_SYNTAX and OCI_V8_SYNTAX for specifying a parsing syntax based on Oracle 7 and Oracle 8,

respectively.

## Equivalent OCI

OCIStmtPrepare

## Example

The following example shows the preparation of a typical SQL statement.

```
DO_OCISstmtPrepare_EX(HNDL(5), "SELECT * FROM EMP;", HNDL(2), OCI_NTV_SYNTAX );
```

## DO\_OCISvcCtxToLda

Toggles an Oracle 8 service context handle to an Oracle 7 logon data area. This allows Oracle 7 cursors to be created in a database session created in Oracle 8.

## Syntax

```
DO_OCISvcCtxToLda( int svcContextHandleIndex, int errorHandleIndex, int LdaIndex );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to the current allocated Oracle 8 service context handle.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
LdaIndex	An index to a Logon Data area.

## Equivalent OCI

OCISvcCtxToLda

## Example

The following example shows toggling the Oracle8 service context handle to an Oracle7 logon data area (LDA) using the DO\_OCISvcCtxToLda call.

```
DO_OCISvcCtxToLda(HNDL(4), HNDL(2), LDA(0));
```

## DO\_OCITransCommit

ommits the current Oracle 8 transaction. A commit should be performed after all relevant SQL statements have been processed.

## Syntax

```
DO_OCITransCommit ( int svcContextHandleIndex, int errorHandleIndex, ub4 CommitType );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to a service context handle previously used in an Oracle 8 logon.
errorHandleIndex	An index to an allocated Oracle 8 error handle.
CommitType	The type of transaction to commit. This value should be set to the Oracle 8 reserved word OCI_DEFAULT for QALoad scripts.

## Example

The following example shows an insert transaction being committed after the execute.

```
DO_OCISstmtPrepare( HN DL(5), "INSERT INTO MIKE.t_session ( session_key, user_key"
",login_time_stamp, session_number, session_seq ) VALUES (:1, :2, :3, :4" ", :5 )",
OCI_NTV_SYNTAX );
:
:
:
DO_OCISstmtExecute ( HN DL(3), HN DL(5), 1, OCI_DEFAULT );
DO_OCITransCommit ( HN DL(3), HN DL(1), OCI_DEFAULT );
```

## DO\_OCITransRollback

Rolls back the current Oracle 8 transaction.

## Syntax

```
DO_OCITransRollback ( int svcContextHandleIndex, int errorHandleIndex, ub4 CommitType );
```

## Return Value

## Parameters

Parameter	Description
svcContextHandleIndex	An index to a service context handle previously used in an Oracle 8 logon.
errorHandleIndex	An index to an allocated Oracle 8 error handle.

CommitType	The type of transaction to roll back. This value should be set to the Oracle 8 reserved word OCI_DEFAULT for QALoad scripts.
------------	--

## Equivalent OCI

OCITransRollback

## Example

```
DO_OCISstmtPrepare( HNDL(5), "INSERT INTO MIKE.t_session ( session_key, user_key"
",login_time_stamp, session_number, session_seq ) VALUES (:1, :2, :3, :4" ", :5 )",
OCI_NTV_SYNTAX );
:
:
:
DO_OCISstmtExecute ( HNDL(3), HNDL(5), 1, OCI_DEFAULT );
DO_OCITransRollback ( HNDL(3), HNDL(1), OCI_DEFAULT );
```

# Oracle Forms Server

## Oracle Forms Server Commands

### [ofsActivateListItem](#)

Adds the TList\_Activated property to the current message. Tlist\_Activated property indicates user selection of an item in a List control.

### [ofsActivateTreeItem](#)

Adds the Event\_Activated property of a Tree control to the current message. Event\_Activated property indicates user selection of an item in a Tree control.

### [ofsActivateWindow](#)

Adds the Window\_Activate property (with Enabled attribute) to the current message.

### [ofsClickButton](#)

Adds the Pressed property of a Button control to the current message.

### [ofsClickTextFieldItem](#)

Adds the Pressed property associated with a Text Field control to the current message.

### [ofsClosePopList](#)

Adds the List\_Closed property of a PopList control to the current message.

### [ofsCloseWindow](#)

Adds the Window\_Close property (with Enabled attribute) to the current message.

### [ofsCollapseTreeItem](#)

Adds the Event-Collapsed property of a Tree control to the current message.

### [ofsColorAdd](#)

Adds the Color\_Add property to the current message.

### [ofsConnectToSocket](#)

Establishes a socket-mode connection to the Oracle Forms Server.

### [ofsDeActivateWindow](#)

Adds the Window\_Activate property (with Disabled attribute) to the current message.

### [ofsDefineTreeNode](#)

Adds the Node\_ID property of a Tree control to the current message. Node\_ID property defines the relative position of the tree item, counting nested tree items.

### [ofsDefineTreeNodeOffset](#)

Adds the Node\_Offset property of a Tree control to the current message. Node\_Offset defines the relative position of the tree item, excluding nested tree items.

### [ofsDelconifyWindow](#)

Adds the Window\_Iconified property (with Disabled attribute) to the current message.

### [ofsDeSelectItem](#)

Adds the Value property (with Disabled attribute) to the current message.

#### [ofsDeSelectTreeEvent](#)

Adds the Event\_DeSelect property of a Tree control to the current message. This statement indicates the application is moving from an internal processing event that is associated with a tree item.

#### [ofsEdit](#)

Adds the Value property to the current message. The property is associated with a Text Field control.

#### [ofsExpandTreeltem](#)

Adds the Event\_Expanded property of a Tree control to the current message. The Event\_Expanded property indicates a Tree control item being expanded.

#### [ofsFindLOVValue](#)

Adds the LOV\_Find\_Value property of a List of Values control to the current message. The statement indicates the user is searching for an item in a List of Values control.

#### [ofsFocus](#)

Adds the Focus property (with Enabled attribute) to the current message.

#### [ofsGetServerData](#)

Returns the Forms data from the server reply.

#### [ofsHideWindow](#)

Adds the Visible property (with Disabled attribute) to the current message.

#### [ofsHTTPDisconnect](#)

Closes the current HTTP connection to the Forms Listener servlet.

#### [ofsHTTPSetHdrProperty](#)

Establishes the HTTP headers to use for connecting to the Forms servlet and listener servlet.

#### [ofsHTTPSetListenerServletParms](#)

Sets the Forms Listener Servlet parameters prior to connection.

#### [ofsHTTPConnectToFormsServlet](#)

Opens an HTTP connection to the Forms servlet responsible for initiating a Forms applet instance.

#### [ofsHTTPConnectToListenerServlet](#)

Opens an HTTP connection to the Forms Listener servlet responsible for starting an instance of the Forms run time process.

#### [ofsHTTPInitialFormsConnect](#)

Opens an HTTP connection to the Forms Listener servlet and posts the initial Forms handshake information.

#### [ofsIconifyWindow](#)

Adds the Window\_Iconified property (with Enabled attribute) to the current message.

#### [ofsIndexKey](#)

Adds the Index\_Key property to the current message.

#### [ofsIndexSKey](#)

Adds the Index\_SKey property to the current message.

#### [ofsInitSessionCmdLine](#)



Adds the INITIAL\_CMDLINE property to the current message.

#### `ofsInitSessionTimeZone`

Adds the Time\_Zone property to the current message.

#### `ofsListItemValue`

Adds the List\_Item property of a PopList or a TList control to the current message.

#### `ofsLoadValue`

Loads the values of a byte array or a string array associated with a GUI control.

#### `ofsLOVRequestRow`

Adds the LOV\_REQUEST\_ROW property to the current message.

#### `ofsLOVSelection`

Adds the LOV\_SELECTION property to the current message.

#### `ofsMenuParamDlgOK`

Adds the MENUPARAM\_DLGOK property to the current message. This statement defines the text in the menu param dialog control.

#### `ofsOpenWindow`

Adds the Window\_Open property (with Disabled attribute) to the current message.

#### `ofsRemoveFocus`

Adds the Focus property (with Disabled attribute) to the current message.

#### `ofsSetCursorPosition`

Adds the Cursor\_Position property of a Text Field control to the current message.

#### `ofsSetErrorDialogTitle`

Adds the DISPLAYERRORDIALOG\_TITLE property to the current message.

#### `ofsSetFontName`

Adds the Font\_Name property to the current message.

#### `ofsScroll`

Adds the Block\_Scroller property to the current message.

#### `ofsScrollSize`

Adds the Block\_Scroller\_Size property to the current message.

#### `ofsSelectItem`

Adds the Value property (with Enabled attribute) to the current Message.

#### `ofsSelectMenuItem`

Adds the Menu\_Event property to the current message.

#### `ofsSelectTreeEvent`

Adds the Selected\_Event property of a Tree Control to the current message.

#### `ofsSendRecv`

Sends the client request as Forms messages to the Forms server, gets the server response, and reads the responses as Forms messages.

[ofsServerSideDisconnect](#)

Disconnects QALoad's socket connection to the server-side code. The server-side code intercepts the messages between QALoad and the Forms Listener servlet.

[ofsSetColorDepth](#)

Adds the Color\_Depth property to the current message.

[ofsSetDisplaySize](#)

Adds the Display\_Size property to the current message.

[ofsSetExpectedServerMsg](#)

Enables the script to continue if a known error or warning message is received from the server.

[ofsSetFontName](#)

Adds the Font\_Name property to the current message.

[ofsSetFontSize](#)

Adds the Font\_Size property to the current message.

[ofsSetFontStyle](#)

Adds the Font\_Style property to the current message.

[ofsSetFontWeight](#)

Adds the Font\_Weight property to the current message.

[ofsSetICXTicket](#)

Sets the value of the ICX ticket for the current Oracle Applications login. The statement is used only in a Universal OFS-WWW session, as a replacement for the OracleAppsLogin() statement.

[ofsSetInitialVersion](#)

Adds the Initial\_Version property to the current message.

[ofsSetJavaContainerArgName](#)

Adds the JAVACONTAINER\_ARG\_NAME property to the current message.

[ofsSetJavaContainerArgValue](#)

Adds the JAVACONTAINER\_ARG\_VALUE property to the current message.

[ofsSetJavaContainerEvent](#)

Adds the JAVACONTAINER\_ARG\_EVENT property to the current message.

[ofsSetLogonDatabase](#)

Adds the LOGON\_DATABASE property to the current message.

[ofsSetLogonPassWord](#)

Adds the LOGON\_PASSWORD property to the current message.

[ofsSetLogonUserName](#)

Adds the LOGON\_USERNAME property to the current message.

[ofsSetNoRequiredVAList](#)

Adds the Required\_VA\_List property (with Disabled attribute) to the current message.

[ofsSetPropertyBoolean](#)

Adds the generic boolean property (with Enabled attribute) to the current message.

**ofs SetPropertyByte**

Adds the generic byte property to the current message.

**ofs SetPropertyByteArray**

Adds the generic byte array property to the current message.

**ofs SetPropertyCharacter**

Adds the generic Character property to the current message.

**ofs SetPropertyDate**

Adds the generic Date property to the current message.

**ofs SetPropertyFloat**

Adds the generic Float property to the current message.

**ofs SetPropertyInteger**

Adds the generic Integer property to the current message.

**ofs SetPropertyPoint**

Adds the generic Point property to the current message.

**ofs SetPropertyRectangle**

Adds the generic Rectangle property to the current message.

**ofs SetPropertyString**

Adds the generic String property to the current message.

**ofs SetPropertyStringArray**

Adds the generic String array property to the current message.

**ofs SetPropertyVoid**

Adds the generic Void property to the current message.

**ofs SetPropertyRequiredVAList**

Adds the Required\_VA\_List property (with Enabled attribute) to the current message.

**ofs SetPropertyRunOptions**

Sets the runtime values for CONNECT TYPE, HEARTBEAT, LOGGING (to replay capture file) and CHECK SERVER MESSAGES.

**ofs SetPropertyScaleInfo**

Adds the Scale property to the current message.

**ofs SetPropertyScreenResolution**

Adds the Screen Resolution property to the current message.

**ofs SetPropertySelection**

Adds the Selection property of a Text Field control to the current message.

**ofs SetPropertyServletMode**

Creates a socket connection to the server-side code which communicates with the Forms Listener Servlet.

**ofs SetPropertyServerFailedMsg**

Enables QALoad to fail playback based on the user-entered string and filter parameters.

[ofsSetValue](#)

Adds a generic Value property to the current message.

[ofsSetWindowLocation](#)

Adds the Location property of a Window control to the current message.

[ofsSetWindowSize](#)

Adds the Size property of a Window control to the current message.

[ofsShowWindow](#)

Adds the Visible property (with Enabled attribute) to the current message.

[ofsSocketDisconnect](#)

Closes the connection of a socket-mode playback.

[ofsStartSubMessage](#)

Adds a sub-message to the current message.

[ofsTabControlTopPage](#)

Adds the TabControl\_Top\_Page property to the current message.

[ofsUnSetPropertyBoolean](#)

Adds a generic Boolean property (with Disabled attribute) to the current message.

[ofsWindowCreated](#)

Check if the specified window was created during the last transaction with the server (ofsSendRecv).

[OracleAppsLogin](#)

This method simulates an Oracle Applications 11i login and retrieves the icx\_ticket associated with that login. It should be performed once per virtual user.

## ofsActivateListItem

Adds the TList\_Activated property to the current message.

Tlist\_Activated property indicates user selection of an item in a List control.

### Syntax

```
void ofsActivateListItem(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *sValue );
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
ControlID	Captured ID of the GUI control for the current message.

ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
sValue	The positional value of the activated List item.						

## Example

```
//In the example below, the List item is defined,
//and then selected using the statement
//ofsActivateListItem. The value 7 indicates
//that the item is the 7th List item.

ofsListItemValue( "TLIST", 118, OFS_ENDMSG, 131, "7" ); /*Item value =      Material
      Transactions*/

ofsSendRecv(1 );
:
:

ofsActivateListItem( "TLIST", 118, OFS_ENDMSG, 341, "7" );
ofsSendRecv(1 );
```

## ofsActivateTreeItem

Adds the Event\_Activated property of a Tree control to the current message.

Event\_Activated property indicates user selection of an item in a Tree control. The selected item is associated with internal processing events.

## Syntax

```
void ofsActivateTreeItem(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description						
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The positional value of the activated Tree item.						

## Example

```
//The statement ofsActivateTreeItem is
//similar to ofsActivateListItem
//but internal processing events occur
//when it is executed. A Tree item is a
//List Item that is associated with an event.
//In this example, item 4 (named "Sample Event1")
//in Tree Control ID 118 is selected.

ofsListItemValue( "TLIST", 118, OFS_ENDMSG, 131, "4" ); /*Item value = Sample Event1*/
ofsSendRecv(1 );

.
.
.

ofsActivateTreeItem( "Test Tree", 118, OFS_ENDMSG, 491, "4" );
```

## ofsActivateWindow

Adds the Window\_Activate property (with Enabled attribute) to the current message.

The Window\_Activate (with Enabled attribute) property indicates the opening of a new window.

## Syntax

```
void ofsActivateWindow( const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//This example indicates the window "Oracle
//Applications" being displayed as the top window,
//then the window is activated for use.

ofsShowWindow( "Oracle Applications", 32, OFS_ENDMSG, 173 );
ofsActivateWindow( "Oracle Applications", 32, OFS_ENDMSG, 247 );
ofsFocus( "TEXTFIELD", 75, OFS_ENDMSG, 174 );
ofsSendRecv(2 );
```

## ofsClickButton

Adds the Pressed property of a Button control to the current message. This statement indicates a button click activity.

## Syntax

```
void ofsClickButton(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, control ID 52 represents the button that is clicked.
ofsClickButton( "BUTTON", 52, OFS_ENDMSG, 325 );
ofsSendRecv(1 );
```

## ofsClickTextFieldItem

Adds the Pressed property associated with a Text Field control to the current message.

This statement indicates an activity in which focusing on a Text Field item enables the user to click a button that triggers internal processing events.

## Syntax

```
void ofsClickTextFieldItem(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID



	is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, the location of Text Field
//control 274 is defined using ofsSetSelection.

//The Browse button embedded in Text Field control
//274 is clicked. The click, simulated by
//ofsClickTextFieldItem, deactivated the currently
//opened window "Find Material Transactions"
//(control 179) and also triggered Custom Control
//1367 to act as the top window.

ofsSetSelection( "TEXTFIELD", 274, OFS_ENDMSG, 195, 0, 0);
ofsClickTextFieldItem( "TEXTFIELD", 274, OFS_ENDMSG, 325 );
ofsSendRecv(1 );
ofsSendRecv(1 );
ofsDeActivateWindow( "Find Material Transactions ", 179, OFS_ENDMSG, 247 );
ofsSendRecv(1 );

ofsSetPropertyInteger( "CUSTOMCONTROL", 1367, OFS_ADD, 2601, "91" );
ofsSetPropertyInteger( "CUSTOMCONTROL", 1367, OFS_ADD, 2600, "0" );
ofsSetPropertyInteger( "CUSTOMCONTROL", 1367, OFS_ADD, 2600, "0" );
ofsSetPropertyString( "CUSTOMCONTROL", 1367, OFS_ENDMSG, 2600, "xxx" );
ofsSendRecv(1 );
```

## ofsClosePopList

Adds the List\_Closed property of a PopList control to the current message.

The List\_Closed property indicates a PopList control is closed.

## Syntax

```
void ofsClosePopList(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, control ID 52 represents
//the PopList control that is closed.
ofsClosePopList ( "POPLIST", 52, OFS_ENDMSG, 332 );
```

## ofsCloseWindow

Adds the Window\_Close property (with Enabled attribute) to the current message.

The Window\_Close property indicates the act of closing a window.

## Syntax

```
void ofsCloseWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.

ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, control ID 179 (named
//"Find Material Transactions") represents
//the window that is closed.

ofsCloseWindow( "Find Material Transactions ", 179, OFS_ENDMSG, 216 );
```

## ofsCollapseTreeItem

Adds the Event-Collapsed property of a Tree control to the current message.

The Event\_Collapsed property indicates a Tree control item being collapsed.

## Syntax

```
void ofsCollapseTreeItem(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *Value);
```

## Parameters

Parameter	Description		
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.		
ControlID	Captured ID of the GUI control for the current message.		
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> </table>	Value	Description
Value	Description		

	OFS_ADD	Add the property to the current message.
	OFS_ENDMSG	Add the property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.	
Value	The relative position of the Tree control item.	

### Example

```
//In this example, item 4 (named "FORD") in Tree control ID 73 is collapsed.
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 180, "0" );
ofsSetPropertyPoint( "TREE", 73, OFS_ADD, 185, 19, 50);
ofsSetPropertyByte( "TREE", 73, OFS_ENDMSG, 186, "16" );
ofsRemoveFocus( "TEXTFIELD", 69, OFS_ENDMSG, 174 );
ofsFocus( "TREE", 73, OFS_ENDMSG, 174 );
ofsCollapseTreeItem( "TREE", 73, OFS_ENDMSG, 490, "4" ); /*Item value = FORD*/
ofsSendRecv(1 );
```

### ofsColorAdd

Adds the Color\_Add property to the current message.

The Color\_Add property is applied to the initial Forms environment.

### Syntax

```
void ofsColorAdd(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType, int PropertyID, const char *Value);
```

### Return Value

### Parameters

Parameter	Description		
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.		
ControlID	Captured ID of the GUI control for the current message.		
ActionType	<i>OFSActionTypeEnum</i> This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:  <table border="0"> <tr> <td style="padding-right: 20px;">Value</td> <td>Description</td> </tr> </table>	Value	Description
Value	Description		

	OFS_ADD	Add the property to the current message.
	OFS_ENDMSG	Add the property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.	
Value	The color being applied to the Forms application environment.	

## Example

```
//The initial set of Forms statements describes the
//initial Forms environment. The description is matched
//on the server side. In this example, a color is
//defined as part of the Forms environment.

ofsSetInitialVersion( "RUNFORM", 1, OFS_ADD, 268, "90290" );
ofsSetScreenResolution( "RUNFORM", 1, OFS_ADD, 263, 96, 96);
:
ofsColorAdd( "RUNFORM", 1, OFS_ADD, 284, "16776960" );
:
ofsSetRequiredVAList( "RUNFORM", 1, OFS_ADD, 291 );
:
ofsFocus( "BUTTON", 58, OFS_ENDMSG, 174 );
ofsSendRecv(1 );
```

## ofsConnectToSocket

Establishes a socket-mode connection to the Oracle Forms Server.

### Syntax

```
void ofsConnectToSocket(const char *Hostname, int Port);
```

### Return Value

### Parameters

Parameter	Description
Hostname	Host name or IP address of the Oracle Forms Server.
Port	Port number used to connect to the Forms server.

## Example

```
//In socket-mode, QALoad uses the IP address
//or host name of the server machine and the
//Form Server Port to execute a socket connection
//with the server.

ofsConnectToSocket("10.10.0.167", 9002 );
```

## ofsDeActivateWindow

Adds the Window\_Activate property, with Disabled attribute, to the current message.

The Window\_Activate property, with Disabled attribute, indicates the ending of a currently opened window.

## Syntax

```
void ofsDeActivateWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//This example shows the window "WINDOW_DATABASETEST"
//being terminated prior to the ending of the HTTP session.
```

```
ofsDeActivateWindow( "WINDOW_DATABASETEST", 24, OFS_ENDMSG, 247 );
ofsFocus( "BUTTON", 52, OFS_ENDMSG, 174 );
ofsSendRecv(1 );
ofsHTTPDisconnect();
```

## ofsDefineTreeNode

Adds the Node\_ID property of a Tree control to the current message.

Node\_ID property defines the relative position of the tree item, counting nested tree items.

### Syntax

```
void ofsDefineTreeNode(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *Value);
```

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The relative position of the tree item, counting nested tree items .						

### Example

```
//In this example, the relative positions of items
//6 and 12 in Tree control ID 73 are defined.

ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "2" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "3" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "12" ); /*Item value = CLARK*/
```

```
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "0" );
ofsSendRecv(1 );
```

## ofsDefineTreeNodeOffset

Adds the Node\_Offset property of a Tree control to the current message.

Node\_Offset defines the relative position of the tree item, excluding nested tree items.

### Syntax

```
void ofsDefineTreeNodeOffset(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *Value);
```

### Return Value

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The relative position of the tree item, counting nested tree items .						

### Example

```
//In this example, the relative positions of
//items 6 and 12 in Tree control ID 73 are defined.
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "2" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
```



```

ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "3" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "12" ); /*Item value = CLARK*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "0" );
ofsSendRecv(1 );

```

## ofsDeIconifyWindow

Adds the Window\_Iconified property, with Disabled attribute, to the current message.

This statement indicates a window being sized up from its icon representation.

### Syntax

```

void ofsDeIconifyWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);

```

### Return Value

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

### Example

```

//In this example, window control ID 118 is
//being sized up from its icon representation.

ofsDeIconifyWindow ( "FORMWINDOW", 118, OFS_ENDMSG, 243 );

```

## ofsDeSelectItem

Adds the Value property,with Disabled attribute, to the current Message.

The Value property is applied to a Radio button, Checkbox, List Box or Combo Box control. This statement indicates the mouse moving away from a previously selected item that is associated with a Radio button, Checkbox, List Box or a Combo Box.

### Syntax

```
void ofsDeSelectItem( const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

### Return Value

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

### Example

```
//In this example, the mouse is deselecting Checkbox
//control ID 60 and selecting Radiobutton control ID 63.
ofsDeSelectItem( "CHECKBOX", 60, OFS_ENDMSG, 131 );
ofsSendRecv(1 );

ofsRemoveFocus( "CHECKBOX", 60, OFS_ENDMSG, 174 );
ofsFocus( "RADIOBUTTON", 63, OFS_ENDMSG, 174 );
ofsSendRecv(1 );

ofsSelectItem( "RADIOBUTTON", 63, OFS_ENDMSG, 131 );
ofsSendRecv(1 );
```

## ofsDeselectTreeEvent

Adds the Event\_DeSelect property of a Tree control to the current message.

This statement indicates the application is moving from an internal processing event that is associated with a tree item.

### Syntax

```
void ofsDeselectTreeEvent( const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *Value);
```

### Return Value

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The relative position of the tree control item.						

### Example

```
//In this example, user activity is moving
//away from Tree control ID 73.
ofsDeselectTreeEvent ( "TREE", 73, OFS_ENDMSG, 492, "1" );
```

## ofsEdit

Adds the Value property to the current message.

The property is associated with a Text Field control. This statement indicates the act of entering values into a text field.

## Syntax

```
void ofsEdit( const char *sHandlerName, int ControlID, int ActionType, int PropertyID, const char *Value);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
ActionType	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.
Value	The value entered in the text field.

## Example

```
//In this example, the user enters "MFG"
//into Text Field control 75. The other
//statements are describing the location
//of the TextField control, the position
//of the cursor within the Text Field control,
//and recognizing the entry as a keyed entry.

ofsEdit( "TEXTFIELD", 75, OFS_ADD, 131, "MFG" );
ofsSetSelection( "TEXTFIELD", 75, OFS_ADD, 195, 3, 3);
ofsSetCursorPosition( "TEXTFIELD", 75, OFS_ENDMSG, 193, "3" );
ofsIndexSKey( "TEXTFIELD", 75, OFS_ENDMSG, 176, 9, 0);
ofsSendRecv(1 );
```

## ofsExpandTreeltem

Adds the Event\_Expanded property of a Tree control to the current message.

The Event\_Expanded property indicates a Tree control item being expanded.

## Syntax

```
void ofsExpandTreeItem( const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID, const char *Value);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The relative position of the tree item, counting nested tree items.						

## Example

```
//In this example, the item in Tree control
//ID 73 (named "CLARK") is expanded.
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 180, "0" );
ofsSetPropertyPoint( "TREE", 73, OFS_ADD, 185, 12, 220);
ofsSetPropertyByte( "TREE", 73, OFS_ENDMSG, 186, "16" );
ofsExpandTreeItem( "TREE", 73, OFS_ENDMSG, 489, "12" ); /*Item value = CLARK*/
ofsSendRecv(1 );
```

## ofsFindLOVValue

Adds the LOV\_Find\_Value property of a List of Values control to the current message.

The statement indicates the user is searching for an item in a List of Values control. The search typically returns an item ID when a valid item is found for the given search string.

## Syntax

```
void ofsFindLOVValue( const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID, const char *Value);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						
Value	The name used to search the List of Values.						

## Example

```
//In this example, the user is using
//"CGI" string to search inside LOV
//control 85 (named "LISTVALUESDIALOG").
ofsFindLOVValue ( "LISTVALUESDIALOG", 85, OFS_ENDMSG, 454, "CGI" );
```

## ofsFocus

Adds the Focus property (with Enabled attribute) to the current message.

The Focus property typically indicates the mouse hovering on a GUI control.

## Syntax

```
void ofsFocus(const char *sHandlerName, int ControlID, int ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
ActionType	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.

## Example

```
//In this example, control ID 78 (a button)
//is the object of Focus. The button is
//subsequently clicked.

ofsFocus( "BUTTON", 78, OFS_ENDMSG, 174 );
ofsSendRecv(1 );
ofsClickButton( "BUTTON", 78, OFS_ENDMSG, 325 );
ofsSendRecv(1 );
```

## ofsGetServerData

Returns the Forms data from the server reply.

The statement is manually added to the script in conjunction with [DO\\_ExtractString](#), which extracts a substring from the returned data. The extracted value is passed to subsequent script statements.

The combination of [DO\\_ExtractString](#) and [ofsGetServerData](#) statements enables you to obtain and use dynamic Forms data, based on the server response. These statements replace the functionality provided by the OFS Java script statement [GetControlValue](#).

## Syntax

```
ofsGetServerData( );
```

## Return Value


## Parameters

None

## Example

The example below executes RR\_printf and DO\_ExtractString statements after the ofsSendRecv statement.

Both statements use the ofsGetServerData statement as a parameter. After printing the result value, the memory allocated by DO\_ExtractString() is freed, and the pointer is set to NULL.

 **Caution:** The value returned by the ofsGetServerData command should not be freed. Calling free on this pointer results in a memory error in the script.

```

.....
/* Declare Variables */
char *szResult = NULL;
...
BEGIN_TRANSACTION();
...
...
ofsSendRecv(1); //ClientSeqNo=1|CapTime=1090942125.437|1090942125.437
DO_ExtractString( ofsGetServerData(), /* returns character string containing Forms data */
1,
"P|S|284|java.lang.Integer|0|", /*left filter param*/
"|P|S|284|java.lang.Integer|0|657930", /*right filter param*/
&szResult /* Value contains the dynamic value to be used in subsequent statements */
);
RR_printf("item: %s", szResult);
free(szResult);
szResult = NULL;

```

## ofsHideWindow

Adds the Visible property,with Disabled attribute, to the current message.

The property is associated with a Window control. The statement indicates a window being hidden from view.

## Syntax

```
void ofsHideWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
ControlID	Captured ID of the GUI control for the current message.



ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

### Example

```
//In this example, window control ID 118
//is being hidden from view.
ofsHideWindow( "FORMWINDOW", 118, OFS_ENDMSG, 173 );
```

## ofsHTTPConnectToFormsServlet

Opens an HTTP connection to the Forms servlet responsible for initiating a Forms applet instance.

### Syntax

```
void ofsHTTPConnectToFormsServlet(const char *sformsServletURL);
```

### Return Value

### Parameters

Parameter	Description
sformsServletURL	The URL location of the Forms Servlet.

### Example

```
ofsHTTPConnectToFormsServlet( "http://ntsap45b:7779/forms90/f90servlet?ifcmd=startsession"
);
```

## ofsHTTPConnectToListenerServlet

Opens an HTTP connection to the Forms Listener servlet responsible for starting an instance of the Forms run time process.

## Syntax

```
void ofsHTTPConnectToListenerServlet(const char *sformsServletURL);
```

## Return Value

## Parameters

Parameter	Description
sformsServletURL	The URL location of the Forms Listener servlet.

## Example

```
ofsHTTPConnectToListenerServlet( "http://ntsap45b:7779/forms90/190servlet");
```

## ofsHTTPDisconnect

Closes the current HTTP connection to the Forms Listener Servlet.

## Syntax

```
void ofsHTTPDisconnect();
```

## Return Value

## Parameters

None

## Example

```
ofsHTTPDisconnect();
```

## ofsHTTPInitialFormsConnect

Opens an HTTP connection to the Forms Listener servlet and posts the initial Forms handshake information.

## Syntax

```
void ofsHTTPInitialFormsConnect();
```

## Return Value

## Parameters

None

## Example

```
ofsHTTPInitialFormsConnect();
```

## ofsHTTPSetHdrProperty

Establishes the HTTP headers to use for connecting to the Forms servlet and listener servlet. Headers that can be set with this function are: Cookie, User-Agent, Host, Accept, and Connection.

## Syntax

```
void ofsHTTPSetHdrProperty(const char *sName, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sName	The HTTP header name.
sValue	The HTTP header value.

## Example

```
ofsHTTPSetHdrProperty("User-Agent", "Java1.3.1.9" );
ofsHTTPSetHdrProperty("Host", "ntsap45b.prodti.compuware.com:4445" );
ofsHTTPSetHdrProperty("Accept", "text/html, image/gif, image/jpeg, *; q=.2, "
"*/*; q=.2" );
ofsHTTPSetHdrProperty("Connection", "Keep-alive" );
```

## ofsHTTPSetListenerServletParms

Sets the Forms Listener Servlet parameters prior to connection.

## Syntax

```
void ofsHTTPSetListenerServletParms(const char *sListenerServlet);
```

## Return Value

## Parameters

Parameter	Description
sListenerServlet	Servlet parameters to use for this session.

## Example

```
ofsHTTPSetListenerServletParms( "?ifcmd=getinfo&ifhost=C104444D01&ifip="
"192.168.234.1" );
```

## ofsIconifyWindow

Adds the Window\_Iconified property, with Enabled attribute, to the current message. This statement indicates a window being sized down to its icon representation.

## Syntax

```
void ofsIconifyWindow( const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="0"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						

PropertyID	Oracle-designated ID for the property being added.
------------	--

## Example

```
//In this example, window control ID 118 is
//being sized down to an icon.

ofsIconifyWindow ("FORMWINDOW", 118, OFS_ENDMSG, 243);
```

## ofsIndexKey

Adds the Index\_Key property to the current message.

The Index\_Key property typically indicates a keyed entry in a TextField control, such as a user ID entry.

## Syntax

```
void ofsIndexKey(const char *sHandlerName, int iControlId, int iAction, int iPropertyID, int
iCoordinateX, int iCoordinateY);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordianteX	X coordinate of the keyed entry.
iCoordinateY	Y coordinate of the keyed entry.

## Example

```
//In this example, the user enters "M" into Text Field control 75.
//The other statements are describing the location of the TextField control,
//the position of the cursor within the Text Field control,
//and recognizing the entry as a keyed entry.
```

```
ofsEdit( "TEXTFIELD", 75, OFS_ADD, 131, "M" );
ofsSetSelection( "TEXTFIELD", 75, OFS_ADD, 195, 1, 1);
ofsSetCursorPosition( "TEXTFIELD", 75, OFS_ENDMSG, 193, "1" );
ofsIndexKey( "TEXTFIELD", 75, OFS_ENDMSG, 175, 97, 0);
ofsSendRecv(1 );
```

## ofsIndexSKey

Adds the Index\_SKey property to the current message.

The Index\_SKey property is typically associated with a keyed entry in a TextField control, such as a user ID entry.

### Syntax

```
void ofsIndexSKey(const char *sHandlerName, int iControlID, int iAction, int iPropertyID,
int iCoordinateX, int iCoordinateY);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordinateX	X coordinate of the keyed entry.
iCoordinateY	Y coordinate of the keyed entry.

### Example

```
//In this example, the user enters "MFG" into Text Field control 75.
//The other statements are describing the location of the TextField control,
//the position of the cursor within the Text Field control,
//and recognizing the entry as a keyed entry.
ofsEdit( "TEXTFIELD", 75, OFS_ADD, 131, "MFG" );
ofsSetSelection( "TEXTFIELD", 75, OFS_ADD, 195, 3, 3);
ofsSetCursorPosition( "TEXTFIELD", 75, OFS_ENDMSG, 193, "3" );
```

```
ofsIndexSKey( "TEXTFIELD", 75, OFS_ENDMSG, 176, 9, 0);
ofsSendRecv(1);
```

## ofsInitSessionCmdLine

Adds the INITIAL CMDLINE property to the current message. The INITIAL CMDLINE property is applied to the initial Forms environment.

### Syntax

```
void ofsInitSessionCmdLine(const char *sClassName, int iHandlerID, int iAction, int
iPropertyID, const char *sCmdLineInfo);
```

### Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sCmdLineInfo	Value of the Initial CmdLine property.

### Example

```
ofsInitSessionCmdLine("RUNFORM", 1, OFS_ADD, 265,
"server module=/oracle/appl/visl1iappl/fnd/11.5.0/forms/US/FNDSCSGN userid=APPLS"
"YSPUB/PUB@visl1i fndnam=APPS");
```

## ofsInitSessionTimeZone

Adds the Time\_Zone property to the current message. The Time\_Zone property is applied to the initial Forms environment.

### Syntax

```
void ofsInitSessionTimeZone(const char *sClassName, int iHandlerID, int iAction, int
iPropertyID, const char *sTimeZone);
```

## Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sTimeZone	The time zone to use for this session. The time zone is specified by the application.

### Example

```
ofsInitSessionTimeZone ( "RUNFORM", 1, OFS_ENDMSG, 530, "America/New_York" );
```

## ofsListItemValue

Adds the List\_Item property of a PopList or a TList control to the current message.

This statement defines an item in a PopList or a TList control.

### Syntax

```
void ofsListItemValue(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.



iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Relative position of the item in the PopList or TList control.

## Example

```
//In this example, item 6 is defined in Poplist control ID 66.
//Item 6 is labeled "Cindy Wang."
ofsListItemValue( "POPLIST", 66, OFS_ENDMSG, 131, "6" ); /* Item value = Cindy Wang*/
```

## ofsLoadValue

Loads the values of a byte array or a string array associated with a GUI control.

This statement only applies when the size of the byte array or string array > 0.

## Syntax

```
void ofsLoadValue(const char *sHandlerName, int iControlID, int iAction, int iPropertyID,
const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.

sValue	Value of the item in the byte array or string array associated with a GUI control.
--------	--

### Example

```
//In this example, value 7 is being added to the list of values in the array.
ofsLoadValue( "RUNFORM", 1, OFS_ENDMSG, 1, "7");
```

## ofsLOVRequestRow

Adds the LOV\_REQUEST\_ROW property to the current message. This statement defines an item in a List of Values control.

### Syntax

```
void ofsLOVRequestRow(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iPosX, int iPosY);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iPosX	X coordinate of the item in the LOV control.
iPosY	Y coordinate of the item in the LOV control.

### Example

```
//In this example, the position of an item in LOV control 85 is defined.
ofsLOVRequestRow( "LISTVALUESDIALOG", 85, OFS_ENDMSG, 451, 5, 1);
```

## ofsLOVSelection

Adds the LOV\_SELECTION property to the current message. This statement indicates an item being selected from a List of Values.

### Syntax

```
void ofsLOVSelection(const char *sHandlerName, int iControlID, int iAction, int iPropertyID,
const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Relative position of the selected item in the List of Values control.

### Example

```
//In this example, item 1 from LOV control ID 264 is selected
ofsActivateWindow( "NAVIGATOR", 28, OFS_ENDMSG, 247 );
ofsLOVSelection( "LISTVALUESDIALOG", 264, OFS_ENDMSG, 450, "1" );
ofsSendRecv(1);
```

## ofsMenuParamDlgOK

Adds the MENUPARAM\_DLGOK property to the current message. This statement defines the text in the menu param dialog control.

### Syntax

```
void ofsMenuParamDlgOK(const char *sHandlerName, int iControlID, int iAction, int
iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The text value of the menu param dialog.

## Example

```
//In this example, dialog control ID 12 has a text title of "testButton".
OfsMenuParamDlgOK( "menu1", 12, OFS_ENDMSG, 16, "testbutton");
```

## ofsOpenWindow

Adds the Window\_Close property (with Disabled attribute) to the current message. The statement indicates the act of opening a window.

## Syntax

```
void ofsOpenWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.

ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, control ID 52 (named
//"Sample Window") represents the window
//that is opened.
ofsOpenWindow ( "Sample Window", 52, OFS_ENDMSG, 216 );
```

## ofsRemoveFocus

Adds the Focus property, with Disabled attribute, to the current message.

The RemoveFocus property typically indicates the mouse moving away from a GUI control.

## Syntax

```
void ofsRemoveFocus(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message</p>

	requires special processing. Valid values are:						
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Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

### Example

```
//In this example, Focus is moved from control
//ID 77 (a Text Field) to control ID 78 (a button).
ofsRemoveFocus( "TEXTFIELD", 77, OFS_ENDMSG, 174 );
ofsFocus( "BUTTON", 78, OFS_ENDMSG, 174 );
ofsSendRecv(1 );
```

### ofsScroll

Adds the Block\_Scroller property to the current message. This statement indicates a scrolling activity.

### Syntax

```
void ofsScroll(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The value associated with the scroll bar

## Example

```
ofsScroll( "RUNFORM", 1, OFS_ADD, 250, "2");
```

## ofsScrollSize

Adds the Block\_Scroller\_Size property to the current message. This statement indicates the block scroller size.

## Syntax

```
ofsScrollSize(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The value associated with the scroll bar

## Example

```
ofsScrollSize( "RUNFORM", 1, OFS_ADD, 256, "12");
```

## ofsSelectItem

Adds the Value property (with Enabled attribute) to the current Message.

The Value property is applied to a Radio button, Checkbox, List Box or Combo Box control. This statement indicates an item associated with a Radio button, Checkbox, List Box or a Combo Box is being selected.

## Syntax

```
void ofsSelectItem(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType,
int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//In this example, the mouse is deselecting Checkbox
//control ID 60 and selecting Radiobutton control ID 63.

ofsDeSelectItem( "CHECKBOX", 60, OFS_ENDMSG, 131 );
ofsSendRecv(1 );

ofsRemoveFocus( "CHECKBOX", 60, OFS_ENDMSG, 174 );
ofsFocus( "RADIOBUTTON", 63, OFS_ENDMSG, 174 );
ofsSendRecv(1 );

ofsSelectItem( "RADIOBUTTON", 63, OFS_ENDMSG, 131 );
ofsSendRecv(1 );
```

## ofsSelectMenuItem

Adds the Menu\_Event property to the current message. This statement indicates an item being selected from the Forms Event Menu.



## Syntax

```
void ofsSelectMenuItem(const char *sHandlerName, int iControlID, int iAction, int
iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the menu item.

## Example

```
//In this example, a menu item valued 3 is selected. The menu item
//is associated with control ID 1 (Runform).
ofsSelectMenuItem( "RUNFORM", 1 , OFS_ADD, 477, "3");
```

## ofsSelectTreeEvent

Adds the Selected\_Event property of a Tree Control to the current message.

This statement indicates a Tree item being selected. The selected item is associated with an internal processing event.

## Syntax

```
void ofsSelectTreeEvent(const char *sHandlerName, int iControlID, int iAction, int
iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
ControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
PropertyID	Oracle-designated ID for the property being added.
sValue	Relative position of the selected Tree item.

## Example

```
//In this example, the user selects item 2 of Tree control ID 15.
//Item 2 has an internal processing event.
ofsSelectTreeEvent( "TREE", 15, OFS_ADD, 488, 2);
```

## ofsSendRecv

Sends the client request as Forms messages to the Forms server, gets the server response, and reads the responses as Forms messages.

## Syntax

```
void ofsSendRecv(int iResponseCode);
```

## Return Value

## Parameters

Parameter	Description
iResponseCode	The response code associated with the client request's terminal message. (1= add, 2=update, 3=close).

## Example

```
//In this example, the messages sent to the server include a Text Field
//location attribute and a Window size attribute.
```

```
ofsSetSelection( "TEXTFIELD", 75, OFS_ENDMSG, 195, 0, 0);
ofsSetWindowSize( "FORMWINDOW", 6, OFS_ENDMSG, 137, 1024, 768);
ofsSendRecv(1 );
```

## ofsServerSideDisconnect

Disconnects QALoad's socket connection to the server-side code.

The server-side code intercepts the messages between QALoad and the Forms Listener servlet.

### Syntax

```
void ofsServerSideDisconnect();
```

### Return Value

### Parameters

None

### Example

```
ofsServerSideDisconnect();
```

## ofsSetColorDepth

Adds the Color\_Depth property to the current message.

The Color\_Depth property is applied to the initial Forms environment.

### Syntax

```
void ofsSetColorDepth(const char *sClassName, int iHandlerID, int iAction, int iPropertyID,
const char *sColorDepth);
```

### Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the

	<p>current message or if it also ends the current message. The end of a message requires special processing.</p> <p>OFS_ADD: Add the property to the current message.                  OFS_ENDMSG: Add property to the current message and end the current message.</p>
iPropertyID	Oracle-designated ID for the property being added.
sColorDepth	Value associated with the color depth.

### Example

```
ofsSetColorDepth( "RUNFORM", 1, OFS_ADD, 266, "256" );
```

## ofsSetCursorPosition

Adds the Cursor\_Position property of a Text Field control to the current message.

The Cursor\_Position property indicates the relative position of the cursor in the Text Field control at the time of user entry.

### Syntax

```
void ofsSetCursorPosition(const char *sHandlerName, int iControlId, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	<p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.</p> <p>OFS_ADD: Add the property to the current message.                  OFS_ENDMSG: Add property to the current message and end the current message.</p>
iPropertyID	Oracle-designated ID for the property being added.
sValue	Relative position of the cursor in the Text Field control at the time of user entry.

## Example

```
//In this example, the cursor is positioned on the 7th character.
ofsSetCursorPosition( "TEXTFIELD", 77, OFS_ENDMSG, 193, "7" );
```

## ofsSetDisplaySize

Adds the `Display_Size` property to the current message.

The `Display_Size` property is applied to the initial Forms environment.

## Syntax

```
void ofsSetDisplaySize(const char *sClassName, int iHandlerID, int iAction, int iPropertyID,
int iCoordinateX, int iCoordinateY);
```

## Return Value

## Parameters

Parameter	Description
<code>sClassName</code>	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
<code>iHandlerID</code>	Captured ID of the GUI control for the current message.
<code>iAction</code>	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  <b>OFS_ADD:</b> Add the property to the current message. <b>OFS_ENDMSG:</b> Add property to the current message and end the current message.
<code>iPropertyID</code>	Oracle-designated ID for the property being added.
<code>iCoordinateX</code>	X coordinate of the canvas display.
<code>iCoordinateY</code>	Y coordinate of the canvas display.

## Example

```
ofsSetDisplaySize( "RUNFORM", 1, OFS_ADD, 264, 1024, 768);
```

## ofsSetErrorDialogTitle

Adds the `DISPLAYERRORDIALOG_TITLE` property to the current message. This statement defines the text title associated with the Display Error Dialog control.

## Syntax

```
void ofsSetErrorDialogTitle(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Text title associated with the Error Dialog control.

## Example

```
//In this example, the text title of error dialog control ID 12 is defined as "TestErr1".
ofsSetErrorDialogTitle( "ERRDLG1", 12, OFS_ADD, 129, "TestErr1");
```

## ofsSetExpectedServerMsg

Enables the script to continue if a known error or warning message is received from the server.

It is positioned before the ofsSendRecv statement, which checks the server reply messages. If error message checking is enabled and the server message contains "FRM-", "ORA-" or "APP-", ofsSendRecv throws an exception unless it is preceded by ofsSetExpectedServerMsg.

This is a keyword search. You can broaden the search to include more than one specific transaction by modifying the Expected Server Message parameter to look for part of a string.

## Syntax

```
void ofsSetExpectedServerMsg(const char *ExpectedServerMessage);
```

## Return Value

## Parameters

Parameter	Description
ExpectedServerMessage	The expected server message.

## Example

```
//Before sending the request to the server with the statement ofsSendRecv,
//QALoad stores the expected message from the server reply,
//so that Playback would ignore the server message and continue execution.

.
.
.

ofsSelectMenuItem( "WINDOW_START_APP", 11, OFS_ENDMSG, 477, "MENU_77" );
ofsSetExpectedServerMsg("FRM-41003: This function cannot be performed here.");
ofsSendRecv(1 );
```

## ofsSetFontName

Adds the Font\_Name property to the current message.

The Font\_Name property is applied to the initial Forms environment.

## Syntax

```
void ofsSetFontName(const char *sClassName, int iHandlerID, int iAction, int iPropertyID,
const char *sFontName);
```

## Return Value

## Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sFontName	Name of the font to use.

## Example

```
ofsSetFontName( "RUNFORM", 1, OFS_ADD, 383, "Dialog" );
```

## ofsSetFont Size

Adds the Font\_Name property to the current message.

The Font\_Name property is applied to the initial Forms environment.

## Syntax

```
void ofsSetFontName(const char *sClassName, int iHandlerID, int iAction, int iPropertyID,
const char *sFontName);
```

## Return Value

## Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sFontName	The size of the font to use.

## Example

```
ofsSetFontSize( "RUNFORM", 1, OFS_ADD, 377, "900" );
```

## ofsSetFont Style

Adds the Font\_Style property to the current message.

The Font\_Style property is applied to the initial Forms environment.



## Syntax

```
void ofsSetFontStyle(const char *sHandlerName, int iControlId, int iAction, int iPropertyID,
const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sFontName	The style of the font to use.

## Example

```
ofsSetFontStyle( "RUNFORM", 1, OFS_ADD, 378, "0" );
```

## ofsSetFontWeight

Adds the Font\_Weight property to the current message.

The Font\_Weight property is applied to the initial Forms environment.

## Syntax

```
void ofsSetFontWeight(const char *sHandlerName, int iControlId, int iAction, int
iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sFontName	The font weight to use.

### Example

```
ofsSetFontWeight( "RUNFORM", 1, OFS_ADD, 379, "0" );
```

## ofsSetICXTicket

Sets the value of the ICX ticket for the current Oracle Applications login.

The statement is used only in a Universal OFS-WWW session, as a replacement for the OracleAppsLogin statement. The statement is manually added to the script, along with the WWW statement DO\_GetUniqueString. For more information, see OFS and WWW Universal Sessions in OFS Advanced Scripting Techniques.

 **Note:** The memory buffer allocated by ofsSetICXTicket needs to be explicitly freed.

### Syntax

```
ofsSetICXTicket( char **cookieValue);
```

### Return Value

### Parameters

Parameter	Description
cookieValue	Address to a string where the cookie value is stored.

### Example

```
...
/* Declare Variables */
...
```

```

char *p;
char ICX_Ticket[100];
char *pTicket;

...
...
BEGIN_TRANSACTION();

...
...
// This statement should be added after the request line that returns the ICX ticket
p = DO_GetUniqueString( "icx_ticket=''", "" );
strcpy( ICX_Ticket, p );
pTicket=ICX_Ticket;

// Verify the ICX ticket value
RR_printf("ICX_Ticket=\"%s\"\n", ICX_Ticket);

// The ofsSetICXTicket statement passes the ICX ticket value to the
ofsInitiSessionCmdLine statement
ofsSetICXTicket(&pTicket);

// Free the memory allocated by DO_GetUniqueString and ofsSetICXTicket before the end of
the transaction.
free(p);
p=NULL;
free(pTicket);
pTicket=NULL;

END_TRANSACTION()

```

## ofsSetInitialVersion

Adds the Initial\_Version property to the current message.

The Initial\_Version property is applied to the initial Forms environment.

### Syntax

```
void ofsSetInitialVersion(const char *sClassName, int iHandlerID, OFSActionTypeEnum iAction,
int iPropertyID, OFSFormsVersionEnum sFormsVersion);
```

### Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	<i>OFSActionTypeEnum</i> This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:

	Value	Description
	OFS_ADD	Add the property to the current message.
	OFS_ENDMSG	Add the property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.	
sFormsVersion	The Forms Version of the captured application, represented as an integer string.	

### Example

```
ofsSetInitialVersion( "RUNFORM", 1, OFS_ADD, 268, "101200" );
```

## ofsSetJavaContainerArgName

Adds the JAVACONTAINER\_ARG\_NAME property to the current message.

This statement defines the name assigned to an item in a JavaContainer control.

### Syntax

```
void ofsSetJavaContainerArgName(const char *sHandlerName, int iControlId, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Name assigned to a JavaContainer control item.

## Example

```
ofsSetJavaContainerArgName("Test_App", 15, OFS_ADD, 400, "TestBeanItem");
```

## ofsSetJavaContainerArgValue

Adds the JAVACONTAINER\_ARG\_VALUE property to the current message.

This statement defines the value entered by the user in a JavaContainer control item.

## Syntax

```
void ofsSetJavaContainerArgValue(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The value entered by the user in a JavaContainer control item.

## Example

```
ofsSetJavaContainerArgValue("Test_App", 15, OFS_ADD, 401, "BeanEntry1");
```

## ofsSetJavaContainerEvent

Adds the JAVACONTAINER\_ARG\_EVENT property to the current message.

This statement defines the name assigned to a JavaContainer control.

## Syntax

```
void ofsSetJavaContainerEvent(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Name assigned to the JavaContainer control.

## Example

```
ofsSetJavaContainerEvent("Test_App", 15, OFS_ADD, 399, "TestEvent1");
```

## ofsSetLogonDatabase

Adds the LOGON\_DATABASE property to the current message. This statement defines the connect string entry in the Forms Logon dialog.

## Syntax

```
void ofsSetLogonDatabase(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The logon database for this session.

## Example

```
ofsSetLogonDatabase( "Logon", 34, OFS_ENDMSG, 435, "iasdb" );
```

## ofsSetLogonPassWord

Adds the LOGON\_PASSWORD property to the current message. This statement defines the password entry in the Forms Logon dialog.

## Syntax

```
void ofsSetLogonPassWord(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.

sValue	The password for this session.
--------	--------------------------------

### Example

```
ofsSetLogonPassWord( "Logon", 34, OFS_ADD, 434, "tiger" );
```

## ofsSetLogonUserName

Adds the LOGON\_USERNAME property to the current message.

This statement defines the user name entry in the Forms Logon dialog.

### Syntax

```
void ofsSetLogonUserName(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	The user name to use for this session.

### Example

```
ofsSetLogonUserName( "Logon", 34, OFS_ADD, 433, "scott" );
```

## ofsSetNoRequiredVAlist

Adds the Required\_VA\_List property (with Disabled attribute) to the current message.

The Required\_VA\_List property is applied to the initial Forms environment.



## Syntax

```
void ofsSetNoRequiredVAList(const char *sHandlerName, int ControlID, OFSActionTypeEnum
ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//The initial set of Forms statements describes
//the initial Forms environment. The description
//is matched on the server side.

ofsSetInitialVersion( "RUNFORM", 1, OFS_ADD, 268, "60818" );
ofsSetScreenResolution( "RUNFORM", 1, OFS_ADD, 263, 96, 96);

.
.
.

ofsSetNoRequiredVAList( "RUNFORM", 1, OFS_ADD, 291 );

.
.
.

ofsInitSessionTimeZone( "RUNFORM", 1, OFS_ENDMSG, 527, "EST" );
ofsSendRecv(1 );
```

## ofsSetPropertyBoolean

Adds the generic boolean property (with Enabled attribute) to the current message.

Use this statement when the boolean property is not known to QALoad.

### Syntax

```
void ofsSetPropertyBoolean(const char *sHandlerName, int iControlID, int iAction, int iPropertyID);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.

### Example

//In this example, property 381 is of Boolean type, and is associated with Tree control ID 73.

```
ofsSetPropertyBoolean("TREE", 73, OFS_ENDMSG, 381);
```

## ofsSetPropertyByte

Adds the generic byte property to the current message.

This statement is used when the byte property is not known to QALoad.

### Syntax

```
void ofsSetPropertyByte(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the byte property.

## Example

```
//In this example, property 186 is of type Byte, and is associated with Tree control ID 73.
ofsSetPropertyByte( "TREE", 73, OFS_ENDMSG, 186, "16" );
```

## ofsSetPropertyByteArray

Adds the generic byte array property to the current message.

This statement is used when the byte array property is not known to QALoad.

## Syntax

```
void ofsSetPropertyByteArray(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.

iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Size of the byte array.

### Example

//In this example, property 382 is of Byte Array type, and is associated with Tree control ID 73.

```
ofsSetPropertyByteArray( "TREE", 73, OFS_ENDMSG, 382, "0" );
```

## ofsSetPropertyCharacter

Adds the generic Character property to the current message.

This statement is used when the Character property is not known to QALoad.

### Syntax

```
void ofsSetPropertyCharacter(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.

sValue	Value associated with the Character property.
--------	---

## Example

//In this example, property 383 is of Character type, and is associated with Tree control ID 73.

```
ofsSetPropertyCharacter( "TREE", 73, OFS_ADD, 383, "20");
```

## ofsSetPropertyDate

Adds the generic Date property to the current message.

This statement is used when the Date property is not known to QALoad.

## Syntax

```
void ofsSetPropertyDate(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the Date property.

## Example

//In this example, property 383 is of Date type, and is associated with Tree control ID 73.

```
ofsSetPropertyDate( "TREE", 73, OFS_ADD, 383, "2000-02-22");
```

## ofsSetPropertyFloat

Adds the generic Float property to the current message.

This statement is used when the Float property is not known to QALoad.

### Syntax

```
void ofsSetPropertyFloat(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the Float property.

### Example

```
//In this example, property 383 is of Float type, and is associated with Tree Control ID 73.  
ofsSetPropertyFloat( "TREE", 73, OFS_ADD, 383, "2000.0222");
```

## ofsSetPropertyInteger

Adds the generic Integer property to the current message.

This statement is used when the Integer property is not known to QALoad.

### Syntax

```
void ofsSetPropertyInteger(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the Integer property.

## Example

//In this example, property 383 is of Integer type, and is associated with Tree control ID 73.

```
ofsSetPropertyInteger( "TREE", 73, OFS_ADD, 383, "20");
```

## ofsSetPropertyPoint

Adds the generic Point property to the current message.

This statement is used when the Point property is not known to QALoad.

## Syntax

```
void ofsSetPropertyPoint(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iCoordinateX, int iCoordinateY);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID

	is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordinateX	X coordinate value of the Point property.
iCoordinateY	Y coordinate value of the Point property.

### Example

//In this example, property 185 is of Point type, and is associated with Tree control ID 73.  
ofsSetPropertyPoint( "TREE", 73, OFS\_ADD, 185, 30, 50);

## ofsSetPropertyRectangle

Adds the generic Rectangle property to the current message.

This statement is used when the Rectangle property is not known to QALoad.

### Syntax

```
void ofsSetPropertyRectangle(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iXval, int iYval, int iWval, int iHval);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.



iPropertyID	Oracle-designated ID for the property being added.
iXval	X value of the rectangle.
iYval	Y value of the rectangle.
iWval	Width of the rectangle.
iHval	Height value of the rectangle.

## Example

```
//In this example, property 155 is of type Rectangle, and is associated with Control ID 73
//(named "Button").
```

```
ofsSetPropertyRectangle( "BUTTON", 73, OFS_ADD, 155, 0, 0, 106, 29);
```

## ofsSetPropertyString

Adds the generic **String** property to the current message.

This statement is used when the **String** property is not known to QALoad.

## Syntax

```
void ofsSetPropertyString(const char *sHandlerName, int iControlID, int iAction, int
iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the String property.

## Example

```
//In this example, property 520 is of String type, and is associated with control ID 1 (RunForm).
ofsSetPropertyString( "RUNFORM", 1, OFS_ENDMSG, 530, "America/New_York" );
```

## ofsSetPropertyStringArray

Adds the generic **String** array property to the current message.

This statement is used when the **String** array property is not known to QALoad.

## Syntax

```
void ofsSetPropertyStringArray(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Size of the String array.

## Example

```
//In this example, property 382 with size 0 is of type String Array.
//The property is associated with Tree control ID 73.
ofsSetPropertyStringArray( "TREE", 73, OFS_ENDMSG, 382, "0" );
```

## ofsSetPropertyVoid

Adds the generic **Void** property to the current message.

This statement is used when the **Void** property is not known to QALoad.

## Syntax

```
void ofsSetPropertyVoid(const char *sHandlerName, int iControlID, int iAction, int iPropertyID);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.

## Example

```
//In this example, property 382 is of Void type and is associated with Tree control ID 73.  
ofsSetPropertyVoid( "TREE", 73, OFS_ENDMSG, 382 );
```

## ofsSetRequiredVAList

Adds the Required\_VA\_List property (with Enabled attribute) to the current message.

The Required\_VA\_List property is applied to the initial Forms environment.

## Syntax

```
void ofsSetRequiredVAList(const char *HandlerName, int ControlID, OFSActionTypeEnum ActionType, int PropertyID);
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						
PropertyID	Oracle-designated ID for the property being added.						

## Example

```
//The initial set of Forms statements describes
//the initial Forms environment. The description
//is matched on the server side.

ofsSetInitialVersion( "RUNFORM", 1, OFS_ADD, 268, "90290" );
ofsSetScreenResolution( "RUNFORM", 1, OFS_ADD, 263, 96, 96);

.
.
.

ofsSetRequiredVAList( "RUNFORM", 1, OFS_ADD, 291 );

.
.
.

ofsFocus( "BUTTON", 58, OFS_ENDMSG, 174 );
ofsSendRecv(1 );
```

## ofsSetRunOptions

Sets the runtime values for Connect\_Type, Heartbeat, and Check\_Server\_Messages.

### Syntax

```
void ofsSetRunOptions( OFSFormsVersionEnum sFormsVersion, OFSConnectionTypeEnum
iConnectType, int iHeartbeatInterval, OFSMessageCheckingEnum iCheckServerMsgs);
```

### Return Value

## Parameters

Parameter	Description								
sFormsVersion	<p><i>OFSSFormsVersionEnum</i></p> <p>Version of Oracle Forms in use. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>FORMS_OAS</td> <td>Oracle Application Server</td> </tr> <tr> <td>FORMS_EBS_11i</td> <td>Oracle E-Business Suite 11i</td> </tr> <tr> <td>FORMS_EBS_12</td> <td>Oracle E-Business Suite 12</td> </tr> </tbody> </table>	Value	Description	FORMS_OAS	Oracle Application Server	FORMS_EBS_11i	Oracle E-Business Suite 11i	FORMS_EBS_12	Oracle E-Business Suite 12
Value	Description								
FORMS_OAS	Oracle Application Server								
FORMS_EBS_11i	Oracle E-Business Suite 11i								
FORMS_EBS_12	Oracle E-Business Suite 12								
iConnectType	<p><i>OFSSConnectionTypeEnum</i></p> <p>This flag indicates the type of connection to establish with the server. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_HTTP</td> <td>HTTP connection</td> </tr> <tr> <td>OFS_HTTPS</td> <td>Secure (SSL) connection</td> </tr> <tr> <td>OFS_SOCKET</td> <td>Socket connection</td> </tr> </tbody> </table>	Value	Description	OFS_HTTP	HTTP connection	OFS_HTTPS	Secure (SSL) connection	OFS_SOCKET	Socket connection
Value	Description								
OFS_HTTP	HTTP connection								
OFS_HTTPS	Secure (SSL) connection								
OFS_SOCKET	Socket connection								
iHeartbeatInterval	Heartbeat interval (minutes). This value is used only for socket connections and is ignored for HTTP or HTTPS connections.								
iCheckServerMsgs	<p><i>OFSSMessageCheckingEnum</i></p> <p>This flag indicates whether QALoad checks server messages. If server message checking is enabled, the script fails if the server sends a message ("FRM-", "ORA-", "APP-") unless the message is set as an expected message (see <code>ofsSetExpectedServerMsg()</code>). In addition, <code>ofsSetServerFailedMsg()</code> overrides the expected message if the message matches the failed message. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_DONTCHECKMSGs</td> <td>Disable error message checking for server messages.</td> </tr> <tr> <td>OFS_CHECKMSGs</td> <td>Enable error message checking for server messages.</td> </tr> </tbody> </table>	Value	Description	OFS_DONTCHECKMSGs	Disable error message checking for server messages.	OFS_CHECKMSGs	Enable error message checking for server messages.		
Value	Description								
OFS_DONTCHECKMSGs	Disable error message checking for server messages.								
OFS_CHECKMSGs	Enable error message checking for server messages.								

## Example

```
ofsSetRunOptions(FORMS_OAS, OFS_HTTP, 0, OFS_CHECKMSGs );
```

## ofsSetScaleInfo

Adds the Scale property to the current message.

The Scale property is applied to the initial Forms environment.

### Syntax

```
void ofsSetScaleInfo(const char *sClassName, int iHandlerID, int iAction, int iPropertyID,
int iCoordinateX, int iCoordinateY);
```

### Return Value

### Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordinateX	X coordinate associated with scale property.
iCoordinateY	Y coordinate associated with scale property.

### Example

```
ofsSetScaleInfo( "RUNFORM", 1, OFS_ADD, 267, 11, 18);
```

## ofsSetScreenResolution

Adds the Screen Resolution property to the current message.

The Screen Resolution property is applied to the initial Forms environment.

### Syntax

```
void ofsSetScreenResolution(const char *sClassName, int iHandlerID, int iAction, int
iPropertyID, int iCoordinateX, int iCoordinateY);
```

## Return Value

## Parameters

Parameter	Description
sClassName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordinateX	X coordinate associated with the property.
iCoordinateY	Y coordinate associated with the property.

## Example

```
ofsSetScreenResolution( "RUNFORM", 1, OFS_ADD, 263, 96, 96);
```

## ofsSet Selection

Adds the Selection property of a Text Field control to the current message.

This statement indicates the selected Text Field location during user entry.

## Syntax

```
void ofsSetSelection(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iCoordinateX, int iCoordinateY);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID

	is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iCoordinateX	X coordinate of the text field entry.
iCoordinateY	Y coordinate of the text field entry.

### Example

```
ofsSetSelection( "TEXTFIELD", 75, OFS_ADD, 195, 0, 0);
ofsSetCursorPosition( "TEXTFIELD", 75, OFS_ENDMSG, 193, "0" );
ofsSetWindowLocation( "Oracle Applications", 32, OFS_ENDMSG, 135, 231, 218);
ofsShowWindow( "Oracle Applications", 32, OFS_ENDMSG, 173 );
ofsActivateWindow( "Oracle Applications", 32, OFS_ENDMSG, 247 );
ofsFocus( "TEXTFIELD", 75, OFS_ENDMSG, 174 );
ofsSendRecv(2 );
```

## ofsSetServerFailedMsg

Enables QALoad to fail playback based on the user-entered string and filter parameters.

This statement overrides the effects of the ofsSetExpectedMsg statement, which enables QALoad to continue playback if FRM-, ORA- or APP- server messages are encountered.

### Syntax

```
void ofsSetServerFailedMsg(const char *sMsgString, OFSServerMessageComparisonTypeEnum iMsgOption);
```

### Return Value

### Parameters

Parameter	Description
sMsgString	String to compare against server message
iMsgOption	<i>OFSServerMessageComparisonTypeEnum</i>  This flag indicates the string comparison method to use for comparing a string against a server message. Valid values are:



	Value	Description
	OFS_KEYWORD	Search for string anywhere in server message.
	OFS_PREFIX	Compare string against beginning of the message.
	OFS_SUFFIX	Compare string against end of the message.
	OFS_ENTIRE_MSG	Compare string against entire message.

### Example

```
ofsSetServerFailedMsg( "FRM-4041", OFS_KEYWORD );
:
ofsSetExpectedMsg( "FRM-4041" );
ofsSendRecv(1);
```

## ofsSetServletMode

Creates a socket connection to the server-side code which communicates with the Forms Listener Servlet. The server-side code intercepts messages between QALoad and the servlet during a server-side connection.

### Syntax

```
void ofsSetServletMode(int iConnectMode, const char *sServletName);
```

### Return Value

### Parameters

Parameter	Description
iConnectMode	Connection mode.
sServletName	The listener servlet name.

### Example

```
ofsSetServletMode(OFS_HTTP, "http://ntsap45b:7779/forms90/190servlet" );
```

## ofsSetWindowLocation

Adds the Location property of a Window control to the current message.

This statement defines the window location in the canvas.

## Syntax

```
void ofsSetWindowLocation(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iPosX, int iPosY);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iPosX	X coordinate of the window control.
iPosY	Y coordinate of the window control.

## Example

```
ofsSetWindowLocation( "FORMWINDOW", 6, OFS_ENDMSG, 135, 0, 0);
ofsSetWindowSize( "FORMWINDOW", 6, OFS_ENDMSG, 137, 650, 500);
ofsSetWindowSize( "FORMWINDOW", 6, OFS_ENDMSG, 137, 650, 500);
ofsSendRecv(1 );
```

## ofsSetValue

Adds a generic Value property to the current message.

## Syntax

```
void ofsSetValue(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the class name of the control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.  OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the property.

## Example

```
//In this example, a value of "30" is being associated with control ID 1 "RUNFORM"
ofsSetValue( "RUNFORM", 1, OFS_ADD, 131, "30");
```

## ofsSetWindowSize

Adds the Size property of a Window control to the current message. This statement indicates a window being resized.

## Syntax

```
void ofsSetWindowSize(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, int iPosX, int iPosY);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing.

	OFS_ADD: Add the property to the current message. OFS_ENDMSG: Add property to the current message and end the current message.
iPropertyID	Oracle-designated ID for the property being added.
iPosX	Width of the window control.
iPosY	Length of the window control.

### Example

```
ofsSetWindowSize( "FORMWINDOW", 6, OFS_ENDMSG, 137, 650, 500);
ofsSendRecv(1 );
```

## ofsShowWindow

Adds the Visible property (with Enabled attribute) to the current message.

The property is associated with a Window control. The statement indicates a window being displayed in front of all other windows.

### Syntax

```
void ofsShowWindow(const char *sHandlerName, int ControlID, OFSActionTypeEnum ActionType, int PropertyID);
```

### Return Value

### Parameters

Parameter	Description						
HandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.						
ControlID	Captured ID of the GUI control for the current message.						
ActionType	<p><i>OFSActionTypeEnum</i></p> <p>This flag indicates if the property is only to be added to the current message or if it also ends the current message. The end of a message requires special processing. Valid values are:</p> <table border="0"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFS_ADD</td> <td>Add the property to the current message.</td> </tr> <tr> <td>OFS_ENDMSG</td> <td>Add the property to the current message and end the current message.</td> </tr> </tbody> </table>	Value	Description	OFS_ADD	Add the property to the current message.	OFS_ENDMSG	Add the property to the current message and end the current message.
Value	Description						
OFS_ADD	Add the property to the current message.						
OFS_ENDMSG	Add the property to the current message and end the current message.						

PropertyID	Oracle-designated ID for the property being added.
------------	--

## Example

```
//In this example, window control ID 118 is
//being displayed in front of all other windows.
ofsShowWindow( "FORMWINDOW", 118, OFS_ENDMSG, 173 );
```

## ofsSocketDisconnect

Closes the connection of a socket-mode playback.

### Syntax

```
void ofsSocketDisconnect();
```

### Return Value

### Parameters

None

## Example

```
ofsSocketDisconnect();
```

## ofsStartSubMessage

Adds a sub-message to the current message. A sub-message is a message nested inside another message.

### Syntax

```
void ofsStartSubMessage(const char *sHandlerName, int iHandlerID, int iAction, int
iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID

	is shown.
iHandlerID	Captured ID of the GUI control for the current message.
iAction	Action type. Adds the property of the succeeding nested message to the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the parent message.

### Example

```
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "2" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "6" ); /*Item value = BLAKE*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "3" );
ofsStartSubMessage( "TREE", 73, OFS_STARTSUBMSG, 505, "0" );
ofsDefineTreeNode( "TREE", 73, OFS_ADD, 500, "12" ); /*Item value = CLARK*/
ofsDefineTreeNodeOffset( "TREE", 73, OFS_ENDMSG, 503, "0" );

ofsSendRecv(1 );
```

## ofsTabControlTopPage

Adds the TabControl\_Top\_Page property to the current message.

### Syntax

```
void ofsTabControlTopPage(const char *sHandlerName, int iControlID, int iAction, int iPropertyID, const char *sValue);
```

### Return Value

### Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	Action type. Adds the property of the succeeding nested message to the current message.
iPropertyID	Oracle-designated ID for the property being added.
sValue	Value associated with the Tab Control.

## Example

```
ofsTabControlTopPage( "RUNFORM", 1, OFS_ENDMSG, 411, "30");
```

## ofsUnSetPropertyBoolean

Adds a generic Boolean property (with Disabled attribute) to the current message.

This statement is used when the property is not known to QALoad.

## Syntax

```
void ofsUnSetPropertyBoolean(const char *sHandlerName, int iControlID, int iAction, int iPropertyID);
```

## Return Value

## Parameters

Parameter	Description
sHandlerName	Captured name of the control ID for the current message. When the control name is not available, the Class name of the Control ID is shown.
iControlID	Captured ID of the GUI control for the current message.
iAction	Action type. Adds the property of the succeeding nested message to the current message.
iPropertyID	Oracle-designated ID for the property being added.

## Example

```
//In this example, property 382 is of Boolean type,  
//and is associated with control ID 1 (Runform).  
ofsUnSetPropertyBoolean( "RUNFORM", 1, OFS_ADD, 382);
```

## ofsWindowCreated

Check if the specified window was created during the last transaction with the server (ofsSendRecv).

## Syntax

```
int ofsWindowCreated(int iControlID, char *sControlName);
```

## Return Value

TRUE if the window was created, FALSE otherwise

## Parameters

Parameter	Description
iControlID	Captured ID of the GUI control for the current message.
sControlName	Name of the control.

## Example

```
ofsSendRecv(1);
ofsWindowCreated(710, "Account information");
```

## OracleAppsLogin

Simulates an Oracle Applications 11i login (Personal Home Page) and retrieves the icx\_ticket associated with that login.

The URL parameter should be the actual Oracle Personal Home Page address. Exceptions are thrown if the page cannot be found or if the icx\_ticket isn't returned by the server.

## Syntax

```
OracleAppsLogin(const char *ServerURL, const char *UserID, const char *Password)
```

## Parameters

Parameter	Description
ServerURL	URL of the Oracle Apps Login page (the Personal Home Page address).
UserID	User ID that was entered on the login page during the recording.
Password	Password that was entered on the login page during the recording.

## Example

```
//QALoad posts the login information to the homepage URL, retrieves the
//ICX ticket from the reply and uses the ICX ticket in a subsequent Forms message.
OracleAppsLogin( http://appl11i..com:8000/oraclemypage.home, "myuserid", "mypassword" );
```



# QALoad

## QALoad Common Commands

### BEGIN\_TRANSACTION

Defines the beginning of the script's transaction loop.

### BeginCheckpoint

Marks the beginning of a checkpoint.

### CLOSE\_ALL\_DATA\_POOLS

Closes all open local datapool files.

### CLOSE\_DATA\_POOL

Closes the specified local datapool file.

### COUNTER\_VALUE

This command is used to update or increment the values of custom counters defined using the DEFINE\_COUNTER command. As counter values are written to the timing file, they are time stamped with the elapsed time.

### DATE\_TIME

Gets the current time and/or date from the local machine.

### DefaultCheckpointsOn

QALoad automatically adds this command when the Include Default Checkpoint statements convert option is selected in Workbench. When this command is found in a QALoad script, QALoad will not automatically generate checkpoints inside the middleware when Auto Timings is enabled in the QALoad Conductor. Instead, QALoad uses checkpoint statements found within the QALoad script.

### DEFINE\_COUNTER

Use the DEFINE\_COUNTER command to define custom counters. Custom counters are written and managed on a per user basis. They will be saved to the timing file and can be graphed in Analyze. Counter data types can be either signed longs or floats. The counter type can be either cumulative or instance (which tells Analyze how to graph the counter.) Works in conjunction with the COUNTER\_VALUE command.

### DEFINE\_TRANS\_TYPE

Associates a description for the transaction loop displayed in QALoad Analyze.

### DO\_AbortOnError

Enables or disables error handling in the script.

### DO\_ExtractString

Finds a sub-string in a null-terminated buffer.

### DO\_MSLEEP

Inserts a sleep for the number of seconds defined in the parameter.

### DO\_SetTransactionCleanup

Defines a point at the end of the transaction for anything that needs to be de-allocated or uninitialized. When transaction restarting occurs for a failed transaction, QALoad will first execute any code starting after

the call to `DO_SetTransactionCleanup` allowing you to clean up important information and prevent memory leaks before retrying the transaction.

#### `DO_SetTransactionStart`

Defines a point at the beginning of the transaction loop that QALoad uses to rewind the transaction if the transaction fails and Restart Transaction error handling is selected in the QALoad Conductor.

#### `DO_SetValue`

Associates a value to a variable name. Variable names are embedded into parameter strings of QALoad functions and the value is interpolated at replay. Currently, `DO_Http` and `DO_Https` are the only functions that interpolate the variables.

#### `DO_SLEEP`

Inserts a sleep for the number of seconds defined in the parameter.

#### `END_TRANSACTION`

This command marks the end of the transaction loop.

#### `EndCheckpoint`

Indicates the end of a checkpoint, corresponding to a `BeginCheckpoint` command.

#### `EXIT`

Stops script processing and returns control back to the Conductor.

#### `GET_ABSOLUTE_VUNUM`

Gets the absolute virtual user number.

#### `GET_DATA`

Requests that QALoad Conductor send the next datapool record to the script.

#### `GET_DATA_FIELD`

Accesses the fields from the data record that was just read using the `READ_DATA_RECORD` statement. Field numbering starts at 1.

#### `GET_DATAPOOLES_DIR`

Retrieves the name of the QALoad Datapools directory.

#### `GET_HOME_DIR`

Retrieves the name of the QALoad installation directory.

#### `GET_LOGFILES_DIR`

Retrieves the name of the QALoad LogFiles directory.

#### `GET_RELATIVE_VUNUM`

Gets the relative virtual user number.

#### `GET_SCRIPTS_DIR`

Retrieves the name of the QALoad Scripts directory.

#### `GET_TIMINGFILES_DIR`

Retrieves the name of the QALoad Timing Files directory.

#### `LOG_ERROR`

Sends the corresponding message to the Conductor, so that it can be displayed within the [Player Messages](#) window in the Conductor.

**Modify\_Encoding**

Modifies the encoding for a string parameter.

**OctalToChar**

Converts any octal escape sequences to binary. Octal sequences consist of a backslash followed by two digits. This can be useful for adding binary data to a datapool file in the form of octal escape sequences since datapool files must contain only ASCII strings. For example:

**OPEN\_DATA\_POOL**

Opens the datapool file.

**RANDOM\_NUMBER**

Returns a string representation of a random number.

**RANDOM\_STRING**

Returns a string with a random set of alpha or alphanumeric characters of the specified width.

**READ\_DATA\_RECORD**

Reads a data record from a local datapool file.

**RND\_DELAY**

Delays the script for a random interval before proceeding.

**RND\_DELAY\_RANGE**

Delays the script for a random interval, within a specified range, before proceeding.

**RR\_FailedMsg**

Outputs a fatal error message to the Conductor.

**RR\_GetDebugFlag**

Gets the debug flag for the script.

**RR\_printf**

Prints formatted output to the standard output stream.

**SET\_ABORT\_FUNCTION**

Registers a callback function within the virtual user to call whenever the test operator manually aborts a test from the QALoad Conductor.

**SET\_SCRIPT\_LANGUAGE**

Specifies the encoding used for literal strings contained within the script. The default encoding is "SLID\_English".

**SLEEP**

Pauses a script for the specified number of seconds. This command is not affected by the sleep factor percentage specified in QALoad Conductor.

**SYNCHRONIZE**

Pauses script execution on the virtual user until the Conductor tells it to continue.

**VARDATA**

Replaces a string with a datapool variable.

## BEGIN\_TRANSACTION

Defines the beginning of the script's transaction loop.

QALoad automatically inserts BEGIN\_TRANSACTION and END\_TRANSACTION statements inside the script during the convert process. QALoad repeatedly executes the code between the BEGIN\_TRANSACTION and END\_TRANSACTION statements until you reach a maximum number of transactions or until the session duration time (specified in QALoad Conductor) is reached.

For each script, specify a frequency of execution with the pacing parameter in the QALoad Conductor. QALoad pauses the script after each transaction is complete, ensuring that it does not send transactions to the system under test more rapidly than the pacing value specifies. This pause occurs at the BEGIN\_TRANSACTION command.

### Syntax

```
BEGIN_TRANSACTION( );
```

### Return Value

### Parameters

None.

### Example

```
BEGIN_TRANSACTION( );  
...  
...  
END_TRANSACTION( );
```

## BeginCheckpoint

Marks the beginning of a checkpoint.

You can turn enhanced checkpoints on or off from the QALoad Script Development Workbench's Shared Convert Options dialog box. BeginCheckpoint is always used in conjunction with an [EndCheckpoint](#) command.

### Syntax

```
BeginCheckpoint ( char* CheckpointName );
```

### Return Value

## Parameters

Parameter	Description
CheckpointName	String containing a description of the checkpoint. This value cannot be longer than 127 characters.

## Example

```
BeginCheckpoint("Testing User-defined");
DO_Http("GET http://compuweb.compuware.com/ HTTP/ 1.0\r\n\r\n");
EndCheckpoint("Testing User-defined");
```

## CLOSE\_ALL\_DATA\_POOLS

Closes all open local datapool files.

All local datapool files should be closed at the end of the script using this statement.

## Syntax

```
CLOSE_ALL_DATA_POOLS ( );
```

## Return Value

## Parameters

None.

## Example

```
BeginCheckpoint();
RR__printf("Datapool Entry #1: %s", GET_DATA_FIELD 1);
DO_SLEEP(500);
EndCheckpoint(1);
CLOSE_ALL_DATA_POOLS ( );
END_TRANSACTION( );
```

## CLOSE\_DATA\_POOL

Closes the specified local datapool file.

All local datapool files should be closed at the end of the script using these statements or the `CLOSE_ALL_DATA_POOLS` command.

## Syntax

```
CLOSE_DATA_POOL (int datapool ID);
```

## Return Value

## Parameters

Parameter	Description
Datapool ID	The local datapool file to close.

## Example

```
END_TRANSACTION();
CLOSE_DATA_POOL( SS_1 ); /* Default placement after */
/* END_TRANSACTION */
```

## COUNTER\_VALUE

Updates or increments the values of custom counters defined using the DEFINE\_COUNTER command.

## Versions

Versions of COUNTER\_VALUE are:

**COUNTER\_VALUE** ( int Counter\_ID, long Counter\_Value );

**COUNTER\_VALUE** ( int Counter\_ID, float Counter\_Value );

## DATE\_TIME

Gets the current time and/or date from the local machine.

## Syntax

```
char * DATE_TIME(const char *pformat);
```

## Return Value

char \*: Formatted date/time string. This string should be freed when it is no longer needed.

## Parameters

Parameter	Description
pformat	A formatted control string that determines how to format the date/time string. The following formats can be used: ! %a: Abbreviated weekday name ! %A: Full weekday name ! %b: Abbreviated month name ! %B: Full month name

	! %c: Date and time representation appropriate for locale
	! %d: Day of month as a decimal number (01-31)
	! %H: Hour in a 24-hour format (00-23)
	! %I: Hour in a 12-hour format (01-12)
	! %j: Day of the year as a decimal number (001-366)
	! %m: Month as a decimal number (01-12)
	! %M: Minute as a decimal number (00-59)
	! %p: Current locale's AM/PM indicator for a 12-hour clock format
	! %S: Second as a decimal number (00-59)
	! %U: Week of the year as a decimal number, with Sunday as the first day of the week (00-53)
	! %w: Weekday as a decimal number (0-6, Sunday is 0)
	! %W: Week of the year as a decimal number, with Monday as the first day of the week (00-53)
	! %x: Date representation for the current locale
	! %X: Time representation for the current locale
	! %y: Year without a century, as a decimal number (00-99)
	! %Y: Year with a century, as a decimal number
	! %Z: Time zone name or abbreviation; no characters if the time zone is unknown
	! %: Percent sign

## Example

```
char *temp = NULL;
temp = DATE_TIME("Today is %A, day %d of %B in the year %Y.");
free(temp);

//might produce the following:
//Today is Wednesday, day 21 of January in the year 2004.
```

## DefaultCheckpointsOn

Automatically added when the Include Default Checkpoint statement's convert option is selected in Workbench.

When this command is found in a QALoad script, QALoad does not automatically generate checkpoints inside the middleware when Auto Timings is enabled in the QALoad Conductor. Instead, QALoad uses checkpoint statements found within the QALoad script.

## Syntax

```
void DefaultCheckpointsOn (void);
```

## Return Value

## Parameters

None


## Example

```
...
// Checkpoints have been included by the convert process
DefaultCheckpointsOn ();
...
```

## DEFINE\_COUNTER

Defines custom counters.

Custom counters are written and managed on a per user basis. They are saved to the timing file and can be graphed in Analyze. Counter data types can be either signed longs or floats. The counter type can be either cumulative or instance, which tells Analyze how to graph the counter. Works in conjunction with the COUNTER\_VALUE command.

 Note: If you call DEFINE\_COUNTER more than once, with all of the same parameters, it returns the same counter ID.

## Syntax

```
int DEFINE_COUNTER ( char* Group_Name, char* Counter_Name, char* Units, CounterDataTypeEnum
Data_Type, CounterCounterTypeEnum Counter_Type );
```

## Return Value

0 or greater if successful  
-1 if unsuccessful

## Parameters

Parameter	Description						
Group_Name	The name of the group this counter belongs to.						
Counter_Name	The name of the counter.						
Units	The counter units. Can be NULL if no units are needed for this counter.						
Data_Type	<p><i>CounterDataTypeEnum</i></p> <p>Counter data type. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DATA_LONG</td> <td>The counter values will be of type long.</td> </tr> <tr> <td>DATA_FLOAT</td> <td>The counter values will be of type float.</td> </tr> </tbody> </table>	Value	Description	DATA_LONG	The counter values will be of type long.	DATA_FLOAT	The counter values will be of type float.
Value	Description						
DATA_LONG	The counter values will be of type long.						
DATA_FLOAT	The counter values will be of type float.						
Counter_Type	<i>CounterCounterTypeEnum</i>						



	Counter type. Valid values are:	
	Value	Description
	COUNTER_CUMULATIVE	The counter data is cumulative.
	COUNTER_INSTANCE	The counter data is instance.

## Example

```
// "CounterGroup", "Counter Name",
// "Counter Units (Optional)" , Data Type, Counter Type.

id1 = DEFINE_COUNTER( "Cumulative Group", "Cumulative long",
    0, DATA_LONG, COUNTER_CUMULATIVE);
id2 = DEFINE_COUNTER( "Cumulative Group", "Cumulative float",
    0, DATA_FLOAT, COUNTER_CUMULATIVE);
id3 = DEFINE_COUNTER( "Instance Group", "Instance long",
    0, DATA_LONG, COUNTER_INSTANCE);
id4 = DEFINE_COUNTER( "Instance Group", "Instance float",
    0, DATA_FLOAT, COUNTER_INSTANCE);
SYNCHRONIZE();
BEGIN_TRANSACTION();
```

The following is an example of a command to call each time an error occurs:

```
void ErrorOneOccurred()
{
int errorCounterID;
errorCounterID = DEFINE_COUNTER( "Some Error Group", "Error One", 0, DATA_LONG,
COUNTER_CUMULATIVE );
COUNTER_VALUE( errorCounterID, 1 );
}
```

## DEFINE\_TRANS\_TYPE

Associates a description for the transaction loop displayed in QALoad Analyze .

### Syntax

```
DEFINE_TRANS_TYPE ( char* text );
```

### Return Value

### Parameters

Parameter	Description
text	A string of one to 60 characters enclosed in quotes.

## Example

```
DEFINE_TRANS_TYPE ( "Receiving in Acquisition" );
```

## DO\_AbortOnError

Used to enable or disable error handling in a script.

The parameter that is passed to `DO_AbortOnError` sets how functions respond when an error is encountered. When an error is encountered, functions can continue or abort the script.


Under normal conditions, error handling is set in the Script Development Workbench (for validation), or in the Conductor. `DO_AbortOnError` overrides these product settings.

## Syntax

```
DO_AbortOnError( bool flag );
```

## Return Value

## Parameters

Parameter	Description
flag	<p>TRUE or FALSE. A flag indicating whether the script should abort upon receiving an error.</p> <p> Tip: If you choose FALSE, you must implement error checking for all functions that return a value to ensure that NULL or incorrect values are not subsequently used in the script.</p>

## Example

```
char *p;
char temp[1000];
...
...
strcpy( temp, "Here is the search string." );

DO_AbortOnError(FALSE);
p = DO_GetUniqueStringEx( temp, "the", "string" );

DO_AbortOnError(TRUE);
if ( p != NULL )
{
    RR_printf( "String value = %s", p );
    free( p );
}
else
{
    //error handling if a NULL value is returned.
    RR_printf( "String not found" );
}
```

## DO\_ExtractString

Finds a sub-string in a null-terminated data buffer.

Retrieves a unique value in the data buffer `szBuffer`. The parameters `szLeft` and `szRight` represent data just to the left and just to the right of a string in `szBuffer`. The `nCount` parameter specifies which left string to use if there is more than one matching string. The `pszResult` parameter is the address of a string (`char*`) that holds the resulting extracted string.

 **Note:** The left string and the right string must be provided or an error is returned.

### Syntax

```
BOOL DO_ExtractString(const char* szBuffer, int nCount, const char* szLeft, const char*
szRight, char** pszResult);
```

### Return Value

TRUE if successful  
`char* szResult = NULL;`

...

/\*

\* The page returns a page containing "<title>Enter Login</title>"

\*/

```
DO_Http("GET http://www.host.com/ HTTP/1.1\r\n\r\n");
```

```
DO_ExtractString(DO_GetReplyBuffer(), 1, "<title>", "</title>", &szResult);
```

/\*

\* prints "The extracted title: Enter Login"

\*/


```
RR_printf("The extracted title: %s", szResult);
```

```
free(szResult);
```

```
szResult = NULL;
```

FALSE if not successful

`DO_ExtractString` allocates enough space in the parameter passed in as the string buffer to hold the string (including the NULL).

 **Caution:** The result parameter variable should be explicitly initialized to NULL. Failure to do so results in a memory error in the script. Once the result parameter has been allocated, it can be reused within the same transaction loop without being explicitly freed. However, the buffer memory should be freed at the end of the transaction loop and the pointer should be set to NULL. Failure to do so results in a memory leak.

### Parameters

Parameter	Description
<code>szBuffer</code>	The buffer to search.

nCount	The number of occurrences in the left string before a match is made.
szLeft	The left side of the string to match.
szRight	The right side of the string to match.
pszResult	The address of the return string.

### Example

```
char* szResult = NULL;
...
/*
 * The page returns a page containing "<title>Enter Login</title>"
 */
DO_Http("GET http://www.host.com/ HTTP/1.1\r\n\r\n");
DO_ExtractString(DO_GetReplyBuffer(), 1, "<title>", "</title>", &szResult);
/*
 * prints "The extracted title: Enter Login"
 */
RR_printf("The extracted title: %s", szResult);
free(szResult);
szResult = NULL;
```

## DO\_MSLEEP

Inserts a sleep for the number of seconds defined in the parameter.

The parameter passed to DO\_MSLEEP is first scaled by the sleep factor percentage specified in QALoad Conductor. During unit testing of the script, setting the sleep factor percentage to 0 (zero percent) causes DO\_MSLEEP not to sleep at all.

This command is ideal for unit testing where delays may not be wanted. Once the script is unit tested, the sleep factor percentage may be reset back to a suitable value, generally somewhere between 80% and 100%.

In addition, the sleep factor percentage can be set to Random in the QALoad Conductor. In this case, when a DO\_MSLEEP command is encountered, it sleeps for a random time frame ranging from 0 to the value specified.

### Syntax

```
DO_MSLEEP( int nMilliseconds );
```

### Return Value

### Parameters

Parameter	Description
nMilliseconds	Number of milliseconds to sleep.

## Example

This example shows how to pause a script for 5 seconds using the sleep function call. This example sleeps 5 seconds if the sleep factor percentage is set to 100 in the QALoad Conductor .

```
DO_MSLEEP( 5 ); /* Sleep 5 seconds */
```

## DO\_SetTransactionCleanup

Defines a point at the end of the transaction for anything that needs to be deallocated or uninitialized.

When transaction restarting occurs for a failed transaction, QALoad first executes any code starting after the call to `DO_SetTransactionCleanup`, allowing you to clean up important information and prevent memory leaks before retrying the transaction. This function is used in conjunction with

[DO\\_SetTransactionStart](#).

## Syntax

```
DO_SetTransactionCleanup() ;
```

## Return Value

## Parameters

None.

## Example

```
BEGIN_TRANSACTION();
DO_SetTransactionStart();
TRANSACTION CODE...
DO_SetTransactionCleanup();
DO_HttpCleanup();
DO_SomeOtherMiddlewareCleanup();
END_TRANSACTION();
```

## DO\_SetTransactionStart

Defines a point at the beginning of the transaction loop that QALoad uses to rewind the transaction if the transaction fails and Restart Transaction error handling is selected in the QALoad Conductor. This function is used in conjunction with `DO_SetTransactionCleanup`.

## Syntax

```
DO_SetTransactionStart() ;
```

## Return Value

## Parameters

None.

## Example

```
BEGIN_TRANSACTION();
DO_SetTransactionStart();

TRANSACTION CODE...
DO_SetTransactionCleanup();
DO_HttpCleanup();
DO_SomeOtherMiddlewareCleanup();
END_TRANSACTION();
```

## DO\_Set Value


Associates a value to a variable name.

Variable names are embedded into parameter strings of QALoad functions and the value is interpolated at replay. Currently, DO\_Http and DO\_Https are the only functions that interpolate the variables.

To embed a variable name, the name is wrapped by { and }. The default interpolation is to use the variable name as a part of the substituted value. For example, a name of "{this-name}" with a value of "this-value" is interpolated in the string "{this-name}" as "this-name=this-value". To suppress the variable name in the interpolated value, put an asterisk (\*) right after the opening {. For example, a name of "this-name", with a value of "this-value" is interpolated in the string "{\*this-name}" as "this-value".

After a variable is interpolated, it is removed from the variable table. For example, a name of "this-name" with a value of "this-value" is interpolated in the string "{\*this-name} {\*this-name}" as "this-value {this-name}".

If a variable is needed twice, it must be set twice. To suppress the removal of the variable from the variable table, put an exclamation (!) before the closing }. For example, a name of "this-name", with a value of "this-value" is interpolated in the string "{\*this-name!} {\*this-name!}" as "this-value".

 Note: When using DO\_SetValue to store CGI parameters, the parameters must be CGI encoded. This is done automatically by DO\_GetFormValueByName, by the string constants inserted during conversion.

## Syntax

```
BOOL DO_SetValue( const char *name, const char *value )
```

## Return Value

TRUE if successful  
FALSE if unsuccessful.

## Parameters

Parameter	Description
name	String containing the name of the field in which to set a value.
value	String containing the value to set this field.

## Example

```

...
...
DO_SetValue("name", "Joe+Smith" );
DO_SetValue("name", "Joe+Smith" );
DO_Http("GET http://company.com/forms.pl?{name} HTTP/1.0\r"
"\n Referer: http://company.com/forms.html\r\n Unused:"
"{*name}\r\n\r\n" );
...
...
QALoad will expand the statement internally as follows:
"GET http://company.com/forms.pl?name=Joe+Smith HTTP/1.0\r"
"\n Referer: http://company.com/forms.html\r\n"
"Unused: Joe+Smith\r\n\r\n"

```

## DO\_SLEEP

Inserts a sleep for the number of seconds defined in the parameter.

The parameter passed to DO\_SLEEP is first scaled by the sleep factor percentage specified in QALoad Conductor. During unit testing of the script, setting the sleep factor percentage to 0 (zero percent) causes DO\_SLEEP not to sleep at all.

This command is ideal for unit testing where delays may not be wanted. Once the script is unit tested, the sleep factor percentage may be reset back to a suitable value, generally somewhere between 80% and 100%.

In addition, the sleep factor percentage can be set to Random in the QALoad Conductor. In this case, when a DO\_SLEEP command is encountered, it sleeps for a random time frame ranging from 0 to the value specified.

## Syntax

```
DO_SLEEP( int nSeconds );
```

## Return Value

## Parameters

Parameter	Description
nSeconds	Number of seconds to sleep.

## Example

This example shows how to pause a script for 5 seconds using the sleep function call. This example sleeps 5 seconds if the sleep factor percentage is set to 100 in the QALoad Conductor .

```
DO_SLEEP( 5 ); /* Sleep 5 seconds */
```

## END\_TRANSACTION

Marks the end of the transaction loop.

At the end of the transaction loop, the virtual user performs the following actions:

1. Records the transaction's elapsed time, from BEGIN\_TRANSACTION to END\_TRANSACTION. This is reported on the Analyze report as the Duration.
2. Determines if another transaction should be processed on this virtual user:
  - ! If the test is over, script processing continues with the command following the END\_TRANSACTION.
  - ! If the test is not over, QALoad jumps to the BEGIN\_TRANSACTION command, where the script is paused for pacing, if specified.

A test is over if one or more of the following conditions are met:

- ! The amount of time the test has been running exceeds the maximum session duration as set up in the session ID file.
- ! The operator has manually ended the test.
- ! This virtual user has executed the maximum number of transactions for the virtual users running this script as set on the Conductor's Script Assignment tab.

### Syntax

```
END_TRANSACTION ( );
```

### Return Value

### Parameters

None.

### Example

```
...  
BEGIN_TRANSACTION ( );  
...  
...  
END_TRANSACTION ( );
```

## EndCheckpoint

Indicates the end of a checkpoint, corresponding to a BeginCheckpoint command.

BeginCheckpoint and EndCheckpoint correspond to QALoad's enhanced checkpoints. You can turn enhanced checkpoints on or off from the QALoad Script Development Workbench's Shared Convert Options dialog box. EndCheckpoint is always used in conjunction with a [BeginCheckpoint](#) command.

### Syntax

```
EndCheckpoint ( char* CheckpointName ) ;
```



## Return Value

## Parameters

Parameter	Description
CheckpointName	String containing a description of the checkpoint. This value cannot be longer than 127 characters.

## Example

```
BeginCheckpoint("Testing User-defined");
DO_Http("GET http://compuweb.compuware.com/ HTTP/ 1.0\r\n\r\n");
EndCheckpoint("Testing User-defined");
```

## EXIT

Stops script processing and returns control back to the Conductor.

## Syntax

```
EXIT ( );
```

## Return Value

## Parameters

None.

## Example

```
...
...
EXIT( );
```

## GET\_ABSOLUTE\_VUNUM

Gets the absolute virtual user number. This value is used to identify a virtual user uniquely within an entire test.

## Syntax

```
int GET_ABSOLUTE_VUNUM ( );
```

## Return Value

int -- absolute virtual user number

## Parameters

None.

## Example

```
int vunum;  
nuvum = GET_ABSOLUTE_VUNUM();  
RR_printf("I am vu %d", vunum);
```

## GET\_DATA

Requests that QALoad Conductor send the next datapool record to the script.

If you reach the end of the datapool file when this command is called, the script either exits with an END OF DATA status in QALoad Conductor, or rewinds to the beginning of the datapool file, depending on the status of the rewind option in QALoad Conductor.

## Syntax

```
GET_DATA ( );
```

## Return Value

## Parameters

None.

## Example

```
BEGIN_TRANSACTION( ); /*Beginning of transaction loop*/  
GET_DATA ( );  
...  
RR_printf(VARDATA(1) );
```

## GET\_DATA\_FIELD

Accesses the fields from the data record that were just read using the READ\_DATA\_RECORD statement. Field numbering starts at one (1).

## Syntax

```
GET_DATA_FIELD (int datapool ID, int FieldNum);
```

## Return Value

## Parameters

Parameter	Description
Datapool ID	The datapool whose record should be used. This is necessary because you can have up to 32 local datapool files open at once.
FieldNum	Which field of the record to read. Field numbering starts at one (1).

## Example

```
BeginCheckpoint();
RR_printf("Datapool Entry #1: %s", GET_DATA_FIELD (1, 1) );
DO_SLEEP(500);
EndCheckpoint(1);
```

## GET\_DATAPOOLS\_DIR

Retrieves the name of the QALoad Datapools directory.

For example, this function call returns the directory `\Program Files\Compuware\QALoad\Datapools`.

## Syntax

```
const char *GET_DATAPOOLS_DIR()
```

## Return Value

## Parameters

None.

## Example

```
const char *pDatapoolsDir;
pDatapoolsDir = GET_DATAPOOLS_DIR();

// As an example, the default install directory for pDatapoolsDir would =
c:\ProgramFiles\Compuware\QALoad\ Datapools ;

// To print out the datapools directory, type
RR_printf("datapools directory = %s\n", GET_DATAPOOLS_DIR() ) ;
```

## GET\_HOME\_DIR

Retrieves the name of the QALoad installation directory.

For example, this function call returns the directory `\Program Files\Compuware\ QALoad .`

## Syntax

```
const char *GET_HOME_DIR()
```

## Return Value

## Parameters

None.

## Example

```
const char *pHomeDir;
pHomeDir = GET_HOME_DIR();

// As an example, the default installation directory for
// pHomeDir would = c:\Program Files\Compuware\QALoad ;
```

## GET\_LOGFILES\_DIR

Retrieves the name of the QALoad LogFiles directory.

For example, this function call will return the directory \Program Files\Compuware\QALoad\LogFiles.

## Syntax

```
const char *GET_LOGFILES_DIR()
```

## Return Value

## Parameters

None.

## Example

```
const char *pLogFilesDir;
pLogFilesDir = GET_LOGFILES_DIR();

// As an example, the default installation directory for
// pLogFilesDir would = c:\Program Files\Compuware\QALoad\LogFiles;
```

## GET\_RELATIVE\_VUNUM

Gets the relative virtual user number. This value is used to identify a virtual user uniquely within a player instance.

## Syntax

```
int GET_RELATIVE_VUNUM ();
```

## Return Value

int -- relative virtual user number

## Parameters

None.

## Example

```
int vunum;
vunum = GET_RELATIVE_VUNUM();
RR_printf("I am vu %d", vunum);
```

## GET\_SCRIPTS\_DIR

Retrieves the name of the QALoad Scripts directory.

For example, this function call will return the directory \Program Files\Compuware\QALoad\scripts.

## Syntax

```
const char *GET_SCRIPTS_DIR()
```

## Return Value

## Parameters

None.

## Example

```
const char *pScriptsDir;
pScriptsDir = GET_SCRIPTS_DIR();

// As an example, the default installation directory for
// pScriptsDir would = c:\Program Files\Compuware\QALoad\Scripts;
```

## GET\_TIMINGFILES\_DIR

Retrieves the name of the QALoad Timing Files directory.

For example, this function call will return directory \Program Files\Compuware\QALoad\TimingFiles.

## Syntax

```
const char *GET_TIMINGFILES_DIR()
```

## Return Value

## Parameters

None.

## Example

```
const char *pTimingFilesDir;
pTimingFilesDir = GET_TIMINGFILES_DIR();

// As an example, the default installation directory for
// pTiming FilesDir would = c:\Program Files\Compuware\QALoad\TimingFiles ;
```

## LOG\_ERROR

Sends the corresponding message to the Conductor, so that it can be displayed within the [Player Messages](#) window in the Conductor.

## Syntax

```
LOG_ERROR( int nSendMsg, char* msg );
```

## Return Value

## Parameters

Parameter	Description
nSendMsg	Specifies whether msg should be sent to the Conductor.
msg	String that corresponds to the message to send to the Conductor.

## Example

```
int rrobot_script( PLAYER_INFO *s_info )
{
    SET_ABORT_FUNCTION(abort_function);
    DEFINE_TRANS_TYPE( "CP01" );
    SYNCHRONIZE();
    BEGIN_TRANSACTION();
    LOG_ERROR(TRUE, "Message text here");
    END_TRANSACTION();
    REPORT(SUCCESS);
}
```

```
EXIT();
return(0);
}
```

## Modify\_Encoding

Modifies the encoding for a string parameter.

Modify\_Encoding is used in scripts to convert strings to UTF8, EUCJP or to the language used by the script.

### Syntax

```
char* Modify_Encoding(PPLAYERINFO* pInfo, EncodingLangEnum encodingID, const char* strInput,
char** szResult)
```

### Return Value

A char pointer to the encoded string if successful; NULL if not successful.

### Parameters

Parameter	Description								
pInfo	Pointer to the PPLAYERINFO struct, sinfo.								
encodingID	<p><i>EncodingTypeEnum</i> Counter data type. Valid values are:</p> <table> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>UTF8</td> <td>UTF8 encoding.</td> </tr> <tr> <td>EUCJP</td> <td>EUCJP encoding.</td> </tr> <tr> <td>SCRIPT_LANGUAGE</td> <td>Script language encoding.</td> </tr> </tbody> </table>	Value	Description	UTF8	UTF8 encoding.	EUCJP	EUCJP encoding.	SCRIPT_LANGUAGE	Script language encoding.
Value	Description								
UTF8	UTF8 encoding.								
EUCJP	EUCJP encoding.								
SCRIPT_LANGUAGE	Script language encoding.								
strInput	The input string.								
szResult	The resulting encoded string. Note that this buffer will need to be freed to prevent memory leaks.								

### Example

The following is an example of a encoding a string:

```
Modify_Encoding(SCRIPT_LANGUAGE, DO_Http("GET http://www.google.com/ HTTP/1.0\r\n\r\n"),
&test);
```

## OctalToChar

Converts any octal escape sequences to binary.

Octal sequences consist of a backslash followed by two digits. This can be useful for adding binary data to a datapool file in the form of octal escape sequences, since datapool files must contain only ASCII strings. For example:

\ 77 is equivalent to an ASCII 63 which is a question mark character.

\ 12 is equivalent to an ASCII 10 which is a linefeed character.

## Syntax

```
int OctalToChar (char* str);
```

## Return Value

n The length of the string after conversion.

## Parameters

Parameter	Description
str	A null-terminated string.

## Example

```
char str[80];
...
strcpy(input, GET_DATA_FIELD(1, 1)); //copy data from datapool field into string variable
OctalToChar(input);
DO_WSK_Send(S1, input);
```

## OPEN\_DATA\_POOL

Opens the datapool file.

This command line is typically placed before the BEGIN\_TRANSACTION( ) statement.

## Syntax

```
OPEN_DATA_POOL (char* frame, int pNumber, int rewindflag);
```

## Return Value

## Parameters

Parameter	Description
frame	The name of the datapool file, including a drive and path.
pNumber	The ID that was given to the datapool when it was inserted into the script. This is used anytime the script reads a record or



	field from the datapool.
rewindFlag	TRUE if the datapool file should be rewound to the beginning after it reaches the end.  FALSE if it should not rewind.

## Example

```
OPEN_DATA_POOL( "C:\\Program Files\\Compuware\\ QALoad \\Middlewares\\
  SQLServer\\Scripts\\junk.dat", SS_1, TRUE );
```

```
/* Default placement before BEGIN_TRANSACTION */
SYNCHRONIZE();
BEGIN_TRANSACTION();
```

## RANDOM\_NUMBER

Returns a string representation of a random number between Low and High using Leading and Decimals to format the number.

The seed value that is used to generate the random number is automatically generated from the Player.

## Syntax

```
char* RANDOM_NUMBER(int Low, int High, int Leading, int Decimals);
```

## Return Value

char\*: A pseudo-random random number string. This string should be freed when it is no longer needed.

## Parameters

Parameter	Description
Low	Lowest number that is generated.
High	Highest number that is generated.
Leading	If greater than zero, this value specifies how many digits must be present to the left of the decimal point. Values are padded with zeroes to reach the specified value.
Decimals	If greater than zero, this value specifies how many digits must be present to the right of the decimal point. If zero is specified, no decimal point is generated.

## Example

```
char *temp = NULL;
temp = RANDOM_NUMBER(1, 100, 3, 2);
free(temp);
```

```
//might produce the following strings:
// "004.38"
// "099.03"
// "077.12"
```

## RANDOM\_STRING

Returns a string with a random set of alpha or alphanumeric characters of the specified width.

The seed value that is used to generate the random number is automatically generated from the Player.

### Syntax

```
char* RANDOM_STRING(int AlphaNum, int WidthMin, int WidthMax);
```

### Return Value

char\*: A pseudo-random random alphanumeric string. This string should be freed when it is no longer needed.

### Parameters

Parameter	Description
AlphaNum	One of the following values: 0: Returning string should contain only numeric values 1: Returning string should contain only alpha values 2: Returning string should contain alpha and numeric values
WidthMin	Minimum width of the variable width format of the call.
WidthMax	Maximum width of the variable width format of the call.

### Example

```
char *temp = NULL;
temp = RANDOM_STRING(1, 4, 10);
free(temp);

//might produce the following strings:
// "fj32"
// "mfigkec973"
// "fik34kf"
```

## READ\_DATA\_RECORD

Reads a data record from a local datapool file.

This statement is typically placed after the BEGIN\_TRANSACTION statement, although it is possible to read more than one record from the file during a single transaction.

## Syntax

```
READ_DATA_RECORD( int datapool_ID );
```

## Return Value

## Parameters

Parameter	Description
Datapool_ID	Tells from which local datapool file to read the record.

## Example

```
BEGIN_TRANSACTION();
READ_DATA_RECORD( SS_1 ); /* Default placement - Start of */
/* Transaction loop */
```

## RND\_DELAY

Delays the script for a random interval before proceeding.

Each time the script executes the RND\_DELAY command, the Player generates a random number. It uses a uniform distribution, between 0 and n seconds, where n is the parameter to the RND\_DELAY command. The average delay time for multiple occurrences of this command is n/2 seconds.

## Syntax

```
RND_DELAY ( int nSeconds );
```

## Return Value

## Parameters

Parameter	Description
nSeconds	Maximum number of seconds to delay before script execution proceeds.

## RND\_DELAY\_RANGE

Delays the script for a random interval, within a specified range, before proceeding.

Each time the script executes the RND\_DELAY\_RANGE command, the Player generates a random number. It uses a uniform distribution between minTime and maxTime seconds.

## Syntax

```
int RND_DELAY_RANGE (int minTime, int maxTime);
```

## Parameters

Parameter	Description
minTime	Minimum number of seconds to delay before script execution continues.
maxTime	Maximum number of seconds to delay before script execution continues.

## Example

In this example, the script pauses for a pseudo-random range between 2 and 10 seconds using the random delay range function.

```
RND_DELAY_RANGE(2, 10); /* Sleep between 2 and 10 seconds. */
```

## RR\_FailedMsg

Outputs a fatal error message to the Conductor. Use this function to describe an error condition encountered that caused the script to fail.

Do not call `RR_FailedMsg` in an SAP or Citrix script if the script includes a restart transaction operation. `SAPGui_error_handler` or `CTX_error_handler` can be called with the same parameters as `RR_FailedMsg` to output a fatal error message while still allowing a proper clean up of the current transaction before restarting the transaction.

## Syntax

```
int RR_FailedMsg (PLAYERINFO *pPlayerInfo, char* msg);
```

## Return Value

## Parameters

Parameter	Description
pPlayerInfo	Pointer to the <code>PLAYERINFO</code> struct, <code>sinfo</code> .
msg	Message to be passed to the Conductor.

## Example

```
int ret = 0;
ret = myFunc();
```

```
if(ret == ERROR)
RR__FailedMsg(s_info, "Virtual User Failed on myFunc!");
```

## RR\_\_GetDebugFlag

Gets the debug flag for the script.

### Syntax

```
int RR__GetDebugFlag ();
```

### Return Value

True if the debug flag is on.

False if the debug flag is off.

### Parameters

none

### Example

```
RR__GetDebugFlag ();
```

## RR\_\_printf

Prints formatted output to the standard output stream.

RR\_\_printf formats and prints a series of characters and values to the standard output stream, stdout. If arguments follow the format string, the format string must contain specifications that determine the output format for the arguments.

The format argument consists of ordinary characters, escape sequences, and, if arguments follow format, format specifications. The ordinary characters and escape sequences are copied to stdout in order of their appearance.

For example, the line:

```
RR__printf("Line one\n\t\tLine two\n");
```

produces the output:

```
Line one
Line two
```

Format specifications always begin with a percent sign (%) and are read left to right. When RR\_\_printf encounters the first format specification, if any, it converts the value of the first argument after format and outputs it accordingly. The second format specification causes the second argument to be converted and output, and so on. If there are more arguments than there are format specifications, the extra arguments are ignored. The results are undefined if there are not enough arguments for all the format specifications.

### Syntax

```
int RR__printf(const char * format [, argument]...);
```

## Return Value

The number of characters printed or a negative value if an error occurs.

## Parameters

Parameter	Description
format	Format control.
argument	Optional arguments.

## Example

```

/* This code segment shows examples of the usage of the RR__printf function to produce
formatted output for various datatypes. */

char ch='h', *string="computer";
int count=-9234;
double fp=251.7366;
wchar_t wch=L'w', *wstring=L"Unicode";

/*Display integers. */
RR__printf("Integer formats:\n" "\tDecimal: %d Justified: %.6d Unsigned: %u\n", count,
count, count, count);

RR__printf("Decimal %d as:\n\tHex: %Xh C hex: 0x%x Octal: %o\n", count, count, count,
count);

/* Display in different radixes. */
RR__printf("Digits 10 equal:\n\tHex: %i Octal: %i Decimal: %i\n",0x10, 010, 10);

/* Display characters. */
RR__printf("Characters in field:\n%10c%5hc%5C%5lc\n", ch, ch, wch, wch);

/* Display strings. */
RR__printf("Strings in field:\n%25s\n%25.4hs\n\t%S%25.3ls\n", string, string, wstring,
wstring);

/* Display real numbers. */
RR__printf("Real numbers:\n\t%f%.2f%e%E\n", fp, fp, fp, fp);

/* Display pointer. */
RR__printf("\nAddress as:\t%p\n", &count);

/* Count characters printed. */
RR__printf("\nDisplay to here:\n");
RR__printf("1234567890123456%n78901234567890\n", &count);
RR__printf("\tNumber displayed: %d\n\n", count);

```

## Output

Integer formats:

```

                Decimal: -9234
                Justified: -009234
                Unsigned: 4294958062

```

Decimal -9234 as:

```

Hex: FFFFD BEEh
C hex: 0xffffdbee
Octal: 37777755756

Digits 10 equal:

Hex: 16
Octal: 8
Decimal: 10

Characters in field:

h h w w

Strings in field:

computer
4hs
Uni

Real numbers:

251.736600
251.74 2.517366e+002
2.517366E+002

Address as:

0141FDC0

Display to here:

123456789012345678901234567890

Number displayed:

16

```

## SCRIPT\_MESSAGE

The `SCRIPT_MESSAGE` command inserts custom script messages into a timing file during test execution. The command takes a group name and a message as parameters; the messages appear on the Error report in Analyze when they are used.

### Syntax

```
SCRIPT_MESSAGE ( char* group, char* msg );
```

### Parameters

Parameter	Description
group	Message group name.
msg	Message.

## Example

```
int rrobot_script( PLAYER_INFO *s_info )
{
    SET_ABORT_FUNCTION(abort_function);
    DEFINE_TRANS_TYPE( "CP01" );
    SYNCHRONIZE();

    BEGIN_TRANSACTION();
    SCRIPT_MESSAGE("My Group", "Message text here");
    END_TRANSACTION();
    REPORT(SUCCESS);
    EXIT();
    return(0);
}
```

## SET\_ABORT\_FUNCTION

Registers a callback function within the virtual user to call whenever the test operator manually aborts a test from the QALoad Conductor.

When the abort callback function returns, the script automatically exits.

 **Note:** Checkpoints executed during an abort are not recorded in the timing file.

## Syntax

```
SET_ABORT_FUNCTION ( char* functionName );
```

## Return Value

## Parameters

Parameter	Description
functionName	Name of a function to call when the test is aborted.

## Example

```
{
/* Script Initialization */
:
SET_ABORT_FUNCTION( abort_function ) ;
/* Script */
}

void abort_function( PLAYER_INFO * s-info ) ;

{
/* Abort functionality goes here */
EXIT( ) ;
}
```



## SET\_SCRIPT\_LANGUAGE

Specifies the encoding used for literal strings contained within the script. The default encoding is "SLID\_English".

 **Note:** This statement must precede the initialization of the middleware being used.

### Syntax

```
void SET_SCRIPT_LANGUAGE (SCRIPT_LANG languageID);
```

### Return Value

None

### Parameters

Parameter	Description
languageID	Identifies the language encoding of strings within the script. Possible values are: ! SLID_English ! SLID_Chinese_Simplified ! SLID_Chinese_Traditional ! SLID_Japanese ! SLID_Korean

### Example

```
// Establish 'Japanese' as the language of the encoded strings
SET_SCRIPT_LANGUAGE (SLID_Japanese);
DO_InitHttp(s_info); // SET_SCRIPT_LANGUAGE() must precede the
// middleware's initialization statement
```

## SLEEP

Pauses a script for the specified number of seconds.

This command is not affected by the sleep factor percentage specified in QALoad Conductor.

### Syntax

```
SLEEP ( int nSeconds );
```

### Return Value

## Parameters

Parameter	Description
nSeconds	The number of seconds to sleep before execution proceeds.

## SYNCHRONIZE

Pauses script execution on the virtual user until the Conductor tells it to continue.

Normal usage is to have all scripts synchronize when they have reached the point at which transaction processing is to begin. There can be only one SYNCHRONIZE command per script.

### Syntax

```
SYNCHRONIZE( );
```

### Return Value

### Parameters

None.


### Example

```
...
...
SYNCHRONIZE( );
BEGIN_TRANSACTION( );
...
...
```

## SYNCH

This command is used to synchronize all virtual users for a particular script. When this statement is reached, QALoad halts execution of the virtual user. The virtual user remains halted until all other virtual users for this script have also halted at this statement. Then, the Conductor instructs all virtual users to continue.

Unlike the SYNCHRONIZE command, which is automatically added to the script above the BEGIN\_TRANSACTION statement by the convert process, you can insert any number of SYNCH commands into a script.

 Note: This function applies to virtual users that are already running. SYNCH does not apply to users who have not yet started the test.

### Syntax

```
SYNCH( );
```

## Parameters

None.

## Example

```
...
...
SYNCHRONIZE( );
...
BEGIN_TRANSACTION( );
...
SYNCH( );
...
...
END_TRANSACTION( );
```

## VARDATA

Replaces a string with a datapool variable.

To insert data from the fields in a datapool, substitute VARDATA(n) expressions wherever you want to replace a string with variable data. Note that datapool field numbering starts at 1.

## Syntax

```
VARDATA(n)
```

## Return Value

## Parameters

Parameter	Description
n	The datapool field number. Field numbering starts at 1.

## Example

```
Do_TuxFMLData ( 8302, 0, VARDATA(1));
```

## SAP 6.x

### SAP 6.x Commands

#### [SAPGuiApplication](#)

Allows scripts to call SAP GUI low-level administrative objects of the SAP GUI.

#### [SAPGuiCheckScreen](#)

Acts as a synchronization point in the script.

#### [SAPGuiCheckStatusbar](#)

Specifies the method (or property) that is called (or set), allowing the script access to the SAP GuiStatusbar object.

#### [SAPGuiCmd0](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. No parameters are sent.

#### [SAPGuiCmd1](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. One parameter is sent.

#### [SAPGuiCmd1Coll](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. One parameter is sent. Use this variation to deal with Collection object information only.

#### [SAPGuiCmd1Elmnt](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. One parameter is sent. This variation is to be used for entering COM array element info only (VB Collections).

#### [SAPGuiCmd1Sub](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. One parameter is sent. This variation is to be used for dealing with subtype information only.

#### [SAPGuiCmd1Sub1](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. One parameter is sent. This variation is to be used for dealing with subtype and SubParameter information only.

#### [SAPGuiCmd2](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. Two parameters are sent.

#### [SAPGuiCmd3](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. Three parameters are sent.

#### [SAPGuiConnect](#)

Specifies to which server a connection should be made.

#### [SAPGuiContentCheck](#)

Compares data from an SAP server returned control with input string based on the comparison options.

#### [SAPGuiCreateColl](#)

Specifies the method (or property) that is called (or set) in the object specified in the previous SAPGuiPropIdStr call. This call creates a collection.

**SAPGuiDestroyColl**

Specifies the method (or property) that is called (or set) in the object specified in the previous `SAPGuiPropIdStr` call. This call destroys a collection and decrements the reference count.

**SAPGuiGetControlText**

Extracts data from a SAP server returned control.

**SAPGuiGetUniqueString**

Extracts data from an SAP server returned control that occurs between the left and right input strings.

**SAPGuiPropIdStr**

Specifies the object ID string to use with subsequent SAPGui calls.

**SAPGuiPropIdStrExists**

Specifies the object ID string to use with subsequent SAPGui calls.

**SAPGuiPropIdStrExistsEnd**

Marks the end of the block of code that is executed if the condition in a prior `SAPGuiPropIdStrExists` command is true.

**SAPGuiSessionInfo**

Specifies the method (or property) that will be called, allowing the script access to the SAP `GuiSessionInfo` objects.

**SAPGuiSetCheckScreenWildcard**

Specifies the wildcard character to use for wildcard matching with `SAPGuiCheckScreen`.

**SAPGuiVerCheckStr**

Specifies the SAP GUI frontend version number at the time the capture file was made.

## SAPGuiApplication

Allows scripts to call low-level administrative objects of the SAP GUI.

### Syntax

```
SAPGuiApplication(char* FuncName);
```

### Parameters

Parameter	Description
FuncName	Function name.

### Example

```
.
.
.
BEGIN_TRANSACTION();
DO_SetTransactionStart();
try{
    SAPGuiConnect( s_info,"qacsapdb");
    SAPGuiApplication(RegisterROT);
```

```
SAPGuiVerCheckStr("6402.160.1");
```

```
.  
:  
.
```

## SAPGuiCheckScreen

Used as a synchronization point in your QALoad script.

Call this command after each request block to ensure that the screen being returned by the server is the one expected by the script. Each event sent from the SAP application server to the client includes the name of the ABAP program and the current screen title. This command ensures that the script and the application remain in synch.

Use `SAPGuiCheckScreen` with `SAPGuiSetCheckScreenWildcard` to perform a wildcard search for a screen title. This is especially useful if the screen title is likely to change with each new entry/lookup in the database during replay.

If you insert the wildcard (set in `SAPGuiSetCheckScreenWildcard`) as the first character of the title, then all titles with the same right-most characters will match. If the wildcard is located in any character position other than the first, QALoad does not treat it as a wildcard. For example, `*est` will match `test`, `tempest`, and `est`, but will not match `tester`. This prevents possible conflicts when a wildcard character is present in a captured string, but is not intended to be a wildcard. This also prevents conflicts within pre-existing scripts that were converted before the wildcard matching option was added in Release 4.4.

If the end of a title is problematic during replay, it is not necessary to use a wildcard match. Instead, reduce the number of characters that are compared in the title. For example, if the order number in the title `ORDER# PROCESSED: 12345` is likely to change during replay, shorten the title to remove the characters that are changing. In this case, shorten the title to `ORDER# PROCESSED:`. This results in a match with any title during replay that contains the first characters `ORDER# PROCESSED:`.

### Syntax

```
SAPGuiCheckScreen ( const char* OKCode, const char* ScreenName, const char* title );
```

### Return Value

### Parameters

Parameter	Description
OKCode	A string containing the current transaction code.
ScreenName	A string containing the current screen name.
title	A string containing the current string title.

### Example

```
SAPGuiCheckScreen( "SESSION_MANAGER", "SAPLSMTR_NAVIGATION", "SAP Easy Access" );  
//Check the OKcode, ScreenName, and screen title after each command
```

```

SAPGuiPropIdStr("wnd[0]");
SAPGuiCmd1(GuiMainWindow,SendVKey,0);
SAPGuiCheckScreen( "S000", "SAPMSYST", "SAP" );

SAPGuiCmd3(GuiMainWindow,ResizeWorkingPane,94,24,false);
SAPGuiPropIdStr("wnd[0]/tbar[0]/okcd");
SAPGuiCmd1(GuiOkCodeField,PutText,"bibs");
SAPGuiPropIdStr("wnd[0]");
SAPGuiCmd1(GuiMainWindow,SendVKey,0);
SAPGuiCheckScreen( "SESSION_MANAGER", "SAPLSMTR_NAVIGATION", "SAP Easy Access" );

SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:0200/subSA_200_1:SAPLEXAMP
LE_ENTRY_SCREEN:0800/cntlCC_HTML_INDEX/shellcont/shell");
SAPGuiCmd3(GuiCtrlHTMLViewer,SapEvent,"","","sapevent:ALV_SHORT?ALV");
SAPGuiCheckScreen( "BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Check boxes" );

```

## SAPGuiCheckStatusBar

Specifies the method or property that is called or set, allowing the script access to the SAP GuiStatusBar object.

### Syntax

```
SAPGuiCheckStatusBar ( const char* ID, const char* statusBarValue );
```

### Return Value

### Parameters

Parameter	Description
ID	ID to specify access to the status bar object.
statusBarValue	Status bar string to check against.

### Example

```

SAPGuiCheckScreen("S000", "SAPMSYST", "SAP");
SAPGuiCmd3(GuiMainWindow, ResizeWorkingPane, 94, 24, false);
//SAPGuiCheckStatusBar returns TRUE if the message is found
//and FALSE if not found
BOOL bRetSts = SAPGuiCheckStatusBar("wnd[0]/sbar", "E: Make an entry in all required
fields");


if (bRetSts)
RR__printf(" True\n");

else
RR__printf(" False\n");

```

## SAPGuiCmd0

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 0 in the name indicates that zero parameters are sent.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiCmd0( const char* Type, const char* FuncName);
```

### Return Value

### Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property related to the object.


### Example

```
SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:
    0200/subSA_200_2:SAPLEXAMPLE_ENTRY_SCREEN:
    2000/cntlCCCONTAINER/shellcont/shell");
SAPGuiCmd2(GuiCtrlGridView, SetCurrentCell, -1, "SEATSOCC");
//Call GuiCtrlGridView class method ClearSelection
SAPGuiCmd0(GuiCtrlGridView, ClearSelection);
SAPGuiCreateColl(GuiCollection, CreateGuiCollection, coll1);
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "PRICE");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSMAX");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSOCC");
SAPGuiCmd1(GuiCtrlGridView, PutSelectedColumns, coll1);
SAPGuiDestroyColl(GuiCollection, coll1);

SAPGuiPropIdStr("wnd[0]/tbar[0]/btn[3]");
SAPGuiCmd0(GuiButton, Press);
SAPGuiCheckScreen( "BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Alv grid" );
```

## SAPGuiCmd1

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 1 in the name indicates that one parameter is sent.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiCmd1( const char* Type, const char* FuncName, const char* Param);
```



## Return Value

## Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property related to the object.
Param	The first parameter to send.

## Example

```
SAPGuiCmd1(GuiPasswordField, PutCaretPosition, 3);
SAPGuiCmd1Pwd(GuiPasswordField, PutText, "~encr~1111111111");


//This variation is to be used for entering passwords only.
SAPGuiCmd1Pwd(GuiPasswordField, PutText, "~encr~1111111111" );

//Call the GuiMainWindow class method SendVKey with one parameter that has a value of 0
SAPGuiPropIdStr("wnd[0]");
SAPGuiCmd1(GuiMainWindow, SendVKey, 0);
SAPGuiCheckScreen( "SESSION_MANAGER", "SAPLSMTR_NAVIGATION", "SAP Easy Access" );
```

## SAPGuiCmd1Coll

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 1 in the name indicates that one parameter is sent.

Use this variation to deal with Collection object information only.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
SAPGuiCmd1Coll( const char* Type, const char* FuncName, ISapGenericCollectionPtr Coll, const char* Param);
```

## Return Value

## Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property related to the object.
Coll	Collection name of collection.

Param	The first parameter to send.
-------	------------------------------

### Example

```
//multiple selections of columns
SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:
    0200/subSA_200_2:SAPLEXAMPLE_ENTRY_SCREEN:
    2000/cntlCCCONTAINER/shellcont/shell");
SAPGuiCmd2(GuiCtrlGridView,SetCurrentCell,-1,"SEATSOCC");
SAPGuiCmd0(GuiCtrlGridView,ClearSelection);
SAPGuiCreateColl(GuiCollection,CreateGuiCollection,coll1);


//adds columns to a collection that was created by the selection of columns
SAPGuiCmd1Coll(GuiCollection,Add,coll1, "PRICE");
SAPGuiCmd1Coll(GuiCollection,Add,coll1, "SEATSMAX");
SAPGuiCmd1Coll(GuiCollection,Add,coll1, "SEATSOCC");
SAPGuiCmd1(GuiCtrlGridView,PutSelectedColumns,coll1);
SAPGuiDestroyColl(GuiCollection,coll1);

SAPGuiPropIdStr("wnd[0]/tbar[0]/btn[3]");
SAPGuiCmd0(GuiButton,Press);
SAPGuiCheckScreen( "BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Alv grid" );
```

## SAPGuiCmd1Elmnt

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 1 in the name indicates that one parameter is sent.

Use this variation for entering COM array element information only (VB collections).

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiCmd1Elmnt( const char* Type, const char* SubPropType, const char* FuncName,
IDispatchPtr ElmntAry, int ElmntIndx, const char* SubFuncName, const char* Param);
```

### Return Value

### Parameters

Parameter	Description
Type	Type of object.
SubPropType	The type of the sub-property.
FuncName	Function or method/property related to the object.
ElmntAry	Name of the COM element array.
ElmntIndx	Index of location in array.

SubFuncName	Function name in collection array.
Param	The first parameter to send.

## Example


```
SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:
    0200/subSA_200_2:SAPLEXAMPLE_ENTRY_SCREEN:
    2100/tblSAPLEXAMPLE_ENTRY_SCREENTC535");
SAPGuiCmd1(GuiTableControl, ReorderTable, "0 2 5 3 1 4 6 7" );

//Call GuiTableControl class of type
//GuiCollection with the GetColumns method.
//At elements 0, 4, and 2, set
//the width to 8, 8, and 7, respectively.
SAPGuiCmd1Elmnt(GuiTableControl, GuiCollection, GetColumns, ElementAt, 0, PutWidth, 8 );
SAPGuiCmd1Elmnt(GuiTableControl, GuiCollection, GetColumns, ElementAt, 4, PutWidth, 8 );
SAPGuiCmd1Elmnt(GuiTableControl, GuiCollection, GetColumns, ElementAt, 2, PutWidth, 7 );
```

## SAPGuiCmd1Sub

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 1 in the name indicates that one parameter is sent.

Use this variation of the SAPGuiCmd command for dealing with subtype information only.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
SAPGuiCmd1Sub( const char* Type, const char* SubPropType, const char* FuncName, const char*
SubFuncName, const char* Param);
```

## Return Value

## Parameters

Parameter	Description
Type	Type of object.
SubPropType	The type of the sub-property.
FuncName	Function or method/property related to the object.
SubFuncName	Function name in the collection array.
Param	The first parameter to be sent.

## Example


```
// Call GuiTableControl class of type
// GuiCollection. Get all columns and
// set the width to a value of 2.

SAPGuiPropIdStr("wnd[0]/usr/tblMP400100TC3000");
SAPGuiCmd1Sub1(GuiTableControl, GuiTableRow, GetAbsoluteRow, PutSelected, true, 0);
SAPGuiCmd1Sub(GuiTableControl, GuiCollection, GetColumns, ElementAt, -1, PutWidth, 2);
```

## SAPGuiCmd1Sub1

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 1 in the name indicates that one parameter is sent.

Use this variation of the SAPGuiCmd command to deal with subtype and SubParameter information only.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
SAPGuiCmd1Sub1( const char* Type, const char* SubPropType, const char* FuncName, const char*
SubFuncName, const char* Param, const char* SubParam);
```

## Return Value

## Parameters

Parameter	Description
Type	Type of object.
SubPropType	The type of the sub-property.
FuncName	Function or method/property related to the object.
SubFuncName	Function name in the collection array.
Param	The first parameter to send.
SubParam	The parameter to be sent to the SubFunction.


## Example

```
//Call GuiTableControl class of type
//GuiTableRow. Call GetAbsoluteRow with
//a value of 0 and put a value of True.

SAPGuiPropIdStr("wnd[0]/usr/tblMP400100TC3000");
SAPGuiCmd1Sub1(GuiTableControl, GuiTableRow, GetAbsoluteRow, PutSelected, true, 0);
SAPGuiCmd1Sub(GuiTableControl, GuiCollection, GetColumns, ElementAt, -1, PutWidth, 2);
```

## SAPGuiCmd2

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 2 in the name indicates that two parameters are sent.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiCmd2( const char* Type, const char* FuncName, const char* Param1, const char* Param2);
```

### Return Value

### Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property related to the object.
Param1	The first parameter to send.
Param2	The second parameter to send.


### Example

```
//Call SetCurrentCell with two parameters
SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:
    0200/subSA_200_2:SAPLEXAMPLE_ENTRY_SCREEN:
    2000/cntlCCCONTAINER/shellcont/shell");
SAPGuiCmd2(GuiCtrlGridView, SetCurrentCell, -1, "SEATSOCC");
SAPGuiCmd0(GuiCtrlGridView, ClearSelection);
SAPGuiCreateColl(GuiCollection, CreateGuiCollection, coll1);
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "PRICE");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSMAX");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSOCC");
SAPGuiCmd1(GuiCtrlGridView, PutSelectedColumns, coll1);
SAPGuiDestroyColl(GuiCollection, coll1);

SAPGuiPropIdStr("wnd[0]/tbar[0]/btn[3]");
SAPGuiCmd0(GuiButton, Press);
SAPGuiCheckScreen( "BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Alv grid" );
```

## SAPGuiCmd3

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call. The 3 in the name indicates that three parameters are sent.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
SAPGuiCmd3( const char* Type, const char* FuncName, const char* Param1, const char* Param2,
const char* Param3);
```

## Return Value

## Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property that is related to the object.
Param1	The first parameter to send.
Param2	The second parameter to send.
Param3	The third parameter to send.

## Example

```
//Resize the main window
SAPGuiPropIdStr("wnd[0]");
SAPGuiCmd3(GuiMainWindow, ResizeWorkingPane, 94, 24, false);
```

## SAPGuiConnect

Specifies to which server description a connection should be made.

## Syntax

```
HRESULT SAPGuiConnect( PLAYER_INFO* s_info, char* server description);
```

## Return Value

## Parameters

Parameter	Description
s_info	Structure used by each virtual user.
server description	String that matches a server in the SAPLogon specifications.

## Example

```
//Connect to the SAP server named testsap620
SAPGuiConnect( s_info, "testsap620");
SAPGuiVerCheckStr( "6205.132.36");
```

## SAPGuiContentCheck

Compares data from an SAP server returned control with input string based on the comparison options.

### Syntax

```
int SAPGuiContentCheck(const char* id, const char* type, const char* searchString, Bool
bCaseSensitive, SAP_CONTENTCHECK_OPTION nType);
```

### Return Value

- 1    When an error occurs, for example, the control does not exist.
  
- 0     If the content and the input string are identical (nType = ENTIRE)  
       If the input string is prefix of content (nType = PREFIX)  
       If the input string is suffix of content (nType = SUFFIX)  
       If the input string is substring of content (nType = SUBSTRING)
  
- 1     If the content and the input string are not identical (nType = ENTIRE)  
       If the input string is not prefix of content (nType = PREFIX)  
       If the input string is not suffix of content (nType = SUFFIX)  
       If the input string is not substring of content (nType = SUBSTRING)

### Parameters

Parameter	Description						
id	The SAP control ID.						
type	The SAP control type.						
searchString	A character string specifying a content to search for in the control's text property.						
bCaseSensitive	Case sensitive or case insensitive comparison.						
nType	<p><i>SAP_CONTENTCHECK_OPTION</i></p> <p>Type corresponding to the comparison options available on the QALoad Script Development Workbench Convert Options wizard. Valid values are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ENTIRE</td> <td>Compare entire SAP text</td> </tr> <tr> <td>PREFIX</td> <td>Compare SAP text prefix</td> </tr> </tbody> </table>	Value	Description	ENTIRE	Compare entire SAP text	PREFIX	Compare SAP text prefix
Value	Description						
ENTIRE	Compare entire SAP text						
PREFIX	Compare SAP text prefix						

	SUFFIX	Compare SAP text suffix
	SUBSTRING	Compare SAP text substring


## Example

```
int n;
....
...
n = SAPGuiGetContentCheck("wnd[0]/usr/txtRSYST-BNAME","GuiTextField","qa", false, PREFIX);
RR_printf("return value = %d", n);
...
..
```

## SAPGuiCreateColl

Specifies the method or property that is called or set in the object specified in the previous SAPGuiPropIdStr call.

This call creates a collection with the name specified by Coll.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
SAPGuiCreateColl( char* Type, char* FuncName, ISapGenericCollectionPtr Coll)
```

## Return Value

## Parameters

Parameter	Description
Type	Type of object.
FuncName	Function or method/property related to the object.
Coll	Collection name of collection.

## Example

```
SAPGuiCreateColl(GuiCollection, CreateGuiCollection, coll1);
SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:
    SAPLEXAMPLE_ENTRY_SCREEN:0200/subSA_200_2:
    SAPLEXAMPLE_ENTRY_SCREEN:2000/cntLCCCONTAINER/shellcont/shell");
SAPGuiCmd2(GuiCtrlGridView, SetCurrentCell, -1, "SEATSOCC");
SAPGuiCmd0(GuiCtrlGridView, ClearSelection);
```




```
//Multiple selections of columns creates a collection for the selection of columns
SAPGuiCreateColl(GuiCollection, CreateGuiCollection, coll1);
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "PRICE");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSMAX");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSOCC");
SAPGuiCmd1(GuiCtrlGridView, PutSelectedColumns, coll1);
SAPGuiDestroyColl(GuiCollection, coll1);

SAPGuiPropIdStr("wnd[0]/tbar[0]/btn[3]");
SAPGuiCmd0(GuiButton, Press);
SAPGuiCheckScreen( "BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Alv grid" );
```

## SAPGuiDestroyColl

Specifies the method or property that is called or set in the object specified in the previous `SAPGuiPropIdStr` call.

This call destroys a collection and decrements reference count.

 **Note:** For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiDestroyColl( const char* Type, ISapGenericCollectionPtrColl );
```

### Return Value

### Parameters

Parameter	Description
Type	Type of object.
Coll	Collection name of collection

### Example


```
SAPGuiDestroyColl(GuiCollection, coll1);

SAPGuiPropIdStr("wnd[0]/usr/subSA_0100_1:SAPLEXAMPLE_ENTRY_SCREEN:
                0200/subSA_200_2:SAPLEXAMPLE_ENTRY_SCREEN:
                2000/cntlCCCONTAINER/shellcont/shell");
SAPGuiCmd2(GuiCtrlGridView, SetCurrentCell, -1, "SEATSOCC");
SAPGuiCmd0(GuiCtrlGridView, ClearSelection);
SAPGuiCreateColl(GuiCollection, CreateGuiCollection, coll1);
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "PRICE");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSMAX");
SAPGuiCmd1Coll(GuiCollection, Add, coll1, "SEATSOCC");
SAPGuiCmd1(GuiCtrlGridView, PutSelectedColumns, coll1);
//Multiple selections of columns
//destroys a collection that was
//created by a selection of columns
SAPGuiDestroyColl(GuiCollection, coll1);
```

```
SAPGuiPropIdStr("wnd[0]/tbar[0]/btn[3]");
SAPGuiCmd0(GuiButton, Press);
SAPGuiCheckScreen("BIBS", "SAPLEXAMPLE_ENTRY_SCREEN", "Style Guide: Alv grid" );
```

## SAPGuiGetControlText

Extracts data from a SAP server returned control.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
char* SAPGuiGetControlText(const char id, const char* type);
```

### Return Value

The string (null-terminated) of characters containing the text of an SAP control.

SAPGuiGetControlText allocates enough space in the parameter passed in as the string buffer to hold the string (including the NULL). Please remember to free any memory after using the returned string. Any memory created with this command that is not explicitly freed results in a memory leak.

### Parameters

Parameter	Description
id	The SAP control ID.
type	The SAP control type.

### Example

```
char *p;
....
...
p = SAPGuiGetControlText("wnd[0]/usr/txtRSYST-MANDT", "GuiTextField");
RR_printf("text = %s", p);
...
..
free(p);
```

## SAPGuiGetUniqueString

Extracts data from an SAP server returned control that occurs between the left and right input strings.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

## Syntax

```
char* SAPGuiGetUniqueString (const char id, const char* type, const char* left, const char*
right);
```

## Return Value

The string (null-terminated) of characters between the left and right search strings.

NULL if either the left or right search strings are not found, an error message will also be given.

NULL if the left search string and the right search string convert all text property of the SAP control.

SAPGuiGetUniqueString allocates enough space in the parameter passed in as the string buffer to hold the string (including the NULL). Please remember to free any memory after using the returned string. Any memory created with this command that is not explicitly freed results in a memory leak.

## Parameters

Parameter	Description
id	The SAP control ID.
type	The SAP control type.
left	A string containing the left search string.
right	A string containing the right search string.

## Example

```
char *p;
....
...
p = SAPGuiGetUniqueString("wnd[0]/usr/txtRSYST-BNAME", "GuiTextField", "qa", "23");
RR_printf("String value = %s", p);
...
..
free(p);
```

## SAPGuiPropIdStr

Specifies the object ID string to use with subsequent SAPGui calls.

This object ID remains in effect until another call to SAPGuiPropIdStr is made.

## Syntax

```
SAPGuiPropIdStr( char* Object_ID );
```

## Return Value

## Parameters

Parameter	Description
Object_ID	String used for subsequent SAPGui command calls.

## Example

```
//Set the object ID to "wnd[0]"
SAPGuiPropIdStr("wnd[0]");
SAPGuiCmd1(GuiMainWindow, SendVKey, 0);
SAPGuiCheckScreen( "SESSION_MANAGER", "SAPLSMTR_NAVIGATION", "SAP Easy Access" );
```

## SAPGuiPropIdStrExists

Specifies the object ID string to use with subsequent SAPGui calls.

This object ID remains in effect until another call to SAPGuiPropIdStr or SAPGuiPropIdStrExists is made.

## Syntax

```
SAPGuiPropIdStrExists (char* Object_Id);
```

## Return Value

## Parameters

Parameter	Description
Object_Id	String used for subsequent SAPGui command calls.

## Example

```
SAPGuiCheckScreen("S000", "SAPMSYST", "SAP");
DO_SLEEP(3);
SAPGuiPropIdStrExists("wnd[1]/usr/radMULTI_LOGON_OPT2");
    SAPGuiCmd0(GuiRadioButton, Select);
    SAPGuiCmd0(GuiRadioButton, SetFocus);

    SAPGuiPropIdStr("wnd[1]/tbar[0]/btn[0]");
    SAPGuiCmd0(GuiButton, Press);
    SAPGuiCheckScreen("S000", "SAPMSYST", "License Information for Multiple Logon");
SAPGuiPropIdStrExistsEnd("wnd[1]/usr/radMULTI_LOGON_OPT2");
```

## SAPGuiPropIdStrExistsEnd

Marks the end of the block of code that is executed if the condition in a prior `SAPGuiPropIdStrExists` command is true.

### Syntax

```
SAPGuiPropIdStrExistsEnd (char* Object_Id);
```

### Return Value

### Parameters


Parameter	Description
Object_Id	String used for matching <code>SAPGuiPropIdStrExists</code> command calls.

### Example

```
SAPGuiCheckScreen("S000", "SAPMSYST", "SAP");
DO_SLEEP(3);
SAPGuiPropIdStrExists("wnd[1]/usr/radMULTI_LOGON_OPT2");
    SAPGuiCmd0(GuiRadioButton, Select);
    SAPGuiCmd0(GuiRadioButton, SetFocus);
    SAPGuiPropIdStr("wnd[1]/tbar[0]/btn[0]");
    SAPGuiCmd0(GuiButton, Press);
    SAPGuiCheckScreen("S000", "SAPMSYST", "License Information for Multiple Logon");
SAPGuiPropIdStrExistsEnd("wnd[1]/usr/radMULTI_LOGON_OPT2");
```

## SAPGuiSessionInfo

Specifies the method or property that is called allowing the script access to the SAP `GuiSessionInfo` objects.

 Note: For more information about SAP parameters, refer to SAP's publication titled "SAP GUI Scripting API for the Windows and Java Platforms".

### Syntax

```
SAPGuiSessionInfo( const char* FuncName, const char* Param1 )
```

### Return Value

## Parameters

Parameter	Description
FuncName	Function or method/property related to the object.
Param1	The first parameter to send.

## Example

In this example, RoundTrips data and Flush data are stored in custom counters

```
int id1, id2, id3, id4;
long lRoundTrips, lFlushes;

id1 = DEFINE_COUNTER("Cumulative Group", "Cumulative RoundTrips", 0, DATA_LONG,
COUNTER_CUMULATIVE);
id2 = DEFINE_COUNTER("Cumulative Group", "Cumulative Flushes", 0, DATA_LONG,
COUNTER_CUMULATIVE);
id3 = DEFINE_COUNTER("Instance Group", "Instance RoundTrips", 0, DATA_LONG,
COUNTER_INSTANCE);
id4 = DEFINE_COUNTER("Instance Group", "Instance Flushes", 0, DATA_LONG, COUNTER_INSTANCE);

.
.
.

//Retrieve the number of round trips
SAPGuiSessionInfo(GetRoundTrips, lRoundTrips);
//Retrieve the number of times the buffer is flushed
SAPGuiSessionInfo(GetFlushes, lFlushes);
SAPGuiPropIdStr("wnd[1]/usr/btnSPOP-OPTION1");
SAPGuiCmd0(GuiButton, Press);
SAPGuiCheckScreen("SESSION_MANAGER", "SAPLSPO1", "Log Off" );

COUNTER_VALUE(id1, lRoundTrips);
COUNTER_VALUE(id2, lFlushes);
COUNTER_VALUE(id3, lRoundTrips);
COUNTER_VALUE(id4, lFlushes);
```

## SAPGuiSetCheckScreenWildcard

Specifies the wildcard character that `SAPGuiCheckScreen` uses for wildcard matching.

Although all converted scripts include `SAPGuiSetCheckScreenWildcard ('*')` as one of the first functions, you can specify a different wildcard character to use later in the script.

## Syntax

```
SAPGuiSetCheckScreenWildcard (unsigned short wildcard);
```

## Return Value

## Parameters

Parameter	Description
wildcard	A character to match in SAPGuiCheckScreen.

## Example

```
//Set the wildcard character to *
SAPGuiSetCheckScreenWildcard('*');
SYNCHRONIZE();
BEGIN_TRANSACTION();

try{
SAPGuiConnect( s_info, "testsap620");
SAPGuiVerCheckStr("6205.132.36");

.
.
.
}
catch(_com_error e){

.
.
.
}
```

## SAPGuiVerCheckStr

Specifies the SAP GUI front end version number at the time the capture file was made.

This information includes the major version, the minor version, and the patch level that was installed at the time of capture. If the information does not match, it may not be possible to do a playback from this capture.

## Syntax

```
SAPGuiVerCheckStr( char* version );
```

## Return Value

## Parameters

Parameter	Description
version	String that includes the major version number, minor version number, and patch level number of the installed SAP client. Format: "Major version.Minor version.Patchlevel"

## Example

```
SAPGuiConnect(s_info, "testsap620");  
SAPGuiVerCheckStr("6204.119.32");
```



## SSL

### SSL Commands

#### DO\_Https

Applies to SSL requests. Makes a secured request to the server specified by the `http_statement`.

#### DO\_SetSSLConnectString

Applies to SSL requests. Sets the proxy authorization when accessing SSL pages passed through a proxy server (also known as "SSL tunneling").

#### DO\_SSLReuseSession

Applies to SSL requests. Re-uses the current session's communication information (session ID) for all page requests within the transaction.

#### DO\_SSLUseCipher

Applies to SSL requests. Sets the encryption algorithm for playback.

#### DO\_SSLUseClientCert

Applies to SSL requests. Specifies a client certificate to pass upon request while recording SSL requests.

#### DO\_SSLUseClientCertPass

Applies to SSL requests. Specifies a password (plain text or encrypted) that is needed to read a client certificate.

#### DO\_SSLUseProxy

Applies to SSL requests. Specifies a proxy server for all SSL requests to be sent through.

### DO\_Https

Applies to SSL requests. Makes a secured request to the server specified by the `http_statement`.

This command returns a string containing the HTML response from the secured server.

#### Syntax

```
DO_Https ( const char *http_statement );
```

#### Return Value

Character: String containing the response from the secured server.

#### Parameters

Parameter	Description
<code>http_statement</code>	A string containing the URL of the secured server and any headers to be sent.

## Example

```


...
...
DO_Https("GET HTTPS://www.yahoo.com HTTP/1.0\r\n"
"Referer: HTTP://company/index.htm\r\n"
"Proxy-Connection: Keep-Alive\r\n"
"User-Agent: Mozilla/3.01 WinNT;I)\r\n"
"Host: www.yahoo.com\r\n"
"Accept: */*\r\n");
...
...

```

## DO\_SetSSLConnectString

Applies to SSL requests. Sets the proxy authorization when accessing SSL pages passed through a proxy server (also known as "SSL tunneling").

This command will be called for each SSL request connecting to a different server.

 **Note:** DO\_SetSSLConnectString is a deprecated command. It is used internally by QALoad . Connection strings are created internally by QALoad . In addition, the DO\_SetSSLConnectString command will be commented out in converted scripts to help create a custom connect string if needed.

## Syntax

```
int DO_SetSSLConnectString ( const char *connectstring ) ;
```

## Return Value

0 if the function is successful.  
1 if the function is unsuccessful.

## Parameters

Parameter	Description
connectstring	A character string specifying the command to be sent to the SSL proxy server to allow SSL requests to be sent. This is in the format "CONNECT servername:port". The connect string must be terminated by a double CR-LF pair.

## Example

```

...
...
DO_SetSSLConnectString("CONNECT www.yahoo.com:443 HTTP/ 1.0\r\n"
"Proxy-authorization: Basic cGZobGFwMDpicm9uaWNh\r\n"
"User-Agent: Mozilla/4.04 [en] (WinNT; U)\r\n\r\n");
DO_Https("GET HTTPS://www.yahoo.com HTTP/1.0\r\n"
"Referer: HTTP://company/index.htm\r\n"
"Proxy-Connection: Keep-Alive\r\n"
"User-Agent: Mozilla/3.01 WinNT;I)\r\n"
"Host: www.yahoo.com\r\n"
"Accept: */*\r\n");

```

...

## DO\_SSLReuseSession

Applies to SSL requests. Re-uses the current session's communication information (session ID) for all page requests within the transaction.

DO\_SSL\_ReuseSession is related to the option Reuse SSL Session ID check box on the WWW Advanced dialog box. The WWW Advanced dialog box is accessed from the Convert Options wizard by clicking the Advanced button.

Place DO\_SSLReuseSession before the BEGIN\_TRANSACTION statement to use the session ID for all transactions, or place it after the BEGIN\_TRANSACTION statement to reuse the session ID only for statements within that transaction.

### Syntax

```
DO_SSLReuseSession( BOOL bEnable );
```

### Return Value

Always returns 0

### Parameters

Parameter	Description
bEnable	Starts (TRUE) or stops (FALSE) the reuse of a session ID.

### Examples

In the following example, the very first SSL connection will establish a Session ID, which will be reused again for all SSL requests and transactions accessing the same Web server:

```
...
...
DO_SSLReuseSession(1);
BEGIN_TRANSACTION();
...
...
END_TRANSACTION();
...
...
```

In the following example, the first SSL connection within a transaction will establish a Session ID, which will be reused again for all SSL requests accessing the same Web Server within the same transaction:


```
...
...
BEGIN_TRANSACTION();
DO_SSLReuseSession(1);
...
...
END_TRANSACTION();
...
...
```

## DO\_SSLUseCipher

Applies to SSL requests. Sets the encryption algorithm for playback.

By default, QALoad scripts negotiate the strongest common SSL cipher for each SSL session. The Convert facility automatically inserts a commented out DO\_SSLUseCipher whenever it encounters an encryption algorithm that changed while recording. You can uncomment this call to force playback to use a specific cipher.

It is possible to change the algorithms, and even choose to have several encryption algorithms in one script.

 Note: DO\_SSLUseCipher is a deprecated command. Cipher selection is done internally by QALoad. If you do not have an encryption license, the listed encryption codes does not work. If you have an export grade license, only 40-bit codes work with your scripts. If you have a 128-bit license, all of the listed codes work with your scripts.

### Encryption Algorithms

The codes for available algorithms are as follows:

Export grade (40 bit):

```
EXP-EDH-RSA-DES-CBC
EXP-EDH-DSS-DES-CBC-SHA
EXP-DES-CBC-SHA
EXP-RC4-MD5
EXP-RC2-CBC-MD5
```

128-bit encryption:

```
RC4-SHA
RC4-MD5
EDH-RSA-DES-CBC3-SHA
EDH-DSS-DES-CBC3-SHA
DES-CBC3-SHA
EDH-RSA-DES-CBC-SHA
EDH-DSS-DES-CBC-SHA
DES-CBC-SHA
DES-CBC3-MD5
DES-CBC-MD5
RC2-CBC-MD5
```

### Syntax

```
int DO_SSLUseCipher(const char *cipher)
```

### Return Value

1 if successful.  
0 if unsuccessful.

### Parameters

Parameter	Description
-----------	-------------

cipher	A character string representing the encryption algorithm to be used during playback.
--------	--

## Example

```

...
...
BEGIN_TRANSACTION();
...
...
DO_SSLUseCipher("EXP-RC4-MD5");
...
...
END_TRANSACTION();
...
...

```

## DO\_SSLUseClientCert

Applies to **SSL** requests. Specifies a client certificate to pass upon request while recording **SSL** requests. QALoad's convert facility uses the name of the certificate used while recording. The certificate can be selected from the QALoad Script Development Workbench Record Options wizard.

### Syntax

```
int DO_SSLUseClientCert(const char *name);
```

### Return Value

1 if successful.  
0 if unsuccessful.

### Parameters

Parameter	Description
name	A string containing the name of the client certificate to use.

## Example

In the following example, the client certificate "qaload\_cl" is used whenever the server requests one.

```
DO_SSLUseClientCert("qaload_cl");
```

## DO\_SSLUseClientCertPass

Applies to **SSL** requests. Specifies a password (plain text or encrypted) that is needed to read a client certificate.

## Syntax

```
BOOL DO_SSLUseClientCertPass(const char *szPassword);
```

## Return Value

TRUE if successful.  
FALSE if unsuccessful.

## Parameters

Parameter	Description
szPassword	A string containing the password to use.

## Example

```
DO_SSLUseClientCert("my_passwd");
```

## DO\_SSLUseProxy

Applies to SSL requests. Specifies a proxy server for all SSL requests to be sent through.

## Syntax

```
int DO_SSLUseProxy ( const char *proxyURL ) ;
```

## Return Value

Always returns 0

## Parameters

Parameter	Description
proxyURL	A character string indicating the servername and port of the proxy server, specified in "servername:port" format.

## Example

```
...
...
BEGIN_TRANSACTION();
...
...
DO_UseProxy ( "internet.company.com:80" );
DO_SSLUseProxy ( "internet.company.com:90" );
DO_ProxyExceptions( "company.sample.com, "company2.company.com" );
...
...
```

# UNIFACE

## UNIFACE Commands

### BEGIN\_UENTITY

Begins the declaration of the UNIFACE entity.

### DO\_Logfile\_URB

Controls whether or not to generate a log file showing load test information, such as requests and responses.

### DO\_URB\_AsciiToHex

Converts the ASCII hexadecimal represented buffer into its binary representation.

### DO\_URB\_Init

Sets all necessary internal variables needed to load test a UNIFACE script.

### DO\_URB\_setoprretry

Sets the number of times to retry an operation activation.

### DO\_URB\_ubin2uf

Converts binary data to a UNIFACE format.

### DO\_URB\_udbl2uf

Converts a double float to a UNIFACE format.

### DO\_URB\_ucreate

Creates a UNIFACE environment.

### DO\_URB\_udelete

Closes a UNIFACE environment.

### DO\_URB\_uentcreo

Creates an occurrence and makes it current. Note that this function can only be used with entity parameters and not with occurrence parameters.

### DO\_URB\_uentoccs

Returns the number of occurrences that exist in an entity.

### DO\_URB\_uentseto

Makes an occurrence current. Note that this function can only be used with entity parameters and not with occurrence parameters.

### DO\_URB\_ufreeh

Deletes a handle.

### DO\_URB\_uinstdel

Deletes a component instance.

### DO\_URB\_uinstnew

Creates an instance of a component.

### DO\_URB\_uinstopr

Returns a handle to an operation.

#### [DO\\_URB\\_ulist2uf](#)

Converts an item list to a UNIFACE format.

#### [DO\\_URB\\_ulistdel](#)

Deletes an item.

#### [DO\\_URB\\_ulistfree](#)

Frees a UNIFACE list.

#### [DO\\_URB\\_ulistget](#)

Gets an item.

#### [DO\\_URB\\_ulistnew](#)

Creates an item list.

#### [DO\\_URB\\_ulistput](#)

Puts an item.

#### [DO\\_URB\\_ulistputlist](#)

Copies an item from a specified source to the items of a list.

#### [DO\\_URB\\_ulistputx](#)

Puts an item.

#### [DO\\_URB\\_ulong2uf](#)

Converts a long to a UNIFACE format.

#### [DO\\_URB\\_unifree](#)

Frees memory.

#### [DO\\_URB\\_uniname](#)

Returns the name. Caller supplies allocated memory for name. Field names are not supported.

#### [DO\\_URB\\_uopract](#)

Activates an operation.

#### [DO\\_URB\\_uoprprms](#)

Returns the number of parameters.

#### [DO\\_URB\\_uprmdir](#)

Returns the direction of a parameter.

#### [DO\\_URB\\_uprmgeth](#)

Gets a reference to a parameter of an operation or a field of an entity. Or detaches a parameter from an operation.

#### [DO\\_URB\\_uprmtype](#)

Returns the data type of a parameter or entity field.

#### [DO\\_URB\\_ustr2uf](#)

Converts a string to a UNIFACE format.

#### [DO\\_URB\\_uuf2bin](#)





## DO\_Logfile\_URB

Controls whether or not to generate a log file showing load test information, such as requests and responses.

If this command is specified, it generates one log file for every virtual user running the script. Log files appear in the script directory in the form URBnnnn.cap, where nnnn indicates the zero-based number of the virtual user executing this script. By default, this option is disabled. This command is automatically included in the script by QALoad 's Convert facility.

### Syntax

```
int DO_Logfile_URB(int flag);
```

### Return Value

0 (zero)

### Parameters

Parameter	Description
flag	Turns logging on or off (TRUE/FALSE).

### Example

```
DO_Logfile_URB(TRUE);
```

## DO\_URB\_AsciiToHex

Converts the ASCII hexadecimal represented buffer into its binary representation.

### Syntax

```
char * DO_URB_AsciiToHex(char * data);
```

### Return Value

Pointer to the binary representation of the string.

### Parameters

Parameter	Description
data	Pointer to a null terminated string containing the hexadecimal values of the bytes to be converted to binary.

## Example

```
strcpy( urb_buffer, "0212035903107248");
DO_URB_AsciiToHex( urb_buffer );
DO_URB_ubin2uf( 4, 8, urb_buffer, 8 );
```

## DO\_URB\_Init

Sets all necessary internal variables needed to load test a Uniface script.

### Syntax

```
long DO_URB_Init(PLAYERINFO *s_info);
```

### Return Value

0 (zero)

### Parameters

Parameter	Description
s_info	Pointer to a PLAYERINFO structure

## Example

```
DO_URB_Init( s_info );
```

## DO\_URB\_setoprretry

Sets the number of times to retry an operation activation.

### Syntax

```
long DO_URB_setoprretry(int Retries, int Sleep);
```

### Return Value

0 (zero)

### Parameters

Parameter	Description
Retries	Number of times to retry operation.
Sleep	Time to sleep between retries.

## DO\_URB\_ubin2uf

Converts binary data to a Uniface format.

### Syntax

```
long DO_URB_ubin2uf(int nHandle,int seqNr,char extData,long nLen);
```

### Return Value

0 = successful

<>0 = not successful

### Parameters

Parameter	Description
nHandle	Integer handle to an operation or entity.
seqNr	Integer sequence number.
extData	Char external binary data.
nLen	Long external data length.

### Example

```
strcpy( urb_buffer,"0212035903107248");
DO_URB_AsciiToHex( urb_buffer );
DO_URB_ubin2uf( 4, 8, urb_buffer, 8 );
```

## DO\_URB\_udbl2uf

Converts a double float to a Uniface format.

### Syntax

```
DO_URB_udbl2uf(nHandle,seqNr,dData);
```

### Return Value

0 = successful

<>0 = not successful

### Parameters

Parameter	Description
nHandle	Integer handle to an operation or entity.

seqNr	Integer sequence number.
dData	External double float data.

## Example

```
DO_URB_udbl2uf(3,1,12345);
```

## DO\_URB\_ucreate

Creates a Uniface environment.

This function sets up a Uniface environment based on the configuration parameters: command line, assignment file, and working directory. Only one Uniface environment is allowed per process. The application start-up shell parameter `apsName` is ignored.

## Syntax

```
DO_URB_ucreate(runmode, hInstance, cmdLine, asnName, apsName, workDir, envHandle)
```

## Return Value

- 1 = Success
- 1 = Load Error
- 2 = License Error
- 4 = Allocation Error

## Parameters

Parameter	Description
runMode	How Uniface is executed (batch or interactive). Always set this to 1.
hInstance	Instance handle. hInstance can be set to 0.
cmdLine	Command line.
asnName	.asn file name.
apsName	.aps file name.
workDir	Working directory.
envHandle	Uniface environment handle.

## Example

```
DO_URB_ucreate( 1, 0, "/ini=c:\\usys72\\bin\\usys.ini /pri=48",
"c:\\u@training\\formula1\\formula1.asn", "", "c:\\u@training\\formula1\\formula1", 0 );
```

## DO\_URB\_uedelete

Closes a Uniface environment.

### Syntax

```
long DO_URB_uedelete(int envHandle,int level);
```

### Return Value

- 1 = Success
- 1 = Load Error
- 2 = License Error
- 4 = Allocation Error

### Parameters

Parameter	Description
envHandle	Uniface environment handle
level	Shutdown level.

### Example

```
...
...
DO_URB_ucreate( 1, 0, "/ini=c:\\usys72\\bin\\usys.ini /pri=48",
"c:\\u@training\\formula1\\formula1.asn", "", "c:\\u@training\\formula1\\formula1", 0 );
...
...
...
DO_URB_uedelete( 0, -1 );
...
...
```

## DO\_URB\_uentcreo

Creates an occurrence and makes it current. Note that this function can only be used with entity parameters and not with occurrence parameters.

### Syntax

```
long DO_URB_uentcreo(int nHandle,long occNr);
```

### Return Value

- 0 = successful
- <>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to the entity.
occNr	Sequence number of the occurrence.

## Example

```
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "STORE ", 0, 2 ); |
DO_URB_uprmgeth( 2, 1, FALSE, 3 ); /* get an entity handle */
DO_URB_uentcreo( 3, 1 ); /* creates first occurrence */
DO_URB_ustr2uf( 3, 1, "Field 1 data" );
DO_URB_ustr2uf( 3, 2, "Field 2 data" );
...
...
DO_URB_ufreeh( 3 );
DO_URB_ufreeh( 2 );
...
...
```

## DO\_URB\_uentoccs

Gets the number of occurrences that exist in an entity.

## Syntax

```
long DO_URB_uentoccs(int nHandle, long *occNr);
```

## Return Value

0 = success

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to a Uniface entity.
occNr	(output) Number of occurrences that exist in the entity.

## DO\_URB\_uentseto

Makes an occurrence current. Note that this function can only be used with entity parameters and not with occurrence parameters.

## Syntax

```
long DO_URB_uentseto(int nHandle,long occNr);
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an entity.
occNr	Sequence number of the occurrence.

## Example

```
char *pString;
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE ", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uprmgeth( 2, 1, FALSE, 3 ); /* get an entity handle */
DO_URB_entseto( 3, 1 ); /* make occurrence 1 current*/
DO_URB_uuf2str( 3, 1, pString );
...
... /* do some manipulation with the returned string */
...
DO_URB_unifree( 3, pString ); /* free the memory */
DO_URB_ufreeh( 3 );
DO_URB_ufreeh( 2 );
```

## DO\_URB\_ufreeh

Deletes a handle.

## Syntax

```
long DO_URB_ufreeh(int nHandle);
```

## Return Value

0 = success

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Any handle. Parameter hAny is always set to 0.



## Example

```
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
...
...
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uinstdel

Deletes a component instance.

### Syntax

```
long DO_URB_uinstdel(int nHandle);
```

### Return Value

0 = successful

<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to a component instance.

## Example

```
...
...
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
...
...
DO_URB_uinstdel( 1 );
DO_URB_ufreeh( 1 );
```

## DO\_URB\_uinstnew

Creates an instance of a component.

The parameter options is UDEFAULT\_COMM\_MODE, USYNC\_COMM\_MODE, and so on. The parameter propList is a NULL-character separated item list. The item list ends in two NULL characters. The parameters compID, and propList are optional.

### Syntax

```
DO_URB_uinstnew(envHandle, compName, compID, instName, options, propList, newHandle);
```

### Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
envHandle	Uniface environment handle.
compName	Component name.
compID	Component ID.
instName	Instance name.
options	Options.
propList	Property list.
newHandle	Instance handle.

## Example

```

...
...
DO_URB_ucreate( 1, 0, "/ini=c:\\usys72\\bin\\usys.ini /pri=48",
"c:\\u@training\\formula1\\formula1.asn", "", "c:\\u@training\\formula1\\formula1", 0 );
...
...
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );

```

## DO\_URB\_uinstopr

Returns a handle to an operation.

## Syntax

```
long DO_URB_uinstopr(int nHandle,long oprName,int newHandle);
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to a component instance.
oprName	Operation name.
newHandle	Handle to the instance.

## Example

```

...
...
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
...
...
DO_URB_ufreeh( 2 );

```

## DO\_URB\_ulist2uf

Converts an item list to a Uniface format.

### Syntax

```
long DO_URB_ulist2uf(int nHandle,int SeqNr,int hList);
```

### Return Value

0 = successful

<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity.
SeqNr	Sequence number.
hList	Handle to item list.

## Example

```

DO_URB_uinstnew(0,"S_SERVICE","", "",1,"",1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_ulistnew( 2, 3 ); /* FIELDS */
DO_URB_ulistput( 3, UITEM_OPTION_NONE, 1, "", "TRACK_NAME" );
DO_URB_ulistput( 3, UITEM_OPTION_NONE, 2, "", "TRACK_MAP" );
...
DO_URB_ulist2uf( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_ufreeh( 3 );

```

## DO\_URB\_ulistdel

Deletes an item.

This function corresponds with the Proc statement delitem. If UITEM\_OPTION\_NONE is specified, a value for index is expected and ID is ignored. If UITEM\_OPTION\_ID or UITEM\_OPTION\_ID\_CASE is specified, index is ignored and a value for ID is expected.

## Syntax

```
long DO_URB_ulistdel(int nHandle, int option, int index, char id);
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an item list.
option	Option (UITEM_OPTION_NONE, UITEM_OPTION_ID or UITEM_OPTION_ID_CASE).
index	Item index.
id	pointer to an item ID.

## Example

```
DO_URB_uinstnew(0, "S_SERVICE", "", "", 1, "", 1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_uopract( 2 );
...
...
DO_URB_ulistnew( 2, 3 ); /* FIELDS */
...
...
DO_URB_uuf2list( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_ulistdel( 3, UITEM_OPTION_NONE, 1, "");
DO_URB_ufreeh( 3 );
...
...
```

## DO\_URB\_ulistfree

Frees a Uniface list.

## Syntax

```
long DO_URB_ulistfree(int Handle);
```

## Return Value

0 = successful

< 0 = error

See the error descriptions that follow:

- 201 Unknown protocol specified.
- 202 An error was detected in the returned transaction. This error will be sent to the Player as a warning, since it may be normal.
- 203 Invalid length of a parameter.
- 204 A unexpected NULL parameter was passed to a call.
- 205 Invalid entity. The entity passed as a parameter to a call is invalid. It may not have been opened using the DO\_PSV\_open call.
- 206 Invalid field name.
- 207 Invalid hit. The hit used in an update or in a fetch call is not the result of a DO\_PSV\_select call. The hit header is invalid.
- 401 Invalid token found while parsing where clause or aggregate statements.
- 501 No hit.

## Parameters

Parameter	Description
Handle	Handle to a list to be freed.

## DO\_URB\_ulistget

Gets an item.

This function corresponds with the Proc statement `getitem`. The parameter option is `UITEM_OPTION_NONE`, `UITEM_OPTION_ID` or `UITEM_OPTION_ID_CASE`. If `UITEM_OPTION_NONE` is specified, a value for `index` is expected and `ID` is ignored. If `UITEM_OPTION_ID` or `UITEM_OPTION_ID_CASE` is specified, `index` is ignored and a value for `ID` is expected.

## Syntax

```
DO_URB_ulistget(int nHandle, UnifaceURBListOptionEnum option, int index, char* id, char** pItem)
```

## Return Value

0 = successful

<>0 not successful

## Parameters

Parameter	Description				
nHandle	Handle to an item list.				
option	<p><i>UnifaceURBListOptionEnum</i></p> <p>List option. Valid values are:</p> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Value	Description		
Value	Description				

	UITEM_OPTION_NONE	Delete matching item index value. No item ID required
	UITEM_OPTION_ID	Delete item ID value. No item index required
	UITEM_OPTION_ID_CASE	Delete item ID by case value. No item index required
index	Item index.	
id	Pointer to an item ID.	
pItem	Item	

## Example

```
char *pItem;
...
...
DO_URB_uinstnew(0, "S_SERVICE", "", "", 1, "", 1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_uopract( 2 );
...
DO_URB_uolistnew( 2, 3 ); /* FIELDS */
...
DO_URB_uuf2list( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_uolistget( 3, UITEM_OPTION_NONE, 1, "", &pItem );
...
/* use pItem */
DO_URB_unifree( 3, pItem );
DO_URB_ufreeh( 3 );
...
...
```

## DO\_URB\_uolistnew

Creates an item list.

### Syntax

```
long DO_URB_uolistnew(int nHandle, int newHandle);
```

### Return Value

0 = successful

<>0 not successful

### Parameters

Parameter	Description
-----------	-------------

nHandle	Any handle.
newHandle	A handle to an item list.

## Example

```
DO_URB_uinstnew(0, "S_SERVICE", "", "", 1, "", 1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_uolistnew( 2, 3 ); /* FIELDS */
DO_URB_uolistput( 3, UITEM_OPTION_NONE, 1, "", "TRACK_NAME" );
DO_URB_uolistput( 3, UITEM_OPTION_NONE, 2, "", "TRACK_MAP" );
...
DO_URB_uolist2uf( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_ufreeh( 3 );
...
...
```

## DO\_URB\_uolistput

Puts an item.

This function corresponds with the Proc statement putitem. The parameter option is UITEM\_OPTION\_NONE, UITEM\_OPTION\_ID or UITEM\_OPTION\_ID\_CASE. If UITEM\_OPTION\_NONE is specified, a value for index is expected and ID is ignored. If UITEM\_OPTION\_ID or UITEM\_OPTION\_ID\_CASE is specified, index is ignored and a value for ID is expected.

## Syntax

```
long DO_URB_uolistput(int nHandle, UnifaceURBListOptionEnum option, int index, char*
id, char** item);
```

## Return Value

0 = successful

<>0 not successful

## Parameters

Parameter	Description				
nHandle	Handle to an item list.				
option	<p><i>UnifaceURBListOptionEnum</i></p> <p>List option. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>UITEM_OPTION_NONE</td> <td>Delete matching item index value. No item ID required</td> </tr> </tbody> </table>	Value	Description	UITEM_OPTION_NONE	Delete matching item index value. No item ID required
Value	Description				
UITEM_OPTION_NONE	Delete matching item index value. No item ID required				

	UITEM_OPTION_ID	Delete item ID value. No item index required
	UITEM_OPTION_ID_CASE	Delete item ID by case value. No item index required
index		Item index.
id		Pointer to an item ID.
item		Pointer to an item.

## Example

```
DO_URB_uinstnew(0,"S_SERVICE","", "",1,"",1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_uolistnew( 2, 3 ); /* FIELDS */
DO_URB_uolistput( 3, UITEM_OPTION_NONE, 1, "", "TRACK_NAME" );
DO_URB_uolistput( 3, UITEM_OPTION_NONE, 2, "", "TRACK_MAP" );
...
DO_URB_uolist2uf( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_ufreeh( 3 );
...
...
```

## DO\_URB\_uolistputlist

Copies an item from a specified source to the items of a list.

### Syntax

```
long DO_URB_uolistputlist(int nHandleDst, int index, char *id, int nHandleSrc);
```

### Return Value

0 = successful  
<>0 not successful

### Parameters

Parameter	Description
nHandleDst	Handle to the destination entity.
index	Item index.
id	Pointer to an item ID.
nHandleSrc	Handle to the source entity.



## DO\_URB\_ulistputx

Puts an item.

### Syntax

```
long DO_URB_ulistput(int nHandle, char *id, char *item, int sepcntr);
```

### Return Value

0 = successful

<>0 not successful

### Parameters

Parameter	Description
nHandle	Handle to an item list.
id	Pointer to an item ID.
item	Pointer to an item.
sepcntr	Number of separators for list and sublists.

### Example

```
DO_URB_ulistnew( 2, 3 ); /* FIELDS */
DO_URB_ulistputx( 3, "ORDER", "52", 2 );
```

## DO\_URB\_ulong2uf

Converts a long to a Uniface format.

### Syntax

```
long DO_URB_ulong2uf(int nHandle, int seqNr, long lData);
```

### Return Value

0 = successful

<>0 not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity.

seqNr	Sequence number.
lData	External long data.

## Example

```
DO_URB_ulong2uf( 3, 1, 1234 );
```

## DO\_URB\_unifree

Frees memory.

## Syntax

```
long DO_URB_unifree(int nHandle, void *pvoid);
```

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Any handle.
pvoid	Pointer to start address of allocated memory.

## Example

```
char *pString;
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE ", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uprmgeth( 2, 1, FALSE, 3 ); /* get an entity handle */
DO_URB_entseto( 3, 1 ); /* make occurrence 1 current*/
DO_URB_uuf2str( 3, 1, pString );
...
...
/* do some manipulation with the returned string */
...
DO_URB_unifree( 3, pString ); /* free the memory */
DO_URB_ufreeh( 3 );
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uniname

Returns the name. Caller supplies allocated memory for name. Field names are not supported.

When working with an operation handle, if seqNr is 0, the name of the operation itself is returned. If seqNr is a legal parameter sequence number, the name of the parameter is returned.

## Syntax

```
long DO_URB_uniname(int nHandle, int seqNr, int maxLen, char name);
```

## Return Value

## Parameters

Parameter	Description
nHandle	Handle to a component instance, operation, or parameter.
seqNr	Sequence number.
maxLen	Size of name.
name	Name of the instance.

## Example

```
char sName[128];
...
...
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_uniname( 2, 1, 128, sName );
...
...
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uopract

Activates an operation.

## Syntax

```
long DO_URB_uopract(int nHandle);
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an operation.

## Example

```
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_ustr2uf( 2, 1, "19990101" );
DO_URB_ustr2uf( 2, 2, "19991231" );
DO_URB_uopract( 2 );
...
...
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uoprprms

Returns the number of parameters.

### Syntax

```
long DO_URB_uoprprms(int nHandle, long *pPrmCount);
```

### Return Value

0 = successful

<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation
pPrmCount	Pointer to number of parameters

## Example

```
int nParameterCount;
...
...
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_uoprprms( 2, &nParameterCount );
...
...
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uprmdir

Returns the direction of a parameter.

### Syntax

```
long DO_URB_uprmdir(int nHandle, int seqNr, int *pDirection );
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an operation.
seqNr	Sequence number.
pDirection	Pointer to parameter direction. The parameter pDirection is UPARM_INPUT for IN direction, UPARM_OUTPUT for OUT direction, and (UPARM_INPUT   UPARM_OUTPUT) for INOUT direction. It is not relevant whether or not parameter data is attached to the operation parameter list.

## Example

```
int nDirection;
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_uprmgeth( 2, 1, FALSE, 3 );
DO_URB_uprmdir( 3, &nDirection);
...
...
DO_URB_ufreeh( 3 );
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uprmgeth

Gets a reference to a parameter of an operation or a field of an entity. Or detaches a parameter from an operation.

## Syntax

```
long DO_URB_uprmgeth(int nHandle, int seqNr, int bDetach, int newHandle );
```

## Return Value

0 = successful

<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an operation or entity parameter.
seqNr	Sequence number.

bDetach	Detach data option (TRUE/FALSE).
newHandle	Handle to a basic parameter, entity parameter or entity field. If parameter bDetach is TRUE, the data of handle nHandle is detached from the constructed handle nHandle. It is not allowed to detach a field from an entity.

### Example

```
int nType;
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_uprmgeth( 2, 1, FALSE, 3 );
DO_URB_uprmtree( 3, &nType);
...
...
DO_URB_ufreeh( 3 );
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uprmtree

Returns the data type of a parameter or entity field.

### Syntax

```
long DO_URB_uprmtree(int nHandle, int *pType );
```

### Return Value

- 0 = successful
- <>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to a parameter or entity field.
pType	Pointer to data type. The parameter pType is UTYPE_STRING, UTYPE_BOOLEAN, and so on.

### Example

```
int nType;
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_uprmgeth( 2, 1, FALSE, 3 );
DO_URB_uprmtree( 3, &nType);
...
DO_URB_ufreeh( 3 );
...

```

## DO\_URB\_ustr2uf

Converts a string to a Uniface format.

### Syntax

```
long DO_URB_ustr2uf(int nHandle,int seqNr,char *string)
```

### Return Value

0 = successful  
<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity.
seqNr	Sequence number.
string	Pointer to an external string data.

### Example

```
DO_URB_uinstnew( 0, "S_RACE", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "LIST", 0, 2 );
DO_URB_ustr2uf( 2, 1, "19990101" );
```

## DO\_URB\_uuf2bin

Converts a Uniface format to binary data.

### Syntax

```
long DO_URB_uuf2bin(int nHandle,int seqNr, char pExData, long *pnLen);
```

### Return Value

0 = successful  
<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity.
seqNr	Sequence number.

pExData	External (output) binary data. The parameter pExtData is allocated on the heap. It has to be freed with DO_URB_unifree.
pnLen	Pointer to external data length.

### Example

```
char *pBinaryData;
long nLen;
...
...
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uuf2bin ( 2, 4, &pBinaryData, &nLen );
...
...
DO_URB_unifree( 2 , pBinaryData );
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uuf2dbl

Converts a Uniface format to a double float.

### Syntax

```
long DO_URB_uuf2dbl(int nHandle,int seqNr,double *pdData);
```

### Return Value

0 = succesful  
<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity.
seqNr	Sequence number.
pdData	Pointer to an external double float data.

### Example

```
double dNumber;
...
...
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE ", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uuf2dbl ( 2, 2, &dNumber );
...

```



```
...
DO_URB_ufreeh( 2 );
```

## DO\_URB\_uuf2list

Converts a Uniface format to item list.

### Syntax

```
long DO_URB_uuf2list(int nHandle, int seqNr, int hList);
```

### Return Value

0 = successful  
<>0 = not successful

### Parameters

Parameter	Description
nHandle	Handle to an operation or entity
seqNr	Sequence number
hList	Create the parameter hList with DO_URB_ulistnew before calling this function. After using the item list, free it using DO_URB_ulistdel

### Example

```
char *pItem;
...
...
DO_URB_uinstnew(0,"S_SERVICE","", "",1,"",1);
DO_URB_uinstopr(1, "DO_SOMETHING", 0, 2);
...
...
DO_URB_uopract( 2 );
...
...
DO_URB_ulistnew( 2, 3 ); /* FIELDS */
...
DO_URB_uuf2list( 2, 3, 3 ); /* Field Name "FIELDS" */
DO_URB_ulistget( 3, UITEM_OPTION_NONE, 1, "", &pItem );
...
/* use pItem */
DO_URB_unifree( 3, pItem );
DO_URB_ufreeh( 3 );
```

## DO\_URB\_uuf2long

Converts a Uniface format to a long.

## Syntax

```
long DO_URB_uuf2long(int nHandle, int seqNr, long *pData);
```

## Return Value

0 = successful  
<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an operation or entity.
seqNr	Sequence number.
pData	Pointer to external long data.

## Example

```
long lNumber;
...
...
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE ", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uuf2long ( 2, 1, &lNumber );
...
...
DO_URB_ufreeh( 2 );
...
...
```

## DO\_URB\_uuf2str

Converts a Uniface format to string.

## Syntax

```
long DO_URB_uuf2str(int nHandle, int SeqNr, char **pExString);
```

## Return Value

0 = successful  
<>0 = not successful

## Parameters

Parameter	Description
nHandle	Handle to an operation or entity

SeqNr	Sequence number
pExString	External string data. The parameter pExString is allocated on the heap. It has to be freed with DO_URB_unifree.

## Example

```
char *pString;
...
...
DO_URB_uinstnew( 0, "S_ANY", "", "", "", 1, "", 1);
DO_URB_uinstopr( 1, "RETRIEVE ", 0, 2 );
DO_URB_uopract( 2 );
DO_URB_uuf2str ( 2, 3, &pString );
..
..
DO_URB_unifree( 2 , pString );
DO_URB_ufreeh( 2 );
```

## END\_UENTITY

Ends the declaration of a Uniface entity.

## Syntax

```
END_UENTITY(UNIFACE_ENTITY* pointer, UNIFACE_ENTITY* pointee);
```

## Return Value

## Parameters

Parameter	Description
pointer	New pointer for the entity.
pointee	The original pointer used in BEGIN_UENTITY as entname.

## Example

```
END_UENTITY(RACE_FORMULA1, race_formulal);
```

## UFIELD

Declares or defines a Uniface field.

## Syntax

```
UFIELD (char* name, char* type, int size, char* index);
```

## Return Value

### Parameters

Parameter	Description
name	Field name.
type	Data and interface type.
size	Length of the field.
index	If the field is a key for the entity, this field holds the index.

### Example

```
UFIELD( "RACE_ID", "N2", 4, "1.101" );
```

# Winsock

## Winsock Commands

### AddrByte

Returns a byte of an internet address.

### DO\_WSK\_Accept

Accepts an incoming connection on the specified socket.

### DO\_WSK\_Bind

Associates a local name with a connection/socket that is not yet named.

### DO\_WSK\_Closesocket

Closes the specified connection.

### DO\_WSK\_Connect

Establishes a connection with a server.

### DO\_WSK\_Expect

Waits for a unique pattern to occur that should signify the end of the response.

### DO\_WSK\_ExpectAny

Waits for any of the specified patterns to be matched.

### DO\_WSK\_ExpectAnyExpr

DO\_WSK\_ExpectAnyExpr( ) waits for any of the unique patterns specified by the passed UNIX-style regular expressions to occur. The patterns should signify any of the possible ends of the response.

### DO\_WSK\_ExpectExpr

DO\_WSK\_ExpectExpr( ) waits for a unique pattern specified by a UNIX-style regular expression to occur. The pattern should signify the end of the response.

### DO\_WSK\_GetSocket

Returns the socket handle for the specified connection.

### DO\_WSK\_Getsockname

Gets the local address for a connection.

### DO\_WSK\_HexDecode

Converts hexadecimal characters to binary data suitable for sending to a connection using DO\_WSK\_Write().

### DO\_WSK\_Init

Initializes internal structures and variables in preparation for a virtual user run.

### DO\_WSK\_Ioctlsocket

Controls the mode of a socket.

### DO\_WSK\_IsReadable

Specifies whether or not the connection has data available to be read.

### DO\_WSK\_IsWritable

Indicates if the connection is available for writing.

#### [DO\\_WSK\\_Listen](#)

Puts the specified socket in listening mode for incoming connections.

#### [DO\\_WSK\\_Quiet](#)

Waits for a period of silence, identified by `seconds_of_quiet`, on the named socket.

#### [DO\\_WSK\\_Read](#)

Reads the number of bytes identified by `bytes_to_read` from the socket.

#### [DO\\_WSK\\_Recv](#)

Receives data from a connected socket.

#### [DO\\_WSK\\_Recvfrom](#)

Receives data from a connected or unconnected socket.

#### [DO\\_WSK\\_Reorder](#)

`DO_WSK_Reorder( )` swaps the byte order of the given integer variable.

#### [DO\\_WSK\\_Select](#)

Allows you to determine if a set of sockets are read or writable.

#### [DO\\_WSK\\_Send](#)

Sends data to a socket.

#### [DO\\_WSK\\_SendAll](#)

Sends a number of strings to a connection.

#### [DO\\_WSK\\_Sendto](#)

Sends data on either a connected or unconnected socket to a remote host.

#### [DO\\_WSK\\_SetsockOpt](#)

Sets options associated with the specified socket.

#### [DO\\_WSK\\_Shutdown](#)

Disables the sending or receiving of data on a socket.

#### [DO\\_WSK\\_Socket](#)

Creates a socket and associates it with a connection handle.

#### [DO\\_WSK\\_Write](#)

Writes the number of bytes identified by `bytes_to_write` to the socket from `data_to_send`.

#### [EscapeStr](#)

Converts `^` and null characters into `^^` and `^@`, respectively, so that data with those characters can be passed to `DO_WSK_Send()`, `DO_WSK_Expect()`, or `DO_WSK_ExpectAny()`.

#### [GetLocalAddr](#)

Returns the local address used by a connection in host-byte order.

#### [GetLocalPort](#)

Returns the port bound to for the named socket on the local side of the connection.

#### [GetRemoteAddr](#)

Returns the port connected to on the remote side of a connection.

#### GetRemotePort

Returns the port connected to on the remote side of a connection.

#### HiByte

Returns the high-order byte of the passed short integer.

#### LoByte

Returns the low-order byte of the passed short integer.

#### Log

Records the character string passed into the log file.

#### MyByteOrder

MyByteOrder( ) returns the byte order of the machine running the script either of the constants MSBF (Most Significant Byte First) or LSBF (Least Significant Byte First).

#### Response

Returns a pointer to the first character in the response buffer.

#### ResponseLength

Returns the number of characters in the response buffer.

#### ScanExpr

Scans the scan buffer for a string specified by the UNIX-style regular expression, into the given buffer.

#### ScanFloat

Scans a floating point value of the given byteorder and length into the argument which should be the address of an appropriate program variable of the same size and type, casted to a char \*. Valid lengths are 4 or 8. The byteorder should be either specified as either of the constants MSBF or LSBF.

#### ScanInt

ScanInt( ) scans an integer of the given byteorder and length into the argument which should be the address of an appropriate program variable of the same size and type, casted to a char \*. Valid lengths are 1, 2, or 4. The byteorder should be either specified as one of the constants MSBF or LSBF.

#### ScanLenString

ScanLenString( ) expects input of the format [count][string] where length is an integer of the given byteorder and length and string is a string of count bytes. The string will be placed in the given pointer and count, which should be the address of an appropriate integral program variable, casted to a char \*, and to be updated with the count.

#### ScanRewind

Resets the scan pointer and length to the beginning and length of the response buffer respectively.

#### ScanSkip

Skips the specified number of bytes in the scan buffer.

#### ScanString

Scans a string of the given length from the current location in the scan buffer into the given buffer. The scan pointer and length are incremented by the argument length.

#### SetTimeout

Sets the number of seconds to wait for subsequent synchronization commands (DO\_WSK\_Expect,

DO\_WSK\_ExpectAny, or DO\_WSK\_Read) to be satisfied.

### SetTyperate

Sets the type rate, in characters per second, for data sent on a Telnet connection.

### SkipExpr

Scans the scan buffer for a string specified by the UNIX-style regular expression, and skips ahead over the matched pattern.

### UnEscapeStr

Converts a string with escaped ^ control character sequences to raw text so that it can be manipulated.

## AddrByte

Returns a byte of an internet address.

Only useful in very specific instances, particularly when scripting an FTP client that requires sending the address of the client-side data port as separate bytes.

AddrByte returns the byte of the passed address indicated by which\_byte.

### Syntax

```
unsigned char
AddrByte(unsigned long address, int which_byte)
```

### Return Value

### Parameters

Parameter	Description
unsigned long address	The address of the client-side data port.
int which byte	The byte to send.

### Example

```
unsigned char byte0, byte1, byte2, byte3;
...
byte0 = AddrByte(GetLocalAddr(S2), 0);
byte1 = AddrByte(GetLocalAddr(S2), 1);
byte2 = AddrByte(GetLocalAddr(S2), 2);
byte3 = AddrByte(GetLocalAddr(S2), 3);
```

## DO\_WSK\_Accept

Accepts an incoming connection on the specified socket.



## Syntax

```
SOCKET DO_WSK_Accept(int nSocketHandle, int newSocketHandle)
```

## Return Value

New socket handler if successful

1 if an error occurs

## Parameters

Parameter	Description
nSocketHandle	Socket handle from a previous call to DO_WSK_Socket.
newSocketHandle	New Socket handle for accepting connections.

## Example

```
DO_WSK_Accept(S1, S2 );
```

## DO\_WSK\_Bind

Associates a local name with a connection/socket that is not yet named.

## Syntax

```
DO_WSK_Bind (int nConnectHandle, char * szLocalInetAddr, unsigned short usPort);
```

## Return Value

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
szLocalInetAddr	Points to a string containing the Internet address the socket is to bind to. For example, to bind to INADDR_ANY, szLocalInetAddr would point to "0.0.0.0".
usPort	The port to bind to in host byte order. To bind to any (non-specific) port, pass 0.

## Example

```
DO_WSK_Bind (0, "0.0.0.0", 0);
```

## DO\_WSK\_Closesocket

Closes the specified connection.

### Syntax

```
DO_WSK_Closesocket (int nConnectHandle);
```

### Return Value

### Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.

### Example

```
DO_WSK_Closesocket (0);
```

## DO\_WSK\_Connect

Establishes a connection with a server.

### Syntax

```
int DO_WSK_Connect (int nConnectHandle, char * szServerInetAddr, unsigned short usPort, int nAddressfamily);
```

### Return Value

0 if successful  
-1 if an error occurred.

### Parameters

Parameter	Description
nConnectHandle	Connection handle returned from a previous call to DO_WSK_Socket.
szServerInetAddr	Points to a string containing the Internet address of the server with which to connect.
usPort	The port (in host-byte order) on the server with which to connect.

nAddressfamily	Address family, usually AF_INET.
----------------	----------------------------------

## Example

```
DO_WSK_Connect ( 0, "172.22.1.130", 53, 2 );
```

## DO\_WSK\_Expect

Waits for a unique pattern to occur that should signify the end of the response.

When the capture file is converted, this pattern is identified automatically. If the response changes, the pattern may need to be adjusted or another synchronization command substituted in the place of DO\_WSK\_Expect().

## Syntax

```
int DO_WSK_Expect(int nConnectHandle, char *pattern)
```

## Return Value

0 if the pattern was found

-1 if the timeout interval expired

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
pattern	A string pattern to wait for

## Example

```
DO_WSK_Expect(S1, "\r\n");
```

## DO\_WSK\_ExpectAny

Waits for any of the specified patterns to be matched.

## Syntax

```
int DO_WSK_ExpectAny(int nConnectHandle, int number_of_patterns, char *pattern1, ...)
```

## Return Value

0-based index of the pattern that was matched first

-1 if not found.

## Parameters

Parameter	Description
nConnectHandle	The connection number.
number_of_patterns	The number of patterns to follow.
pattern1	The first pattern.

## Example

```
int i;
...
i = DO_WSK_ExpectAny(S1, 3, "this", "that", "the other");
switch(i)
{
case 0: /* do stuff because "this" was matched */ break;
case 1: /* do stuff because "that" was matched */ break;
case 2: /* do stuff because "the other" was matched */ break;
default: /* must have timed out */
}
```

## DO\_WSK\_ExpectAnyExpr

Waits for any of the unique patterns specified by the passed UNIX-style regular expressions to occur. The patterns should signify any of the possible ends of the response.

## Syntax

```
int DO_WSK_ExpectAnyExpr(int nConnectHandle, int num_expressions, char *expression1, char *expression2, ...)
```

## Return Value

Index of the pattern that was matched (0-based)

-1 if the timeout interval expired.

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
Expression1	String patterns to wait for.

## Example

```
DO_WSK_ExpectAnyExpr(S1, 2, "query failed [0-9]* times", "query succeeded [0-9]* times");
```

## DO\_WSK\_ExpectExpr

Waits for a unique pattern specified by a UNIX-style regular expression to occur. The pattern should signify the end of the response.

### Syntax

```
int DO_WSK_ExpectExpr(int nConnectHandle, char *expression)
```

### Return Value

0 if the pattern is found

-1 if the timeout interval expired

### Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
expression	A string pattern to wait for.

### Example

```
DO_WSK_ExpectExpr(S1, "the date is [0-9][0-9]/[0-9][0-9]/[0-9][0-9]");
```

## DO\_WSK\_GetSocket

Returns the socket handle for the specified connection.

This allows more complicated examples of determining if multiple sockets are available for writing or if data is available for reading using the select() system call.

### Syntax

```
SOCKET DO_WSK_GetSocket(int ConnectHandle)
```

### Return Value

### Parameters

Parameter	Description
ConnectHandle int	The connection number.

## Example

```
SOCKET x = DO_WSK_GetSocket(S1);
SOCKET y = DO_WSK_GetSocket(S2);
fd_set readfds;
struct timeval timeout;
int maxfds;
timeout.tv_sec = 1;
timeout.tv_usec = 0;
FD_SET(x, &readfds);
FD_SET(y, &readfds);
if(x > y) maxfds = x; else maxfds = y;
select(maxfds+1, &readfds, 0, 0, timeout);
Waits for 1 second for data to be available for reading on connection S1 or S2.
```

## DO\_WSK\_Getsockname

Gets the local address for a connection.

Use this call or DO\_WSK\_Bind prior to a call to GetLocalAddr or GetLocalPort.

### Syntax

```
unsigned short DO_WSK_Getsockname(int nConnectHandle)
```

### Return Value

### Parameters

Parameter	Description
nConnectionHandle	A connection handle from a previous call to DO_WSK_Socket.

### Example

```
DO_WSK_Socket(S1, AF_INET, SOCK_DGRAM, IPPROTO_UDP);
DO_WSK_Bind(S1, "127.0.0.1", ANY_PORT);
fd_set readfds;
DO_WSK_Getsockname(S1);
```

## DO\_WSK\_HexDecode

Converts hexadecimal characters to binary data suitable for sending to a connection using DO\_WSK\_Write().

### Syntax

```
int HexDecode(char *string)
```

## Return Value

Number of bytes in the converted data (one half the number of input bytes)

## Parameters

Parameter	Description
string	A pointer to a buffer to be converted.

## Example

```
char buf[80];
int count;

...

strcpy(buf, "FEEBDAED");
count = DO_WSK_HexDecode(buf);
DO_WSK_Write(S1, buf, count);
```

## DO\_WSK\_Init

Initializes internal structures and variables in preparation for a virtual user run.

## Syntax

```
int DO_WSK_Init(s_info)
```

## Return Value

1 (one)

## Parameters

Parameter	Description
s_info	A pointer to the PLAYER_INFO structure for this virtual user.

## Example

```
DO_WSK_Init (s_info);
```

## DO\_WSK\_Ioctlsocket

Controls the mode of a socket.

## Syntax

```
DO_WSK_Ioctlsocket(int nConnectHandle, unsigned long * argument,
WinsockIOctlSocketCommandEnum command );
```

## Return Value

## Parameters

Parameter	Description								
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.								
argument	<p><i>WinsockIOctlSocketCommandEnum</i></p> <p>The parameter for command. If command is FIONBIO and argument points to a non-zero value, non-blocking mode is enabled. If command is FIONREAD, argument is used to hold the number of bytes that can be read on a socket. If command is SIOCATMARK, argument is used as a return value to determine if all out-of-band data has been read from a socket. TRUE is returned if no out-of-band data is to be read. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>FIONBIO</td> <td>Use with a nonzero second parameter to enable nonblocking mode</td> </tr> <tr> <td>FIONREAD</td> <td>Use to determine the amount of data pending that can be read</td> </tr> <tr> <td>SIOCATMARK</td> <td>Use to determine whether or not all OOB data has been read</td> </tr> </tbody> </table>	Value	Description	FIONBIO	Use with a nonzero second parameter to enable nonblocking mode	FIONREAD	Use to determine the amount of data pending that can be read	SIOCATMARK	Use to determine whether or not all OOB data has been read
Value	Description								
FIONBIO	Use with a nonzero second parameter to enable nonblocking mode								
FIONREAD	Use to determine the amount of data pending that can be read								
SIOCATMARK	Use to determine whether or not all OOB data has been read								
command	The command to perform on the sockets. Valid values are FIONBIO, FIONREAD, and SIOCATMARK.								

## Example

```
// enable non-blocking mode
u_long argument = TRUE;
DO_WSK_ioctlsocket(0, &argument, FIONBIO );
```

## DO\_WSK\_IsReadable

Specifies whether or not the connection has data available to be read.

Returns .

## Syntax

```
int DO_WSK_IsReadable(int ConnectHandle);
```

## Return Value

1 if the connection has data available to be read



0 if there is no data available

-1 if there was an error

## Parameters

Parameter	Description
ConnectHandle int	The connection number.

## Example

```
do
{
DO_WSK_Read(S1, 4);
}
while (DO_WSK_IsReadable(S1)) ;
//Reads 4 bytes of data at a time until there is no more data to be read.
```

## DO\_WSK\_IsWriteable

Indicates if the connection is available for writing.

## Syntax

```
int DO_WSK_IsWriteable(int ConnectHandle);
```

## Return Value

1 if the connection is available for writing

0 if the output queue is full

-1 if there was an error

## Parameters

Parameter	Description
ConnectHandle int	The connection number.

## Example

```
do
{
DO_SLEEP(1);
}
while (DO_WSK_IsWriteable(S1) == 0) ;
DO_WSK_Send(S1, "stuff");
//Waits until connection S1 is writable before sending "stuff".
```

## DO\_WSK\_Listen

Puts the specified socket in listening mode for incoming connections.

### Syntax

```
int DO_WSK_Listen(int nSocket);
```

### Return Value

Always returns 0

### Parameters

Parameter	Description
nSocket	Socket handle from a previous call to DO_WSK_Socket.

### Example

```
DO_WSK_Listen(S1);
```

## DO\_WSK\_Quiet

Waits for a period of silence, identified by seconds\_of\_quiet, on the named socket.

This can be useful if the response is random or you simply don't know what the response will be.

DO\_WSK\_Quiet() reads whatever characters are available. After characters are read, the seconds\_of\_quiet counter is reset. If a socket is not idle, DO\_WSK\_Quiet cannot complete.

### Syntax

```
int DO_WSK_Quiet(int nConnectHandle, double seconds_of_quiet)
```

### Return Value

Number of bytes read

-1 if an error was encountered

### Parameters

Parameter	Description
nConnectHandle	The connection number.
seconds_of_quiet	The number of seconds of silence to wait for on this connection.

## Example

```
DO_WSK_Quiet(S2, 10);
```

## DO\_WSK\_Read

Reads the number of bytes identified by `bytes_to_read` from the socket.

This can be useful if the response varies in content, but the number of bytes is consistent. It can also be used to build scripts that handle more complicated protocols.

## Syntax

```
int DO_WSK_Read(int nConnectHandle, int bytes_to_read)
```

## Return Value

Number of bytes read

-1 if an error is encountered

## Parameters

Parameter	Description
<code>nConnectHandle</code>	The connection number.
<code>bytes_to_read</code>	The number of bytes to wait for.

## Example

```
DO_WSK_Read(S2, 1024);
```

## DO\_WSK\_Recv

Receives data from a connected socket.

## Syntax

```
DO_WSK_Recv (int nConnectHandle, char * buffer, int * buffer_length, WinsockRecvFlagsEnum flags, int * pnBytesRecv)
```

## Return Value

## Parameters

Parameter	Description
-----------	-------------

nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.								
buffer	Buffer to store received data.								
buffer_length	Length of buffer.								
flags	<p><i>WinsockRecvFlagsEnum</i></p> <p>Used to control the way in which the call is made. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>MSG_PEEK</td> <td>Peek flag</td> </tr> <tr> <td>MSG_OOB</td> <td>OOB flag</td> </tr> <tr> <td>0</td> <td>Normal</td> </tr> </tbody> </table>	Value	Description	MSG_PEEK	Peek flag	MSG_OOB	OOB flag	0	Normal
Value	Description								
MSG_PEEK	Peek flag								
MSG_OOB	OOB flag								
0	Normal								
pnBytesRecv	Used to return the number of bytes received.								

### Example

```
char buffer[1024];
int nBytesReceived;
DO_WSK_Recv (0, buffer, 1024, 0, &nBytesReceived);
```

## DO\_WSK\_Recvfrom

Receives data from a connected or unconnected socket.

### Syntax

```
DO_WSK_Recvfrom (int nConnectHandle, char * buffer, int buffer_length, WinsockRecvFlagsEnum flags, struct sockaddr *from_address, int * pnBytesRecv );
```

### Return Value

### Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
buffer	Buffer to store received data.
buffer_length	Length of buffer.
flags	<p><i>WinsockRecvFlagsEnum</i></p> <p>Used to control the way in which the call is made. Valid values are:</p>

	Value	Description
	MSG_PEEK	Peek flag
	MSG_OOB	OOB flag
	0	Normal
from_address	Optional. If not NULL, it is used to hold the address of the sender upon function return.	
pnBytesRecv	Used to return the number of bytes received.	

### Example

```
char buffer[1024];
int nBytesReceived;
DO_WSK_Recvfrom(0, buffer, 1024, 0, NULL, &nBytesReceived);
```

## DO\_WSK\_Reorder

DO\_WSK\_Reorder( ) swaps the byte order of the given integer variable.

### Syntax

```
void DO_WSK_Reorder(int size, void *value)
```

### Return Value

None

### Parameters

Parameter	Description
size	Size of the integer variable (1, 2, or 4 bytes).
value	The address of the variable.

### Example

```
int var;
var = 2;
DO_WSK_Reorder(sizeof(int), (char *)&var);
DO_WSK_Send(S2, EscapeStr((char *)&var, sizeof(int)));
```

## DO\_WSK\_Select

Allows you to determine if a set of sockets are read or writable

## Syntax

```
Int DO_WSK_Select(fd_set *readfds, fd_set *writefds, fd_set *selectfds, struct timeval *timeout);
```

## Return Value

## Parameters

Parameter	Description
readfds	Set of sockets (struct fd_set) to check for read.
writefds	Set of sockets (struct fd_set) to check for write.
selectfds	Set of sockets (struct fd_set) to check for errors.
timeout	Maximum time for select to wait using timeval struct.

## Example

```
fd_set *Set1 = malloc(sizeof(fd_set));
fd_set *Set2 = malloc(sizeof(fd_set));
fd_set *Set3 = malloc(sizeof(fd_set));
struct timeval *Time = malloc(sizeof(fd_set));

....

....

DO_WSKk_Socket(S3, AF_INET, SOCK_STREAM, IPPROTO TCP);
DO_WSK_Bind(S3, ANY_ADDR, ANY_PORT);
DO_WSK_Getsockname(S3);
DO_WSK_Connect(S3, "172.22.11.25", 80, AF_INET);

Set1->fd_count = 1;
Set2->fd_count = 1;
Set3->fd_count = 1;
Set1->fd_array[0] = S3;
Set2->fd_array[0] = S3;
Set3->fd_array[0] = S3;
Time->tv_sec = 1;
DO_WSK_Select(Set1, Set2, Set3, Time);
free(Set1);
free(Set2);
free(Set3);
free(Time);
```

## DO\_WSK\_Send

Sends data to a socket.

## Syntax

```
DO_WSK_Send(int nConnectHandle, char *data)
```

## Return Value

0 if successful

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
data	Data to be sent.

## Example

```
DO_WSK_Send(S1, "This is sent to connection S1");
```

## DO\_WSK\_SendAll

Sends a number of strings to a connection.

## Syntax

```
DO_WSK_SendAll(int nConnectHandle, int numstrings, char string1, char *string2, ...);
```

## Return Value

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
numstrings	The number of strings to be sent.
string1	The strings to be sent, separated by commas.

## Example

```
DO_WSK_Socket(S3, AF_INET, SOCK_STREAM, IPPROTO_TCP);
DO_WSK_Bind(S3, ANY_ADDR, ANY_PORT);
DO_WSK_Getsockname(S3);
DO_WSK_Connect(S3, "172.22.11.25, 80, AF_INET);
DO_WSK_Setsockopt(S3, IPPROTO_TCP, TCP_NODELAY, 1);
DO_WSK_Setsockopt(S3, SOL_SOCKET, SO_LINGER, 0x100);
```

```
DO_WSK_SendAll(S3, 2, "GET/HTTP/1.1\r\nAccept: image/gif,"
"image/x-xbitmap, image/jpeg, image/pjpeg, application/"
"vnd.ms-excel, application/msword, application/x-shock"
"wave-flash, */*\r\nAccept-Language:en-us\r\nAccept-En"
"coding: gzip, deflate\r\nIf-Modified-Since: Mon, 03 Feb"
"2003 15:03:15 GMT\r\nIf-None-Match:\r\n82f2e16095cbc21:"
"973\r\n", "\r\nUser-Agent: Mozilla/4.0 (compatible; MSIE"
"6.0; Windows NT 5.0; .NET CLR 1.0.3705)\r\nHost:"
"qaappserv\r\nConnection: Keep-Alive\r\n\r\n");
```

## DO\_WSK\_Sendto

Sends data on either a connected or unconnected socket to a remote host.

### Syntax

```
Int DO_WSK_Sendto (int nConnectHandle, char * wsk_statement, char szServerInetAddr, unsigned short port );
```

### Return Value

### Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.
wsk_statement	Buffer of data to be sent.
szServerInetAddr	Character string containing the Internet address of the destination socket.
unsigned short port	The port (in host-byte order) of the destination socket.

### Example

```
DO_WSK_Socket(S1, AF_INET, SOCK_DGRAM, IPPROTO_IP);
DO_WSK_Setsockopt(S1, SOL_SOCKET, SO_BROADCAST, 1);
DO_WSK_Bind(S1, ANY_ADDR, ANY_PORT);
DO_WSK_Sendto(S1, "0$^B^A^@^D^Fpublic\241^W^B^A^A^B^A^@^B^A^@0\f0\n^F^F+^F^"
"A^B^A^A^E^@", "172.22.6.71", 161);
```

## DO\_WSK\_Setsockopt

Sets options associated with the specified socket.

### Syntax

```
DO_WSK_Setsockopt(int nConnectHandle, int level, int option_name, WinsockSetSockOptionLevelEnum wsk_sockopt_optval );
```



## Return Value

## Parameters

Parameter	Description						
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.						
level	The level at which the socket option is defined. This can be either SOL_SOCKET or IPPROTO_TCP.						
option_name	Option name. Refer to your Winsock documentation for a complete list of values.						
wsk_sockopt_optval	<p><i>WinsockSetSockOptionLevelEnum</i></p> <p>Integer variable will receive the values of option_name upon function return. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SOL_SOCKET</td> <td>Socket level</td> </tr> <tr> <td>IPPROTO_TCP</td> <td>TCP level</td> </tr> </tbody> </table>	Value	Description	SOL_SOCKET	Socket level	IPPROTO_TCP	TCP level
Value	Description						
SOL_SOCKET	Socket level						
IPPROTO_TCP	TCP level						

## Example

```
DO_WSK_Connect(S3, "172.22.11.25", 80, AF_INET);
DO_WSK_Setsockopt(S3, IPPROTO_TCP, TCP_NODELAY, 1);
DO_WSK_Setsockopt(S3, SOL_SOCKET, SO_LINGER, 0x100);
```

## DO\_WSK\_Shutdown

Disables the sending or receiving of data on a socket.

## Syntax

```
DO_WSK_Shutdown (int nConnectHandle, WinsockShutdownMethodEnum shutdown_type );
```

## Return Value

## Parameters

Parameter	Description
nConnectHandle	A connection handle returned from a previous call to DO_WSK_Socket.

shutdown_type	<p><i>WinsockShutdownMethodEnum</i></p> <p>Shutdown method options. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>All receives are disabled</td> </tr> <tr> <td>1</td> <td>All sends are disabled</td> </tr> <tr> <td>2</td> <td>All sends and receives are disabled</td> </tr> </tbody> </table>	Value	Description	0	All receives are disabled	1	All sends are disabled	2	All sends and receives are disabled
Value	Description								
0	All receives are disabled								
1	All sends are disabled								
2	All sends and receives are disabled								

### Example

```
// disable sends
DO_WSK_Shutdown (0, 1);
```

## DO\_WSK\_Socket

Creates a socket and associates it with a connection handle.

### Syntax

```
DO_WSK_Socket (int nConnectHandle , int address_family, WinsockSocketTypeEnum type, int protocol );
```

### Return Value

### Parameters

Parameter	Description						
nConnectHandle	A connection handle to associate with a new socket.						
address_family	The address family the socket uses. Refer to your Winsock documentation for a complete list.						
type	<p><i>WinsockSocketTypeEnum</i></p> <p>The Winsock socket type. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SOCK_DGRAM</td> <td>UDP socket</td> </tr> <tr> <td>SOCK_STREAM</td> <td>TCP socket</td> </tr> </tbody> </table>	Value	Description	SOCK_DGRAM	UDP socket	SOCK_STREAM	TCP socket
Value	Description						
SOCK_DGRAM	UDP socket						
SOCK_STREAM	TCP socket						
protocol	Specifies which protocol is used with the socket. Refer to your Winsock documentation for a complete list of protocols.						

## Example

```
// create a stream socket
DO_WSK_Socket (0, AF_INET, SOCK_STREAM, 0 );
```

## DO\_WSK\_Write

Writes the number of bytes identified by `bytes_to_write` to the socket from `data_to_send`.

This can be used in place of `DO_WSK_Send()` when coding scripts by hand. `DO_WSK_Send()` expects a string that has certain control and null characters encoded. `DO_WSK_Write` does not expect any encoding, and so can be used to send data without having to use `EscapeStr` to encode any possible control characters.

## Syntax

```
int DO_WSK_Write(int nConnectHandle, char *data_to_send, int bytes_to_write)
```

## Return Value

Number of bytes written

-1 if an error was encountered

## Parameters

Parameter	Description
<code>nConnectHandle</code>	The connection number.
<code>data_to_send</code>	The data to write to the connection.
<code>bytes_to_write</code>	The number of bytes to write.

## Example

```
DO_WSK_Write(S2, buffer, 1024);
```

## EscapeStr

Converts `^` and null characters into `^^` and `^@`, respectively, so that data with those characters can be passed to `DO_WSK_Send()`, `DO_WSK_Expect()`, or `DO_WSK_ExpectAny()`.

## Syntax

```
char * EscapeStr(char *string, int count)
```

## Return Value

A pointer to the converted characters

## Parameters

Parameter	Description
string	A pointer to a buffer to be converted.
count	The number of characters to convert.

## Example

```
char buf[80];
...
DO_WSK_Send(S1, EscapeStr("\0\0\0x^hello", 10));
```

## GetLocalAddr

Returns the local address used by a connection in host-byte order.

This can be useful in any case where the client application, and therefore, the script, uses `DO_WSK_Bind()` to bind a socket to an unspecified address or port and then does a `DO_WSK_Listen()` on that socket. This sequence indicates that the application tells the remote side what the local address and port are so that it can connect back to the application, identified by a `DO_WSK_Accept()`. In this case, it is necessary to identify how the client application is informing the remote application of what address and port it is listening on.

For example: The ftp client application binds to the first available port and does a `listen()` on that port. The client tells the remote side, which is actually the ftp server, what port it is listening on by sending a command that looks like "PORT 172,23,70,242,4,212\r\n", where 172,23,70,242 is the IP address of the local machine and 4,212 are the high-order byte and low-order byte of the port number being listened on. To make this slightly easier, we've included the `HiByte()`, `LoByte()`, and `AddrByte()` functions.

## Syntax

```
unsigned long GetLocalAddr(int nConnectHandle)
```

## Return Value

Address of the local side of the connection

## Parameters

Parameter	Description
nConnectHandle	The connection number.

## Example

```
unsigned long addr;
unsigned short port;
...
```

```

/*
the following lines have to be AFTER socket S3 is bound in a DO_WSK_Bind() call
port = GetLocalPort(S3);
addr = GetLocalAddr(S3); /* now we know both the local address and port */
...
{
char buf[80];
sprintf(buf, "PORT %d,%d,%d,%d,%d,%d\r\n",
AddrByte(addr,0),
AddrByte(addr,1),
AddrByte(addr,2),
AddrByte(addr,3),
HiByte(port),
LoByte(port));
DO_WSK_Send(S4, buf);
}

```

## GetLocalPort

Returns the port bound to for the named socket on the local side of the connection.

### Syntax

```
unsigned short GetLocalPort(int nConnectHandle)
```

### Return Value

### Parameters

Parameter	Description
nConnectHandle	The connection number.

### Example

```

unsigned short port;
...
port = GetLocalPort(S3);

```

## GetRemoteAddr

Returns the port connected to on the remote side of a connection.

### Syntax

```
unsigned long GetRemoteAddr(int nConnectHandle)
```

## Return Value

Address of the remote side of the connection as a long integer

## Parameters

Parameter	Description
nConnectHandle	The connection number.

## Example

```
unsigned long addr;  
...  
addr = GetRemoteAddr(S3);
```

## GetRemotePort

Returns the port connected to on the remote side of a connection.

## Syntax

```
unsigned short GetRemotePort(int nConnectHandle)
```

## Return Value

## Parameters

Parameter	Description
nConnectHandle	The connection number.

## Example

```
unsigned short port;  
...  
port = GetRemotePort(S3);
```

## HiByte

Returns the high-order byte of the passed short integer.

Only useful in very specific instances, particularly when scripting an FTP client that requires sending the high and low order bytes of the client-side data port as separate bytes.

HiByte returns the high-order byte of the passed short.

## Syntax

```
unsigned char HiByte(short port)
```

## Return Value

## Parameters

Parameter	Description
port	The short value whose high-order byte is being returned.

## Example

```
unsigned char hbyte;
...
hbyte = HiByte(GetLocalPort(S3));
```

## LoByte

Returns the low-order byte of the passed short integer.

Only useful in very specific instances, particularly when scripting an FTP client that requires sending the high and low order bytes of the client-side data port as separate bytes.

LoByte returns the low-order byte of the passed short.

## Syntax

```
unsigned char LoByte(short port)
```

## Return Value

## Parameters

Parameter	Description
port	The short value to return the low byte of.

## Example

```
unsigned char lbyte;
...
byte = LoByte(GetLocalPort(S3));
```

## Log

Records the character string passed into the log file.

### Syntax

```
void Log(char *line_to_be_logged)
```

### Return Value

### Parameters

Parameter	Description
line_to_be_logged	A string to be written to the log file

### Example

```
Log("Got here!");
```

## MyByteOrder

Byte order of the machine running the script.

MyByteOrder( ) returns the byte order of the machine running the script, either of the constants MSBF (Most Significant Byte First) or LSBF (Least Significant Byte First).

### Syntax

```
int MyByteOrder()
```

### Return Value

### Parameters

None.

### Example

```
short value;
int myorder = MyByteOrder();
...
ScanInt(myorder, 2, (char *)&value);
```



## Response

Returns a pointer to the first character in the response buffer.

It should be called immediately after a `DO_WSK_Expect()`, `DO_WSK_ExpectAny()`, `DO_WSK_Read()`, or `DO_WSK_Quiet()`.

`Response` returns a pointer to the matched response.

### Syntax

```
char * Response()
```

### Return Value

### Parameters

None.

### Example

```
char buf[80];  
...  
sprintf(buf, "The first 10 characters of the response  
were %10.10s", Response());  
Log(buf);
```

## ResponseLength

Returns the number of characters in the response buffer.

### Syntax

```
int ResponseLength()
```

### Return Value

### Parameters

None.

### Example

```
char buf[80];
```

```
...
sprintf(buf, "The length of the response was %d bytes",
ResponseLength());
Log(buf);
```

## ScanExpr

Scans the scan buffer for a string specified by the UNIX-style regular expression, into the given buffer. ScanExpr() returns the number of bytes matched by the expression.

### Syntax

```
int ScanExpr(char *exprstr, char *buffer)
```

### Return Value

### Parameters

Parameter	Description
exprstr	The UNIX-style regular expression to look for.
buffer	Where to copy the string to.

### Example

```
char buffer[80];
...
SkipExpr("the name is ");
ScanExpr(".*!", buffer);
Log("the name was %s", buffer);
```

## ScanFloat

Scans a floating point value of the given byteorder and length into the argument.

This should be the address of an appropriate program variable of the same size and type, casted to a char \*. Valid lengths are 4 or 8. The byteorder should be either specified as either of the constants MSBF or LSBF.

### Syntax

```
void ScanFloat(int byteorder, int length, char *buffer)
```

### Return Value

None

## Parameters

Parameter	Description
byteorder	The byteorder of the floating point value.
length	The size of the floating point value (4 (float) or 8 (double)).
buffer	Where to copy the bytes to.

## Example

```
float v1;
double v2;
...
ScanFloat(MyByteOrder(), sizeof(float), (char *)&v1);
ScanFloat(MyByteOrder(), sizeof(double), (char *)&v2);
Log("the v1 was %d and v2 was %d", v1, v2);
```

## ScanInt

`ScanInt()` scans an integer of the given byteorder and length into the argument.

This should be the address of an appropriate program variable of the same size and type, casted to a `char *`. Valid lengths are 1, 2, or 4. The byteorder should be either specified as one of the constants `MSBF` or `LSBF`.

## Syntax

```
void ScanInt(int byteorder, int length, char *buffer)
```

## Return Value

None

## Parameters

Parameter	Description
byteorder	The byteorder of the integer value.
length	The size of the integer (1, 2, or 4).
buffer	Where to copy the bytes to.

## Example

```
short port;
int length;
ScanInt(MyByteOrder(), sizeof(short), (char *)&port);
```

```
ScanInt(MyByteOrder(), sizeof(int), (char *)&length);
Log("the port was %d and the length was %d", port, length);
```

## ScanLenString

`ScanLenString()` expects input of the format `[count][string]`, where `length` is an integer of the given byteorder and `length` and `string` is a string of `count` bytes.

The string is placed in the given pointer and count. This should be the address of an appropriate integral program variable, type-cast to a `char *`, and to be updated with the count.

### Syntax

```
void ScanLenString(int byteorder, int length, char *count, char *buffer)
```

### Return Value

None

### Parameters

Parameter	Description
<code>byteorder</code>	The byteorder of the count value.
<code>length</code>	The size of the count value (1, 2, or 4).
<code>Count</code>	The address of a integral program value of the appropriate size to copy the count value to.
<code>buffer</code>	Where to copy the string to.

### Example

```
int len;
char buffer[80];
...
ScanLenString(MyByteOrder(), 4, (char *)&len, buffer);
buffer[len] = '\0';
Log("the name was %s, length was %d", buffer, len);
```

## ScanRewind

Resets the scan pointer and length to the beginning and length of the response buffer respectively.

### Syntax

```
void ScanRewind( )
```

## Return Value

None

## Parameters

None.

## Example

```
ScanRewind( );
```

## ScanSkip

Skips the specified number of bytes in the scan buffer.

## Syntax

```
void ScanSkip(int count)
```

## Return Value

None

## Parameters

Parameter	Description
Count	The number of bytes to skip ahead in the scan buffer.

## Example

```
ScanSkip(5);
```

## ScanString

Scans a string of the given length from the current location in the scan buffer into the given buffer. The scan pointer and length are incremented by the argument length.

## Syntax

```
void ScanString(int length, char *buffer)
```

## Return Value

None

## Parameters

Parameter	Description
length	The number of bytes to copy.
buffer	Where to copy the bytes to.

## Example

```
char mybuf[6];
...
ScanString(5, mybuf);
mybuf[5] = '\0';
Log("the name was %s", mybuf);
```

## SetTimeout

Sets the number of seconds to wait for subsequent synchronization commands (DO\_WSK\_Expect, DO\_WSK\_ExpectAny, or DO\_WSK\_Read) to be satisfied.

The default timeout value is 20 seconds. Increase this value for large user tests.

## Syntax

```
int SetTimeout(int seconds)
```

## Return Value

Previous timeout value

## Parameters

Parameter	Description
seconds	The number of seconds to wait for a pattern in an DO_WSK_Expect or DO_WSK_ExpectAny, a connection in a DO_WSK_Accept, or a number of bytes to be received in a DO_WSK_Read.

## Example

```
SetTimeout(20);
```

## SkipExpr

Scans the scan buffer for a string specified by the UNIX-style regular expression, and skips ahead over the matched pattern.

SkipExpr() returns the number of bytes matched by the expression.

## Syntax

```
void SkipExpr(char *exprstr)
```

## Return Value

## Parameters

Parameter	Description
exprstr	The UNIX-style regular expression to look for.

## UnEscapeStr

Converts a string with escaped ^ control character sequences to raw text so that it can be manipulated.

UnEscapeStr returns the .

## Syntax

```
int UnEscapeStr(char *string)
```

## Return Value

Length of the converted string

## Parameters

Parameter	Description
string	A string with ^ control character sequences.

## Example

```
char buf[80], str[6];
int len, x, y;

...

strcpy(buf, "^A^B^B^@hello\n");
len = UnEscapeStr(buf);
memcpy(&x, &buf[0], 2);
memcpy(&y, &buf[2], 2);
memcpy(str, &buf[4], 6);
```

## WWW

### WWW Commands

#### [Attach](#)

Applies to Visual Scripting. Changes the current page to the page or frame specified. This new page becomes the active page that all Web functions act on.

#### [Clear](#)

Applies to Visual Scripting. Used to clear out certain items such as the cache or cookies. Types can be ordered together to clear both.

#### [Click\\_On](#)

Applies to Visual Scripting. Mimics the user clicking on text links, clickable images, and submit buttons.

#### [DisableStatisticsRP](#)

Applies to Real Networks Streaming Media. Disables capture of statistics during a load test.

#### [DO\\_AddHeader](#)

Applies to HTTP and SSL requests. Indicates headers that are common to every request (DO\_Http or DO\_Https function calls) in a script.

#### [DO\\_AdditionalSubRequest](#)

Applies to HTTP and SSL requests. DO\_AdditionalSubRequest manually adds a sub-request for the next DO\_Http or DO\_Https request. The request is specified as a URL.

#### [DO\\_AllowTrafficFrom](#)

Applies to HTTP and SSL requests. If DO\_AllowTrafficFrom is present in a script, then sub-requested URLs will only occur if the sub-request's URL contains one of the sub-strings in the substrings' list.

#### [DO\\_AttachFile](#)

Applies to HTTP and SSL requests. Specifies files that should be loaded into memory at the beginning of a script run. This is used in Post transactions that include binary files.

#### [DO\\_AutomaticSubRequests](#)

Applies to HTTP requests. Indicates whether subrequests will be downloaded during replay.

#### [DO\\_BasicAuthorization](#)

Specifies the username and password to gain access to a password protected WWW host, directory, or file.

#### [DO\\_BlankOutOfRangeData](#)

Applies to HTTP and SSL requests. If DO\_BlankOutOfRangeData is enabled, then characters in the HTTP response body which interface with text searching or the HTML parser are changed to spaces.

#### [DO\\_BlockTrafficFrom](#)

Applies to HTTP and SSL requests. If DO\_BlockTrafficFrom is present in a script, then sub-requested URLs will only occur if the sub-request's URL does not contain one of the sub-strings in the substrings' list.

#### [DO\\_Cache](#)

Applies to HTTP and SSL requests. Turns on cache emulation which caches anything with a content type beginning with "image/".

#### [DO\\_Clear](#)



Applies to HTTP and SSL requests. Used to clear out certain items such as the cache or cookies. Types can be ordered together to clear both.

#### [DO\\_ClearCache](#)

Applies to HTTP and SSL requests. Clears any cached images. Performed automatically by DO\_HttpCleanup.

#### [DO\\_ClearDNSCache](#)

Applies to HTTP and SSL requests. When DO\_Http or DO\_Https make an HTTP request, DO\_ClearDNSCache caches any DNS lookups that are performed. If that cache needs to be cleared to simulate browser, use DO\_ClearDNSCache.

#### [DO\\_ClearJavascript](#)

Applies to HTTP and SSL requests. Clears any memory allocated by the JavaScript engine. Performed automatically by DO\_HttpCleanup. DO\_ClearJavascript is the same as DO\_Clear (JAVASCRIPT\_ENGINE).

#### [DO\\_DynamicCookieHandling](#)

Applies to HTTP and SSL requests. Turns dynamic cookie handling on or off.

#### [DO\\_DynamicRedirectHandling](#)

Applies to HTTP requests. Retrieves a redirected URL for use in the next request.

#### [DO\\_EnableJavascript](#)

Applies to HTTP requests. Enables or disables the interpretation of Javascript.

#### [DO\\_EncodeString](#)

Applies to HTTP and SSL requests. DO\_EncodeString takes in a string and URL-encodes the string to be suitable to use as a CGI parameter or in the body of a POST.

#### [DO\\_FreeHttp](#)

Applies to HTTP and SSL requests. Also applies to Visual Scripting. Clears memory used by the script.

#### [DO\\_GetAnchorByNumber](#)

Applies to HTTP and SSL requests. Stores the value of an anchor from an HTML reply into a string that can be substituted into subsequent requests.

#### [DO\\_GetAnchorCount](#)

Applies to HTTP and SSL requests. Returns the total number of the anchors on the page.

#### [DO\\_GetAnchorHREF](#)

Applies to HTTP and SSL requests. Stores the value of a named anchor off of an HTML reply into a string that can be substituted into subsequent requests.

#### [DO\\_GetAnchorHREFEx](#)

Applies to HTTP and SSL requests. Stores the value of a specific occurrence of a named anchor off an HTML reply into a string that can be substituted into subsequent requests.

#### [DO\\_GetCitrixICAFile](#)

Saves a WWW reply when its body is an ICA file.

#### [DO\\_GetClientMapHREF](#)

Applies to HTTP and SSL requests. DO\_GetClientMapHREF is used to extract the href URL from a particular region of a client-side image map. Client-side image maps are specified within an HTML document by the map' tag. Inside the map' tag, a' and area' tags are used to specify regions of the image map. The href attribute of the a' or area' tags specify the location of the URL to go to.

#### [DO\\_GetCookie](#)

Applies to HTTP and SSL requests. Extracts a cookie from the QALoad internal cookie list. The cookie is retrieved based on the name of the cookie. Wildcard patterns can be used to specify the cookie name in case the cookie name is dynamic. A count is also specified in case multiple cookies match the specified name.

#### [DO\\_GetCookieFromReplyEx](#)

Applies to HTTP and SSL requests. Retrieves and stores the value of a cookie when a Set-Cookie: statement is encountered in a reply header.

#### [DO\\_GetCookiesForURL](#)

Applies to HTTP and SSL requests. DO\_GetCookiesForURL sends a message to the QALoad internal cookie storage requesting a list of cookies for this URL. The cookies are returned in a semicolon-separated list of cookies. Each cookie in the returned cookie list is put into the "name=value" form. The returned cookie list is suitable to be used as a cookie header for an HTTP request.

#### [DO\\_GetFormActionStatement](#)

Applies to HTTP and SSL requests. Gets the ACTION tag from a requested form. This feature is useful when a form dynamically changes what is stored in the ACTION tag.

#### [DO\\_GetFormValueByName](#)

Applies to HTTP and SSL requests. Retrieves the value embedded in a form for the specified field.

#### [DO\\_GetHeaderFromReply](#)

Applies to HTTP and SSL requests. Retrieves the value of a header in the reply resulting from a DO\_HTTP command.

#### [DO\\_GetLastHttpError](#)

Applies to HTTP and SSL requests. Retrieves the integer indicating the error code of the last HTTP request sent with DO\_Http. Errors greater than 399 include the Page not found 404 error.

#### [DO\\_GetRedirectedURL](#)

Applies to HTTP requests. Modifies the parameter passed in for use in the next request.

#### [DO\\_GetReplyBuffer](#)

Applies to HTTP and SSL requests. DO\_GetReplyBuffer returns the HTTP response from the last DO\_Http request.

#### [DO\\_GetReplyBufferLength](#)

Applies to HTTP and SSL requests. DO\_GetReplyBuffer returns the length of the HTTP response from the last DO\_Http request.

#### [DO\\_GetUniqueString](#)

Applies to HTTP and SSL requests. Used to parse the most recent HTTP server reply to get the contents of a string that occurs between the left and right input strings.

#### [DO\\_GetUniqueStringEx](#)

Applies to HTTP and SSL requests. Used to parse a null-terminated input string (search) to get the contents of a string that occurs between the left and right input strings.

#### [DO\\_Http](#)

Applies to HTTP requests. Executes an HTTP request in the script.

#### [DO\\_HttpCleanup](#)

Applies to HTTP and SSL requests. Performs all necessary cleanup operations when a script exits or the user

terminates the script.

#### [DO\\_Https](#)

Applies to **SSL** requests. Makes a secured request to the server specified by the `http_statement`.

#### [DO\\_HttpVersion](#)

Applies to **HTTP** and **SSL** requests. Specifies the version to use in the requests sent during playback.

#### [DO\\_InitHttp](#)

Applies to **HTTP** and **SSL** requests. Also applies to Visual Scripting. Sets all necessary internal variables needed to load test an **HTTP** script.

#### [DO\\_IPSpoofEnable](#)

Applies to **HTTP** and **SSL** requests. Enables each virtual user to appear to the web server as being sourced from a different network interface card.

#### [DO\\_NTLMAuthorization](#)

Applies to **HTTP** requests. Provides user ID and password (plain text or encrypted) information for **NTLM** authentication.

#### [DO\\_ProxyAuthorization](#)

Provides the username and password to access a password protected proxy server.

#### [DO\\_ProxyExceptions](#)

Applies to **HTTP** and **SSL** requests. Tells **QALoad** not to use the proxy server for hosts in the proxy exceptions list, so you can replay requests both inside and outside of the firewall in the same script.

#### [DO\\_ProxyHttpVersion](#)

Applies to **HTTP** and **SSL** requests. Specifies the version to use in proxy requests sent during playback. This affects whether or not the replies come back chunked. Only **HTTP 1.1** requests receive chunked replies.

#### [DO\\_SaveReplyType](#)

Applies to **HTTP** and **SSL** requests. Specifies types of replies to save.

#### [DO\\_SetAssumedContentType](#)

Applies to **HTTP** and **SSL** requests. Sets the default content type if the web server doesn't send a content type header.

#### [DO\\_SetBaudRate](#)

Returns the baud rate the virtual user will use.

#### [DO\\_SetBaudRateEx](#)

Returns the transmission rate the virtual user will use.

#### [DO\\_SetCheckpointName](#)

Sets the name of the next automatic checkpoint for the next `DO_Http` or `DO_Https` statement in the script.

#### [DO\\_SetCookie](#)

Applies to **HTTP** and **SSL** requests. `DO_SetCookie` adds a cookie to the current transaction.

#### [DO\\_SetCookieEx](#)

Applies to **HTTP** and **SSL** requests. `DO_SetCookie` adds a cookie to the current transaction.

#### [DO\\_SetJavaScriptCleanupThreshold](#)

Applies to **HTTP** and **SSL** requests. Periodically **QALoad** will destroy its internal **JavaScript** model and

recreate it. `DO_SetJavascriptCleanupThreshold` sets a count of the number of times JavaScript parsing is done before destroying and recreating the model.

#### [DO\\_SetJavaScriptLevel](#)

Applies to HTTP requests. Allows user to control the level of JavaScript execution for convert and replay.

#### [DO\\_SetMaxBrowserThreads](#)

Applies to HTTP and SSL requests. Specifies the number of concurrent connections to make for playback.

#### [DO\\_SetMaximumRetries](#)

Similar to the behavior of Netscape and Internet Explorer.

#### [DO\\_SetPostDelay](#)

Applies to HTTP requests. Sets how many seconds QALoad should wait for a reply from a server after the header has been sent for a POST request.

#### [DO\\_SetRefreshTimeout](#)

Specifies how long to wait for a meta refresh.

#### [DO\\_SetRetryWait](#)

Applies to SSL requests. Sets the proxy authorization when accessing SSL pages passed through a proxy server (also known as SSL tunneling).

#### [DO\\_SetTimeout](#)

Applies to HTTP and SSL requests. Specifies how long to wait for a reply from the server. If a reply is not received within the specified time, the virtual user will fail with a fatal error.

#### [DO\\_UseEntityList](#)

Applies to HTTP and SSL requests. Decodes non-ASCII character entities.

#### [DO\\_UseNumericReferenceList](#)

Applies to HTTP and SSL requests. Decodes non-ASCII numeric references.

#### [DO\\_UsePersistentConnections](#)

Applies to HTTP and SSL requests. Turns the use of persistent connections on or off.

#### [DO\\_UseProxy](#)

Applies to HTTP and SSL requests. Specifies a proxy server to use during testing.

#### [DO\\_UseProxyAutomaticConfiguration](#)

Applies to HTTP and SSL requests. Downloads the proxy automatic configuration (PAC) script at the specified URL. The rest of the transaction will use the PAC script to determine which proxy, if any, to connect to hosts.

#### [DO\\_VerifyDocTitle](#)

Applies to HTTP and SSL requests. Compares the parameters and match type passed in the parameters against the HTML page title specified in the response received from the HTTP request.

#### [DO\\_WWWFree](#)

Applies to HTTP and SSL requests. Clears memory used by the script.

#### [DO\\_WWWInitialize](#)

Applies to HTTP and SSL requests. Sets all necessary internal variables needed to load test a WWW script.

#### [DownloadMediaFromASX](#)

Applies to Windows Media Player Streaming Media. Dynamically parses an ASX file from the previous response and initiates and waits for completion of the specified Windows Media resources download.

#### [DownloadMediaRP](#)

Applies to Real Networks Streaming Media. Initiates and waits for completion of the specified multi-media resource download.

#### [DownloadMediaWMP](#)

Applies to Windows Media Player Streaming Media. Initiates and waits for completion of the specified Windows Media resource download.

#### [EnableStatisticsRP](#)

Applies to Real Networks Streaming Media. Enables capture of media player performance statistics during a load test. Compuware recommends that this function is called in the initial section of a Web script, before the SYNCHRONIZE() call. Although it can be called at any point in the script, this command must appear in the script prior to any DownloadMediaRP call.

#### [Fill\\_In](#)

Applies to Visual Scripting. Used to represent how the user filled in fields on a form before clicking on a submit button. The values that are passed to Fill\_In are expected to be plain text with no encoding other than using + to join multiple selects for LIST\_BOX.

#### [Get](#)

Applies to Visual Scripting. Retrieves data from the virtual browser. Whole pages, specific frames, and text strings from within the document can be retrieved.

#### [GetSiebelValue](#)

Retrieves the value of a Siebel record from the Siebel library and saves it in a Local Variable.

#### [Navigate\\_To](#)

Applies to Visual Scripting. Reads a URL typed in the Web browser's address field and constructs a request to navigate to the URL, or reads another request typed in the browser's address field, finishes the request and navigates to the request. Navigate\_To is a direct replacement for DO\_Http.

#### [ModifyEncoding](#)

ModifyEncoding is used in Visual scripts to convert strings to UTF8, EUCJP or to the language used by the script.

#### [PlayMedia](#)

Applies to Real Networks and Windows streaming media. Initiates and plays back the streaming media file that was stored in a previous call to the Click\_On function.

#### [Post\\_To](#)

Applies to Visual Scripting. Reads a URL typed in the Web browser's address field as well as the encoding type. It then constructs a request to send a post to the URL.

#### [RandNumString](#)

Applies to Visual Scripting. Generates a random number from minimum to maximum.

#### [Region](#)

Applies to Visual Scripting. Marks the region\_number parameter as an image map region.

#### [RESTART\\_TRANSACTION\\_BOTTOM](#)

Applies to Visual Scripting. Used to define a point at the end of the transaction for anything that needs to be deallocated or uninitialized. When transaction restarting occurs for a failed transaction, QALoad will

first execute any code starting after the call to `RESTART_TRANSACTION_BOTTOM` allowing you to clean up important information and prevent memory leaks before retrying the transaction.

### `RESTART_TRANSACTION_TOP`

Used to define a point at the beginning of the transaction loop that QALoad can use to rewind the transaction if the transaction fails and Restart Transaction error handling has been selected in the QALoad Conductor as follows:

#### `Set`

Applies to Visual Scripting. Assigns values to the Virtual Browser, Proxy, and other parts of the QALoad replay. This command sets the properties and attributes of the script.

#### `ShowMediaRP`

Applies to Real Networks Streaming Media. Displays the media during a load test. Audio and video can be controlled separately. If video is enabled, a dialog box displays the video. For audio, the sound from the media will play through the sound device.

#### `SebelInitialize`

Initializes the Sebel correlation library and treats the current script file as a Sebel file. If the Sebel correlation library dll (`ssdtcorr.dll`) is not present in the QALoad directory, it throws an error in the TRACE window and exits the playback.

#### `SebelUpdatePage`

Feeds the current response (response from last request) to the Sebel library. This tells the Sebel library to extract the Sebel parameter values from the response.

#### `Verify`

Applies to Visual Scripting. Used to verify expected text against an element of the page just requested.

#### `WWW_FATAL_ERROR`

Applies to HTTP and SSL requests. Also applies to Visual Scripting. `WWW_FATAL_ERROR` aborts or restarts a virtual user in the event of an error during replay.

#### `X_Coord`

Applies to Visual Scripting. Marks the `x_value` parameter as an x-coordinate value.

#### `XMLRequest`

Applies to Visual Scripting. The `XMLRequest` function takes in the HTTP action and a URL and constructs a request to navigate to the URL. `XMLRequest` is a direct replacement for `Navigate_To` when the main HTTP request is for an XML document.

#### `Y_Coord`

Applies to Visual Scripting. Marks the `y_value` parameter as a y-coordinate value.

## `Attach`

Applies to Visual Scripting. Changes the current page to the page or frame specified.

This new page becomes the active page that all script commands act on.

### Syntax

```
boolean Attach ( const page_id& page );
```

## Return Value

True if the page was attached to.  
False if not.

## Parameters

Parameter	Description
page	The page to attach to.

## Example

```
page = Get ( PAGE );
Attach ( page );
Attach ( Get ( FRAME, "index" ) );
```

## Clear

Applies to Visual Scripting. Used to clear out certain items such as the cache or cookies. Types can be ordered together to clear both.

## Prototypes

```
boolean Clear ( WWWClearEnum type );
```

## Return Value

True if cleared successfully.  
False if not cleared successfully .

## Parameters

Parameter	Description										
type	<p><i>WWWClearEnum</i></p> <p>The type of clear to do. Valid types are listed in the following tables:</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>Clear all internal settings.</td> </tr> <tr> <td>ALL_CGI_PARAMETERS</td> <td>Clear all Set CGI_PARAMETER parameters.</td> </tr> <tr> <td>ALL_COOKIES</td> <td>Clear all stored cookies. (Transaction type)</td> </tr> <tr> <td>ALL_HEADERS</td> <td>Clear all Set HEADER header attributes.</td> </tr> </tbody> </table>	Type	Description	ALL	Clear all internal settings.	ALL_CGI_PARAMETERS	Clear all Set CGI_PARAMETER parameters.	ALL_COOKIES	Clear all stored cookies. (Transaction type)	ALL_HEADERS	Clear all Set HEADER header attributes.
Type	Description										
ALL	Clear all internal settings.										
ALL_CGI_PARAMETERS	Clear all Set CGI_PARAMETER parameters.										
ALL_COOKIES	Clear all stored cookies. (Transaction type)										
ALL_HEADERS	Clear all Set HEADER header attributes.										

ALL_VALUES	Clear all DO_SetValue variables. (Transaction type)
ATTACHED_FILES	Clear all files in the binary file list.
BASIC_AUTH_FLAG	Do not send the basic authorization until next challenge. (Transaction type)
BASIC_AUTHORIZATION	Clear the basic authorization user name and password.
BAUD_RATE_CALCULATIONS	Clear the accumulated modern emulation data. (Transaction type)
BLOCK_TRAFFIC_FROM	Clear the blocked traffic from list.
CACHE	Clear out any virtual browser cache. (Transaction type)
CERTIFICATE	Clear the client certificate.
CERTIFICATE_PASSWORD	Clear the client certificate password.
CONNECTION	Reset network connection. (Transaction type)
CONNECT_REQUEST_FOR_SSL_TUNNELING	Clear the set SSL connect string.
DEFAULT_CONTENT_TYPE	Clear the default content type.
DNS_CACHE	Clear any cached DNS lookups. (Transaction type)
INTERNAL_BUFFERS	Clear any internal buffers.
JAVASCRIPT_ENGINE	Clear the Javascript state.
NTLM_AUTHORIZATION	Clear the NTLM user name and password.
ONLY_ALLOW_TRAFFIC_FROM	Clear the allowed traffic from list.
ONLY_USE_SSL_CIPHER	Clear the only use SSL cipher string.
PROXY_AUTHORIZATION	Clear the proxy authorization user name and password.
PROXY_AUTH_FLAG	Do not send the basic authorization until next challenge. (Transaction type)
PROXY_SETTINGS	Clear all proxy settings.
RECEPTION_BAUD_RATE	Turn off reception baud rate



		emulation.
	REFERER	Clear the referer so it is not sent with the next request. (Transaction type)
	SIGNIFICANT_CONTENT_TYPES	Clear the significant content type list.
	SPOOFED_IP_ADDRESS	Clear any spoofed IP addresses.
	TRANSACTION	Clear all temporary variables used in the transaction.
	TRANSMISSION_BAUD_RATE	Turn off transmission baud rate emulation.

## Examples

```
Clear ( JAVASCRIPT_ENGINE );
Clear ( CACHE );
Clear ( CONNECTION );
Clear ( ALL_COOKIES );
Clear ( TRANSACTION );
Clear ( ALL );
```

## Click\_On

Applies to Visual Scripting. Mimics the user clicking on text links, clickable images, and submit buttons.

### Versions

Versions of Click\_On are:

```
boolean Click_On ( WWWClickOnLinkEnum link, string description );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, integer count );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, WWWClickOnSpecifierEnum specifier, string description );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, integer count, WWWClickOnSpecifierEnum specifier, string description );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, integer count, WWWClickOnSpecifierEnum specifier, string description, string x_coord, string y_coord );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, integer count, WWWClickOnSpecifierEnum specifier, string description, WWWClickOnOptionEnum click_option );
```

```
boolean Click_On ( WWWClickOnLinkEnum link, integer count, WWWClickOnSpecifierEnum specifier, string description, string region );
```

## DisableStatisticsRP

Applies to Real Networks Streaming Media. Disables capture of statistics during a load test.

 Notes:

- ! Real Player streaming media is only supported in process mode. On the QALoad Player main window, in the Run As: group, select the Process option.
- ! For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad " chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
DisableStatisticsRP();
```

## Return Value

## Parameters

None.


## Example

```
DisableStatisticsRP();
```

## DO\_AddHeader

Applies to HTTP and SSL requests. Indicates headers that are common to every request (DO\_Http or DO\_Https function calls) in a script.

QALoad takes all of the headers that are in every request in the script and places them at the beginning of the script (between BEGIN\_TRANSACTION and the first request) using the DO\_AddHeader command. During replay, DO\_AddHeader tells QALoad to add the header with a given name and value to all requests in the script.

 Note: Cookie and Host headers are not included in the DO\_AddHeader function even if they are common to all of the requests.

## Syntax

```
DO_AddHeader (const char *name, const char *value);
```

## Return Value

## Parameters

Parameter	Description
Name	The name of the header.
Value	The value of the header.

## Example

If the following two requests occurred in the same script, the `User-Agent` header would be considered common:

```
DO_Http("GET http://yourserver.net/ HTTP/1.0\r\n"
"User-Agent: Mozilla/4.7 [en] (WinNT; I)\r\n"
"Host: yourserver.net\r\n"
"Accept: */*\r\n"
"Accept-Language: ja_JP\r\n"
"Accept-Charset: *\r\n\r\n");
DO_Http("GET http://anotherserver.net/ HTTP/1.0\r\n"
"User-Agent: Mozilla/4.7 [en] (WinNT; I)\r\n"
"Host: anotherserver.net\r\n"
"Accept: image/jpeg, */*\r\n"
"Accept-Language: en\r\n"
"Accept-Charset: iso-8859-1,*,utf-8\r\n\r\n");
```

Note that both `User-Agent` and `Mozilla/4.7 [en] (WinNT; I)` must be the same in order for them to be considered common. Using the above example, the resulting script will look like this:

```
DO_AddHeader("User-Agent", "Mozilla/4.7 [en] (WinNT; I)");
DO_Http("GET http://yourserver.net/ HTTP/1.0\r\n"
"Host: yourserver.net\r\n"
"Accept: */*\r\n"
"Accept-Language: ja_JP\r\n"
"Accept-Charset: *\r\n\r\n");
DO_Http("GET http://anotherserver.net/ HTTP/1.0\r\n"
"Host: anotherserver.net\r\n"
"Accept: image/jpeg, */*\r\n"
"Accept-Language: en\r\n"
"Accept-Charset: iso-8859-1,*,utf-8\r\n\r\n");
```

Note that the `User-Agent` header was removed from the `DO_Http()` calls. The `DO_AddHeader()` call tells `QALoad` to add the header with a given name and value to all requests in the script.

## DO\_AdditionalSubRequest

Applies to HTTP and SSL requests. `DO_AdditionalSubRequest` manually adds a sub-request for the next `DO_Http` or `DO_Https` request. The request is specified as a URL.

### Syntax

```
int DO_AdditionalSubRequest ( const char * szSubRequest );
```

### Return Value

Returns the number of items in the pre-loaded sub-request list.

### Parameters

Parameter	Description
<code>szSubRequest</code>	URL to add as a sub-request of the next <code>DO_Http</code> or <code>DO_Https</code> request.

## Example

```
...
...
DO_AdditionalSubRequest ( "http://company.com/images/bar.gif" );
...
...
```

## DO\_AllowTrafficFrom

Applies to HTTP and SSL requests. If DO\_AllowTrafficFrom is present in a script, then sub-requested URLs only occur if the sub-request's URL contains one of the sub-strings in the 'substrings' list.

For example, if substrings is "www.host.com, images; .js", then the following URLs could be sub-requested.

http://www.host.com/top-frame.html : URL has a substring "www.host.com"

http://img.host.com/images/fist.png : URL has a sub-string "images"

http://scripts.host.com/scripts/menu.js : URL has a sub-string ".js"

And the following URL could not be sub-requested:

http://x.host.com/no-reason-to-request/page.html : No substring found

## Syntax

```
DO_AllowTrafficFrom ( const char * substrings )
```

## Return Value

## Parameters

Parameter	Description
substrings	Semicolon separated list of sub-strings.

## Example

```
DO_AllowTrafficFrom ( "www.host.com; images; .js" );
```

## DO\_AttachFile

Applies to HTTP and SSL requests. Specifies files that should be loaded into memory at the beginning of a script run. This is used in Post transactions that include binary files.

## Syntax

```
DO_AttachFile(const char *label, const char *filename);
```

## Return Value

## Parameters

Parameter	Description
label	The variable that is replaced by the file contents in the request at run-time.
filename	The relative filename for the file to attach.

## Example

```

...
...
DO_AttachFile("FILE_1", "mee-1.jpg");
...
...
BEGIN_TRANSACTION();
...
...
DO_Http("POST {*action_statement0} HTTP/1.0\r\n"
"Content-Disposition: frm-data; name=\"filename\"; filename="
"\"F:\\temp\\mee-1.jpg\"\\r\n"
"Content-Type: image/jpeg\r\n\r\n{*FILE_1}\\r\n"
"-----7d02d1b240910--");
...
...

```

## DO\_AutomaticSubRequests

Applies to HTTP requests. Indicates whether subrequests will be downloaded during replay.

This command relates to the Automatically Process HTTP SubRequests check box on the QALoad Script Development Workbench Convert Options wizard. When this option is selected, `DO_AutomaticSubRequests(TRUE)`; is written to the script when it is converted from a capture file and subrequests are not included in the script. During replay, QALoad handles subrequests like a browser.

When it is not selected, `DO_AutomaticSubRequests(FALSE)`; is written to the script when it is converted from a capture file. Each `DO_Http` request evaluates the Web page, determines if it contains any subrequests (requests that call for images, style sheets, or XML DTD's), and downloads these items. All subrequests in the capture file are converted into the resulting script and executed during replay.

By default, the Automatically Process HTTP SubRequests check box is selected. `DO_AutomaticSubRequests` is placed at the beginning of a script, between the `BEGIN_TRANSACTION` command and the first request.

## Syntax

```
int DO_AutomaticSubRequests (BOOL bFlag);
```

## Return Value

0 if `bFlag` is set to `FALSE`.

1 if `bFlag` is set to `TRUE`.

## Parameters

Parameter	Description
bflag	A flag indicating if the Automatically Process HTTP SubRequests option is enabled (TRUE or FALSE).

## Examples

### Example 1:

The following example is valid when `bflag` is TRUE:

 **Note:** Request 3 (logo.gif) is not present when SubRequest is TRUE

```

...
...
BEGIN_TRANSACTION();
...
...
DO_AutomaticSubRequests(TRUE);
...
...

/* Request: 1 */

DO_Http("GET http://company.com/ HTTP/1.0\r\n"
"Accept: image/gif, image/x-xbitmap, */*\r\n"
"Host: company.com\r\n"
"Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");
...
...

/* Request: 2 */

DO_Http("GET http://company.com/index.htm HTTP/1.0\r\n"
"Accept: image/gif, image/x-xbitmap, */*\r\n"
"Referer: http://company.com/\r\n"
"Host: company.com\r\n"
"Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");
...
...
END_TRANSACTION();
...
...

```

### Example 2:

The following example is valid when `bflag` is FALSE:

```

...
...
BEGIN_TRANSACTION();
...
...
DO_AutomaticSubRequests(FALSE);
...
...

/* Request: 1 */

DO_Http("GET http://company.com/ HTTP/1.0\r\n"
"Accept: image/gif, image/x-xbitmap, */*\r\n"
"Host: company.com\r\n"
"Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");

```

```

...
...
/* Request: 2 */
DO_Http("GET http://company.com/index.htm HTTP/1.0\r\n"
"Accept: image/gif, image/x-xbitmap, */*\r\n"
"Referer: http://company.com/\r\n"
"Host: company.com\r\n"
"Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");
...
...
/* Request: 3 */
DO_Http("GET http://company.com/logo.gif HTTP/1.0\r\n"
"Accept: */*\r\n"
"Referer:http://company.com/index.htm\r\n"
"Host: company.com\r\n"
"Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");
...
...
END_TRANSACTION();
...
...
/

```

## DO\_BasicAuthorization

Specifies the username and password to gain access to a password protected WWW host, directory, or file.

The password may be encrypted using QALoad's "~encr~" encryption. Username and password are inserted automatically as necessary during conversion. Note that you can variablize the username and password to emulate different users accessing the resources.

### Syntax

```
DO_BasicAuthorization(const char *username, const char *password);
```

### Return Value

### Parameters

Parameter	Description
username	A valid username for the resource you're attempting to access.
password	The associated password.

### Example

```

DO_HttpVersion("Auto");
DO_SLEEP(2);
/* Request: 1 */

```

```
DO_BasicAuthorization("smith", "~encr~0E636502080E");
BeginCheckpoint(" http://iris/redline - chkpt: 1");
DO_Http("GET http://iris/redline HTTP/1.1\r\n"
"Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, "
"application/vnd.ms-excel, application/msword, "
"application/vnd.ms-powerpoint, */*\r\n"
"Accept-Language: en-us\r\n"
"Accept-Encoding: gzip, deflate\r\n"
"User-Agent: Mozilla/4.0 (compatible; MSIE 5.01; Windows NT; CPWR)\r\n"
"Host: iris\r\n\r\n"
);
```

## DO\_BlankOutOfRangeData

Applies to HTTP and SSL requests. If DO\_BlankOutOfRangeData is enabled, then characters in the HTTP response body that interface with text searching or the HTML parser are changed to spaces.

 Note: Currently, the only character blanked by DO\_BlankOutOfRangeData is the NUL character (ASCII value 0).

### Syntax

```
DO_BlankOutOfRangeData ( BOOL flag );
```

### Return Value

### Parameters

Parameter	Description
flag	Flag indicating if out of range blanking is to be done or not.

### Example

```
DO_BlankOutOfRangeData ( TRUE );
```

## DO\_BlockTrafficFrom

Applies to HTTP and SSL requests. If DO\_BlockTrafficFrom is present in a script, then sub-requested URLs only occur if the sub-request's URL does not contain one of the sub-strings in the 'substrings' list.

For example, if sub-strings list is "pop-up; imgsrv", then the following URLs would not be sub-requested:

```
http://www.host.com/pop-up/ad.html : URL has a substring "pop-up"
http://imgsrv.host.com/images/fist.png : URL has a sub-string "imgsrv"
```

And the following URL could be sub-requested:

```
http://www.host.com/no-reason-to-block/page.html : No substring found
```

### Syntax

```
DO_BlockTrafficFrom( const char * substrings )
```



## Return Value

## Parameters

Parameter	Description
substrings	Semicolon separated list of sub-strings.

## Example

```
DO_BlockTrafficFrom ( "pop-up; imgsrv" );
```

## DO\_Cache

Applies to HTTP and SSL requests. Turns on cache emulation, which caches anything with a content type beginning with "image/".

DO\_Cache is related to the Cache option on the WWW Advanced options dialog box. If that option is selected, DO\_Cache (TRUE); is written into the script during the convert process, and requested images are cached.

## Syntax

```
DO_Cache(BOOL flag);
```

## Return Value

## Parameters

Parameter	Description
flag	TRUE (on) or FALSE (off).

## Example

```
DO_InitHttp(s_info);
DO_Cache(); /* Enable cache */
```

## DO\_Clear

Applies to HTTP and SSL requests. Used to clear out certain items, such as the cache or cookies. Types can be ordered together to clear both.

## Prototypes

```
DO_Clear ( WWWClearEnum type );
```

## Return Value

## Parameters

Parameter	Description																								
type	<p><i>WWWClearEnum</i></p> <p>The type of clear to do. Valid types are listed in the following tables:</p> <p><a href="#">Values for Meta type</a></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>Clear all internal settings.</td> </tr> <tr> <td>ALL_CGI_PARAMETERS</td> <td>Clear all Set CGI_PARAMETER parameters.</td> </tr> <tr> <td>ALL_COOKIES</td> <td>Clear all stored cookies. (Transaction type)</td> </tr> <tr> <td>ALL_HEADERS</td> <td>Clear all Set HEADER header attributes.</td> </tr> <tr> <td>ALL_VALUES</td> <td>Clear all DO_SetValue variables. (Transaction type)</td> </tr> <tr> <td>ATTACHED_FILES</td> <td>Clear all files in the binary file list.</td> </tr> <tr> <td>BASIC_AUTH_FLAG</td> <td>Do not send the basic authorization until next challenge. (Transaction type)</td> </tr> <tr> <td>BASIC_AUTHORIZATION</td> <td>Clear the basic authorization user name and password.</td> </tr> <tr> <td>BAUD_RATE_CALCULATIONS</td> <td>Clear the accumulated modern emulation data. (Transaction type)</td> </tr> <tr> <td>BLOCK_TRAFFIC_FROM</td> <td>Clear the blocked traffic from list.</td> </tr> <tr> <td>CACHE</td> <td>Clear out any virtual browser cache. (Transaction type)</td> </tr> </tbody> </table>	Value	Description	ALL	Clear all internal settings.	ALL_CGI_PARAMETERS	Clear all Set CGI_PARAMETER parameters.	ALL_COOKIES	Clear all stored cookies. (Transaction type)	ALL_HEADERS	Clear all Set HEADER header attributes.	ALL_VALUES	Clear all DO_SetValue variables. (Transaction type)	ATTACHED_FILES	Clear all files in the binary file list.	BASIC_AUTH_FLAG	Do not send the basic authorization until next challenge. (Transaction type)	BASIC_AUTHORIZATION	Clear the basic authorization user name and password.	BAUD_RATE_CALCULATIONS	Clear the accumulated modern emulation data. (Transaction type)	BLOCK_TRAFFIC_FROM	Clear the blocked traffic from list.	CACHE	Clear out any virtual browser cache. (Transaction type)
Value	Description																								
ALL	Clear all internal settings.																								
ALL_CGI_PARAMETERS	Clear all Set CGI_PARAMETER parameters.																								
ALL_COOKIES	Clear all stored cookies. (Transaction type)																								
ALL_HEADERS	Clear all Set HEADER header attributes.																								
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BLOCK_TRAFFIC_FROM	Clear the blocked traffic from list.																								
CACHE	Clear out any virtual browser cache. (Transaction type)																								

CERTIFICATE	Clear the client certificate.
CERTIFICATE_PASSWORD	Clear the client certificate password.
CONNECTION	Reset network connection. (Transaction type)
CONNECT_REQUEST_FOR_SSL_TUNNELING	Clear the set SSL connect string.
DEFAULT_CONTENT_TYPE	Clear the default content type.
DNS_CACHE	Clear any cached DNS lookups. (Transaction type)
INTERNAL_BUFFERS	Clear any internal buffers.
JAVASCRIPT_ENGINE	Clear the Javascript state.
NTLM_AUTHORIZATION	Clear the NTLM user name and password.
ONLY_ALLOW_TRAFFIC_FROM	Clear the allowed traffic from list.
ONLY_USE_SSL_CIPHER	Clear the only use SSL cipher string.
PROXY_AUTHORIZATION	Clear the proxy authorization user name and password.
PROXY_AUTH_FLAG	Do not send the basic authorization until next challenge. (Transaction type)
PROXY_SETTINGS	Clear all proxy settings.
RECEPTION_BAUD_RATE	Turn off reception baud rate emulation.
REFERER	Clear the referer so it is not sent with the next request. (Transaction type)
SIGNIFICANT_CONTENT_TYPES	Clear the significant content type list.
SPOOFED_IP_ADDRESS	Clear any spoofed IP addresses.
TRANSACTION	Clear all temporary variables used in the transaction.


	TRANSMISSION_BAUD_RATE	Turn off transmission baud rate emulation.
--	------------------------	--

## Examples

```
DO_Clear ( JAVASCRIPT_ENGINE );
DO_Clear ( CACHE );
DO_Clear ( CONNECTION );
DO_Clear ( ALL_COOKIES );
DO_Clear ( TRANSACTION );
DO_Clear ( ALL );
```

## DO\_ClearCache

Applies to HTTP and SSL requests. Clears any cached images. Performed automatically by DO\_HttpCleanup.

 Note: This command is the same as DO\_Clear (CACHE).

## Syntax

```
DO_ClearCache();
```

## Return Value

## Parameters

None.

## DO\_ClearDNSCache

Applies to HTTP and SSL requests. When DO\_Http or DO\_Https make an HTTP request, DO\_ClearDNSCache caches any DNS lookups that are performed. If that cache needs to be cleared to simulate browser, use DO\_ClearDNSCache.

 Note: This command is the same as DO\_Clear (DNS\_CACHE).

## Syntax

```
DO_ClearDNSCache()
```

## Return Value

## Parameters

None.

## Example

```

...
...
/* Request: 1 */
DO_Http ("GET http://company.com/ HTTP/1.0\r\n\r\n" );
DO_ClearDNSSCache();
/* Request: 2 */
/*
 * Do a brand new DNS lookup of company.com
 */
DO_Http ("GET http://company.com/ HTTP/1.0\r\n\r\n" );
...
...

```

## DO\_ClearJavascript

Applies to HTTP and SSL requests. Clears any memory allocated by the JavaScript engine.

Performed automatically by DO\_HttpCleanup. DO\_ClearJavascript is the same as DO\_Clear (JAVASCRIPT\_ENGINE).

 Note: DO\_ClearJavascript is a deprecated command. Compuware recommends that you use DO\_SetJavascriptCleanupThreshold instead.

## Syntax

```
DO_ClearJavascript();
```

## Return Value

## Parameters

None.

## Example

```

...
DO_ClearJavascript();
END_TRANSACTION();
...

```

## DO\_DynamicCookieHandling

Applies to HTTP and SSL requests. Turns dynamic cookie handling on or off.

This command relates to the Enable Dynamic Cookie Handling option on the QALoad Script Development Workbench Convert Options wizard. When this option is selected, DO\_DynamicCookieHandling (TRUE); is written to the script and the script does not include cookie-related statements (DO\_GetCookieFromReplyEx, DO\_SetValue, etc.).

When the Enable Dynamic Cookie Handling option is not selected, the converted script includes the statement `DO_DynamicCookieHandling (FALSE)`; and includes all cookie-related information. By default, the Enable Dynamic Cookie Handling check box is selected.

## Syntax

```
int DO_DynamicCookieHandling(BOOL bFlag)
```

## Return Value

0 if bFlag is set to FALSE.

1 if bFlag is set to TRUE.

## Parameters

Parameter	Description
bFlag	Indicates whether dynamic cookie handling is turned on (TRUE) or off FALSE.

## Examples

### Example 1:

When the Enable Dynamic Cookie Handling option is not selected:

```
...
...
/* Declare Variables */
char *Cookie[1];
...
...
for(i=0;i<1;i++)
Cookie[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_DynamicCookieHandling(FALSE);
...
...
DO_GetCookieFromReplyEx("NUM", &Cookie[0], '*');
/* Request: 4 */
DO_SetValue("cookie000", Cookie[0]);
DO_Http("GET http://company.com/cgi-bin/cookiespipes.pl "
        "HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Host: company.com\r\n"
        "Cookie: HTMLA=FONTSIZE=LARGE; {*cookie000}; "
        "SITESERVER=ID=4b4ab9751bce9a95f74ec62\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
```

```

free(Cookie[i]);
Cookie[i]=NULL;
}
END_TRANSACTION();
...
...

```

### Example 2:

When the Enable Dynamic Cookie Handling option is selected:

```

...
...
BEGIN_TRANSACTION();
...
...
DO_DynamicCookieHandling(TRUE);
...
...
DO_Http("GET http://company.com/cgi-bin/cookiespipes.pl "
        "HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Host: company.com\r\n"
        "Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID=" "4b4ab9751bce9a95f74ec62\r\n\r\n");
...
...
END_TRANSACTION();
...
...

```

## DO\_DynamicRedirectHandling

Applies to HTTP requests. Retrieves a redirected URL for use in the next request.

DO\_DynamicRedirectHandling is related to the Enable Dynamic Redirect Handling option on the QALoad Script Development Workbench Convert Options wizard. If that option is selected, DO\_DynamicRedirectHandling(TRUE) is written into the script during the convert process. The script then checks every response from a DO\_HTTP for a 301, 302, 303, or 307 message and performs the redirected request.

This line should appear only once in the script and at the beginning of the script.

### Syntax

```
int DO_DynamicRedirectHandling (BOOL bFlag)
```

### Return Value

0 if bFlag is set to FALSE.  
1 if bFlag is set to TRUE.

### Parameters

Parameter	Description
bFlag	Flag that indicates whether redirection should be handled.

## Examples

### Example 1:

When Enable Dynamic Redirect Handling option is TRUE:

```
...
...
DO_DynamicRedirectHandling(TRUE);
...
...
/* Request: 4 To: Redirected Webpage */

DO_Http("GET http://examples.com/cgi-bin/dynredirect.exe "
        "HTTP/1.0\r\n"
        "Accept: image/gif, application/pdf, */*\r\n"
        "Referer: http://examples.com/index.htm\r\n"
        "Host: examples.com\r\n\r\n");

DO_Http("GET http://examples.com/nextrequest.htm"
        "HTTP/1.0\r\n"
        "Accept: image/gif, application/pdf, */*\r\n"
        "Referer: http://examples.com/redirect.htm\r\n"
        "Host: examples.com\r\n\r\n");
...

```

### Example 2:

When Enable Dynamic Redirect Handling option is FALSE:

```
...
...
DO_DynamicRedirectHandling(FALSE);
...
...
/* Request: 4 To: Redirected Webpage */

DO_Http("GET http://examples.com/cgi-bin/dynredirect.exe "
        "HTTP/1.0\r\n"
        "Accept: image/gif, application/pdf, */*\r\n"
        "Referer: http://examples.com/index.htm\r\n"
        "Host: examples.com\r\n\r\n");

DO_Http("GET http://examples.com/redirect.htm"
        "HTTP/1.0\r\n"
        "Accept: image/gif, application/pdf, */*\r\n"
        "Referer: http://examples.com/cgi-bin/ dynredirect.exe\r\n"
        "Host: examples.com\r\n\r\n");


DO_Http("GET http://examples.com/nextrequest.htm"
        "HTTP/1.0\r\n"
        "Accept: image/gif, application/pdf, */*\r\n"
        "Referer: http://examples.com/redirect.htm\r\n"
        "Host: examples.com\r\n\r\n");
...

```

## DO\_EnableJavascript

Applies to HTTP requests. Enables or disables the interpretation of Javascript.

By default, QALoad attempts to interpret Javascript detected during replay. If you disable this feature, you may be able to reduce the amount of CPU overhead during WWW replay. However, this may cause WWW replay to miss some sub-requests and cookies contained in Javascript on HTML pages. To disable Javascript interpretation, insert `DO_EnableJavascript(FALSE);` into your script.

 Note: The `DO_EnableJavascript` command must appear after the `DO_AutomaticSubRequests` command in the script.



## Syntax

```
DO_EnableJavascript(BOOL flag);
```

## Return Value

True = on

False = off

## Parameters

Parameter	Description
flag	Used to enable or disable the interpretation of Javascript.

## Example

```
...
...
DO_AutomaticSubRequests(TRUE);
...
...
DO_EnableJavascript(TRUE);
...
...
```

## DO\_EncodeString

Applies to HTTP and SSL requests. DO\_EncodeString takes in a string and URL-encodes the string to be suitable to use as a CGI parameter or in the body of a POST.

## Syntax

```
int DO_EncodeString( const char *szSource, char **pszDestination )
```

## Return Value

The difference between the string length of the destination and the string length of the source.



**Caution:** The string buffer parameter variable should be explicitly initialized to NULL. Failure to do so results in a memory error in the script. Once the string buffer has been allocated, it can be reused within the same transaction loop without being explicitly freed. However, the buffer memory should be freed at the end of the transaction loop. Failure to free the memory buffer at the end of the transaction loop results in a memory leak.

## Parameters

Parameter	Description
-----------	-------------

szSource	String to URL encode.
pszDestination	Address of a string (char*) to hold the URL encoded string.

## Example

```
char* szEncoded= 0;
...
/* The value of szEncoded will be "a+string%21" */
DO_EncodeString( "a string!", &szEncoded );
```

## DO\_FreeHttp

Applies to HTTP and SSL requests. Clears memory used by the script.

This command is used at the end of every HTTP script. DO\_FreeHttp is automatically inserted during the convert process and should never need to be adjusted.

## Syntax

```
DO_FreeHttp( );
```

## Return Value

## Parameters

None.

## Example

```
...
...
END_TRANSACTION();
DO_FreeHttp();
REPORT(SUCCESS);
```

## DO\_GetAnchorByNumber

Applies to HTTP and SSL requests. Stores the value of an anchor from an HTML reply into a string that can be substituted into subsequent requests.

This command is used when an anchor is embedded in an HTML reply at a known location, but the anchor text may change. For example, a search engine returns a page with 10 anchors in response to a query, and the business logic for the transaction requires clicking on the third anchor regardless of the text for that anchor.

## Syntax

```
int DO_GetAnchorByNumber( int anchorNumber, char **anchorValue );
```

## Returns

1 if successful  
0 if unsuccessful

## Parameters

Parameter	Description
anchorNumber	A number which is the count of the anchor to be retrieved.
anchorValue	Address to a string where the anchor value is stored.

## Example

```

...
char *AnchorByNumber= NULL;
...
BEGIN_TRANSACTION();
...
DO_GetAnchorByNumber(3, &AnchorByNumber);
...
DO_SetValue("AnchorByNumber", AnchorByNumber);
...
DO_Http("GET {*AnchorByNumber} HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Referer: http://company/cgi-bin/perl_9.pl\r\n"
        "Host: company\r\n"
        "Cookie: username=anu; c2_LastVisit=6\r\n\r\n");
...
if ( AnchorByNumber )
{
free(AnchorByNumber);
AnchorByNumber= NULL;
}
...
END_TRANSACTION();

```

## DO\_GetAnchorCount

Applies to HTTP and SSL requests. Returns the total number of the anchors on the page.

### Syntax

```
int DO_GetAnchorCount()
```

### Return Type

Integer

### Parameters

none


## Example

```
int n;
char *Anchor[1]= { NULL };
...
n= DO_GetAnchorCount();
DO_GetAnchorByNumber ( n/2, &Anchor[ 0 ] );
```

## DO\_GetAnchorHREF

Applies to HTTP and SSL requests. Stores the value of a named anchor off of an HTML reply into a string that can be substituted into subsequent requests.

This command is used when an anchor to a CGI request is embedded in a dynamic HTML reply (for instance, the results from a search engine query). The DO\_GetAnchorHREF function is automatically inserted by QALoad during conversion whenever this situation is encountered.

 **Note:** If you are adding commands, QALoad uses the following rules for matching the anchorName parameter to the <img> tag and anchor text. To modify this command in a script, take the syntax in the attribute (the value for the alt= or src= tags) and append it to either the "alt=" or "src=" (case sensitive) attribute.

! If there is an <img> tag in the source HTML, use the alt= attribute.

Example:

```
FOR <a href="x.html">click</a>
USE DO_GetAnchorHREF ( "alt=look", Anchor [0] );
```

! If the <img> tag has no alt= attribute, use the src= attribute.

Example:

```
FOR <a href="x.html">click</a>
USE DO_GetAnchorHREF ( "src=look.gif", Anchor [0] );
```

! If there is no <img> tag, use the anchor text between <a> and </a>.

Example:

```
FOR <a href="x.html"> <b> click here </b> </a>
USE DO_GetAnchorHREF ( "click here", Anchor [0] );
```

The anchor text is made by removing all HTML tags and spaces. Words are extracted and put together separated by a single space.

## Syntax

```
int DO_GetAnchorHREF( const char *anchorName, char **anchorValue );
```

## Return Value

1 if successful.  
0 if unsuccessful.

## Parameters

Parameter	Description
anchorName	String constant specifying the name of the anchor to retrieve from

	the reply.
anchorValue	Address to a string where the anchor value is stored.

## Example

```

...
...
char *Anchor[1];
...
...
for(i=0;i<1;i++)
Anchor[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_GetAnchorHREF( "Resubmit", &Anchor[0]);
DO_SetValue("Anchor000", Anchor[0]);
DO_Http("GET {*Anchor000} HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Referer: http://company/cgi-bin/perl_9.pl\r\n"
        "Host: company\r\n"
        "Cookie: username=anu; c2_LastVisit=6\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
free(Anchor[i]);
}
...
...
END_TRANSACTION();
...
...

```

## DO\_GetAnchorHREFEx

Applies to HTTP and SSL requests. Stores the value of a specific occurrence of a named anchor off an HTML reply into a string that can be substituted into subsequent requests.

This command is used when an anchor to a CGI request is embedded in a dynamic HTML reply, for example, the results from a search engine query, more than once. The which parameter specifies the occurrence of the anchor to retrieve. The DO\_GetAnchorHREFEx function is automatically inserted by QALoad during conversion whenever this situation is encountered.

If you are adding commands to match the anchorName parameter to the <img> tag and anchor text, see the note and examples for [DO\\_GetAnchorHREF](#).

## Syntax

```
int DO_GetAnchorHREFEx( const char *anchorName, int count, char **anchorValue );
```

## Return Value

1 if successful  
0 if unsuccessful

## Parameters

Parameter	Description
anchorName	String constant specifying the name of the anchor to retrieve from the reply.
count	Which occurrence of the anchor to retrieve.
anchorValue	Address to a string where the anchor value is stored.

## Example

```

...
...
char *Anchor[1];
...
...
for(i=0;i<1;i++)
Anchor[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_GetAnchorHREFEx( "Resubmit", &Anchor[0], 1 );
DO_SetValue("Anchor000", Anchor[0]);
DO_Http("GET {*Anchor000} HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Referer: http://company/cgi-bin/perl_9.pl\r\n"
        "Host: company\r\n"
        "Cookie: username=anu; c2_LastVisit=6\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
free(Anchor[i]);
}
...
...
END_TRANSACTION();
...
...

```

## DO\_GetAnchorHREFn

Applies to HTTP and SSL requests. Stores the value of a specific occurrence of a named anchor off of an HTML reply into a string that can be substituted into subsequent requests.

This command is used when an anchor to a CGI request is embedded in a dynamic HTML reply, for instance, the results from a search engine query, more than once. The which parameter specifies the occurrence of the anchor to retrieve. The DO\_GetAnchorHREFn function is automatically inserted by QALoad during conversion whenever this situation is encountered.

If you are adding commands, to match the anchorName parameter to the <img> tag and anchor text, see the note and examples under [DO\\_GetAnchorHREF](#).

## Syntax

```
int DO_GetAnchorHREFn( const char *anchorName, char **anchorValue, int count );
```

## Return Value

1 if successful  
0 if unsuccessful

## Parameters

Parameter	Description
anchorName	String constant specifying the name of the anchor to retrieve from the reply.
anchorValue	Address to a string where the anchor value is stored.
count	The occurrence of the anchor to retrieve.

## Example

```
...
...
char *Anchor[1];
...
...
for(i=0;i<1;i++)
Anchor[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_GetAnchorHREFn( "Resubmit", &Anchor[0], 3);
DO_SetValue("Anchor000", Anchor[0]);
DO_Http("GET {*Anchor000} HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Referer: http://company/cgi-bin/perl_9.pl\r\n"
        "Host: company\r\n"
        "Cookie: username=anu; c2_LastVisit=6\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
free(Anchor[i]);
}
...
...
END_TRANSACTION();
...
...
...
```

## DO\_GetCitrixICAFile

Saves a WWW reply when its body is an ICA file.

This function will save a WWW reply when its body is an ICA file. If the reply is an ICA file then the ICA file will be saved to the "QALoad\ BinaryFiles" directory with the following naming convention: "script name\_vuNN\_XX.ica", where NN is the "absolute virtual user number" and NN is the transaction number. This file location can then be used within Citrix CtxConnectICA() command.

## Syntax

```
int DO_GetCitrixICAFile (char ** szFileName);
```

## Return Value

Returns 1 if the function call was successful, else 0 if an error occurs.

## Parameters

Parameter	Description
szFileName	Address to a string that specifies the location of the ICA that was sent back as part of the server reply.

## Example

```
...
...
char *strICAFileName[1];
...
...
for(i=0;i<1;i++)
strICAFileName[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_Http("GET http://citrixserver/ica/notepad/ HTTP/1.0\r\n\r\n")
DO_GetCitrixICAFile(&strICAFileName[0]);
...
...
RR_printf("ICA file = %s",strICAFileName[0]);
...
CtxConnectICA(strICAFileName[0];
```



```

...
...
for(i=0; i<1; i++)
{
if(strICAFileName[i] != NULL)
unlink(strICAFileName[i]);
free(strICAFileName[i]);
strICAFileName[i]=NULL;
}
...
...
END_TRANSACTION();

```

## DO\_GetClientMapHREF

Applies to HTTP and SSL requests. DO\_GetClientMapHREF is used to extract the href URL from a particular region of a client-side image map.

Client-side image maps are specified within an HTML document by the 'map' tag. Inside the 'map' tag, 'a' and 'area' tags are used to specify regions of the image map. The href attribute of the 'a' or 'area' tags specify the location of the URL to go to.

### Syntax

```

BOOL DO_GetClientMapHREF ( int nMapCount, int nRegionCount, char ** pszURL );

```

### Return Value

TRUE for successful  
FALSE for unsuccessful.

### Parameters

Parameter	Description
sMapCount	Count of 'map' tags inside the HTML. The map count can be wrapped in the MAP macro to make the script more readable.
nRegionCount	Count of 'a' and 'area' tags inside of the 'map' tag. The region count can be wrapped in the REGION macro to make the script more readable.
pszURL	Address of a string pointer to hold the href URL for the map and region.

## Example

```
char * ClientMapURL [1];
...
...
BEGIN_TRANSACTION();
...
...
/* Request: 1 */
DO_Http ("GET http://company.com/ HTTP/1.0\r\n\r\n" );
DO_GetClientMapHREF( MAP(1), REGION (1), &ClientMapURL [0] );
/* Request: 2 */
DO_SetValue ("ClientMap000", ClientMapURL [0] );
DO_Http ("GET {*ClientMap000} HTTP/1.1\r\n\r\n" );
...
...
```

## DO\_GetCookie

Applies to HTTP and SSL requests. Extracts a cookie from the QALoad internal cookie list.

The cookie is retrieved based on the name of the cookie. Wildcard patterns can be used to specify the cookie name in case the cookie name is dynamic. A count is also specified in case multiple cookies match the specified name.

 Note: DO\_GetCookie requires DO\_DynamicCookieHandling be set to TRUE

## Syntax

```
BOOL DO_GetCookie ( const char * szName, int nCount, char ** pszCookie
pszCookie );
```

## Return Value

TRUE for successful  
FALSE for unsuccessful

## Parameters

Parameter	Description
szName	Name of the cookie to get. Wildcard patterns, like '*' to match anything can be used.
nCount	Count of which occurrence to get.
pszCookie	Address of a string pointer to hold the cookie.

## Example

```
char * userid;
char * aspessionid;
...
...
594
```

```

BEGIN_TRANSACTION();
...
...
/* Request: 1 */
DO_Http ( "GET http://company.com/HTTP/1.0\r\n\r\n" );
/*
 * Get a cookie named USER_ID
 */
DO_GetCookie ( "USER_ID", 1, &userid );
/*
 * Get the second ASPSESSIONID cookie. ASPSESSIONID
 * cookies always have extra characters on the end to make
 * them unique.
 *
 * An example ASPSESSIONID: ASPSESSIONIDQQGGQDO=EBOOONBBFH
 * BBELAJIMEFAKAP
 */
DO_GetCookie ("ASPSESSIONID*", 2, &aspsessionId );

```

## DO\_GetCookieFromReplyEx

Applies to HTTP and SSL requests. Retrieves and stores the value of a cookie when a `Set-Cookie:` statement is encountered in a reply header.

A stored cookie can be used later in the script in a `DO_SetValue` command to pass the cookie value on to subsequent requests. QALoad's Convert facility automatically inserts a `DO_GetCookieFromReplyEx` into the script if it detects a `Set-Cookie:` header field.

Although this function is still valid, QALoad now includes an improved option to automatically provide the same functionality. See [DO\\_DynamicCookieHandling](#) for details.

### Syntax

```
DO_GetCookieFromReplyEx( const char *cookieName, char **cookieValue, char match );
```

### Return Value

None.

### Parameters

Parameter	Description
cookieName	String constant that specifies the name of the cookie to retrieve from the reply.
cookieValue	Address to a string where the cookie value is stored.
match	A wildcard character to use for regular expression matching before or after the cookie name. The default used by QALoad is the asterisk character (*).

## Example

```

...
...
/* Declare Variables */
char *Cookie[1];
...
...
for(i=0;i<1;i++)
Cookie[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_DynamicCookieHandling(FALSE);
...
...
DO_GetCookieFromReplyEx("NUM", &Cookie[0], '*');
DO_SetValue("cookie000", Cookie[0]);
DO_Http("GET http://company.com/cgi-bin/cookiespipes.pl "
        "HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Host: company.com\r\n"
        "Cookie: HTMLA=FONTSIZE=LARGE; {*cookie000}; "
        "SITESERVER=ID=4b4ab9751bce9a95f74ec62\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
free(Cookie[i]);
Cookie[i]=NULL;
END_TRANSACTION();
...
...

```

## DO\_GetCookiesForURL

Applies to HTTP and SSL requests. `DO_GetCookiesForURL` sends a message to the QALoad internal cookie storage requesting a list of cookies for this URL. The cookies are returned in a semicolon-separated list of cookies. Each cookie in the returned cookie list is put into the “name=value” form. The returned cookie list is suitable to be used as a cookie header for an HTTP request.

**Note:** `DO_GetCookiesForURL` requires `DO_DynamicCookieHandling` be set to `TRUE`

## Syntax

```
BOOL DO_GetCookiesForURL ( const char * szURL, char ** pszCookie );
```

## Return Value

TRUE for successful

FALSE for unsuccessful

## Parameters

Parameter	Description
-----------	-------------

szURL	The requested URL
pszCookies	Address of a string pointer to hold the cookies.

## Example

```

char * cookielist= NULL;
...
...
BEGIN_TRANSACTION();
...
...
/* Request: 1 */
/*
 * In this request two cookies will be set. CookieA will have the value of ValueA and
 * CookieB will have the value of ValueB.
 *
 * Set-Cookie: CookieA=ValueA; domain=.company.com; path=/;
 * Set-Cookie: CookieB=ValueB; domain=.company.com; path=/;
 */
DO_Http ( "GET http://www.company1.com/ HTTP/1.0\r\n\r\n" );
/*
 * Get all cookies set for http://www.company1.com/. After this call cookielist will have
 * the value "CookieA=ValueA; CookieB=ValueB.
 */
DO_GetCookiesForURL ( "http://www.company1.com/", &cookielist );
/*
 * Now make a request to company 2 with all the cookies from www.company1.com to
 * www.company2.com.
 */
DO_SetValue ( "CompanyCookies", cookielist );
DO_Http ( "GET http://www.company2.com/ HTTP/1.0\r\n\r\n"
          "Cookie: {*CompanyCookies}\r\n\r\n" );

```

## DO\_GetFormActionStatement

Applies to HTTP and SSL requests. Gets the ACTION tag from a requested form.

This feature is useful when a form dynamically changes what is stored in the ACTION tag.

### Syntax

```
int DO_GetFormActionStatement( int nFormnum, char **ActionURL );
```

## Return Value

1 for successful  
0 for unsuccessful

## Parameters

Parameter	Description
nFormnum	Specifies which form on a response to retrieve the ACTION tag from.
ActionURL	Address of the string where the ACTION tag will be stored.

## Example

```

...
...
char *ActionURL[1];
...
...
for(i=0;i<1;i++)
ActionURL[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_GetFormActionStatement(Form (1), &ActionURL[0]);
DO_SetValue("action_statement0", ActionURL[0]);
DO_Http("POST {*action_statement0} HTTP/1.0\r\n"
        "Content-Type: multipart/form-data; boundary="
        "-----7d04c2740364\r\n"
        "Host: company\r\n"
        "Content-Length: {*content-length}\r\n"
        "Cookie: username=anu; c2_LastVisit="
        "Mon%20Mar%2013%0; c2_NumVisits=\r\n"
        "Content-Disposition: form-data; name=\"entry \">\r\n\r\n\r\n"
        "-----7d04c2740364\r\n\r\n");
...
...
for(i=0; i<1; i++)
{
free(ActionURL[i]);
}
END_TRANSACTION();
...
...

```

## DO\_GetFormValueByName

Applies to HTTP and SSL requests. Retrieves the value embedded in a form for the specified field.

Subsequently, this value can be used in a call to the DO\_SetValue command to pass it along to the CGI script associated with this form. DO\_GetFormValueByName is generally seen when hidden fields are encountered in a form. QALoad's Convert facility automatically generates these commands for hidden fields.

## Syntax

```
GetFormValueByName( int form_number, const char *field_type, const char *field_name, int
count, char **value );
```

## Parameters

Parameter	Description
form_number	Integer specifying which form to search in an HTML document.
field_type	Type of field to search.
field_name	Name of the field to search.
count	If more than one field has the same name, a number specifying each field.
value	Address to a string where the result value will be stored.

## Example

```
...
...
char *Field[2];
...
...
for(i=0;i<2;i++)
Field[i]=NULL;
...
...
BEGIN_TRANSACTION();
...
...
DO_GetFormValueByName(FORM (1), "hidden", "hidden", 1, &Field[0]);
DO_GetFormValueByName(FORM (1), "hidden", "hidden1", 1, &Field[1]);
...
...
DO_SetValue("hidden", Field[0]);
DO_SetValue("hidden1", Field[1]);
...
...
BeginCheckpoint(); /* *FORM* */
DO_Http("POST {*action_statement0} HTTP/1.0\r\n"
        "Content-Type: application/x-www-form-urlencoded\r\n"
        "Host: company\r\n"
        "Content-Length: {*content-length}\r\n\r\n"
        "{name }&{hidden}&{hidden1}&{submit}");
...
...
DO_HttpCleanup();
for(i=0; i<2; i++)
{
free(Field[i]);
}
...
...
END_TRANSACTION();
...
...
```

## DO\_GetHeaderFromReply

Applies to HTTP and SSL requests. Retrieves the value of a header in the reply resulting from a DO\_HTTP command.

### Syntax

```
int DO_GetHeaderFromReply ( char *header, const char *output_buffer, int nLength )
```

### Return Value

1 for success  
0 for unsuccessful

### Parameters

Parameter	Description
header	A header to look for in the reply.
output_buffer	A string to store the result. Memory should already be allocated for it.
nLength	The length of space available in the output buffer.

### Example

```
char OutputBuf[256];
...
...
BEGIN_TRANSACTION();
...
...
DO_Http("GET http://company.com/ HTTP/1.0\r\n"
        "Accept: image/gif, image/x-xbitmap, */*\r\n"
        "Host: company.com\r\n"
        "Cookie: HTMLA=FONTSIZE=LARGE; SITESERVER=ID="
        "4b5b75c9dda4ab9751bce9a95f74ec62\r\n\r\n");
DO_GetHeaderFromReply("Content-Length:", OutputBuf, 255);
...
...
```

## DO\_GetLastHttpError

Applies to HTTP and SSL requests. Retrieves the integer indicating the error code of the last HTTP request sent with DO\_Http.

Errors greater than 399 include the "Page not found" 404 error.

### Syntax

```
int DO_GetLastHttpError();
```



## Return Value

Returns the error code, or 0 if unsuccessful.

## Parameters

None.

## Example

```
int error;
char errorString[50];
...
...
BEGIN_TRANSACTION();
...
...
/* Request: 1 */
DO_Http("GET http://company.com/ HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Host: company.com\r\n\r\n");
if ((error = DO_GetLastHttpError()) > 399)
{
    sprintf (errorString, "Error in response: %d\n", error);
    WWW_FATAL_ERROR ("DO_Http", errorString);
}
...
...
```

## DO\_GetRedirectedURL

Applies to HTTP requests. Modifies the parameter passed in for use in the next request.

This function is still supported, however, [DO\\_DynamicRedirectHandling](#) is preferred.

## Syntax

```
int DO_GetRedirectedURL (char **URL)
```

## Return Value

1 for successful  
0 for unsuccessful

## Parameters

Parameter	Description
URL	An address to a string.

## Example

```
DO_Http(http_statement);
```

```

/* RedirectedURL[0]="http://company/cgi-bin/pm3D.htm"*/
DO_GetRedirectedURL(&RedirectURL[0]);

/* Request: 10 * From: QALoad WWW Capture Examples */
DO_SetValue("redirect_statement0", RedirectURL[0]);
DO_Http("GET {*redirect_statement0} HTTP/1.0\r\n"
        "Accept: */*\r\n"
        "Referer: http://company/index.htm\r\n"
        "Accept-Language: en-us\r\n"
        "Accept-Encoding: gzip, deflate\r\n"
        "Host: company\r\n\r\n");

```

## DO\_GetReplyBuffer

Applies to HTTP and SSL requests. DO\_GetReplyBuffer returns the HTTP response from the last DO\_Http request.

### Syntax

```
Const char * DO_GetReplyBuffer()
```

### Return Value

The last HTTP reply or NULL if unsuccessful.

### Parameters

None.

### Example

```

const char * data;
...
...
BEGIN_TRANSACTION();
...
...

/* Request: 1 */

DO_Http("GET http://company.com/ HTTP/1.0\r\n\r\n" );
data = strstr(DO_GetReplyBuffer(), "data_key" );
if ( data == NULL )
{
WWW_FATAL_ERROR ("DO_Http", "Data_key was missing in reply" );
}
...
...

```

## DO\_GetReplyBufferLength

Applies to HTTP and SSL requests. DO\_GetReplyBuffer returns the length of the HTTP response from the last DO\_Http request.

## Syntax

```
int DO_GetReplyBufferLength()
```

## Return Value

The length of the last HTTP reply or 0 if there is no response found.

## Parameters

None.

## Example

```
int bufLength;
...
...
BEGIN_TRANSACTION();
...
...
/* Request: 1 */
DO_Http("GET http://company.com/ HTTP/1.0\r\n\r\n" );
bufLength = DO_GetReplyBufferLength();
...
...
```

## DO\_GetUniqueString

Applies to HTTP and SSL requests. Used to parse the most recent HTTP server reply to get the contents of a string that occurs between the left and right input strings.

## Syntax

```
char *DO_GetUniqueString( const char *left, const char *right );
```

## Return Value

The string (null-terminated) of characters between the left and right search strings provided as input. NULL if either the left or right search strings are not found.

DO\_GetUniqueString allocates enough space in the parameter passed in as the string buffer to hold the string (including the NULL). Please remember to free any memory after using the returned string. Any memory created with this command that is not explicitly freed results in a memory leak.

 Note: If the string buffer parameter has a non-NULL value when passed to this function, the memory is leaked.

## Parameters

Parameter	Description
left	A string containing the left search string.

right	A string containing the right search string.
-------	--

### Example

```
char *p;
char temp[1000];
...
...
DO_Http("GET HTTP://www.yahoo.com HTTP/1.0\r\n"
        "Referer: HTTP://company/index.htm\r\n"
        "Proxy-Connection: Keep-Alive\r\n"
        "User-Agent: Mozilla/3.01 WinNT;I)\r\n"
        "Host: www.yahoo.com\r\n"
        "Accept:*/*\r\n");
p = DO_GetUniqueString( "text to the left side of the string",
                       "text to the right side of the string" );
if (p != NULL )
{
strcpy( temp, p );
free( p );
}
RR_printf( "String value = %s", temp );
```

## DO\_GetUniqueStringEx


Applies to HTTP and SSL requests. Used to parse a null-terminated input string (search) to get the contents of a string that occurs between the left and right input strings.

### Syntax

```
char *DO_GetUniqueStringEx( const char *search, const char *left, const char *right );
```

### Return Value

The string (null-terminated) of characters between the left and right search strings provided as input. NULL if either the left or right search strings are not found.

 Note: DO\_GetUniqueStringEx allocates enough space to hold the string (including the NULL). Any memory created with the use of malloc results in a memory leak. Please remember to free any memory after the usage of the returned string.

### Parameters

Parameter	Description
search	A string to be searched.
left	A string containing the left search string.
right	A string containing the right search string.

## Example

```
char *p;
char temp[1000];
...
...
strcpy( temp, "Here is the search string." );
p = DO_GetUniqueStringEx( temp, "the", "string" );

if (p != NULL )
{
    RR_printf( "String value = %s", p );
    free( p );
}
else
{
    RR_printf( "String not found" );
}
}
```

## DO\_Http

Applies to HTTP requests. Executes an HTTP request in the script.

DO\_Http sends the request to the server. Any responses to the request are then processed by DO\_Http and returned to the script. DO\_Http returns text replies to the script.

## Syntax

```
char *DO_Http( const char *http_statement );
```

## Return Value

Character string containing the response from the server.

## Parameters

Parameter	Description
http_statement	String containing a valid HTTP request to be sent to a server.

## Example

```
...
...
DO_Http("GET HTTP://www.yahoo.com HTTP/1.0\r\n"
        "Referer: HTTP://company/index.htm\r\n"
        "Proxy-Connection: Keep-Alive\r\n"
        "User-Agent: Mozilla/3.01 WinNT;I)\r\n"
        "Host: www.yahoo.com\r\n"
        "Accept: */*\r\n");
...
...
}
```

## DO\_HttpCleanup

Applies to HTTP and SSL requests. Performs all necessary cleanup operations when a script exits or the user terminates the script.

 Note: This command is the same as DO\_Clear (TRANSACTION).

### Syntax

```
DO_HttpCleanup( );
```

### Return Value

### Parameters

None.

### Example

```
...
...
DO_Http( "GET HTTP://www.yahoo.com HTTP/1.0\r\n"
        "Referer: HTTP://company/index.htm\r\n"
        "Proxy-Connection: Keep-Alive\r\n"
        "User-Agent: Mozilla/3.01 WinNT;I)\r\n"
        "Host: www.yahoo.com\r\n"
        "Accept: */*\r\n");
...
...
DO_HttpCleanup();
...
...
END_TRANSACTION();
...
...
```

## DO\_Https

Applies to SSL requests. Makes a secured request to the server specified by the http\_statement.

This command returns a string containing the HTML response from the secured server.

### Syntax

```
DO_Https ( const char *http_statement );
```

### Return Value

Character: String containing the response from the secured server.

## Parameters

Parameter	Description
http_statement	A string containing the URL of the secured server and any headers to be sent.

## Example

```

...
...
DO_Https("GET HTTPS://www.yahoo.com HTTP/1.0\r\n"
  "Referer: HTTP://company/index.htm\r\n"
  "Proxy-Connection: Keep-Alive\r\n"
  "User-Agent: Mozilla/3.01 WinNT;I)\r\n"
  "Host: www.yahoo.com\r\n"
  "Accept: */*\r\n");
...
...

```

## DO\_HttpVersion

Applies to HTTP and SSL requests. Specifies the version to use in the requests sent during playback.

This affects whether or not the replies may come back chunked. Only HTTP 1.1 requests receive chunked replies.

DO\_HttpVersion is related to the HTTP Version Detection option on the WWW Advanced dialog box. From the Convert Options wizard, access the WWW Advanced dialog box by clicking the Advanced button. The default setting is Auto.

## Syntax

```
DO_HttpVersion(WWWHTTPVersionEnum version);
```

## Parameters

Parameter	Description								
version	<p><i>WWWHTTPVersionEnum</i></p> <p>The HTTP version. If specified as Auto, the version used for each request is determined from the request. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>"1.0"</td> <td>HTTP version 1.0</td> </tr> <tr> <td>"1.1"</td> <td>HTTP version 1.1</td> </tr> <tr> <td>"AUTO"</td> <td>HTTP version is set in DO_Http and DO_Https</td> </tr> </tbody> </table>	Value	Description	"1.0"	HTTP version 1.0	"1.1"	HTTP version 1.1	"AUTO"	HTTP version is set in DO_Http and DO_Https
Value	Description								
"1.0"	HTTP version 1.0								
"1.1"	HTTP version 1.1								
"AUTO"	HTTP version is set in DO_Http and DO_Https								

## Example

```
DO_HttpVersion("Auto");
```

## DO\_InitHttp

Applies to HTTP and SSL requests. Also applies to Visual Scripting. Sets all necessary internal variables needed to load test an HTTP script.

Use this command at the beginning of every HTTP script, but never more than once in a script.

 **Note:** This function should be written exactly as shown below.

## Syntax

```
DO_InitHttp(PLAYER_INFO *sInfo);
```

## Return Value

## Parameters

Parameter	Description
sInfo	A pointer to a PLAYER_INFO memory structure.

## Example

```
...
...
int rrobot_script(s_info)
PLAYER_INFO *s_info;
{
...
...
DO_InitHttp(s_info);
...
...
BEGIN_TRANSACTION();
...
...
}
```

## DO\_IPSpooFEnable

Applies to HTTP and SSL requests. Enables each virtual user to appear to the web server as being sourced from a different network interface card.

This command is placed after the DO\_InitHttp command. It is useful for those applications where the server keys off the originating IP address. To utilize this feature, the Player system must be configured with multiple static IP addresses. In addition, a local datapool file containing a list of valid IP addresses must be available to the Player. The Player tab on the QALoad Conductor Options dialog box provides an option for creating this local datapool file for NT-based Players.



The datapool file name defaults to using the datapool file pointed to by the `qaload_ipspooft` environment variable. This variable is automatically set when QALoad is installed on an NT-based system. Users of the UNIX-based Players must add this variable manually. The parameter to this command can be used to override the contents of the environment variable.

## Syntax

```
Const char *DO_IPSpooftEnable(const char *filename);
```

## Return Value

A string containing the IP address.

## Parameters

Parameter	Description
Filename	String containing a fully qualified path name. This file contains a list of IP addresses to use. Set to "" to use the filename specified in the <code>qaload_ipspooft</code> environment variable.

## Example

```
...
...
DO_IPSpooftEnable( "c:\\qaload\\ myipspooft.dat" );
BEGIN_TRANSACTION();
...
...
```

## DO\_NTLMAuthorization

Applies to HTTP requests. Provides user ID and password (plain text or encrypted) information for NTLM authentication.

`DO_NTLMAuthorization` is related to the NTLM option on the QALoad Script Development Workbench Record Options wizard. When you select that option and enter user ID and password information, `DO_NTLMAuthorization(string, string)` is written to your script. QALoad attempts to use the user ID and password you entered to access the site. If the information is not accepted, QALoad reports the error and aborts.

At test time, when QALoad encounters a NTLM controlled site, it uses the NTLM user ID and password that are provided to access that site.

 Note: NTLM user names and passwords can be variablized by machine, but not by user.

## Syntax

```
DO_NTLMAuthorization(const char *name, const char *password);
```

## Return Value

## Parameters

Parameter	Description
name	A valid user ID for the NTLM-enabled site.
password	A valid password corresponding to the user ID.

## Examples

### Example 1:

```
...
...
BEGIN_TRANSACTION();
...
...
DO_NTLMAuthorization("user-id", "~encr~2038520348AKJAS");
...
...
END_TRANSACTION();
...
...
```

 Note: String must be enclosed in quotation marks (""), unless NULL is used.

### Example 2:

When the user ID, password, and domain are provided:

```
DO_NTLMAuthorization("domain\\user_id", "~encr~506C205A545D");
```

### Example 3:

When the domain is not provided:

```
DO_NTLMAuthorization("user_id", "~encr~506C205A545D");
```

### Example 4:

When NULL is used and access is provided:

```
DO_NTLMAuthorization(NULL, NULL);
```

 Note: NULL is not enclosed in quotes.

## DO\_ProxyAuthorization

Provides the username and password to access a password protected proxy server.

The password may be encrypted using QALoad's "~encr~" encryption. The username and password are inserted automatically as necessary during conversion. Note that you can variablize the username and password to emulate different users accessing the resources.

## Syntax

```
DO_ProxyAuthorization(const char *username, const char *password);
```

## Return Value

## Parameters

Parameter	Description
username	A valid user name for the resource you're attempting to access.
password	The associated password.

## Example

```
DO_HttpVersion("Auto");
DO_SLEEP(2);
/* Request: 1 */
DO_ProxyAuthorization("smith", "~encr~0E636502080E");
BeginCheckpoint(" http://iris/redline - chkpt: 1");
DO_Http("GET http://iris/redline HTTP/1.1\r\n"
"Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, "
"application/vnd.ms-excel, application/msword, "
"application/vnd.ms-powerpoint, */*\r\n"
"Accept-Language: en-us\r\n"
"Accept-Encoding: gzip, deflate\r\n"
"User-Agent: Mozilla/4.0 (compatible; MSIE 5.01; Windows NT; CPWR)\r\n"
"Host: iris\r\n\r\n"
);
```

## DO\_ProxyExceptions

Applies to HTTP and SSL requests. Tells QALoad not to use the proxy server for hosts in the proxy exceptions list, so you can replay requests both inside and outside of the firewall in the same script.

This command is written to the script when the option Automatically configure proxy options and launch browser is selected on the QALoad Script Development Workbench Record Options wizard.

DO\_ProxyExceptions is written to the script between BEGIN\_TRANSACTION and the first request.

## Syntax

```
int DO_ProxyExceptions(const char *list);
```

## Return Value

-1 if the list is NULL.  
0 if successful.

## Parameters

Parameter	Description
list	List of proxy addresses in exceptions list. Note that addresses are separated by commas in the script.

## Example

```

...
...
BEGIN_TRANSACTION();
...
...
DO_UseProxy ("internet.company.com:80" );
DO_SSLUseProxy ("internet.company.com:90" );
DO_ProxyExceptions("company.sample.com, "company2.company.com" );
...
...

```

## DO\_ProxyHttpVersion()

Applies to HTTP and SSL requests. Specifies the version to use in proxy requests sent during playback. This affects whether or not the replies come back chunked. Only HTTP 1.1 requests receive chunked replies.

Do\_ProxyHttpVersion is related to the Proxy HTTP Version option on the [WWW Advanced](#) dialog box. The default setting is 1.0.

## Syntax

```
DO_ProxyHttpVersion (const char *version)
```

## Return Value

## Parameters

Parameter	Description
version	The HTTP version ("1.0" or "1.1").

## Example

```
DO_ProxyHttpVersion("1.0");
```

## DO\_SaveReplyType

Applies to HTTP and SSL requests. Specifies types of replies to save.

Normally, only replies returned from the server whose type begin with "text/" are saved. Use DO\_SaveReplyType to specify which type(s) to save. You can specify multiple types if you separate them with a semi-colon (;).

In a reply, the type is specified in the "Content-Type:" tag. You access the reply by saving a pointer returned from the DO\_Http command:

```

char *p;
...
p = DO_Http("GET http://www.nosuch.com/...");

```

## Syntax

```
DO_SaveReplyType(const char *types);
```

## Return Value

## Parameters

Parameter	Description
types	Reply types to save (for example, "text/image/gif" saves replies specified as text or image/gif in the replies' "Content-Type" tag).


## Example

```
...
...
DO_SaveReplyType("text/image/gif");
BEGIN_TRANSACTION();
...
...
```

## DO\_SetAssumedContentType

Applies to HTTP and SSL requests. Sets the default content type if the web server doesn't send a content-type header.

If any reply from a web server doesn't contain a content-type header, then QALoad assumes the content-type is application/octet-stream. application/octet-stream is not processed by QALoad and the body of such a reply is not available. To override the default assumed content-type, use this function to set a new content type.

 **Note:** According to the HTTP specification, returning a response without a content-type is undefined behavior and may indicate a problem on the server.

Setting the assumed content type to text/html allows the reply to be treated as an HTML document.

Once you have set the assumed content type, it does not change until the next call to DO\_SetAssumedContentType.

This command corresponds to the Assumed Content-Type field on the QALoad Script Development Workbench Record Options wizard.

## Syntax

```
DO_SetAssumedContentType(const char *ContentType);
```

## Return Value

## Parameters

Parameter	Description
ContentType	The mime type that is used as the new default content type if the web server doesn't send a content type header.

## Example

```
DO_SetAssumedContentType("text/html");
```

## DO\_SetBaudRate

Applies to HTTP and SSL requests. Causes a virtual user to delay transmission and reception of network traffic to emulate a given modem speed. Returns the baud rate the virtual user will use.

## Syntax

```
int DO_SetBaudRate(int nBaud)
```

## Return Value

Returns the baud rate the virtual user will use.

## Parameters

Parameter	Description
nBaud	The rate the virtual user will use. If nBaud is set to 0, modem emulation is shut off.

## Example

```
...
...
BEGIN_TRANSACTION();
DO_SetBaudRate(28800);
...
...
```

## DO\_SetBaudRateEx

Applies to HTTP and SSL requests. Causes a virtual user to delay transmission and reception of network traffic to emulate a given modem speed. The transmission rate and the reception rate are set as separate values.

## Syntax

```
int DO_SetBaudRateEx (int nTransmissionRate, int nReceptionRate)
```

## Return Value

Returns the transmission rate the virtual user will use.

## Parameters

Parameter	Description
nTransmissionRate	The transmission rate the virtual user will use. If nTransmissionRate is set to 0, modem transmission emulation is shut off.
nReceptionRate	The reception rate the virtual user will use. If nReceptionRate is set to 0, modem reception emulation is shut off.

## Example

```
...
...
BEGIN_TRANSACTION();
DO_SetBaudRateEx(28800, 36600);
...
...
```

## DO\_SetCheckpointName

Sets the name of the next automatic checkpoint for the next DO\_Http or DO\_Https statement in the script.

## Syntax

```
void DO_SetCheckpointName (const char *szCheckpointName);
```

## Return Value

## Parameters

Parameter	Description
szCheckpointName	The name for the next automatic checkpoint.

## Example

```
DO_SetCheckpointName("Login to Website");
DO_Https("POST https://dbhost.company.com/login.asp HTTP/1.1\r\n"
"\r\n"
"{domain}&{username}&{password}");
```

## DO\_SetCookie

Applies to HTTP and SSL requests. DO\_SetCookie adds a cookie to the current transaction.

The path of the cookie is "/". The domain of the cookie is the same as the next DO\_Http or DO\_Https request. If you wish to set a particular domain or path, use DO\_SetCookieEx.

Once a cookie is set, it remains for the rest of the transaction. To remove the cookie, use DO\_SetCookieEx with the name of the cookie to remove and an expiration value of -1.

DO\_SetCookie requires DO\_DynamicCookieHandling to be set to TRUE.

### Syntax

```
BOOL DO_SetCookie ( const char * szName, const char * szValue );
```

### Return Value

TRUE for successful  
FALSE for unsuccessful

### Parameters

Parameter	Description
szName	Name of the cookie to set.
szValue	Value of the cookie to set.

### Example

```
...
...
BEGIN_TRANSACTION();
...
...
DO_SetCookie ( "cookie1", "desired value" );
/* Request: 1 */
/*
 * This request will have "cookie1" sent with this request
 */
DO_Http ( "GET http://company.com/ HTTP/1.0\r\n\r\n" );
...
...
```

## DO\_SetCookieEx

Applies to HTTP and SSL requests. DO\_SetCookie adds a cookie to the current transaction.

Once a cookie is set, it remains for the rest of the transaction. To remove the cookie, use DO\_SetCookieEx with the name of the cookie to remove and a max age of -1.

DO\_SetCookie requires DO\_DynamicCookieHandling to be set to TRUE.



## Syntax

```
BOOL DO_SetCookieEx ( const char * szName, const char * szValue,
                    const char * szDomain, const char * szPath,
                    int nMaxAge, BOOL bSecure );
```

## Return Value

TRUE for successful  
FALSE for unsuccessful

## Parameters

Parameter	Description
szName	Name of the cookie to set.
szValue	Value of the cookie to set.
szDomain	Domain of the cookie. The domain of the cookie controls what hosts the cookie is sent to.
szPath	The path of the cookie. The path of the cookie controls when a cookie is sent to a host based on the path of the URL.
nMaxAge	Time to live of the cookie. Use a value of 0 for a session cookie and -1 for an expired cookie.
bSecure	Boolean flag (TRUE or FALSE). If the value is TRUE, then the cookie only is sent with SSL request. If the value is FALSE, then the cookie is sent with HTTP and SSL requests.

## Example

```
...
...
BEGIN_TRANSACTION();
...
...
DO_SetCookieEx ( "cookie1", "desired value", ".company.com", "/", 1000, FALSE );

/* Request: 1 */
/*
 * This request will have "cookie1" sent with this request
 */
DO_Http ( "GET http://company.com/ HTTP/1.0\r\n\r\n" );
...
...
```

## DO\_SetJavascriptCleanupThreshold

Applies to HTTP and SSL requests. Periodically QALoad destroys its internal JavaScript model and recreates it.

DO\_SetJavascriptCleanupThreshold sets a count of the number of times JavaScript parsing is done before destroying and recreating the model. By default, the count is 300.

Cleaning up JavaScript takes CPU time, and the Javascript model takes up more memory the longer the same model is used. To reduce CPU usage, set the count higher. To reduce the memory footprint, set the count lower.

## Syntax

```
DO_SetJavascriptCleanupThreshold(int nThreshold)
```

## Return Value

## Parameters

Parameter	Description
nThreshold	Number of JavaScript evaluations to make before cleaning up the JavaScript engine.

## Example

```
...
...
DO_SetJavascriptCleanupThreshold(200);
...
...
```

## DO\_SetJavaScriptLevel

Applies to HTTP requests. Allows user to control the level of JavaScript execution for convert and replay.

## Syntax

```
DO_SetJavaScriptLevel (WWWJavascriptExecutionLevelEnum level );
```

## Return Value

## Parameters

Parameter	Description		
level	<p><i>WWWSetJavaScriptLevelEnum</i></p> <p>JavaScript execution level user sets in the WWW Advanced convert dialog. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> </tbody> </table>	Value	Description
Value	Description		

	FULL	Create/execute scripts that parse through and handle JavaScript.
	LIMITED	Create/execute scripts that handle the JavaScript to the same level as QALoad 5.2.
	NONE	Create/execute scripts that disregard all JavaScript.

## Examples

```
DO_SetJavaScriptLevel ( FULL );
DO_SetJavaScriptLevel ( LIMITED );
DO_SetJavaScriptLevel ( NONE );
```

## DO\_SetMaxBrowserThreads

Applies to HTTP and SSL requests. Specifies the number of concurrent connections to make for playback.

This command relates to the Max Concurrent Connections option on the WWW Advanced options dialog box. The value you enter in that field is inserted in the script.

## Syntax

```
DO_SetMaxBrowserThreads(int count);
```

## Return Value

## Parameters

Parameter	Description
count	The number of connections to make. QALoad accepts 1-4. The default is 2.

## Example

```
BEGIN_TRANSACTION();
DO_SetMaxBrowserThreads(2);
```

## DO\_SetMaximumRetries

Applies to HTTP and SSL requests. Sets the maximum number of times a virtual user should attempt to retrieve a graphic or page that failed.

Similar to the behavior of Netscape and Internet Explorer.

## Syntax

```
DO_SetMaximumRetries(int nValue)
```

## Return Value

## Parameters

Parameter	Description
nValue	The default is 4.

## Example

```
...
...
BEGIN_TRANSACTION();
DO_SetMaximumRetries(5);
...
...
```

## DO\_SetPostDelay

Applies to HTTP requests. Sets how many seconds QALoad should wait for a reply from a server after the header has been sent for a POST request.

DO\_SetPostDelay sets will send the header and body of a POST request all at once if set to zero, or it will wait up to the specified number of seconds for the server to respond before sending the body.

## Syntax

```
void DO_SetPostDelay( long delay );
```

## Return Value

None

## Parameters

Parameter	Description
delay	Number of seconds to delay between sending the header and body of a POST request.

## Example

## DO\_SetRefreshTimeout

Specifies how long to wait for a meta refresh or an HTTP refresh header.

The HTML meta tag can set a number of seconds before a refresh. When that number of seconds has expired, then the browser loads the URL specified in the meta refresh.

QALoad's WWW replay only refreshes the page if the number of seconds specified in the refresh is less than or equal to the timeout value set by DO\_SetRefreshTimeout. If the refresh is set too large, then QALoad's WWW replay can get stuck in an infinite loop.

### Syntax

```
int DO_SetRefreshTimeout(int nTimeout);
```

### Parameters

Parameter	Description
nTimeout	How many seconds to wait for a refresh, the default is 0.

## DO\_SetRetryWait

Applies to HTTP and SSL requests. Sets the delay between retries in seconds.

### Syntax

```
DO_SetRetryWait(int nValue)
```

### Return Value

### Parameters

Parameter	Description
nValue	Delay between retries, in seconds. Default is 1.

### Example

```
DO_SetRetryWait(6);
```

## DO\_SetTimeout

Applies to HTTP and SSL requests. Specifies how long to wait for a reply from the server. If a reply is not received within the specified time, the virtual user fails with a fatal error.

`DO_SetTimeout` allows you to more closely emulate browser behavior when requests go unanswered due to server or network problems. Normally a browser would wait until it receives a reply or the user cancels the request by clicking the **Stop** button.

This command relates to the **Server Response Timeout** option on the **WWW Advanced options** dialog box. The range of values is 5 to 65535. The default is 120 seconds.

## Syntax

```
DO_SetTimeout(int timeout);
```

## Return Value

## Parameters

Parameter	Description
timeout	The number of seconds to wait. Range of values is 5 to 65535. The default is 120.

## Example

```
DO_SetTimeout(120); /* Maximum time to wait for an HTTP Reply */
```

## DO\_UseEntityList

Applies to HTTP and SSL requests. Decodes non-ASCII character entities.

## Syntax

```
void DO_UseEntityList ( ENTITY_LIST );
```

## Return Value

## Parameters

Parameter	Description
ENTITY_LIST	User-defined Entity list.

## Example

For examples and more information about this command, see [HTML character entities and numeric references](#).

## DO\_UseNumericReferenceList

Applies to HTTP and SSL requests. Decodes non-ASCII numeric references.

### Syntax

```
void DO_UseNumericReferenceList ( NUMERIC_REFERENCE_LIST ) ;
```

### Return Value

### Parameters

Parameter	Description
NUMERIC_REFERENCE_LIST	User-defined Numeric Reference list.

### Example

For examples and more information about this command, see [HTML character entities and numeric references](#).

## DO\_UsePersistentConnections

Applies to HTTP and SSL requests. Turns the use of persistent connections on or off.

It always terminates the current persistent connection if one is present. This allows persistent connections to be reset in transaction loops to better simulate a real user test.

### Syntax

```
void DO_UsePersistentConnections ( BOOL bEnable )
```

### Return Value

None

### Parameters

Parameter	Description
bEnable	A flag indicating if the Use Persistent Connections option should be enabled (1=TRUE, 0=FALSE).

### Example


```
...
...
```

```
BEGIN_TRANSACTION();
DO_UsePersistentConnections(1);
...
...
```

## DO\_UseProxy

Applies to HTTP and SSL requests. Specifies a proxy server to use during testing.

If you select the Use a proxy server option on the QALoad Script Development Workbench's Record Options wizard before you record, a DO\_UseProxy command is inserted at the beginning of your script. If you change your proxy server while recording, QALoad's Record facility detects the modification and inserts another DO\_UseProxy() into the script.

 **Note:** When called with a proxy server that is not found on the network, DO\_UseProxy aborts even when you select "Continue executing and ignore the error" in the Error Handling Options dialog box. See [Anticipating Error Conditions](#) for more information on setting error handling options.

### Syntax

```
int DO_UseProxy( const char *proxy );
```

### Return Value

Always returns 0

### Parameters

Parameter	Description
proxy	String containing the proxy server and port separated by a colon.

### Example

```
...
...
BEGIN_TRANSACTION();
...
...
DO_UseProxy ( "internet:80" );
DO_SSLUseProxy ( "internet.company.com:90" );
DO_ProxyExceptions( "company.sample.com, "company2.company.com" );
...
...
```

## DO\_UseProxyAutomaticConfiguration

Applies to HTTP and SSL requests. Downloads the proxy automatic configuration (PAC) script at the specified URL.

The rest of the transaction uses the PAC script to determine which proxy, if any, to connect to hosts.



## Syntax

```
BOOL DO_UseProxyAutomaticConfiguration ( const char * szUrl );
```

## Return Value

TRUE = successful  
FALSE = unsuccessful

## Parameters

Parameter	Description
szUrl	URL where the proxy automatic configuration script is located.

## Example

```
...
...
BEGIN_TRANSACTION();
DO_UseProxyAutomaticConfiguration( "http://proxy config.host.com/" );
...
...
/*Request: 1*/
/*
*The PAC script downloaded from http://proxyconfig.host.com/
*determine what proxy, if any, to use to connect to
*company.com
*/
DO_Http ( "GET http://company.com/ HTTP/1.0\r\n\r\n" );
...
...
```

## DO\_VerifyDocTitle

Applies to HTTP and SSL requests. Compares the parameters and match type passed in the parameters against the HTML page title specified in the response received from the HTTP request.

## Syntax

```
int DO_VerifyDocTitle ( const char *szTitle, WWWVerifyDocTitleComparisonTypeEnum nType ) ;
```

## Return Value

Integer value

1 = match found. Indicated by the Player debug window.

0 = match not found. The function calls WWW\_FATAL\_ERROR, which either aborts the test or continues, based upon the ABORT\_ON\_ERROR flag.

## Parameters

Parameter	Description								
szTitle	A character string specifying a title to search for in the HTTP response. This is generated by Convert using the entire document title, the title prefix, or the title suffix, as specified on the QALoad Script Development Workbench Convert Options wizard.								
nType	<p><i>WWWVerifyDocTitleComparisonTypeEnum</i></p> <p>Type corresponding to the comparison options available on the QALoad Script Development Workbench Convert Options wizard. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>TITLE</td> <td>Verify title</td> </tr> <tr> <td>PREFIX</td> <td>Verify title prefix</td> </tr> <tr> <td>SUFFIX</td> <td>Verify title suffix</td> </tr> </tbody> </table>	Value	Description	TITLE	Verify title	PREFIX	Verify title prefix	SUFFIX	Verify title suffix
Value	Description								
TITLE	Verify title								
PREFIX	Verify title prefix								
SUFFIX	Verify title suffix								

## Example

```
DO_Http ( http_statement ) ;
DO_VerifyDocTitle ( "Welcome to Compuware" , TITLE ) ;
```

## DO\_WWWFree

Applies to HTTP and SSL requests. Clears memory used by the script.

This command is used at the end of every HTTP script. DO\_WWWFree is automatically inserted during the convert process and should never need to be adjusted.

## Syntax

```
DO_WWWFree( );
```

## Return Value

## Parameters

None.

## Example

```
...
...
END_TRANSACTION( );
DO_WWWFree( );
REPORT( SUCCESS );
```

## DO\_WWWInitialize

Applies to HTTP and SSL requests. Sets all necessary internal variables needed to load test a WWW script. Use this command at the beginning of every WWW script, but never more than once in a script.

 **Note:** This function should be written exactly as shown below.

### Syntax

```
DO_WWWInitialize(PLAYER_INFO *sInfo, WWWConvertModeEnum convertMode);
```

### Return Value

### Parameters

Parameters	Description						
sInfo	A pointer to a <code>PLAYER_INFO</code> memory structure.						
convertMode	<p><i>WWWConvertModeEnum</i></p> <p>Convert mode options. Valid values include:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>HTML_MODE</code></td> <td>The script will be run in HTML mode.</td> </tr> <tr> <td><code>HTTP_MODE</code></td> <td>The script will be run in HTTP mode.</td> </tr> </tbody> </table>	Value	Description	<code>HTML_MODE</code>	The script will be run in HTML mode.	<code>HTTP_MODE</code>	The script will be run in HTTP mode.
Value	Description						
<code>HTML_MODE</code>	The script will be run in HTML mode.						
<code>HTTP_MODE</code>	The script will be run in HTTP mode.						

### Example


```
...
...
int rrobot_script(s_info)
PLAYER_INFO *s_info;
{
...
...
DO_WWWInitialize(s_info, HTML_MODE);
...
...
BEGIN_TRANSACTION();
...
...
}
```

## DownloadMediaFromASX

Applies to Windows Media Player streaming media.

Dynamically parses an ASX file from the previous response and initiates and waits for completion of the specified Windows Media resources download.

DownloadMediaFromASX is a deprecated function. Use a combination of the Click\_On function with the PlayMedia function instead.

 **Note:** For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad" chapter of the QACenter Performance Edition Installation and Configuration Guide.

### Syntax

```
DownloadMediaFromASX( int secDuration );
```

### Return Value

### Parameters

Parameter	Description
secDuration	Specifies the number of seconds of media to download. Specifying 0 means read the entire media.

### Example

```
Do_Http("GET http://host/test.asx HTTP/1.0\r\n"
        "Accept: image/gif, image/x-bitmap, image/jpeg, image/"
        "jpeg,application/vnd.ms-excel, application/"
        "vnd.ms-powerpoint, msword, */*\r\n"
        "Accept-Language: en-us\r\n"
        "User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows"
        "NT 5.0)\r\n\r\n" );

// Play the media file(s) specified in the ASX file for 50 seconds.
DownloadMediaFromASX(50);
```

## DownloadMediaRP

Applies to Real Networks Streaming Media. Initiates and waits for completion of the specified multi-media resource download.

DownloadMediaRP is a deprecated function. Use a combination of the Click\_On function with the PlayMedia function instead.

 **Notes:**

- ! Enable streaming media download by selecting the Streaming Media check box on the WWW Advanced Universal Convert Options dialog box in the QALoad Script Development Workbench.
- ! Real Networks streaming media is only supported in process mode. On the QALoad Player main window, in the **Run As:** group, select the **Process** option.


- ! For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad" chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
DownloadMediaRP( char *URL, int timeout );
```

## Return Value

## Parameters

Parameter	Description
URL	Specifies the location (in URL format) of the streaming media file.
timeout	Specifies the number of seconds of media to play. Specify 0 (the default in the script) to play the entire media transaction. Specify another number, such as a value of 10, to have the timeout buffer the media and play the clip for 10 seconds.  <b>Note:</b> This timeout refers to clip time. The elapsed time of a Real Networks media transaction may be longer than the timeout.


## Example

```
DownloadMediaRP("http://host:8099/ramgen/realvideo.rm", 0);
```

## DownloadMediaWMP

Applies to Windows Media Player streaming media. Initiates and waits for completion of the specified Windows Media resource download.

DownloadMediaWMP is a deprecated function. Use a combination of the [Click\\_On](#) function with the [PlayMedia](#) function instead.

 **Note:** For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad" chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
DownloadMediaWMP( char *reqURL, int secDuration );
```

## Return Value

## Parameters

Parameter	Description
reqURL	Specifies the location (in URL format) of the streaming media file.
secDuration	Specifies the number of seconds of media to download. Specify 0 to read the entire media file.

## Example

```
// Requests welcome2.asf from qacmedia over TCP ("mmst://")
// Play the file for 10 seconds

DownloadMediaWMP("mmst://qacmedia/welcome2.asf", 10 );
```

## EnableStatisticsRP

Applies to Real Networks Streaming Media. Enables capture of media player performance statistics during a load test.

Compuware recommends that this function is called in the initial section of a Web script, before the SYNCHRONIZE() call. Although it can be called at any point in the script, this command must appear in the script prior to any DownloadRPMedia call.

### Notes:

- ! Exercise caution when using this feature. Real Networks streaming media uses extra system resources and may degrade performance or skew test results.
- ! By default, capturing statistics is not enabled.
- ! Real Networks streaming media is only supported in process mode. On the QALoad Player main window, in the Run As: group, select the Process option.
- ! For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad " chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
EnableStatisticsRP( WWWRPStatsMaskEnum flags, int interval, BOOL traceOutput );
```

## Return Value

## Parameters

Parameter	Description
flags	<p><i>WWWRPStatsMaskEnum</i></p> <p>The flag values in the following table can be combined using a logical OR. Flag values include:</p> <p><a href="#">Values for Meta flags</a></p>

	Type	Description
	QAL_WWW_RN_STAT_ALL_LEVELS	All statistic levels.
	QAL_WWW_RN_STAT_PLAYER	Player level statistics.
	QAL_WWW_RN_STAT_SOURCE	Source level statistics.
	QAL_WWW_RN_STAT_STREAM	Stream level statistics.
	QAL_WWW_RN_STAT_ALL	Enable all levels, all counters.
	QAL_WWW_RN_STAT_PLAYER_ALL	All Media Player level statistics.
	QAL_WWW_RN_STAT_SOURCE_ALL	All source level statistics.
	QAL_WWW_RN_STAT_STREAM_ALL	All stream level statistics.
	QAL_WWW_RN_STAT_ALL_COUNTERS	All counters.
	QAL_WWW_RN_STAT_NORMAL_PKTS	Packets not lost, late, etc.
	QAL_WWW_RN_STAT_RECOVERED_PKTS	Packets recovered.
	QAL_WWW_RN_STAT_RECEIVED_PKTS	Packets received.
	QAL_WWW_RN_STAT_LOST_PKTS	Packets currently lost.
	QAL_WWW_RN_STAT_LATE_PKTS	Late packets.
	QAL_WWW_RN_STAT_CLIP_BANDWIDTH	Bandwidth at which the clip was encoded.
	QAL_WWW_RN_STAT_AVE_BANDWIDTH	Average bandwidth so far.
	QAL_WWW_RN_STAT_CUR_BANDWIDTH	Current bandwidth.
interval		Report every <i>nth</i> stat received.
traceOutput		TRUE means send enabled stats to QALoad Player window (if QALoad Player window output is enabled).

## Example

```
// Records, current bandwidth, average bandwidth, and the clip
// bandwidth at the Player (media player) level as often as
// the statistics are updated.
```

```
EnableStatisticsRP( QAL_WWW_RN_STAT_PLAYER |
                   QAL_WWW_RN_STAT_AVE_BANDWIDTH |
                   QAL_WWW_RN_STAT_CLIP_BANDWIDTH |
                   QAL_WWW_RN_STAT_CUR_BANDWIDTH,
                   0, TRUE );
```

## Fill\_In

Applies to Visual Scripting. Used to represent how the user filled in fields on a form before clicking on a submit button.

### Versions

Versions for Fill\_In are:

boolean [Fill\\_In](#) ( WWWControlEnum control\_type, string description, string value );

boolean [Fill\\_In](#) ( WWWControlEnum control\_type, WWWFillInSpecifierEnum specifier, string description, string value );

boolean [Fill\\_In](#) ( WWWControlEnum control\_type, integer count, WWWFillInSpecifierEnum specifier, string description, string value );

boolean [Fill\\_In](#) ( WWWControlEnum control\_type, integer count, string value );

## Get

Applies to Visual Scripting. Retrieves data from the virtual browser.

### Versions

Versions for Get are:

page\_id [Get](#) ( WWWGetTypeEnum type );

page\_id [Get](#) ( WWWGetTypeEnum type, string description );

page\_id [Get](#) ( WWWGetTypeEnum type, string description, integer count );

page\_id [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier, string description );

page\_id [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier, string description, integer count );

page\_id [Get](#) ( WWWGetTypeEnum type, integer count );

integer [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier );

string [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier, string left, string right );

string [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier, integer count, string left, string right );

string [Get](#) ( WWWGetTypeEnum type, WWWGetSpecifierEnum specifier, string xpath-string );

## GetSiebelValue

Retrieves the value of a Siebel record from the Siebel library and saves it in a Local Variable.

A call to [SiebelUpdatePage](#) before the last request is mandatory to get the value of the Siebel record.

### Syntax

```
GetSiebelValues(const char* pszSiebelUniqueID);
```



## Return Value

CLoadString

## Parameters

Parameter	Description
pszSiebelUniqueID	Unique Record ID of the Siebel parameter whose value is to be retrieved.

## Example

```
CLoadString var = GetSiebelValue(" S_BC0_RC1_F01" );
```

## ModifyEncoding

ModifyEncoding is used in Visual scripts to convert strings to UTF8, EUCJP or to the language used by the script.

## Syntax

```
char* Modify_Encoding(EncodingLangEnum encodingID, const char* strInput)
```

## Return Value

A char pointer to the encoded string if successful; NULL if not successful.

## Parameters

Parameter	Description								
encodingID	<p><i>EncodingTypeEnum</i></p> <p>Counter data type. Valid values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>UTF8</td> <td>UTF8 encoding.</td> </tr> <tr> <td>EUCJP</td> <td>EUCJP encoding.</td> </tr> <tr> <td>SCRIPT_LANGUAGE</td> <td>Script language encoding.</td> </tr> </tbody> </table>	Value	Description	UTF8	UTF8 encoding.	EUCJP	EUCJP encoding.	SCRIPT_LANGUAGE	Script language encoding.
Value	Description								
UTF8	UTF8 encoding.								
EUCJP	EUCJP encoding.								
SCRIPT_LANGUAGE	Script language encoding.								
strInput	The input string.								

## Example

```
Fill_In(TEXT_BOX,NAME_ATTRIBUTE, "q", ModifyEncoding(SCRIPT_LANGUAGE,"Sample text to be converted to UTF-8"));
```

## Navigate\_To

Applies to Visual Scripting. Reads a URL typed in the Web browser's address field and constructs a request to navigate to the URL.

## Versions


Versions of Navigate\_To are:

```
boolean Navigate_To ( string URL );
```

```
boolean Navigate_To ( string URL, WWWNavigateEncodingEnum encoding);
```

## PlayMedia

Applies to Real Networks and Windows streaming media. Initiates and plays back the streaming media file that was stored in a previous call to the [Click\\_On](#) function.


 Notes: Real Networks streaming media is only supported in process mode. On the QALoad Player main window, in the Run As: group, select the Process option. For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad" chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
PlayMedia( int timeout );
```

## Return Value

## Parameters

Parameter	Description
timeout	The maximum amount of time to play back the requested streaming media file. A value of 0 indicates that the entire file should be played.  Note: This timeout refers to clip time. The elapsed time of a Real Networks media transaction will likely be longer than the timeout.

## Example

```
//Play the file for 10 seconds
PlayMedia(10);
```

## Post\_To

Applies to Visual Scripting. Reads a URL typed in the Web browser's address field as well as the encoding type. It then constructs a request to send a post to the URL.

### Versions

Versions of Post\_To are:

boolean `Post_To` ( string URL );

boolean `Post_To` ( string URL, WWWPostContentTypeEnum content-type );

boolean `Post_To` ( stringURL, WWWPostContentEncodingEnum encoding );

## RandNumString

Applies to Visual Scripting. Generates a random number from minimum to maximum.

### Syntax

```
string RandNumString ( int minimum, int maximum );
```

### Return Value

Returns the generated random number as a string.

### Parameters

Parameter	Description
minimum	The lower bound of the random number.
maximum	The upper bound of the random number.

### Examples

```
RandNumString ( 20, 500 );
```

## Region

Applies to Visual Scripting. Marks the region\_number parameter as an image map region.

### Syntax

```
string Region ( int region_number );
```

### Return Value

Returns the region number as a string.

## Parameters

Parameter	Description
region_number	The region number.

## Examples

```
// Region returns the string passed into it. It is a label to make
// clicking on a client side image map easier to read.
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/client-map.jpg", Region("2"));

// does the same as
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/client-map.jpg", "2");
```

## RESTART\_TRANSACTION\_BOTTOM

Applies to Visual Scripting. Used to define a point at the end of the transaction for anything that needs to be deallocated or uninitialized.

When transaction restarting occurs for a failed transaction, QALoad first executes any code starting after the call to `RESTART_TRANSACTION_BOTTOM` allowing you to clean up important information and prevent memory leaks before retrying the transaction.

## Syntax

```
RESTART_TRANSACTION_BOTTOM() ;
```

## Return Value

## Parameters

None.

## Example

```
BEGIN_TRANSACTION();
RESTART_TRANSACTION_TOP();
TRANSACTION CODE...
RESTART_TRANSACTION_BOTTOM();
DO_HttpCleanup();
DO_SomeOtherMiddlewareCleanup();
END_TRANSACTION();
```

## RESTART\_TRANSACTION\_TOP

Used to define a point at the beginning of the transaction loop that QALoad can use to rewind the transaction.

`Restart_Transaction_Top` is used if the transaction fails and `Restart Transaction` error handling has been selected in the QALoad Conductor.

## Syntax

```
RESTART_TRANSACTION_TOP() ;
```

## Return Value

## Parameters

None.

## Example

```
BEGIN_TRANSACTION();
RESTART_TRANSACTION_TOP();
TRANSACTION CODE...
RESTART_TRANSACTION_BOTTOM();
DO_HttpCleanup();
DO_SomeOtherMiddlewareCleanup();
END_TRANSACTION();
```

## Set

Applies to Visual Scripting. Assigns values to the Virtual Browser, Proxy, and other parts of the QALoad replay. This command sets the properties and attributes of the script.

 **Note:** For Visual Scripting, this command replaces the following EasyScript for WWW commands:

```
DO_AddHeader
DO_AttachFile
DO_BasicAuthorization
DO_Cache
DO_HttpVersion
DO_IPSpoofEnable
DO_NTLMAuthorization
DO_ProxyAuthorization
DO_ProxyEceptions
DO_SaveReplyType
DO_SetAssumedContentType
DO_SetBaudRate
DO_SetBaudRateEX
DO_SetJavascriptCleanupThreshold
DO_SetMaxBrowserThreads
DO_SetMaximumRetries
DO_SetRetryWait
DO_SetSSLConnectString
DO_SSLReuseSession
DO_SSLUseCipher
DO_SSLUseClientCert
DO_SSLUseProxy
DO_SetTimeout
DO_UsePersistentConnections
DO_UseProxy
```

## Versions

Versions of **Set** are:

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetOptionBoolEnum
              bool_option, boolean
              boolean );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetCachingOptionsEnum
              cache_option, WWWSetCachingValuesEnum
              cache_value );
```

```
boolean Set ( WWWSetDurationEnum duration,
              WWWSetOptionIntegerEnum int_option,
              integer integer );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetProxyOptionsEnum
              proxy_option, WWWSetProxyModeValueEnum
              proxy_mode_value );
```

```
boolean Set ( WWWSetDurationEnum duration,
              WWWSetOptionTextEnum string1_option, string
              string );
```

```
boolean Set ( WWWSetDurationEnum duration,
              WWWSetOptionText2Enum string2_option, string
              string1, string string2 );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetOptionText3Enum
              string3_option, string
              string1, string
              string2, string
              string3 );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetOptionNumericReferenceEnum int_option,
              NUMERIC_REFERENCE_LIST myReferences );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetOptionEntityListEnum int_option,
              ENTITY_LIST myEntities );
```

```
boolean Set ( WWWSetDurationEnum
              duration, WWWSetOptionBoolEnum bool_option,
              WWWSet.JavaScriptLevelEnum js_level );
```

## ShowMediaRP

Applies to Real Networks Streaming Media. Displays the media during a load test.

Audio and video can be controlled separately. If video is enabled, a dialog box displays the video. For audio, the sound from the media will play through the sound device.

### Notes:

- ! Exercise caution when using this feature. Use the audio display for one virtual user only. If enabling audio on two virtual users, audio from the two streams contends for the audio device. By default, audio and video do not display. Displaying the media for audio or video uses extra system resources and may degrade performance and skew test results.
- ! Real Networks streaming media is only supported in process mode. On the QALoad Player main window, in the Run As: group, select the Process option.
- ! Real Networks streaming media is only supported on a stand-alone QALoad Player or if the QALoad Player and QALoad Conductor are on the same machine.
- ! For streaming media playback, QALoad requires specific media player versions. For a list of supported versions, refer to "System Requirements" in the "Installing QALoad" chapter of the QACenter Performance Edition Installation and Configuration Guide.

## Syntax

```
ShowMediaRP( BOOL showAudio, BOOL showVideo );
```

## Return Value

## Parameters

Parameter	Description
showAudio	Display and play audio.
showVideo	Display video.

## Example

```
ShowMediaRP( FALSE, TRUE );
// Display video, but leave audio muted
```

## SiebelInitialize

Initializes the Siebel correlation library and treats the current script file as a Siebel file. If the Siebel correlation library dll (ssdtcorr.dll) is not present in the BinaryFiles folder under the QALoad directory, it throws an error in the TRACE window and exits the playback.

## Syntax

```
SiebelInitialize()
```

## Return Value

void

## Parameters

None.

## Example

```
SiebelInitialize()
```

## SiebelUpdatePage

Feeds the current response (response from last request) to the Siebel library. This tells the Siebel library to extract the Siebel parameter values from the response.

## Syntax

```
SiebelUpdatePage()
```

## Return Value

void

## Parameters

None.

## Example

```
SiebelUpdatePage()
```

## Verify

Applies to Visual Scripting. Used to verify expected text against an element of the page just requested.

## Versions

Versions of Verify are:

```
boolean Verify ( WWWVerificationSpecifierEnum type, string expected );
```

```
boolean Verify ( WWWVerificationTypeEnum type, WWWVerificationSpecifierEnum specifier, string expected );
```

```
boolean Verify ( WWWVerificationTypeEnum type, int count, WWWVerificationSpecifierEnum specifier, const char* description, Verify_Size size, string expected );
```



## WWW\_FATAL\_ERROR

Applies to HTTP and SSL requests. Also applies to Visual Scripting. WWW\_FATAL\_ERROR aborts or restarts a virtual user in the event of an error during replay.

This command handles error conditions in a script that invalidates the transaction. WWW\_FATAL\_ERROR is called internally by all script commands to report error conditions.

If Abort Transaction is selected in the Error Handling column of the QALoad Conductor Script Assignment tab, then WWW\_FATAL\_ERROR aborts the virtual user after generating a debug log and notifying the QALoad Conductor that it is aborting.

If Restart Transaction is selected in the Error Handling column, then WWW\_FATAL\_ERROR restarts the transaction from the restart point (DO\_SetTransactionStart or RESTART\_TRANSACTION\_TOP) after generating a debug log and notifying the QALoad Conductor about the restart.

If Continue Transaction is selected in the Abort on Error Handling column, then the virtual user continues as if no error had occurred. This may cause a virtual user middleware exception if WWW\_FATAL\_ERROR was called because the transaction is in an unstable state.

### Syntax

```
WWW_FATAL_ERROR ( const char *short_desc, const char *long_desc ) ;
```

### Return Value

### Parameters

Parameter	Description
short_desc	A string containing a one-word description of the error. This is often the name of the function where an error was encountered.
long_desc	A longer description of the error.

### Example

```
WWW_FATAL_ERROR ( "My Func", "An error has occurred" ) ;
```

## X\_Coord

Applies to Visual Scripting. Marks the x\_value parameter as an x-coordinate value.

### Syntax

```
X_Coord( string x_value );
```

### Return Value

Returns the x-coordinate value.

## Parameters

Parameter	Description
x_value	The x-coordinate value.

## Example

```
// X_Coord and Y_Coord return the string passed into them. They are a
// label to make clicking on a server side imagemap easier to read.
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/server-map.jpg", X_Coord("25"),
Y_Coord("60"));
// does the same as
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/server-map.jpg", "25", "60");
```

## XmlRequest

Applies to Visual Scripting. The XmlRequest function takes in the HTTP action and a URL and constructs a request to navigate to the URL.

If the method is "GET", XmlRequest makes a request for the URL expecting to get an XML reply. If the method is "POST", XmlRequest finishes an XML message and posts the message to the URL, expecting to get an XML reply.

XmlRequest is a direct replacement for Navigate\_To and Post\_To when the HTTP reply contains XML.

## Syntax

```
boolean XMLRequest ( string method, string URL );
```

## Return Value

True if the requested page is successfully retrieved.

False if the requested page is not successfully retrieved.

## Parameters

Parameter	Description
method	HTTP request method ("GET" or "POST")
URL	A URL containing the location of the page to be requested.

## Examples

```
XmlRequest ( "GET", "http://msssoapsampleserver/
MSSoapSamples/Echo/Service/Rpc/IsapiCpp/Echo.wsdl" );
XmlRequest ( "POST",
"http://MSSoapSampleServer:80/MSSoapSamples/Echo/Service/Rpc/IsapiCpp/Echo.wsdl" );
```

## Y\_Coord

Applies to Visual Scripting. Marks the `y_value` parameter as a y-coordinate value.

### Syntax

```
Y_Coord( string y_value );
```

### Return Value

Returns the y-coordinate value.

### Parameters

Parameter	Description
<code>y_value</code>	The y-coordinate value.

### Example

```
// X_Coord and Y_Coord return the string passed into them. They are a
// label to make clicking on a server side imagemap easier to read.
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/server-map.jpg", X_Coord("25"),
Y_Coord("60"));

// does the same as
Click_On(IMAGE, 1, SRC_ATTRIBUTE, "http://host.com/server-map.jpg", "25", "60");
```



## Error Codes

# Citrix

## Citrix Playback Error Codes

QALoad displays error codes during playback for specific exception messages. While debugging, refer to the table below that lists error codes and descriptions that apply to Citrix scripts.

Error code	Description
CTX_ERROR_00001	Colnitalize failed
CTX_ERROR_00002	Unable to attach tIs to window
CTX_ERROR_00003	Unable to clear properties
CTX_ERROR_00004	Unable to set scaling mode
CTX_ERROR_00005	Unable to set initial program
CTX_ERROR_00006	Unable to set working directory
CTX_ERROR_00007	Unable to set username
CTX_ERROR_00008	Username is NULL
CTX_ERROR_00009	Unable to set password
CTX_ERROR_00010	Password is NULL
CTX_ERROR_00011	Unable to set domain
CTX_ERROR_00012	Invalid argument to CtxConnect
CTX_ERROR_00013	Could not load ICA File: <Loading ICA File>
CTX_ERROR_00014	Could not find ICA File: <Loading ICA File>
CTX_ERROR_00015	Connect timeout expired
CTX_ERROR_00016	Wait for connect abandoned
CTX_ERROR_00017	Disconnect timeout expired
CTX_ERROR_00018	Wait for disconnect abandoned
CTX_ERROR_00022	Invalid keyboard entry
CTX_ERROR_00023	Unable to move mouse
CTX_ERROR_00024	Unable to click mouse

CTX_ERROR_00025	Unable to send ping
CTX_ERROR_00026	Ping timeout reached
CTX_ERROR_00027	Wait for ping abandoned
CTX_ERROR_00028	Window <Window Name> does not exist
CTX_ERROR_00029	Unable to put address
CTX_ERROR_00030	Unable to unmarshal <session>
CTX_ERROR_00031	Sending ascii key <key> failed
CTX_ERROR_00032	Sending keydown <key> failed
CTX_ERROR_00033	Unable to bring window to top
CTX_ERROR_00034	Unexpected event: expected create <Window>
CTX_ERROR_00035	Unexpected event: expected destroy <Window>
CTX_ERROR_00036	Unexpected event: expected <action> <window> action
CTX_ABORT_00037	The Citrix client has unexpectedly terminated <CtxWaitForWindowCreate>. Script Aborting
CTX_ERROR_00038	Unable to marshal session pointer
CTX_ERROR_00039	Unable to marshal keyboard pointer
CTX_ERROR_00040	Unable to marshal mouse pointer
CTX_ERROR_00041	Unable to register for session events
CTX_ERROR_00042	Unable to register for keyboard events
CTX_ERROR_00043	Unable to register for mouse events
CTX_ERROR_00044	Unable to set connect event
CTX_ERROR_00045	Unable to set ping event
CTX_ERROR_00046	Unable to connect
CTX_ERROR_00047	Unable to disconnect
CTX_ERROR_00048	Unable to logon
CTX_ERROR_00049	Unable to logoff
CTX_ERROR_00050	Unable to use ICA file

CTX_ERROR_00060	Unable to execute statement
CTX_ERROR_00061	Unable to unmarshal <keyboard>
CTX_ERROR_00062	Unable to unmarshal <mouse>
CTX_ERROR_00063	Bitmap timeout expired in <action>. Bitmap title: <title>
CTX_ERROR_00064	Invalid output mode. Allowed values: 0-3
CTX_WARNING_00051	Disconnect timeout expired
CTX_WARNING_00052	Disconnect timeout abandoned
CTX_WARNING_00053	Unable to logoff
CTX_WARNING_00054	Unable to disconnect

## CTX\_ERROR\_00001

Unable to initialize the COM library.

### Description:

The COM library is used to communicate with the Citrix client during replay.

### Script Commands:

CitrixInit

### Causes:

- ! The Citrix client or QALoad were not successfully installed.
- ! The replay machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

### Actions:

Verify the installations of Citrix client and QALoad were successful and re-install if not.

### External Sources:

None

## CTX\_ERROR\_00002

The QALoad Citrix replay code is unable to initialize correctly.



**Description:**

The QALoad Citrix replay code was unable to initialize the Citrix client code for use with the replay script.

**Script Commands:**

CitrixInit

**Causes:**

- ! QALoad was not successfully installed.
- ! The client machine is low on resources.

**Actions:**

- ! Verify the QALoad installation was successful and re-install if not.
- ! Verify the client machine has sufficient resources.

**External Sources:**

None

**CTX\_ERROR\_00003**

Unable to clear the properties in Citrix API COM object.

**Description:**

The Citrix client was unable to initialize the COM properties. This may indicate a problem with the Citrix environment.

**Script Commands:**

CitrixInit

**Causes:**

- ! The Citrix client or QALoad were not successfully installed.
- ! The replay machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

**Actions:**

- ! Verify the installations of Citrix client and QALoad were successful and re-install if not.
- ! Verify the client machine has sufficient resources.
- ! Verify the integrity of the installation of the OS on the replay machine.

### External Sources:

None

## CTX\_ERROR\_00004

Unable to clear the properties in Citrix API COM object.

### Description:

The Citrix client was unable to set the scaling mode for the client. This may indicate a problem with the Citrix environment.

### Script Commands:

CitrixInit

### Causes:

- ! The Citrix client or QALoad were not successfully installed.
- ! The replay machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

### Actions:

- ! Verify the installations of Citrix client and QALoad were successful and re-install if not.
- ! Verify the client machine has sufficient resources.
- ! Verify the integrity of the installation of the OS on the replay machine.

### External Sources:

None

## CTX\_ERROR\_00005

Unable to set the initial program for the Citrix client session.

### Description:

Setting the initial program in the Citrix client returned an error.

### Script Commands:

CtxConnect

**Causes:**

The initial program does not exist or is not in the specified directory.

**Actions:**

Ensure the initial program exists, is in the correct directory, and is being called correctly.

**External Sources:**

None

**CTX\_ERROR\_00006**

Unable to set the initial directory for the Citrix client session.

**Description:**

Setting the start-up directory for the Citrix session returned an error.

**Script Commands:**

CtxConnect

**Causes:**

The specified directory does not exist.

**Actions:**

Ensure the specified directory exists.

**External Sources:**

None

**CTX\_ERROR\_00007**

Unable to set the username.

**Description:**

Setting the username for the Citrix session returned an error.

**Script Commands:**

CtxSetLoginInfo

[CtxDomainLoginInfo](#)

[CtxConnect](#)

#### Causes:

The username is not a valid username for the Citrix session

#### Actions:

Ensure the username specified is valid for the Citrix session.

#### External Sources:

None

## CTX\_ERROR\_00008

There is no username specified for the Citrix session.

#### Description:

The Citrix session returned an error because no username was specified for the session.

#### Script Commands:

[CtxSetLoginInfo](#)

[CtxDomainLoginInfo](#)

#### Causes:

No username was specified for the Citrix client connection.

#### Actions:

Ensure a valid username is specified for the Citrix session.

#### External Sources:

None

## CTX\_ERROR\_00009

Unable to set the password.

**Description:**

Setting the password for the Citrix session returned an error.

**Script Commands:**

CtxSetLoginInfo

CtxDomainLoginInfo

CtxConnect

**Causes:**

The password is not valid for the username specified in the Citrix session

**Actions:**

Ensure both the username and password specified are valid for the Citrix session.

**External Sources:**

None

**CTX\_ERROR\_000010**

There is no password specified for the Citrix session.

**Description:**

The Citrix session returned an error because no password was specified for the username in the session.

**Script Commands:**

CtxSetLoginInfo

CtxDomainLoginInfo

**Causes:**

No password was specified for the username in the Citrix client connection.

**Actions:**

Ensure a valid username and password are specified for the Citrix session.

**External Sources:**

None

## CTX\_ERROR\_00011

The domain specified for the Citrix session is invalid.

### Description:

The Citrix session returned an error because the domain specified was invalid for the Citrix session.

### Script Commands:

CtxSetLoginInfo

CtxDomainLoginInfo

CtxConnect

### Causes:

The domain specified is not valid for the Citrix session.

### Actions:

Ensure the domain specified in the connection is valid for the Citrix session.

### External Sources:

None

## CTX\_ERROR\_00012

An argument supplied to the Citrix connect call is invalid.

### Description:

The Citrix connect call failed because an argument specified as a parameter to the call is invalid.

### Script Commands:

CtxConnect

### Causes:

An argument specified to the Citrix connect call

### Actions:

Ensure that the parameters passed to the CtxConnect call are correct.

**External Sources:**

None

**CTX\_ERROR\_00013**

The specified Citrix ICA file cannot be loaded.

**Description:**

The Citrix client returned an error when it tried to load the Citrix ICA specified.

**Script Commands:**

CtxConnect

**Causes:**

The Citrix ICA file specified is not a valid ICA file.

**Actions:**

Ensure that the specified Citrix ICA file is valid by connecting to a Citrix session using that file in Citrix Neighborhood.

**External Sources:**

None

**CTX\_ERROR\_00014**

The specified Citrix ICA file cannot be found.

**Description:**

The ICA file specified could not be found by the Citrix client session.

**Script Commands:**

CtxConnect

**Causes:**

The file path name of the ICA file specified points to a non-existent file.

### Actions:

Identify the correct ICA file and path and ensure that it is specified correctly in the Citrix options and/or in the script.

### External Sources:

None

## CTX\_ERROR\_00015

The Citrix client cannot connect to the server in the time specified in the Citrix options.

### Description:

The connection was not made in the time interval specified in the script and/or the Citrix options dialog.

### Script Commands:

CtxConnect

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The timeout specified in the script or in the Citrix options dialog is too low.

### Actions:

- ! Ensure that the Citrix server is available for connection.
- ! Change the Connection Timeout value to a higher value (in seconds).
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_ERROR\_00016

The attempt to connect to the Citrix was abandoned.

### Description:

The connection was not made in the time interval before the Citrix client abandoned the attempt.

### Script Commands:

CtxConnect



**Causes:**

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow connections.

**Actions:**

- ! Ensure that the Citrix server is available for connection.
- ! Change the Connection Timeout value to a higher value (in seconds).
- ! Ensure the network is not overloaded with other traffic.

**External Sources:**

None

**CTX\_ERROR\_00017**

The Citrix client cannot disconnect to the server in the time specified in the Citrix options.

**Description:**

The connection was not closed in the time interval specified in the script and/or the Citrix options dialog.

**Script Commands:**

CitrixUninit

CtxDisconnect

**Causes:**

- ! The Citrix server went offline due to a server error and could not drop the connection.
- ! The timeout specified in the script or in the Citrix options dialog is too low.

**Actions:**

- ! Ensure that the Citrix server is functional.
- ! Ensure that the network is not overloaded with other traffic.

**External Sources:**

None

**CTX\_ERROR\_00018**

The call to the Citrix API disconnect event was abandoned.

### Description:

The disconnection response was not received before the Citrix client abandoned the attempt.

### Script Commands:

CitrixUninit

CtxDisconnect

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_ERROR\_00022

The keyboard input is not correct.

### Description:

The keyboard input is not correct for the keyboard locale on the replay machine.

### Script Commands:

CtxType

CtxTypeVK

### Causes:

The Citrix server could not process the keyboard entry made for the keyboard locale for the Citrix server.

### Actions:

- ! Ensure the Citrix server is using the same keyboard locale as the Citrix client.
- ! Ensure the keyboard locale of the server has not changed since the script was recorded.

### External Sources:

None

## CTX\_ERROR\_00023

The call to the Citrix API to move the mouse failed.

### Description:

The call to the Citrix API returned a failure and could not perform the mouse move action.

### Script Commands:

`CtxMouseMove`

### Causes:

- ! The API call is to an invalid or non-existent window.
- ! The move coordinates are not valid for the Citrix desktop.

### Actions:

Add a call to the script to see that the window exists. Refer to [Handling Dynamic Windows](#).

### External Sources:

None

## CTX\_ERROR\_00024

The call to the Citrix API to perform a mouse click action failed.

### Description:

The call to the Citrix API returned a failure and could not perform the mouse click action.

### Script Commands:

`CtxClick`

`CtxDoubleClick`

### Causes:

- ! The API call is to an invalid or non-existent window.
- ! The mouse is not over the window specified in the API call.

### Actions:

- ! Add a call to the script to see that the window exists. Refer to [Handling Dynamic Windows](#).
- ! Add a mouse move action prior to the mouse click call that places the coordinates in the correct location for the mouse click action.

### External Sources:

None

## CTX\_ERROR\_00025

The call to the Citrix API to perform a ping action failed.

### Description:

The call to the Citrix API returned a failure and could not perform the ping action.

### Script Commands:

CtxPing

### Cause:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_ERROR\_00026

The call to the Citrix API to perform a ping action timed out.

### Description:

The Citrix API call to perform the ping action did not receive a response from the server within the timeout specified in the script and/or the Citrix options.

### Script Commands:

CtxPing

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_ERROR\_00027

The call to the Citrix API to perform a ping action was abandoned by the Citrix client.

### Description:

The Citrix API call to perform the ping action did not receive a response from the server.

### Script Commands:

CtxPing

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_ERROR\_00028

The window specified in the API call does not exist.

### Description:

The window specified as a parameter to the API call has not been created or has been destroyed and the API call cannot perform the action.

### Script Commands:

CtxTypeVK	CtxKeyDown	CtxMouseDown
CtxType	CtxKeyUp	CtxMouseUp
CtxClick	CtxDoubleClick	

### Causes:

- ! The API call is to an invalid or non-existent window.
- ! The window has not been created yet or has been destroyed.

### Actions:

Add a call to the script to see that the window exists. Refer to [Handling Dynamic Windows](#).

### External Sources:

None

## CTX\_ERROR\_00029

The Citrix API is not able to process the host address.

### Description:

The Citrix API call returned an error when processing the host address.

### Script Commands:

CtxConnect

### Causes:

The host address specified in the API call is not a valid Citrix server.

**Actions:**

Ensure that the host address specified in the CtxConnect call is valid.

**External Sources:**

None

**CTX\_ERROR\_00030**

The Citrix COM object is unable to free the marshaled data for the session.

**Description:**

The Citrix client was unable to free the COM session data. This is usually due to a problem with the Citrix COM client.

**Script Commands:**

CtxConnect

**Causes:**

- ! The client machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

**Actions:**

- ! Verify that the client machine has sufficient resources.
- ! Verify the integrity of the client machine installations.

**External Sources:**

None

**CTX\_ERROR\_00031**

The Citrix client cannot send the key press to the specified window.

**Description:**

The Citrix client returned an error when it tried to send the key to the window in the KeyPress API call.

**Script Commands:**

CtxType

#### Causes:

- ! The key press event does not have a window to process the event.
- ! The specified key is invalid.

#### Actions:

Ensure that the correct key code is used for the keyboard settings used by the client.

#### External Sources:

None

## CTX\_ERROR\_00032

The Citrix client cannot send the key down to the specified window.

#### Description:

The Citrix client returned an error when it tried to send the key down to the window in the KeyDown API call.

#### Script Commands:

`CtxKeyDown`

#### Causes:

- ! The key down event does not have a window to process the event.
- ! The specified key is invalid.

#### Actions:

Ensure that the correct key code is used for the keyboard settings used by the client.

#### External Sources:

None

## CTX\_ERROR\_00033

The Citrix client cannot bring the window to the foreground.

#### Description:

The Citrix client returned an error from the call to bring the specified window to the foreground.



### Script Commands:

CtxTypeVK    CtxKeyDown    CtxMouseDown  
CtxType    CtxKeyUp    CtxMouseUp  
CtxClick    CtxDoubleClick

### Causes:

- ! The window specified does not exist.
- ! The window could not be brought to the foreground because a modal window is waiting for an event.

### Actions:

Ensure that there isn't a window waiting for an event at this point in the script. If so, insert script commands to process that window prior to this call.

### External Sources:

None

## CTX\_ERROR\_00034

The Citrix client timed out waiting for a CreateWindow event.

### Description:

The Citrix client did not receive a CreateWindow event for the specified window within the time allocation value specified in the script and/or the Citrix options.

### Script Commands:

### Causes:

- ! The specified window is created intermittently during the Citrix session.
- ! Another window did not get an event processed and as a result, this window create event did not occur.

### Actions:

Validate the script to see that the window is created consistently at this point in the script. If not, add script commands to conditionally check for the window creation event. Refer to [Handling Dynamic Windows](#).

### External Sources:

None

## CTX\_ERROR\_00035

The Citrix client timed out waiting for a DestroyWindow event.

### Description:

The Citrix client did not receive a DestroyWindow event for the specified window within the time allocation value specified in the script and/or the Citrix options.

### Script Commands:

`CtxWaitForWindowDestroy`

### Causes:

- ! The specified window is created intermittently during the Citrix session.
- ! Another window did not get an event processed and as a result, this window destroy event did not occur.

### Actions:

Validate the script to see that the window is created consistently at this point in the script. If not, add script commands to conditionally check for the window creation event.

### External Sources:

None

## CTX\_ERROR\_00036

The Citrix client timed out waiting for the specified event.

### Description:

The Citrix client was not notified of this event for the specified window within the time allocation value specified in the script and/or the Citrix options.

### Script Commands:

<code>CtxWaitForWindowCreate</code>	<code>CtxWaitForWindowMove</code>
<code>CtxWaitForWindowDestroy</code>	<code>CtxWaitForWindowResize</code>
<code>CtxWaitForWindowEventExists</code>	<code>CtxWaitForWindowStyleChange</code>
<code>CtxWaitForCaptionChange</code>	<code>CtxWaitForScreenUpdate</code>

## CtxWaitForWindowMinimize

### Causes:

- ! The specified window is created intermittently during the Citrix session.
- ! Another window did not get an event processed and as a result this window destroy event did not occur.

### Actions:

Validate the script to see that the window is created consistently at this point in the script and that the session state is consistent with the event actions. If not, add script commands to ensure the session state is consistent with the expected event. Refer to [Handling Dynamic Windows](#).

### External Sources:

None

## CTX\_ERROR\_00037

The Citrix client terminated unexpectedly.

### Description:

The Citrix client has unexpectedly terminated for an unknown reason and the script cannot process commands.

### Script Commands:

CtxWaitForWindowCreate	CtxWaitForWindowMove
CtxWaitForWindowDestroy	CtxWaitForWindowResize
CtxWaitForWindowEventExists	CtxWaitForWindowStyleChange
CtxWaitForCaptionChange	CtxWaitForScreenUpdate
CtxWaitForWindowMinimize	

### Causes:

- ! The replay machine is low on resources.
- ! The network could not process the traffic from the client to the server.
- ! The replay machine is in an unknown state.

### Actions:

- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.

- ! Ensure the replay machine is in a functional state. Reboot if necessary.

#### External Sources:

None

## CTX\_ERROR\_00038

The Citrix client cannot marshal the session resources.

#### Description:

The Citrix COM client could not allocate the marshal resources to process session objects and events.

#### Script Commands:

CitrixInit

#### Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

#### Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

#### External Sources:

None

## CTX\_ERROR\_00039

The Citrix client cannot marshal the keyboard resources.

#### Description:

The Citrix COM client could not allocate the marshal resources to process keyboard objects and events.

#### Script Commands:

CtxWaitForWindowCreate            CtxWaitForWindowMove  
CtxWaitForWindowDestroy        CtxWaitForWindowResize

CtxWaitForWindowEventExists   CtxWaitForWindowStateChange  
CtxWaitForCaptionChange       CtxWaitForScreenUpdate  
CtxWaitForWindowMinimize

#### Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

#### Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

#### External Sources:

None

## CTX\_ERROR\_00040

The Citrix client cannot marshal the mouse resources.

#### Description:

The Citrix COM client could not allocate the marshal resources to process mouse objects and events.

#### Script Commands:

CitrixInit

#### Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

#### Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

### External Sources:

None

## CTX\_ERROR\_00041

The player cannot register with the Citrix client for session event messages.

### Description:

The call to the Citrix client to register for session events failed.

### Script Commands:

CitrixInit

### Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

### Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

### External Sources:

None

## CTX\_ERROR\_00042

The player cannot register with the Citrix client for keyboard event messages.

### Description:

The call to the Citrix client to register for keyboard events failed.

### Script Commands:

CitrixInit

### Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

**Actions:**

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

**External Sources:**

None

**CTX\_ERROR\_00043**

The player cannot register with the Citrix client for mouse event messages.

**Description:**

The call to the Citrix client to register for mouse events failed.

**Script Commands:**

CitrixInit

**Causes:**

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

**Actions:**

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

**External Sources:**

None

**CTX\_ERROR\_00044**

The player cannot set the connect event with the Citrix client.

**Description:**

The call to the Citrix client to register for the connection event failed.

## Script Commands:

CitrixInit

## Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

## Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. (Reboot if necessary)

## External Sources:

None

## CTX\_ERROR\_00045

The player cannot set the ping event with the Citrix client.

## Description:

The call to the Citrix client to register for the ping event failed.

## Script Commands:

CtxPing

## Causes:

- ! QALoad or the Citrix client are not installed properly.
- ! The replay machine is not in a consistent state.

## Actions:

- ! Ensure the integrity of the QALoad and Citrix client installations.
- ! Ensure the replay machine has sufficient resources to replay the number of virtual users.
- ! Ensure the replay machine is in a functional state. Reboot if necessary.

## External Sources:

None



## CTX\_ERROR\_00046

The Citrix client cannot connect to the Citrix server.

### Description:

The call to initiate a connection with the Citrix server failed.

### Script Commands:

`CtxConnect`

### Causes:

- ! The host address specified in the API call is not a valid Citrix server.
- ! The Citrix server is not available.

### Actions:

Ensure that the parameters passed to the `CtxConnect` call are correct.

### External Sources:

None

## CTX\_ERROR\_00047

The Citrix client cannot disconnect from the Citrix server.

### Description:

The call to disconnect from the Citrix server failed.

### Script Commands:

`CtxDisconnect`

### Causes:

The Citrix server is not processing requests from the Citrix client.

### Actions:

Ensure that the Citrix server is up and able to process requests.

### External Sources:

None

## CTX\_ERROR\_00048

The Citrix client cannot log on to the Citrix server.

### Description:

The Citrix client failed to log on to the Citrix server.

### Script Commands:

CtxConnect

### Causes:

The username or password set for the session are not valid for the Citrix server.

### Actions:

- ! Ensure the username and password are correct for the Citrix server.
- ! Ensure the Citrix server can accept new sessions.

### External Sources:

None

## CTX\_ERROR\_00049

The Citrix client cannot log off the Citrix server.

### Description:

The Citrix client failed to log off the Citrix server.

### Script Commands:

CtxConnect

### Causes:

The Citrix server is not processing requests from the Citrix client.

### Actions:

Ensure that the Citrix server is up and able to process requests.

### External Sources:

None

## CTX\_ERROR\_00050

The ICA file specified in the script is not valid.

### Description:

The Citrix client could use the specified ICA to connect and log on to the Citrix server.

### Script Commands:

CtxConnect

### Causes:

The wrong ICA file was specified, or the specified file is not a valid ICA file.

### Actions:

- ! Ensure that the ICA file is correct in the script.
- ! Verify the ICA file is correct by connecting to the Citrix server using that file in Citrix Neighborhood.

### External Sources:

None

## CTX\_Error\_00060

The Citrix client has already disconnected, so the statement could not be executed.

### Description:

The Citrix client has already disconnected from the server, so the action cannot be performed.

### Script Commands:

CtxWaitForWindowCreate	CtxKeyDown
CtxWaitForWindowDestroy	CtxKeyUp
CtxWaitForWindowActivate	CtxTypeVK
CtxWaitForCaptionChange	CtxType
CtxWaitForWindowMinimize	CtxMouseDown
CtxWaitForWindowMove	CtxMouseUp

[CtxWaitForWindowResize](#)      [CtxClick](#)  
[CtxWaitForWindowStyleChange](#)   [CtxDoubleClick](#)  
[CtxWaitForScreenUpdate](#)

#### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.
- ! The script may have disconnected as a result of a change in behavior from the recorded session.

#### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

#### External Sources:

None

## CTX\_ERROR\_00061

The Citrix COM object is unable to free the marshaled data for the keyboard.

#### Description:

The Citrix client was unable to free the COM keyboard data. This is usually due to a problem with the Citrix COM client.

#### Script Commands:

[CtxConnect](#)

#### Causes:

- ! The client machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

#### Actions:

- ! Verify the client machine has sufficient resources.
- ! Verify the integrity of the client machine installations.

### External Sources:

None

## CTX\_ERROR\_00062

The Citrix COM object is unable to free the marshaled data for the mouse.

### Description:

The Citrix client is unable to free the COM mouse data. This is usually due to a problem with the Citrix COM client.

### Script Commands:

CtxConnect

### Causes:

- ! The client machine is low on resources.
- ! Windows installation on the replay machine is incorrect.

### Actions:

- ! Verify the client machine has sufficient resources.
- ! Verify the integrity of the client machine installations.

### External Sources:

None

## CTX\_ERROR\_00063

Bitmap timeout expired in CtxWaitForFullBitmap or CtxWaitForPartialBitmap. Bitmap title: <title\_string>.

### Description:

The Citrix client did not find a full-screen or partial-screen bitmap matching the specified bitmap hashcode within the time specified in the script or the Citrix convert options. The title of the bitmap image appears in the error message.

### Script Commands:

CtxWaitForFullBitmap

CtxWaitForPartialBitmap

### Causes:

Visible differences between the current window or windows on the Citrix session replay image and the identified bitmap are preventing a successful match.

### Actions:

- ! Examine the bitmap image file. The title of the bitmap is identified in the error message. The QALoad Citrix capture process retains full-screen and partial-screen bitmap images. These are located in the directory with the script name in the appropriate captures directory, either Middlewares/Citrix/Captures or Middlewares/Universal/Captures. Any difference between the bitmap image and the Citrix session replay image causes the bitmap hashcodes not to match. Common differences include:
  - o highlighted (underlined/bold/colored) vs. un-highlighted text in window contents, buttons, and menus
  - o dynamic/smart menus that vary based upon recent user activity
  - o windows or controls that have been moved or resized since the capture. Note that unlike the Citrix window waitpoints, which match a window by title even when it has been resized or moved on the screen, bitmap waitpoints are sensitive to the slightest difference in the replay image.
- ! Validate the script to see the actual screen image at this point in the script. If there are differences with the bitmap identified in the error message, you must perform a new capture to create a new full-screen or partial-screen waitpoint that you can insert in the current script.
- ! If the observed differences are due to window creation or other events that can vary during a Citrix script, add script commands that conditionally check for the existence of the bitmap (CtxFullBitmapExists or CtxPartialBitmapExists) or window creation event. For more information, see [Handling Dynamic Windows](#).

### External Sources:

None

## CTX\_ERROR\_00064

Invalid output mode value. Allowed values: 0-3

### Description:

The Citrix session failed before attempting connection to the Citrix server because the value provided for the Citrix output mode is invalid.

### Script Commands:

`CtxSetOutputMode`

### Causes:

The script has been manually modified since being created from a Citrix capture file and an invalid Citrix output mode value was inserted.

### Actions:

The output mode value is generated in a Citrix script using the output mode value you select in Replay output in QALoad Workbench>Options> Convert. and should not be modified.

Possible values are:

- ! Normal
- ! Renderless
- ! Windowless

Possible values for Windowless and Renderless are listed in the file CitrixDecl.h in the directory QALoad/WinCDev

 Note: The value zero (0) is reserved by the Citrix ICA client software and should not be used.

### External Sources:

None

## CTX\_WARNING\_00051

The Citrix client cannot disconnect to the server in the time specified in the Citrix options.

### Description:

The connection was not closed in the time interval specified in the script and/or the Citrix options dialog.

### Script Commands:

CtxDisconnect

### Causes:

- ! The Citrix server went offline due to a server error and could not drop the connection.
- ! The timeout specified in the script or in the Citrix options dialog is too low.

### Actions:

- ! Ensure that the Citrix server is functional.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_WARNING\_00052

The call to the Citrix API disconnect event was abandoned.

### Description:

The disconnection response was not received before the Citrix client abandoned the attempt.

### Script Commands:

`CtxDisconnect`

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.

### External Sources:

None

## CTX\_WARNING\_00053

The Citrix client cannot log off the Citrix server.

### Description:

The Citrix client failed to log off the Citrix server.

### Script Commands:

`CtxDisconnect`

### Causes:

The Citrix server is not processing requests from the Citrix client.

### Actions:

Ensure that the Citrix server is up and able to process requests.

### External Sources:

None



## CTX\_WARNING\_00054

The call to the Citrix API disconnect event was abandoned.

### Description:

The disconnection response was not received before the Citrix client abandoned the attempt.

### Script Commands:

CtxDisconnect

### Causes:

- ! The Citrix server is not online and receiving connections.
- ! The network is too slow to allow communication with the client.

### Actions:

- ! Ensure that the Citrix server is available.
- ! Ensure the network is not overloaded with other traffic.


### External Sources:

None

## Oracle Forms Server

### Oracle Forms Server Playback Error Codes

QALoad displays error codes during playback for specific exception messages. While debugging, refer to the table below for error codes and descriptions that apply to Oracle Forms Server scripts.

 Note: Most of the errors listed below are client request errors related to JMM memory issues. When the error is due to a server problem, the error message indicates a connection issue or a bad response from the server. All these errors cause playback to fail. When the error is client-related, you can work around the JMM memory issue by tweaking the Player machine's Threads Per Player value in QALoad Conductor. When the error is server-related, the server is unable to handle the load. The server typically throws out connection requests, does not respond to requests, or terminates connections during playback.

Error code	Description
OFS_ERROR_00001	Failed to allocate buffer for installation path
OFS_ERROR_00002	Failed to load loadplayer.java.dll
OFS_ERROR_00003	Exception in function <function >: <exception>
OFS_ERROR_00004	Failed to send a heartbeat message
OFS_ERROR_00005	Script JRE version {} is not supported by the OFSMiddleware
OFS_ERROR_00006	No compatible JRE for script using {} detected on Player machine
OFS_ERROR_00101	Unable to connect to server
OFS_ERROR_00102	Unable to communicate with server
OFS_ERROR_00103	Unable to disconnect
OFS_ERROR_00104	OracleAppsLogin: Error: icx_ticket not found in OracleAppsLogin, please check URL, userID and password
OFS_ERROR_00105	Connection terminated by server
OFS_ERROR_00106	Server did not return the encryption keys
OFS_ERROR_00107	Server reply data is invalid
OFS_ERROR_00108	Failed to get the content length of the POST request
OFS_ERROR_00109	Failed to get the reply content
OFS_ERROR_00110	Invalid URL
OFS_ERROR_00111	Failed to store data from the server reply
OFS_ERROR_00112	The server sent an error message

OFS_ERROR_00113	Failed while reading the server reply
OFS_ERROR_00114	SSL Handshake failed
OFS_ERROR_00115	Failed to close SSL socket
OFS_ERROR_00116	Failed while processing server detail message. Unknown control handle
OFS_ERROR_00117	ICX Ticket not found in OracleAppsLogin
OFS_ERROR_00118	Failed to load loadplayerJava library at startup
OFS_ERROR_00119	Failed to create the replay log file
OFS_ERROR_00120	Unable to write to replay capture file
OFS_ERROR_00121	JVM memory issues
OFS_ERROR_00122	Invalid argument: {}
OFS_ERROR_00123	Internal error

## OFS\_ERROR\_00001

Failed to allocate buffer for installation path.

### Description:

The QALoad Player ran out of memory during test initialization.

### Script Commands:

N/A

### Causes:

The replay machine is low on resources (memory).

### Actions:

Verify the client machine has sufficient resources.

### External Sources:

None

## OFS\_ERROR\_00002

Failed to load loadplayerJava.dll

### Description:

OFSreplay was unable to load QALoad dll loadplayer.java.

### Script Commands:

ofsSetRunOptions

### Causes:

The dll is missing or corrupt.

### Actions:

Verify the QALoad installation was successful and re-install if not.

### External Sources:

None

## OFS\_ERROR\_00003

Exception in function {}: {}

### Description:

An unhandled exception was encountered in the specified function.

### Script Commands:

All

### Causes:

An exception was not caught by the OFSmiddleware.

### Actions:

See addition information provided with this message.

### External Sources:

None

## OFS\_ERROR\_00004

Can not find method {}

**Description:**

OFSreplay is unable to find the Java method specified.

**Script Commands:**

All

**Causes:**

A problem occurred with the JNI bridge.

**Actions:**

Verify the QALoad installation was successful and re-install if not.

**External Sources:**

None

**OFS\_ERROR\_00005**

Script JRE version {} is not supported by the OFSmiddleware.

**Description:**

Script JRE version {} is not supported by the OFSmiddleware.

**Script Commands:**

None

**Causes:**

The JRE used to validate the script is not supported by the OFSmiddleware.

**Actions:**

Verify that a supported JRE is installed on the Workbench machine.

**External Sources:**

None

**OFS\_ERROR\_00006**

No compatible JRE for script using {} detected on Player machine.

### Description:

No compatible JRE for script using {} detected on Player machine.

### Script Commands:

None

### Causes:

The JRE used to validate the script is not compatible with the JRE(s) available on the Player machine.

### Actions:

- ! Verify that a supported JRE is installed on the Workbench machine.
- ! Verify that the JRE available on the Player machine is the same as, or greater than, the version used by the Workbench during script validation.

### External Sources:

None

## OFS\_ERROR\_00101

Unable to connect to server.

### Description:

Unable to open a connection to the server.

### Script Commands:

ofsHTTPDisconnect	ofsHTTPInitialFormsConnect
ofsHTTPConnectToFormsServlet	ofsSendRecv
ofsHTTPConnectToListenerServlet	ofsConnectToSocket

### Causes:

The server may have a problem

### Actions:

- ! Check the URL and its parameters.
- ! Ensure server is working properly.

### External Sources:

None

## OFS\_ERROR\_00102

Unable to communicate with server.

### Description:

Unable to communicate with server on existing connection.

### Script Commands:

<code>ofsSendRecv</code>	<code>ofsHTTPConnectToFormsServlet</code>
<code>ofsSetServletMode</code>	<code>ofsHTTPConnectToListenerServlet</code>
<code>ofsConnectToSocket</code>	<code>ofsHTTPInitialFormsConnect</code>

### Causes:

If the URL is valid, the server is not accepting new connections.

### Actions:

Check the URL.

### External Sources:

None

## OFS\_ERROR\_00103

Unable to disconnect.

### Description:

Disconnecting from the server failed.

### Script Commands:

<code>ofsSocketDisconnect</code>
<code>ofsHTTPDisconnect</code>
<code>ofsServerSideDisconnect</code>

#### Causes:

The connection to the server may have a problem.

#### Actions:

Ensure server is configured and working properly.

#### External Sources:

None

## OFS\_ERROR\_00104

Failed to send a heartbeat message.

#### Description:

Sending heartbeat message to the server failed.

#### Script Commands:

`ofsConnectToSocket`

#### Causes:

The connection to the server may have a problem.

#### Actions:

Ensure server is working properly.

#### External Sources:

None

## OFS\_ERROR\_00105

Connection terminated by server.

#### Description:

The server has closed the connection.

#### Script Commands:

`ofsHTTPConnectToFormsServlet`      `ofsHTTPInitialFormsConnect`



`ofsHTTPConnectToListenerServlet` `ofsSendRecv`

**Causes:**

The connection to the server may have a problem.

**Actions:**

Ensure server is working properly.

**External Sources:**

None

## OFS\_ERROR\_00106

Server did not return the encryption keys.

**Description:**

Server did not return the encryption keys for the first Post request.

**Script Commands:**

`ofsHTTPInitialFormsConnect`

**Causes:**

Forms Server is not accepting new connections.

**Actions:**

Ensure server is working properly.

**External Sources:**

None

## OFS\_ERROR\_00107

Server reply data is invalid.

**Description:**

Server reply data is invalid.

### Script Commands:

`ofsSendRecv`

### Causes:

- ! The connection to the server may have a problem.
- ! If the Java msg displayed is null, server has terminated this Forms session.

### Actions:

Ensure server is working properly.

### External Sources:

None

## OFS\_ERROR\_00108

Failed to get the content length of the POST request.

### Description:

Unable to find the content length HTTP header for the POST request being processed.

### Script Commands:

`ofsSendRecv`

### Causes:

The connection to the server may have a problem.

### Actions:

Ensure server is working properly.

### External Sources:

None

## OFS\_ERROR\_00109

Failed to get the reply content.

### Description:

Failed to get the reply content.

**Script Commands:**

ofsHTTPConnectToFormsServlet  
ofsHTTPConnectToListenerServlet

**Causes:**

The URL is invalid.

**Actions:**

Check the URL.

**External Sources:**

None

**OFS\_ERROR\_00110**

Invalid URL: {}

**Description:**

The URL in use is not a valid URL.

**Script Commands:**

ofsHTTPDisconnect	ofsHTTPInitialFormsConnect
ofsHTTPConnectToFormsServlet	ofsSendRecv
ofsHTTPConnectToListenerServlet	

**Causes:**

The URL is malformed.

**Actions:**

Check the URL specified.

**External Sources:**

None

**OFS\_ERROR\_00111**

Failed to store data from the server reply.

### Description:

Failed to store data from the server reply.

### Script Commands:

`ofsSendRecv`

### Causes:

The connection to the server may have a problem.

### Actions:

Ensure server is working properly.

### External Sources:

None

## OFS\_ERROR\_00112

Failed because the server sent this error message: {}

### Description:

Server sent error message having a error code prefix of ORA-, FRM-, or APP-

### Script Commands:

`ofsSendRecv`

### Causes:

The server encountered an error.

### Actions:

Review the Oracle error message specified and determine what action should be taken.

### External Sources:

None

## OFS\_ERROR\_00113

Failed while reading the server reply.

**Description:**

Failed while reading the server reply.

**Script Commands:**

ofsHTTPConnectToFormsServlet

ofsSendRecv

**Causes:**

The connection to the server may have a problem.

**Actions:**

Ensure server is working properly.

**External Sources:**

None

**OFS\_ERROR\_00114**

SSL Handshake failed.

**Description:**

The SSL handshake failed.

**Script Commands:**

ofsHTTPConnectToFormsServlet

**Causes:**

The connection to the server may have a problem.

**Actions:**

- ! Ensure server is working properly.
- ! Check client side SSL credentials.

**External Sources:**

None

## OFS\_ERROR\_00115

Failed to close socket.

### Description:

Unable to close socket.

### Script Commands:

`ofsSocketDisconnect`

`ofsHTTPDisconnect`

### Causes:

The connection to the server may have a problem.

### Actions:

Ensure server is working properly.

### External Sources:

None

## OFS\_ERROR\_00116

Failed while processing server detail message. Unknown control handle.

### Description:

An internal error occurred while attempting to process an unknown control handle.

### Script Commands:

`ofsSendRecv`

### Causes:

An unknown control handle was received from the server.

**Actions:**

**External Sources:**

## OFS\_ERROR\_00117

ICX Ticket not found in OracleAppsLogin.

**Description:**

Unable to find ICX ticket.

**Script Commands:**

OracleAppsLogin

**Causes:**

The icx\_ticket was not found in OracleAppsLogin.

**Actions:**

Check URL, user id, and password.

**External Sources:**

None

## OFS\_ERROR\_00118

Failed to load loadplayerJava library at startup.

**Description:**

Unable to load loadplayerJava DLL

**Script Commands:**

OracleAppsLogin

**Causes:**

Loading the library failed.

**Actions:**

Ensure that the file loadplayerjava.dll exists in the QALoad folder and that the file permissions are correct.

### External Sources:

None

## OFS\_ERROR\_00119

Failed to create the replay capture file.

### Description:

OFSmiddleware was unable to open the replay capture file.

### Script Commands:

`ofsSetRunOptions`

### Causes:

- ! The user may not have write permission to LogFiles folder.
- ! The system may have run out of file descriptors.

### Actions:

- ! Ensure that the user has write permission to LogFiles folder.
- ! Limit the number of VUs that are attempting to open replay capture files.

### External Sources:

None

## OFS\_ERROR\_00120

Unable to write to replay capture file.

### Description:

Unable to write to the replay capture file.

### Script Commands:

`ofsHTTPConnectToFormsServlet`      `ofsHTTPInitialFormsConnect`  
`ofsHTTPConnectToListenerServlet`      `ofsSendRecv`

### Causes:

Unable to write to replay capture file.



**Actions:**

Ensure that proper permissions for the file and log files exist.

**External Sources:**

None

**OFS\_ERROR\_00121**

JMM memory issues.

**Description:**

JMM memory issues.

**Script Commands:**

<code>ofsSendRecv</code>	<code>ofsHTTPConnectToListenerServlet</code>
<code>ofsHTTPConnectToFormsServlet</code>	<code>ofsHTTPInitialFormsConnect</code>

**Causes:**

The JVM may be out of memory.

**Actions:**

See additional information for more details.

**External Sources:**

None

**OFS\_ERROR\_00122**

Invalid argument: {}

**Description:**

An argument specified in the QALoad script command is not valid.

**Script Commands:**

<code>ofsSendRecv</code>	<code>ofsTabControlTopPage</code>
<code>ofsScroll</code>	<code>ofsLOVSelection</code>
<code>ofsScrollSize</code>	<code>ofsSetCursorPosition</code>

[ofsSetValue](#)

[ofsSetRunOptions](#)

#### Causes:

The argument specified is not valid for the script command.

#### Actions:

Check the arguments to the script command that failed.

#### External Sources:

None

## OFS\_ERROR\_00123

Internal error

#### Description:

An error has occurred that was caught.

#### Script Commands:

All

#### Causes:

An error occurred.

#### Actions:

see additional information for more details.

#### External Sources:

None

# SAP

## SAP Playback Error Codes

QALoad displays error codes during playback for specific exception messages. While debugging, refer to the table below that lists error codes and descriptions that apply to SAPscripts.

Error code	Description
SAP_ERROR_00001	SAPGui: Failure connecting to <SAP server name>
SAP_ERROR_00002	SAP: CheckScreen match failure! Expected: <OK code> - <screen Name> - <Title> Returned: <OK code> - <screen Name> - <Title>
SAP_WARNING_00100	Statusbar = <status bar value>
SAP_WARNING_00101	Control <Control type> does not have text property.
SAP_WARNING_00102	String not found in text property: <string>
SAP_WARNING_00103	String not found in text property between: <left string> and <right string>
SAP_WARNING_00104	Content check failed, the <content> received from server does not match the expected content.
SAP_WARNING_00105	Generic exception: <Exception>

### SAP\_ERROR\_00001

The SAPGUI client cannot connect to the specified server.

#### Description:

The SAPGUI client did not return an event indicating that the connection to the SAP server was successful.

#### Script Commands:

SAPGuiConnect

#### Causes:

- ! The SAP server is not accepting connections.
- ! The network latency is too great due to excessive traffic.
- ! The client machine is low on resources.

### Actions:

- ! Ensure the SAP server is available and able to accept connections.
- ! Ensure the network is not overloaded with other traffic.
- ! Ensure the client machine has adequate resources.

### External Sources:

None

## SAP\_ERROR\_00002

The SAPGUI client found that a different window was displayed than during the record session.

### Description:

The SAPGUI client found that the active window displayed at replay did not match the screen name, title, and OK code captured during the record session.

### Script Commands:

SAPGuiCheckScreen

### Causes:

The SAP server configuration changed so that there is unexpected script behavior.

### Actions:

- ! Modify the script to accommodate the new server behavior.
- ! Record a new script that follows the current server responses to events in the application

### External Sources:

None

## SAP\_WARNING\_00100

An unexpected value is displayed in the status bar.

### Description:

The SAPGuiCheckStatusBar function returned a different value for the status bar contents than the one captured during the record session.


### Script Commands:

### Causes:

The SAP server configuration changed so that there is unexpected script behavior.

### Actions:

No actions are required.

 Note: This may show that there have been changes to the SAP environment since the recorded session that may affect replay.

### External Sources:

None

## SAP\_WARNING\_00101

The control does not have a text property.

### Description:

The control type does not have a text property.

### Script Commands:

SAPGuiGetUniqueString    SAPGuiContentCheck

SAPGuiGetControlText

### Causes:

- ! The SAP control does not have text property.
- ! The SAP control has text property, but it is empty (for example, toolbar buttons).

### Actions:

Change the SAP control to call the script commands.

### External Sources:

None

## SAP\_WARNING\_00102

The string was not found in the text property.

### Description:

The input string cannot be found in the control's text property.

### Script Commands:

SAPGuiGetUniqueString

### Causes:

- ! An invalid value passed as the third or fourth parameter to SAPGuiGetUniqueString.
- ! The SAP session changed its behavior from the time the session was recorded.

### Actions:

Modify the third or fourth parameter of the SAPGuiGetUniqueString call.

### External Sources:

None

## SAP\_WARNING\_00103

The string cannot be extracted from the control's text property.

### Description:

The string between the input left string and input right string cannot be found in the control's text property.

### Script Commands:

SAPGuiGetUniqueString

### Causes:

- ! An invalid value was passed as the third and fourth parameter to SAPGuiUniqueString.
- ! The SAP session changed its behavior from the time the session was recorded.

### Actions:

Modify the third and fourth parameters of the SAPGuiGetUniqueString call.

### External Sources:

None

## SAP\_WARNING\_00104

Content check failed.

### Description:

The content received from the SAP server does not match the expected content.

### Script Commands:

SAPGuiContentCheck

### Causes:

- ! An invalid value passed as the third parameter to SAPGuiContentCheck.
- ! The SAP session changed its behavior from the time the session was recorded.

### Actions:

- ! Modify the third parameter of the SAPGuiContentCheck call to the expected content.
- ! Record another session to get the SAP site's current behavior.

### External Sources:

None

## SAP\_WARNING\_00105

An exception occurred during the processing of the SAP scripting API call.

### Description:

An exception was thrown while processing the API call. The error string indicated the nature of the exception thrown.

### Script Commands:

SAPGuiGetUniqueString    SAPGuiContentCheck

SAPGuiGetControlText

### Causes:

- ! Invalid values passed as parameters to the script commands.
- ! An unexpected condition resulted while executing the script.

### Actions:

- ! Modify the parameters of the commands.
- ! Contact [QALoad Technical Support](#) if no cause can be found

### External Sources:

None



# Winsock

## Winsock Playback Error Codes

QALoad displays error codes during playback for specific exception messages. While debugging, refer to the table below for error codes and descriptions that apply to Winsock scripts.

Error code	Description
WSK_ABORT_00001	ERROR with ACE_Thread::getspecific, TLS is NULL!
WSK_ABORT_00002	VUser Crashed in the WSK Middleware. VUser id: <task_id>
WSK_ERROR_00003	Connection handle greater than allowed maximum. Connection handle: <Connect Handle>, allowed maximum open connection: <maximum value>
WSK_ERROR_00004	Connection handle appears not to be in use. Connection handle: <connection handle>
WSK_ERROR_00005	Connection handle appears to already be in use. Connection handle: <connection handle>
WSK_ABORT_00006	Out of memory!
WSK_ERROR_00007	Unable to create socket. Error: <socket error number>
WSK_ERROR_00008	<Address> is not a legitimate Internet address
WSK_ERROR_00009	Unable to connect. Error: <socket error number>
WSK_ABORT_00010	Input buffer set to NULL
WSK_ABORT_00011	Invalid value in input buffer
WSK_ABORT_00012	Invalid number of characters in buffer
WSK_ERROR_00013	Failed to call send function. Error: <socket error number>
WSK_ERROR_00014	Failed to call sendto function. Error: <socket error number>
WSK_ERROR_00015	Failed to call recv function. Error: <socket error number>
WSK_ERROR_00016	Failed to call recvfrom function. Error: <socket error number>
WSK_ERROR_00017	Failed to call closesocket/close function. Error: <socket error number>
WSK_ERROR_00018	Failed to call setsockopt function. Error: <socket error number>
WSK_ERROR_00019	Failed to call getsockname function. Error: <socket error number>
WSK_ERROR_00020	Failed to call bind function. Error: <socket error number>

<a href="#">WSK_ERROR_00021</a>	Failed to call listen function. Error: <socket error number>
<a href="#">WSK_ERROR_00022</a>	Failed to call accept function. Error: <socket error number>
<a href="#">WSK_ERROR_00023</a>	Failed to call select function. Error: <socket error number>
<a href="#">WSK_ERROR_00024</a>	Failed to call ioctlsocket/ioctl function. Error: <socket error number>
<a href="#">WSK_WARNING_00025</a>	Failed to call shutdown function. Error: <socket error number>

## WSK\_ABORT\_00001

ERROR with ACE\_Thread::getspecific, TLS is NULL!

### Description:

Serious error. Thread local storage (TLS) is NULL.

### Script Commands:

All WSK commands

### Causes:

- ! When allocating thread local memory, insufficient memory exists to associate the value with the key.
- ! ACE Player error.

### Actions:

Severe error. Call Technical Support immediately.

### External Sources:

<ACE library>

ACE\_Thread::getspecific(ACE)thread\_key\_t key, void \*\*valuep)

Stores the current value bound to <key> for the calling thread into the location pointed to by <valuep>.

## WSK\_ABORT\_00002

VUser crashed in the WSK Middleware.

### Description:

Virtual user catches exception, which is in the Winsock (WSK) middleware.

### Script Commands:

All Winsock commands

### Causes:

When C++ exceptions occur in Winsock script, or Winsock script crashes when run in player.

### Actions:

Check Winsock log file to determine which command causes this.

### External Sources:

None

## WSK\_ERROR\_00003

Connection handle greater than allowed maximum.

### Description:

Internal function: CheckValidHandle() generates this error message. Each time a call is made for Sockets library functions, the connection handle is checked. The default Maximum open connection is set at 33.

### Script Commands:

DO_WSK_Socket	DO_WSK_GetSocket	DO_WSK_ExpectAny
DO_WSK_Send	DO_WSK_IsWriteable	DO_WSK_Quiet
DO_WSK_Sendto	DO_WSK_Shutdown	DO_WSK_Setsockopt
DO_WSK_Read	GetRemotePort	DO_WSK_Bind
DO_WSK_Recvfrom	GetRemoteAddr	DO_WSK_Accept
DO_WSK_ExpectExpr	DO_WSK_Connect	DO_WSK_IsReadable
DO_WSK_ExpectAnyExpr	DO_WSK_SendAll	DO_WSK_IoctlSocket
DO_WSK_Closesocket	DO_WSK_Write	GetLocalPort
DO_WSK_Getsockname	DO_WSK_Recv	GetLocalAddr
DO_WSK_Listen	DO_WSK_Expect	

### Causes:

- ! Open too many connects.
- ! Forget to close connect when done.

### Actions:

Check the Winsock log file to determine which command causes this.

### External Sources:

None

## WSK\_ERROR\_00004

Connection handle appears not to be in use.

### Description

Internal function: CheckValidHandle() generates this error message. Each time a call is made for Sockets library functions, the opened connection handle is checked to see if socket is valid. If not, this error message is returned.

### Script Commands:

<a href="#">DO_WSK_Connect</a>	<a href="#">DO_WSK_Send</a>	<a href="#">DO_WSK_SendAll</a>
<a href="#">DO_WSK_Sendto</a>	<a href="#">DO_WSK_Write</a>	<a href="#">DO_WSK_Read</a>
<a href="#">DO_WSK_Recv</a>	<a href="#">DO_WSK_Recvfrom</a>	<a href="#">DO_WSK_Expect</a>
<a href="#">DO_WSK_ExpectAny</a>	<a href="#">DO_WSK_ExpectExpr</a>	<a href="#">DO_WSK_ExpectAnyExpr</a>
<a href="#">DO_WSK_Quiet</a>	<a href="#">DO_WSK_Closesocket</a>	<a href="#">DO_WSK_Setsockopt</a>
<a href="#">DO_WSK_Getsockname</a>	<a href="#">DO_WSK_Bind</a>	<a href="#">DO_WSK_Listen</a>
<a href="#">DO_WSK_Accept</a>	<a href="#">DO_WSK_GetSocket</a>	<a href="#">DO_WSK_IsReadable</a>
<a href="#">DO_WSK_IsWriteable</a>	<a href="#">DO_WSK_Ioctlsocket</a>	<a href="#">DO_WSK_Shutdown</a>
<a href="#">GetLocalPort</a>	<a href="#">GetRemotePort</a>	<a href="#">GetLocalAddr</a>
<a href="#">GetRemoteAddr</a>		

### Causes

Function socket doesn't successfully create a connection handle. When other sockets library functions use this connection handle, this error message occurs.

### Actions:

Check Winsock log file to determine which command causes this.

### External Sources:

None

## WSK\_ERROR\_00005

Connection handle already appears to be in use.

### Description:

Internal function: CheckValidHandle() generates this error message. Each time before a call socket() function is made, CheckValidHandle() checks to see if the connection handle is already used.

### Script Commands:

DO\_WSK\_Socket

### Causes:

Connection handle is already used. Either forget to close it or input wrong connection handle.

### Actions:

Check Winsock log file to get connection handle. Change the first parameter in DO\_WSK\_Socket to try another connection handle in Winsock script.

### External Sources:

None

## WSK\_ABORT\_00006

Out of memory.

### Description:

There is insufficient memory available when allocating memory blocks.

### Script Commands:

EscapeStr	DO_WSK_Send
DO_WSK_Write	DO_WSK_SendAll
DO_WSK_Expect	DO_WSK_Sendto
DO_WSK_ExpectExpr	DO_WSK_Accept
DO_WSK_ExpectAny	ScanExpr
DO_WSK_ExpectAnyExpr	SkipExpr
DO_WSK_Quiet	DO_WSK_Socket
DO_WSK_Read	

**Causes:**

There is insufficient memory available.

**Actions:**

Deallocate or free previously allocated memory block when not in use.

**External Sources:**

None

**WSK\_ERROR\_00007**

Unable to create socket.

**Description:**

Fail to call socket function. Socket function creates a socket that is bound to a specific service provider.

**Script Commands:**

[DO\\_WSK\\_Socket](#)

**Causes:**

[Windows](#)

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSAStartup call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem or the associated service provider has failed.
WSAEAFNOSUPPORT (10047)	The specified address family is not supported.
WSAEINPROGRESS (10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEMFILE (10024)	No more socket descriptors are available.
WSAENOBUFS (10055)	No buffer space is available. The socket cannot be created.
WSAEPROTONOSUPPORT (10043)	The specified protocol is not supported.
WSAEPROTOTYPE (10041)	The specified protocol is the wrong type for this socket.

WSAESOCKTNOSUPPORT (10044)	The specified socket type is not supported in this address family.
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### Solaris

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EACCES(13)	Permission to create a socket of the specified type or protocol is denied.
EMFILE (24)	The per-process descriptor table is full.
ENOMEM (12)	Insufficient user memory is available.
ENOSR(63)	There were insufficient STREAMS resources available to complete the operation.
EPROTONOSUPPORT(120)	The protocol type or the specified protocol is not supported within this domain.

### Linux

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
EPROTONOSUPPORT (93)	The protocol type or the specified protocol is not supported within this domain.
EAFNOSUPPORT(97)	The implementation does not support the specified address family.
ENFILE (23)	Not enough kernel memory to allocate a new socket structure.
EMFILE (24)	Process file table overflow.
EACCES (13)	Permission to create a socket of the specified type or protocol is denied.
ENOBUFS(105) or ENOMEM (12)	Insufficient memory is available. The socket cannot be created until sufficient resources are freed.
EINVAL(22)	Unknown protocol, or protocol family not available.

### Actions:

Check Winsock log file to get error number, then look at above table and find the description.

### External Sources:

None

## WSK\_ERROR\_00008

Input internet address is not a legitimate internet address.

### Description:

QALoad uses function `inet_addr()` to convert a string containing the Internet Protocol dotted address into a proper address. If the string does not contain a legitimate Internet address, QALoad returns this error message.

### Script Commands:

`DO_WSK_Bind`

`DO_WSK_Connect`

`DO_WSK_Sendto`

### Causes:

The string does not contain an Ipv4 legitimate Internet address. For example, if a portion of an "a.b.c.d" address exceeds 255.

### Actions:


Check Winsock log file for errors.

### External sources:

Copy from MSDN: Values specified using the "." notation take one of the following forms: a.b.c.d a.b.c a.b a. When four parts are specified, each is interpreted as a byte of data and assigned, from left to right, to the 4 bytes of an Internet address. When an Internet address is viewed as a 32-bit integer quantity on the Intel architecture, the bytes referred to above appear as "d.c.b.a". That is, the bytes on an Intel processor are ordered from right to left.

The parts that make up an address in "." notation can be decimal, octal, or hexadecimal as specified in the C language. Numbers that start with "0x" or "0X" imply hexadecimal. Numbers that start with "0" imply octal. All other numbers are interpreted as decimal.

Internet address value meaning: "4.3.2.16" Decimal, "004.003.002.020" Octal, "0x4.0x3.0x2.0x10" Hexadecimal, "4.003.002.0x10" mix.

 Note: The following notations are only used by Berkeley, and nowhere else on the Internet. For compatibility with their software, they are supported as specified. When a three-part address is specified, the last part is interpreted as a 16-bit quantity and placed in the right-most 2 bytes of the network address. This makes the three-part address format convenient for specifying Class B network addresses as "128.net.host". When a two-part address is specified, the last part is interpreted as a 24-bit quantity and placed in the right-most 3 bytes of the network address. This makes the two-part address format convenient for specifying Class A network addresses as "net.host". When only one part is given, the value is stored directly in the network address without any byte rearrangement.



## WSK\_ERROR\_00009

Unable to connect.

### Description:

Fail to call connect function. The connect function establishes a connection to a specified socket.

### Script Commands:

`DO_WSK_Connect`

### Causes:

#### Windows

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
WSAEADDRINUSE (10048)	The socket's local address is already in use and the socket was not marked to allow address reuse with <code>SO_REUSEADDR</code> . This error usually occurs when executing <code>bind</code> . It could be delayed until this function if the bind was to a partially wildcard address (involving <code>ADDR_ANY</code> ) and if a specific address needs to be committed at the time of this function.
WSAEINTR (10004)	A blocking Windows Sockets 1.1 call was canceled through <code>WSACancelBlockingCall</code> .
WSAEINPROGRESS (10036)	A blocking Windows Sockets 1.1 call is in progress or the service provider is still processing a callback function.
WSAEALREADY (10037)	A nonblocking connect call is in progress on the specified socket. Note that in order to preserve backward compatibility, this error is reported as <code>WSAEINVAL</code> to Windows Sockets 1.1 applications that link to either <code>Winsock.dll</code> or <code>Wsock32.dll</code> .
WSAEADDRNOTAVAIL (10049)	The remote address is not a valid address (such as <code>ADDR_ANY</code> ).
WSAEAFNOSUPPORT (10047)	Addresses in the specified family cannot be used with this socket.
WSAECONNREFUSED (10061)	The attempt to connect was forcefully rejected.
WSAEFAULT (10014)	The name or the <code>namelen</code> parameter is not a valid part of the user address space; the <code>namelen</code> parameter is too small; or the name

	parameter contains incorrect address format for the associated address family.
WSAEINVAL (10022)	The parameter s is a listening socket.
WSAEISCONN (10056)	The socket is already connected (connection-oriented sockets only).
WSAENETUNREACH (10051)	The network cannot be reached from this host at this time.
WSAENOBUFS	No buffer space is available. The socket cannot be connected.
WSAENOTSOCK (10055)	The descriptor is not a socket.
WSAETIMEDOUT (10060)	Attempt to connect timed out without establishing a connection.
WSAEWOULDBLOCK (10035)	The socket is marked as non-blocking and the connection cannot be completed immediately.
WSAEACCES(10013)	Attempt to connect datagram socket to broadcast address failed because setsockopt option SO_BROADCAST is not enabled.

[Solaris](#)

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EACCES(13)	Search permission is denied for a component of the path prefix of the pathname in name.
EADDRINUSE(125)	The address is already in use.
EADDRNOTAVAIL(126)	The specified address is not available on the remote machine.
EAFNOSUPPORT(124)	Addresses in the specified address family cannot be used with this socket.
EALREADY(149)	The socket is non-blocking and a previous connection attempt has not yet been completed.
EBADF(9)	This is not a valid descriptor.
ECONNREFUSED(146)	The attempt to connect was forcefully rejected. The calling program should close(2) the socket descriptor, and issue another socket(3N) call to obtain a new descriptor before attempting another connect() call.
EINPROGRESS(150)	The socket is non-blocking and the connection cannot be completed immediately. It is possible to select(3C) for completion by selecting the socket for writing. However, this is only possible if the socket STREAMS module is the topmost module on the protocol stack with a write service procedure. This is normally case.
EINTR(4)	The connection attempt was interrupted before any data arrived by the delivery of a signal.
EINVAL(22)	The namelen parameter is not the size of a valid address for the specified

	address family.
EIO(5)	An I/O error occurred while reading from or writing to the file system.
EISCONN(133)	The socket is already connected.
ELOOP(90)	Too many symbolic links were encountered in translating the pathname in name.
ENETUNREACH(128)	The network is not reachable from this host.
ENOENT(2)	A component of the path prefix of the pathname in name does not exist.
ENOENT(2)	The socket referred to by the pathname in name does not exist.
ENOSR(63)	There were insufficient STREAMS resources available to complete the operation.
ENXIO(6)	The server exited before the connection was complete.
ETIMEDOUT(145)	Connection establishment timed out without establishing a connection.
EWOULDBLOCK(11)	The socket is marked as non-blocking, and the requested operation would block.

### Unix

The following errors are specific to connecting names in the UNIX domain.

 Note: These errors may not apply in future versions of the UNIX IPC domain.

Error Code	Description
ENOTDIR(20)	A component of the path prefix of the pathname in name is not a directory.
ENOTSOCK(95)	Name is not a socket.
EPROTOTYPE(98)	The file referred to by name is a socket of a type other than type s (for example, s is a SOCK_DGRAM socket, while name refers to a SOCK_STREAM socket).

### Linux

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	The file descriptor is not a valid index in the descriptor table.
EFAULT(14)	The socket structure address is outside the user's address space.
ENOTSOCK(88)	The file descriptor is not associated with a socket.

EISCONN(106)	The socket is already connected.
ECONNREFUSED(111)	No one listening on the remote address.
ETIMEDOUT(110)	Timeout while attempting connection. The server may be too busy to accept new connections. Note that for IP sockets, the timeout may be very long when syncookies are enabled on the server.
ENETUNREACH(101)	Network is unreachable.
EADDRINUSE(98)	Local address is already in use.
EINPROGRESS(115)	The socket is non-blocking and the connection cannot be completed immediately. It is possible to select(2) or poll(2) for completion by selecting the socket for writing. After select indicates writability, use getsockopt(2) to read the SO_ERROR option at level SOL_SOCKET. This indicates whether connect completed successfully (SO_ERROR is zero) or unsuccessfully. (SO_ERROR is one of the usual error codes listed here, explaining the reason for the failure).
EALREADY(114)	The socket is non-blocking and a previous connection attempt has not yet been completed.
EAGAIN(11)	No more free local ports or insufficient entries in the routing cache. For PF_INET, see the net.ipv4.ip_local_port_range sysctl in ip(7) on how to increase the number of local ports.
EINVAL(97)	The passed address didn't have the correct address family in its sa_family field.
EACCES(13), EPERM(1)	The user tried to connect to a broadcast address without having the socket broadcast flag enabled, or the connection request failed because of a local firewall rule.

### Actions:

Check Winsock log file to get error number, then look at above table and find the description.

### External Sources:

None

## WSK\_ABORT\_00010

Input buffer set to NULL.

### Description:

A pointer to a buffer to be converted by function DO\_WSK\_HexDecode is NULL.

**Script Commands:**

DO\_WSK\_HexDecode

**Causes:**

Improperly handle char type pointer.

**Actions:**

Check Winsock log file for errors.

**External Sources:**

None

**WSK\_ABORT\_00011**

Invalid value in input buffer.

**Description:**

Occurs when DO\_WSK\_HexDecode is called. DO\_WSK\_HexDecode converts hexadecimal characters to binary data suitable for sending to a connection using DO\_WSK\_Write(). If input string is not hexadecimal type data, this error occurs.

**Script Commands:**

DO\_WSK\_HexDecode

**Causes:**

Wrong input string.

**Actions:**

Check Winsock log file for errors.

**External Sources:**

None

**WSK\_ABORT\_00012**

Invalid number of characters in buffer.

### Description:

Occurs when DO\_WSK\_HexDecode is called. DO\_WSK\_HexDecode converts hexadecimal characters to binary data suitable for sending to a connection using DO\_WSK\_Write(). If the number of input bytes is not even, this error occurs.

### Script Commands:

DO\_WSK\_HexDecode

### Causes:

Wrong input string.

### Actions:

Check Winsock log file for errors.

### External Sources:

None

## WSK\_ERROR\_000013

Error during send.

### Description:

Fail to call send function. The send function sends data on a connected socket.

### Script Commands:

DO\_WSK\_Send()

DO\_WSK\_SendAll()

DO\_WSK\_Write()

### Causes:

#### Windows

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSASStartup call must occur before using this function.

WSAENETDOWN (10050)	The network subsystem has failed.
WSAEACCES(10013)	The requested address is a broadcast address, but the appropriate flag was not set. Call <code>setsockopt</code> with the <code>SO_BROADCAST</code> socket option to enable use of the broadcast address.
WSAEINTR (10004)	A blocking Windows Sockets 1.1 call was canceled through <code>WSACancelBlockingCall</code> .
WSAEINPROGRESS (10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEFAULT (10014)	The <code>buf</code> parameter is not completely contained in a valid part of the user address space.
WSAENETRESET (10052)	The connection has been broken due to the keep-alive activity detecting a failure while the operation was in progress.
WSAENOBUFS (10055)	No buffer space is available.
WSAENOTCONN (10057)	The socket is not connected.
WSAENOTSOCK (10038)	The descriptor is not a socket.
WSAEOPNOTSUPP (10045)	<code>MSG_OOB</code> was specified, but the socket is not stream-style such as type <code>SOCK_STREAM</code> ; OOB data is not supported in the communication domain associated with this socket; or the socket is unidirectional and supports only receive operations.
WSAESHUTDOWN (10058)	The socket has been shut down; it is not possible to send on a socket after shutdown has been invoked with <code>how</code> set to <code>SD_SEND</code> or <code>SD_BOTH</code> .
WSAEWOULDBLOCK (10035)	The socket is marked as non-blocking and the requested operation would block.
WSAEMSGSIZE (10040)	The socket is message oriented, and the message is larger than the maximum supported by the underlying transport.
WSAEHOSTUNREACH (10065)	The remote host cannot be reached from this host at this time.
WSAEINVAL (10022)	The socket has not been bound with <code>bind</code> ; or an unknown flag was specified; or <code>MSG_OOB</code> was specified for a socket with <code>SO_OOBINLINE</code> enabled.
WSAECONNABORTED (10053)	The virtual circuit was terminated due to a time-out or other failure. The application should close the socket as it is no longer usable.
WSAECONNRESET (10054)	The virtual circuit was reset by the remote side executing a hard or abortive close. For UDP sockets, the remote host was unable to deliver a previously sent UDP datagram and responded with a "Port Unreachable" ICMP packet. The application should close the socket as it is no longer usable.

WSAETIMEDOUT (10060)	The connection has been dropped because of a network failure or because the system on the other end went down without notice.
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[Solaris](#)

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	s is an invalid file descriptor.
EINTR(4)	The operation was interrupted by delivery of a signal before any data could be buffered to be sent.
EINVAL(22)	toLen is not the size of a valid address for the specified address family.
EMSGSIZE(97)	The socket requires that message be sent atomically and the message was too long.
ENOMEM(12)	There was insufficient memory available to complete the operation.
ENOSR(63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK(95)	Not a socket.
EWOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.

[Linux](#)

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	An invalid descriptor was specified.
ENOTSOCK(88)	The argument s is not a socket.
EFAULT(14)	An invalid user space address was specified for a parameter.
EMSGSIZE(90)	The socket requires that message be sent atomically, and the size of the message to be sent made this impossible.
EAGAIN (11) or EWOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.
ENOBUFS (105)	The output queue for a network interface was full. This generally indicates that the interface has stopped sending, but may be caused by transient congestion. (Normally, this does not occur in Linux. Packets are just silently dropped when a device queue overflows.)
EINTR(4)	A signal occurred.
ENOMEM(12)	No memory available.



EINVAL(22)	Invalid argument passed.
EPIPE(32)	The local end has been shut down on a connection oriented socket. In this case, the process also receives a SIGPIPE unless MSG_NOSIGNAL is set.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_000014**

Fail to call sendto function.

**Description:**

The sendto function sends data to a specific destination.

**Script Commands:**

DO\_WSK\_Sendto()

**Causes:****Windows**

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSASStartup call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
WSAEACCES (10013)	The requested address is a broadcast address, but the appropriate flag was not set. Call setsockopt with the SO_BROADCAST parameter to allow the use of the broadcast address.
WSAEINVAL (10022)	An unknown flag was specified, or MSG_OOB was specified for a socket with SO_OOBINLINE enabled.
WSAEINTR (10004)	A blocking Windows Sockets 1.1 call was canceled through WSACancelBlockingCall.

WSAEINPROGRESS (10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEFAULT (10014)	The buf or to parameters are not part of the user address space, or the tolen parameter is too small.
WSAENETRESET (10052)	The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress.
WSAENOBUFS (10055)	No buffer space is available.
WSAENOTCONN (10057)	The socket is not connected (connection-oriented sockets only).
WSAENOTSOCK (10038)	The descriptor is not a socket.
WSAEOPNOTSUPP (10045)	MSG_OOB was specified, but the socket is not stream-style such as type SOCK_STREAM; OOB data is not supported in the communication domain associated with this socket; or the socket is unidirectional and supports only receive operations.
WSAESHUTDOWN (10058)	The socket has been shut down; it is not possible to send to on a socket after shutdown has been invoked with how set to SD_SEND or SD_BOTH.
WSAEWOULDBLOCK (10035)	The socket is marked as non-blocking and the requested operation would block.
WSAEMSGSIZE (10040)	The socket is message oriented and the message is larger than the maximum supported by the underlying transport.
WSAEHOSTUNREACH (10065)	The remote host cannot be reached from this host at this time.
WSAECONNABORTED (10053)	The virtual circuit was terminated due to a time-out or other failure. The application should close the socket as it is no longer usable.
WSAECONNRESET (10054)	The virtual circuit was reset by the remote side executing a hard or abortive close. For UDP sockets, the remote host was unable to deliver a previously sent UDP datagram and responded with a "Port Unreachable" ICMP packet. The application should close the socket as it is no longer usable.
WSAEADDRNOTAVAIL (10049)	The remote address is not a valid address, for example, ADDR_ANY.
WSAEAFNOSUPPORT (10047)	Addresses in the specified family cannot be used with this socket.
WSAEDESTADDRREQ (10039)	A destination address is required.
WSAENETUNREACH (10051)	The network cannot be reached from this host at this time.
WSAETIMEDOUT (10060)	The connection has been dropped because of a network failure or because the system on the other end went down without notice.
WOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.

EBADF(9)	An invalid descriptor was specified.
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### Solaris

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EBADF(9)	<code>s</code> is an invalid file descriptor.
EINTR(4)	The operation was interrupted by delivery of a signal before any data could be buffered to be sent.
EINVAL(22)	<code>toLen</code> is not the size of a valid address for the specified address family.
EMSGSIZE(97)	The socket requires that message be sent atomically, and the message was too long.
ENOMEM(12)	There was insufficient memory available to complete the operation.
ENOSR(63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK(95)	<code>s</code> is not a socket.

### Linux

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
ENOTSOCK(88)	The argument <code>s</code> is not a socket.
EFAULT(14)	An invalid user space address was specified for a parameter.
EMSGSIZE(90)	The socket requires that message be sent atomically, and the size of the message to be sent made this impossible.
EAGAIN (11) or EWOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.
ENOBUFS(105)	The output queue for a network interface was full. This generally indicates that the interface has stopped sending, but may be caused by transient congestion. (Normally, this does not occur in Linux. Packets are just silently dropped when a device queue overflows.)
EINTR(4)	A signal occurred.
ENOMEM(12)	No memory available.
EINVAL(22)	Invalid argument passed.
EPIPE(32)	The local end has been shut down on a connection oriented socket. In this case, the process also receives a SIGPIPE unless MSG_NOSIGNAL is set.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_000015**

Error during recv.

**Description:**

Fail to call recv function. The recv function receives data from a connected or bound socket.

**Script Commands:**

`DO_WSK_Recv()`

**Causes:**

**Windows**

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
WSAEFAULT (10014)	The <code>buf</code> parameter is not completely contained in a valid part of the user address space.
WSAENOTCONN(10057)	The socket is not connected.
WSAEINTR(10004)	The (blocking) call was canceled through <code>WSACancelBlockingCall</code> .
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENETRESET(10052)	The connection has been broken due to the keep-alive activity detecting a failure while the operation was in progress.
WSAENOTSOCK(10038)	The descriptor is not a socket.
WSAEOPNOTSUPP(10045)	<code>MSG_OOB</code> was specified, but the socket is not stream-style such as type <code>SOCK_STREAM</code> , OOB data is not supported in the communication domain associated with this socket, or the socket is unidirectional and supports only send operations.

WSAESHUTDOWN(10058)	The socket has been shut down; it is not possible to receive on a socket after shutdown has been invoked with how set to SD_RECEIVE or SD_BOTH.
WSAEWOULDBLOCK(10035)	The socket is marked as non-blocking and the receive operation would block.
WSAEMSGSIZE(10040)	The message was too large to fit into the specified buffer and was truncated.
WSAEINVAL(10022)	The socket has not been bound with bind, or an unknown flag was specified, or MSG_OOB was specified for a socket with SO_OOBINLINE enabled, or (for byte stream sockets only) len was zero or negative.
WSAECONNABORTED(10053)	The virtual circuit was terminated due to a time-out or other failure. The application should close the socket as it is no longer usable.
WSAETIMEDOUT(10060)	The connection has been dropped because of a network failure or because the peer system failed to respond.
WSAECONNRESET(10054)	The virtual circuit was reset by the remote side executing a hard or abortive close. The application should close the socket as it is no longer usable. On a UPD-datagram socket this error would indicate that a previous send operation resulted in an ICMP "Port Unreachable" message.

### Solaris

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	s is an invalid file descriptor.
EINTR(4)	The operation was interrupted by delivery of a signal before any data was available to be received.
EIO(5)	An I/O error occurred while reading from or writing to the file system.
ENOMEM(12)	There was insufficient user memory available for the operation to complete.
ENOSR(63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK(95)	s is not a socket.
ESTALE(151)	A stale NFS file handle exists.
EWOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.

[Linux](#)

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	The argument s is an invalid descriptor.
ECONNREFUSED(111)	A remote host refused to allow the network connection, typically because it is not running the requested service.
ENOTCONN(107)	The socket is associated with a connection-oriented protocol and has not been connected (see connect(2) and accept(2)).
ENOTSOCK(88)	The argument s does not refer to a socket.
EAGAIN(11)	The socket is marked non-blocking and the receive operation would block, or a receive timeout had been set and the timeout expired before data was received.
EINTR(4)	The receive was interrupted by delivery of a signal before any data were available.
EFAULT(14)	The receive buffer pointer(s) point outside the process's address space.
EINVAL(22)	Invalid argument passed.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_000016**

Fail to call recvfrom function.

**Description:**

Fail to call recvfrom function. The recvfrom function receives a datagram and stores the source address.

**Script Commands:**

DO\_WSK\_Recvfrom()

**Causes:****Windows**

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
WSAEFAULT(10014)	The <code>buf</code> or <code>from</code> parameters are not part of the user address space, or the <code>fromlen</code> parameter is too small to accommodate the peer address.
WSAEINTR(10004)	The (blocking) call was canceled through <code>WSACancelBlockingCall</code> .
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEINVAL(10022)	The socket has not been bound with <code>bind</code> , or an unknown flag was specified, or <code>MSG_OOB</code> was specified for a socket with <code>SO_OOBINLINE</code> enabled, or (for byte stream-style sockets only) <code>len</code> was zero or negative.
WSAEISCONN(10056)	The socket is connected. This function is not permitted with a connected socket, whether the socket is connection oriented or connectionless.
WSAENETRESET(10052)	The connection has been broken due to the keep-alive activity detecting a failure while the operation was in progress.
WSAENOTSOCK(10038)	The descriptor is not a socket.
WSAEOPNOTSUPP(10045)	<code>MSG_OOB</code> was specified, but the socket is not stream-style such as type <code>SOCK_STREAM</code> , OOB data is not supported in the communication domain associated with this socket, or the socket is unidirectional and supports only send operations.
WSAESHUTDOWN(10058)	The socket has been shut down; it is not possible to <code>recvfrom</code> on a socket after shutdown has been invoked with <code>how</code> set to <code>SD_RECEIVE</code> or <code>SD_BOTH</code> .
WSAEWOULDBLOCK(10035)	The socket is marked as nonblocking and the <code>recvfrom</code> operation would block.
WSAEMSGSIZE (10040)	The message was too large to fit into the specified buffer and was truncated.
WSAETIMEDOUT(10060)	The connection has been dropped because of a network failure or because the system on the other end went down without notice.
WSAECONNRESET(10054)	The virtual circuit was reset by the remote side executing a hard or abortive close. The application should close the socket; it is no

	longer usable. On a UDP-datagram socket, this error indicates a previous send operation resulted in an ICMP Port Unreachable message.
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**Solaris**

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	s is an invalid file descriptor.
EINTR(4)	The operation was interrupted by delivery of a signal before any data was available to be received.
EIO(5)	An I/O error occurred while reading from or writing to the file system.
ENOMEM(12)	There was insufficient user memory available for the operation to complete.
ENOSR(63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK(95)	s is not a socket.
ESTALE(151)	A stale NFS file handle exists.
EWOULDBLOCK(11)	The socket is marked non-blocking and the requested operation would block.

**Linux**

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	The argument s is an invalid descriptor.
ECONNREFUSED(111)	A remote host refused to allow the network connection, typically because it is not running the requested service.
ENOTCONN(107)	The socket is associated with a connection-oriented protocol and has not been connected (see connect(2) and accept(2)).
ENOTSOCK(88)	The argument s does not refer to a socket.
EAGAIN(11)	The socket is marked non-blocking and the receive operation would block, or a receive timeout had been set and the timeout expired before data was received.
EINTR(4)	The receive was interrupted by delivery of a signal before any data were available.
EFAULT(14)	The receive buffer pointer(s) point outside the process's address space.



EINVAL(22)	Invalid argument passed.
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**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_000017**

Failed to call closesocket/close function.

**Description:**

Fail to call closesocket function (close function on Solaris/Linux platform). This function closes an existing socket.

**Script Commands:**

[DO\\_WSK\\_Closesocket](#)

**Causes:****Windows**

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSASStartup call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
WSAEINTR(10004)	The (blocking) Windows Socket 1.1 call was canceled through WSACancelBlockingCall.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENOTSOCK(10038)	The descriptor is not a socket.
WSAEWOULDBLOCK(10035)	The socket is marked as non-blocking and SO_LINGER is set to a nonzero time-out value.

**Solaris**

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	The fildes argument is not a valid file descriptor.
EINTR(4)	The close() function was interrupted by a signal.
EIO(5)	An I/O error occurred while reading from or writing to the file system.
ENOLINK(67)	The fildes argument is on a remote machine and the link to that machine is no longer active.
ENOSPC(28)	There was no free space remaining on the device containing the file.

#### Linux

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	fd isn't a valid open file descriptor.
EINTR (4)	The close() call was interrupted by a signal.
EIO (5)	An I/O error occurred.

#### Actions:

Check Winsock log file to get error number, then look at above table and find the description.

#### External Sources:

None

## WSK\_ERROR\_000018

Fail to call setsockopt function.

#### Description:

Fail to call setsockopt function. The setsockopt function sets a socket option.

#### Script Commands:

DO\_WSK\_Setsockopt

DO\_WSK\_Socket

DO\_WSK\_Accept

**Causes:****Windows**

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED(10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAEFAULT(10014)	<code>optval</code> is not in a valid part of the process address space, or <code>optlen</code> parameter is too small.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEINVAL(10022)	<code>level</code> is not valid, or the information in <code>optval</code> is not valid.
WSAENETRESET(10052)	Connection has timed out when <code>SO_KEEPALIVE</code> is set.
WSAENOPROTOOPT(10042)	The option is unknown or unsupported for the specified provider or socket (see <code>SO_GROUP_PRIORITY</code> limitations).
WSAENOTCONN(10057)	Connection has been reset when <code>SO_KEEPALIVE</code> is set.
WSAENOTSOCK(10038)	The descriptor is not a socket.

**Solaris**

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EBADF(9)	The argument <code>s</code> is not a valid file descriptor.
ENOMEM(12)	There was insufficient memory available for the operation to complete.
ENOPROTOOPT(99)	The option is unknown at the level indicated.
ENOSR(63)	There were insufficient <code>STREAMS</code> resources available for the operation to complete.
ENOTSOCK(95)	The argument <code>s</code> is not a socket.

**Linux**

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
EBADF(9)	The argument s is not a valid descriptor.
ENOTSOCK(88)	The argument s is a file, not a socket.
ENOPROTOOPT(92)	The option is unknown at the level indicated.
EFAULT(14)	The address pointed to by optval is not in a valid part of the process address space. For getsockopt, this error may also be returned if optlen is not in a valid part of the process address space.
EINVAL(22)	optlen invalid in setsockopt.

#### Ations:

Check Winsock log file to get error number, then look at above table and find the description.

#### External Sources:

None

## WSK\_ERROR\_000019

Fail to call getsockname function.

#### Description:

Fail to call getsockname function. The setsockopt function sets a socket option.

#### Script Commands:

[DO\\_WSK\\_Bind](#)

[DO\\_WSK\\_Getsockname](#)

#### Causes:

##### Windows

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSAStartup call must occur before using this API.
WSAENETDOWN(10050)	The network subsystem has failed.

WSAEFAULT (10014)	The name or the namelen parameter is not a valid part of the user address space, or the namelen parameter is too small.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENOTSOCK (10038)	The descriptor is not a socket.
WSAEINVAL(10022)	The socket has not been bound to an address with bind, or ADDR_ANY is specified in bind but connection has not yet occurred.

### Solaris

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	The argument s is not a valid file descriptor.
ENOMEM(12)	There was insufficient memory available for the operation to complete.
ENOSR (63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK (95)	The argument s is not a socket.

### Linux

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	The argument s is not a valid descriptor.
ENOTSOCK(88)	The argument s is a file, not a socket.
ENOBUFS (105)	Insufficient resources were available in the system to perform the operation.
EFAULT (914)	The name parameter points to memory not in a valid part of the process address space.

### Actions:

Check Winsock log file to get error number, then look at above table and find the description.

### External Sources:

None

## WSK\_ERROR\_00020

Fail to call bind function.

### Description:

Fail to call bind function. The bind function associates a local address with a socket.

### Script Commands:

`DO_WSK_Bind()`

### Causes:

#### Windows

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED(10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAEACCES(10013)	Attempt to connect datagram socket to broadcast address failed because <code>setsockopt</code> option <code>SO_BROADCAST</code> is not enabled.
WSAEADDRINUSE(10048)	A process on the computer is already bound to the same fully qualified address and the socket has not been marked to allow address reuse with <code>SO_REUSEADDR</code> . For example, the IP address and port are bound in the <code>af_inet</code> case. (See the <code>SO_REUSEADDR</code> socket option under <code>setsockopt</code> .)
WSAEADDRNOTAVAIL(10049)	The specified address is not a valid address for this computer.
WSAEFAULT(10014)	The name or <code>namelen</code> parameter is not a valid part of the user address space, the <code>namelen</code> parameter is too small, the name parameter contains an incorrect address format for the associated address family, or the first two bytes of the memory block specified by name does not match the address family associated with the socket descriptor.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEINVAL(10022)	The socket is already bound to an address.
WSAENOBUFS(10055)	Not enough buffers available, too many connections.
WSAENOTSOCK(10038)	The descriptor is not a socket.

## Solaris

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EACCES(13)	The requested address is protected and the current user has inadequate permission to access it.
EADDRINUSE(125)	The specified address is already in use.
EADDRNOTAVAIL (126)	The specified address is not available on the local machine.
EBADF(9)	s is not a valid descriptor.
EINVAL(22)	namelen is not the size of a valid address for the specified address family.
EINVAL(22)	The socket is already bound to an address.
ENOSR (63)	There were insufficient STREAMS resources for the operation to complete.
ENOTSOCK(95)	s is a descriptor for a file, not a socket.
EACCES(13)	Search permission is denied for a component of the path prefix of the pathname in name.
EIO (5)	An I/O error occurred while making the directory entry or allocating the inode.
EISDIR (21)	A null pathname was specified.
ELOOP (90)	Too many symbolic links were encountered in translating the pathname in name.
ENOENT (2)	A component of the path prefix of the pathname in name does not exist.
ENOTDIR (20)	A component of the path prefix of the pathname in name is not a directory.
EROFS(30)	The inode would reside on a read-only file system.

## Linux

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
EBADF(9)	sockfd is not a valid descriptor.
EINVAL(22)	The socket is already bound to an address. This may change in the future: see <code>linux/unix/sock.c</code> for details.
EACCES(13)	The address is protected and the user is not the supervisor.

ENOTSOCK (88)	Argument is a descriptor for a file, not a socket.
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[Unix \(AF-UNIX\)](#)

The following errors are specific to UNIX domain (AF\_UNIX) sockets:

Error Code	Description
EINVAL(22)	The addrlen is wrong, or the socket was not in the AF_UNIX family.
EROFS(30)	The socket inode would reside on a read-only file system.
EFAULT (14)	my_addr points outside the user's accessible address space.
ENAMETOOLONG (36)	my_addr is too long.
ENOENT(2)	The file does not exist.
ENOMEM (12)	Insufficient kernel memory was available.
ENOTDIR (20)	A component of the path prefix is not a directory.
EACCES (13)	Search permission is denied on a component of the path prefix.
ELOOP (40)	Too many symbolic links were encountered in resolving my_addr.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_00021**

Fail to call listen function.

**Description:**

Fail to call listen function. The listen function places a socket in a state in which it is listening for an incoming connection.

**Script Commands:**

`DO_WSK_Listen()`



**Causes:****Windows**

The following list describes the possible error codes returned by the `WSAGetLastError` function under Windows:

Error Code	Description
WSANOTINITIALISED(10093)	A successful <code>WSAStartup</code> call must occur before using this function.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAEADDRINUSE(10048)	The socket's local address is already in use and the socket was not marked to allow address reuse with <code>SO_REUSEADDR</code> . This error usually occurs during execution of the <code>bind</code> function, but could be delayed until this function if the <code>bind</code> was to a partially wildcard address (involving <code>ADDR_ANY</code> ) and if a specific address needs to be committed at the time of this function.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEINVAL(10022)	The socket has not been bound with <code>bind</code> .
WSAEISCONN(10056)	The socket is already connected.
WSAEMFILE(10024)	No more socket descriptors are available.
WSAENOBUFS(10055)	No buffer space is available.
WSAENOTSOCK(10038)	The descriptor is not a socket.
WSAEOPNOTSUPP(10045)	The referenced socket is not of a type that supports the <code>listen</code> operation.

**Solaris**

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EBADF(9)	The argument <code>s</code> is not a valid file descriptor.
ENOTSOCK(95)	The argument <code>s</code> is not a socket.
EOPNOTSUPP(122)	The socket is not of a type that supports the operation <code>listen()</code> .

**Linux**

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
------------	-------------

EADDRINUSE(40)	Another socket is already listening on the same port.
EBADF(9)	The argument s is not a valid descriptor.
ENOTSOCK(88)	The argument s is not a socket.
EOPNOTSUPP(95)	The socket is not of a type that supports the listen operation.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_00022**

Fail to call accept function.

**Description:**

Fail to call accept function. The accept function permits an incoming connection attempt on a socket.

**Script Commands:**

DO\_WSK\_Accept()

**Causes:**

**Windows**

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED(10093)	A successful WSASStartup call must occur before using this function.
WSAECONNRESET(10054)	An incoming connection was indicated, but was subsequently terminated by the remote peer prior to accepting the call.
WSAEFAULT(10014)	The addrlen parameter is too small, or addr is not a valid part of the user address space.
WSAEINTR(10004)	A blocking Windows Sockets 1.1 call was canceled through WSACancelBlockingCall.
WSAEINVAL(10022)	The listen function was not invoked prior to accept.

WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAEMFILE(10024)	The queue is nonempty upon entry to accept and there are no descriptors available.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAENOBUFS(10055)	No buffer space is available.
WSAENOTSOCK(10038)	The descriptor is not a socket.
WSAEOPNOTSUPP(10045)	The referenced socket is not of a type that supports the listen operation.
WSAEWOULDBLOCK(10035)	The socket is marked as nonblocking and no connections are present to be accepted.

### Solaris

The following list describes the possible error codes returned by the `errno` function under Solaris:

Error Code	Description
EBADF(9)	The descriptor is invalid.
EINTR(4)	The accept attempt was interrupted by the delivery of a signal.
EMFILE(24)	The per-process descriptor table is full.
ENODEV(19)	The protocol family and type corresponding to <code>s</code> could not be found in the <code>netconfig</code> file.
ENOMEM(12)	There was insufficient user memory available to complete the operation.
ENOSR(63)	There were insufficient STREAMS resources available to complete the operation.
ENOTSOCK(95)	The descriptor does not reference a socket.
EOPNOTSUPP(122)	The referenced socket is not of type <code>SOCK_STREAM</code> .
EPROTO(71)	A protocol error has occurred; for example, the STREAMS protocol stack has not been initialized or the connection has already been released.
EWOULDBLOCK(11)	The socket is marked as non-blocking and no connections are present to be accepted.

### Linux

The following list describes the possible error codes returned by the `errno` function under Linux:

Error Code	Description
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EAGAIN(11) or EWOULDBLOCK(11)	The socket is marked non-blocking and no connections are present to be accepted.
EBADF(9)	The descriptor is invalid.
ENOTSOCK(88)	The descriptor references a file, not a socket.
EOPNOTSUPP(95)	The referenced socket is not of type SOCK_STREAM.
EINTR(4)	The system call was interrupted by a signal that was caught before a valid connection arrived.
ECONNABORTED(103)	A connection has been aborted.
EINVAL (22)	Socket is not listening for connections.
EMFILE (24)	The per-process limit of open file descriptors has been reached.
ENFILE (24)	The system maximum for file descriptors has been reached.
EFAULT (14)	The addr parameter is not in a writable part of the user address space.
ENOBUFS(105), ENOMEM(12)	Not enough free memory. This often means that the memory allocation is limited by the socket buffer limits, not by the system memory.
EPROTO(71)	Protocol error.
EPERM(1)	Firewall rules forbid connection.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_ERROR\_00023**

Fail to call select function.

**Description:**

Fail to call select function. The select function determines the status of one or more sockets, waiting if necessary, to perform synchronous I/O.

**Script Commands:**

DO\_WSK\_IsReadable()

DO\_WSK\_IsWriteable()

DO\_WSK\_Select()

**Causes:****Windows**

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED(10093)	A successful WSASStartup call must occur before using this function.
WSAEFAULT(10014)	The Windows Sockets implementation was unable to allocate needed resources for its internal operations, or the readfds, writefds, exceptfds, or timeval parameters are not part of the user address space.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAEINVAL(10022)	The time-out value is not valid, or all three descriptor parameters were null.
WSAEINTR(10004)	A blocking Windows Socket 1.1 call was canceled through WSACancelBlockingCall.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENOTSOCK(10038)	One of the descriptor sets contains an entry that is not a socket.

**Solaris**

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	One or more of the file descriptor sets specified a file descriptor that is not a valid open file descriptor.
EINTR(4)	The select() function was interrupted before any of the selected events occurred and before the timeout interval expired. If SA_RESTART has been set for the interrupting signal, it is implementation-dependent whether select() restarts or returns with EINTR.
EINVAL(22)	An invalid timeout interval was specified.
EINVAL(22)	The nfds argument is less than 0, or greater than or equal to FD_SETSIZE.

EINVAL(22)	One of the specified file descriptors refers to a STREAM or multiplexer that is linked, directly or indirectly, downstream from a multiplexer.
EINVAL(22)	A component of the pointed-to time limit is outside the acceptable range: t_sec must be between 0 and 10**8, inclusive. t_usec must be greater than or equal to 0, and less than 10**6.

[Linux](#)

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	An invalid file descriptor was given in one of the sets.
EINTR(4)	A non blocked signal was caught.
EINVAL(22)	n is negative, or the value contained within timeout is invalid.
ENOMEM(12)	Select was unable to allocate memory for internal tables.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

## WSK\_ERROR\_00024

Fail to call ioctlsocket/ioctl function.

**Description:**

Fail to call ioctlsocket/ioctl function. The ioctlsocket/ioctl function controls the I/O mode of a socket.

**Script Commands:**

DO\_WSK\_ioctlsocket()

**Causes:**

[Windows](#)

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
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WSANOTINITIALISED(10093)	A successful WSASStartup call must occur before using this function.
WSAENETDOWN(10050)	The network subsystem has failed.
WSAEINPROGRESS(10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENOTSOCK(10038)	The descriptor s is not a socket.
WSAEFAULT(10014)	The argp parameter is not a valid part of the user address space.

### Solaris

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EFAULT(14)	The request argument requires a data transfer to or from a buffer pointed to by arg, but arg points to an illegal address.
EINVAL(22)	The request or arg argument is not valid for this device.
EIO(5)	Some physical I/O error has occurred.
ENOLINK(67)	The fildes argument is on a remote machine and the link to that machine is no longer active.
ENOTTY(25)	The fildes argument is not associated with a STREAMS device that accepts control functions.
ENXIO(6)	The request and arg arguments are valid for this device driver, but the service requested cannot be performed on this particular subdevice.
ENODEV(19)	The fildes argument refers to a valid STREAMS device, but the corresponding device driver does not support the ioctl() function.

### Linux

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	d is not a valid descriptor.
EFAULT(14)	argp references an inaccessible memory area.
ENOTTY(14)	d is not associated with a character special device.
ENOTTY(25)	The specified request does not apply to the kind of object that the descriptor d references.
EINVAL(22)	Request or argp is not valid.

**Actions:**

Check Winsock log file to get error number, then look at above table and find the description.

**External Sources:**

None

**WSK\_WARNING\_00025**

Fail to call shutdown function.

**Description:**

Fail to call shutdown function. The shutdown function disables sends or receives on a socket.

**Script Commands:**

DO\_WSK\_Shutdown

**Causes:**

**Windows**

The following list describes the possible error codes returned by the WSAGetLastError function under Windows:

Error Code	Description
WSANOTINITIALISED (10093)	A successful WSAStartup call must occur before using this function.
WSAENETDOWN (10050)	The network subsystem has failed.
T WSAEINVAL (10022)	The how parameter is not valid, or is not consistent with the socket type. For example, SD_SEND is used with a UNI_RECV socket type.
WSAEINPROGRESS (10036)	A blocking Windows Sockets 1.1 call is in progress, or the service provider is still processing a callback function.
WSAENOTCONN (10057)	The socket is not connected (connection-oriented sockets only).
WSAENOTSOCK (10038)	The descriptor is not a socket.

**Solaris**

The following list describes the possible error codes returned by the errno function under Solaris:

Error Code	Description
EBADF(9)	s is not a valid file descriptor.



ENOMEM(12)	There was insufficient user memory available for the operation to complete.
ENOSR(63)	There were insufficient STREAMS resources available for the operation to complete.
ENOTCONN(134)	The specified socket is not connected.
ENOTSOCK(95)	s is not a socket.

#### Linux

The following list describes the possible error codes returned by the errno function under Linux:

Error Code	Description
EBADF(9)	s is not a valid descriptor.
ENOTSOCK(88)	s is a file, not a socket.
ENOTCONN(107)	The specified socket is not connected.

#### Actions:

Check Winsock log file to get error number, then look at above table and find the description.

#### External Sources:

None

## WWW

### WWW Playback Error Codes

QALoad displays error codes during playback for specific exception messages. While debugging, refer to the table below that lists error codes and descriptions that apply to WWW scripts.

Error code	Description
WWW_ABORT_00001	Time out, value <timeout value> is invalid. Value must be between 5 and 65535.
WWW_ABORT_00003	Max browser thread, value <browser threads> is invalid. Max browser threads must be between 1 and 4.
WWW_ABORT_00004	Proxy version, value <Proxy version> is invalid. Proxy version must be 1.0 or 1.1.
WWW_ABORT_00005	HTTP version, value <HTTP version> is invalid. HTTP version must be 1.0 or 1.1.
WWW_ABORT_00006	Unable to open IPspoof data pool.
WWW_ABORT_00007	Cannot execute SSL. SSL library not installed.
WWW_ABORT_00008	Parameter, value <parameter value> is invalid. <Brief description>
WWW_ABORT_00009	Script was converted in <convert mode> mode. Replay mode does not match convert mode.
WWW_ABORT_00011	Memory allocation failure, size <bytes>.
WWW_ABORT_00016	Retry count, value <count number> is invalid. Retry count must be between 1 and 99.
WWW_ABORT_00019	Windows Integrated Authentication unsupported on this platform.
WWW_ABORT_00020	Clear option, value <clear option> is invalid.
WWW_ABORT_00101	URL, value <url> is invalid.
WWW_ABORT_00108	Form field, value <field type> is invalid.
WWW_ABORT_00116	Not enough space provided in output buffer. Needed: <space>.

WWW_ABORT_00135	Unable to open binary file <file name>.
WWW_ABORT_00143	HTTP Request is invalid. <Brief description>.
WWW_ABORT_00170	Invalid version of SSL, value <value>.
WWW_ABORT_00180	Internal substring search error, left string <left>, right string <right>, count <count>.
WWW_ABORT_00407	<Auth Type> authorization failed. <Brief description>
WWW_ABORT_01000	Get option <option> is invalid. <Brief description>
WWW_ABORT_01001	Get option <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01100	Set option <option> is invalid. <Brief description>
WWW_ABORT_01101	Set option <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01200	Specifier <option> is invalid. <Brief description>
WWW_ABORT_01201	Specifier <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01300	Click option <option> is invalid. <Brief description>
WWW_ABORT_01301	Click option <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01400	Link option <option> is invalid. <Brief description>
WWW_ABORT_01401	Link option <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01500	Verify option <option> is invalid. <Brief description>
WWW_ABORT_01501	Verify option <option>, value <value> is invalid. <Brief description>
WWW_ABORT_01700	The reply did not contain a body to parse.
WWW_ABORT_01701	Failed to create temporary ICA file.
WWW_ABORT_01702	The reply is not a supported ICA file format.

WWW_ABORT_01800	HTTP GET encoding option <option> is invalid. <Brief description>.
WWW_ABORT_01801	HTTP POST encoding option <option> is invalid. <Brief description>.
WWW_ERROR_00009	Page is not a redirect.
WWW_ERROR_00026	IP Address, value <IP address> is invalid.
WWW_ERROR_00100	Internal error: <Brief description>
WWW_ERROR_00103	Anchor tag, value <anchor name> not found.
WWW_ERROR_00104	Anchor tag, value <anchor index> not found.
WWW_ERROR_00106	Map region not found.
WWW_ERROR_00107	Form, value <form number> not found.
WWW_ERROR_00109	Form field, value <field name> not found.
WWW_ERROR_00111	Cookie, value <cookie name> not found. <Brief description>
WWW_ERROR_00112	Page not found.
WWW_ERROR_00113	Response not found.
WWW_ERROR_00114	HTTP header, value <header name> not found.
WWW_ERROR_00124	Pattern string, value <pattern> not found. <Brief description>.
WWW_ERROR_00126	Unable to create the socket to <host name> (error =<error number>)
WWW_ERROR_00127	IP Spoofing unable to bind <spoofing IP address> (error = <error number>)
WWW_ERROR_00128	Unable to connect to <host name> (error = <error number>)
WWW_ERROR_00130	Unable to send data to <host name> (error = <error number>)
WWW_ERROR_00131	Unable to connect to <host name>.
WWW_ERROR_00132	Timeout waiting for reply from <host name>, (error = <error number>)

WWW_ERROR_00133	No data downloaded from <host name>.
WWW_ERROR_00138	Only read <byte read> bytes from <file> (expected <size>).
WWW_ERROR_00140	Verification failed: <title> was received.
WWW_ERROR_00144	HTTP status, value <value> is invalid.
WWW_ERROR_00145	GZIP-encoded content inflate call failed, error: <error> .
WWW_ERROR_00146	String error in string <string>, index <index>, length <length>.
WWW_ERROR_00147	No data available in response from host <name>, error: <error>
WWW_ERROR_00148	Timed out waiting for data from host <host>.
WWW_ERROR_00149	No browser connection available for host <host>.
WWW_ERROR_00150	Port, value <value> is invalid; host: <host>.
WWW_ERROR_00151	Unable to retrieve local host name.
WWW_ERROR_00152	Unable to resolve URL <url>, error: <error>
WWW_ERROR_00153	Proxy Automatic Configuration script returned error: <error> in function: <function>.
WWW_ERROR_00160	Frame not found.
WWW_ERROR_00171	Failed to connect to host using SSL, URL <url>.
WWW_ERROR_00172	Unable to create new SSL context.
WWW_ERROR_00173	Unable to get SSL cipher list, URL <url>.
WWW_ERROR_00174	Unable to create new SSL object, URL <url>.
WWW_ERROR_00175	Unable to set SSL cipher list, URL <url>.
WWW_ERROR_00176	Unable to use SSL object, URL <url>.
WWW_ERROR_00190	Internal XML parsing error. <Brief description>

WWW_ERROR_01202	Specifier <option> not found. <Brief description>
WWW_ERROR_01203	Specifier <option>, value <value> not found. <Brief description>
WWW_ERROR_01402	Link option <option> not found. <Brief description>
WWW_ERROR_01403	Link option <option>, value <value> not found. <Brief description>
WWW_ERROR_01502	Verify option <option> not found. <Brief description>
WWW_ERROR_01503	Verify option <option>, value <value> not found. <Brief description>
WWW_ERROR_01600	Fill in control option <option> not found. <Brief description>
WWW_ERROR_01601	Fill in control option <option>, value <value> not found. <Brief description>
WWW_ERROR_03001	Content Check Violation: <Reason list>
WWW_WARNING_00300	Unable to create cookie, Set-Cookie string: <string>
WWW_WARNING_00301	Subrequest skipped: <Brief description>

## WWW\_ABORT\_00001

The time out value set for the script is invalid.

### Description:

The time out value set in the DO\_SetTimeout call or the Set[USER\_PATIENCE] call is not in the acceptable range of 5 to 65535 seconds.

### Script Commands:

DO\_SetTimeout

Set

### Causes:

An incorrect parameter was set in the call.

### Actions:

Modify the call parameter (nTimeout) to a valid value.

### External Sources:

None

## WWW\_ABORT\_00003

The max browser thread value set in the script is invalid.

### Description:

The max browser thread value in the DO\_SetMaxBrowserThreads call or the Set[BROWSER\_THREADS] call is not in the acceptable range of 1 through 4.

### Script Commands:

DO\_SetMaxBrowserThreads

Set

### Causes:

An incorrect parameter was set in the call.

### Actions:

Modify the call parameter (nCount) to a valid value.

### External Sources:

None

## WWW\_ABORT\_00004

The proxy version specified is invalid.

### Description:

The proxy version specified in the Do\_ProxyHttpVersion call or the Set [PROXY\_HTTP\_VERSION] call is not a supported version. Supported versions are "1.0" and "1.1".

### Script Commands:

Do\_ProxyHttpVersion

Set

### Causes:

An incorrect parameter was set in the call.

### Actions:

Modify the call parameter (szVersion) to a valid value.

### External Sources:

None

## WWW\_ABORT\_00005

The HTTP version specified is invalid.

### Description:

The HTTP version specified in the DO\_HTTPVersion call or the Set [HTTP\_VERSION] call is not a supported version. Supported versions are "1.0" and "1.1".

### Script Commands:

DO\_HTTPVersion

Set

### Causes:

An incorrect parameter was set in the call.

### Actions:

Modify the call parameter (szVersion) to a valid value.

### External Sources:

None

## WWW\_ABORT\_00006

The IPspoof data file cannot be opened for use with the script.

### Description:

The data file specified in the DO\_IPspoofEnable call is not present or is not a valid datapool file. Datapool files use a comma-separated value file format.

### Script Commands:

DO\_IPspoofEnable



### Causes:

- ! The datafile specified does not exist or was not transferred to the player machine.
- ! The datafile specified in the script is incorrect.

### Actions:

- ! Ensure that the IPspoof datafile has been created and is specified correctly in the script.
- ! Create the IPspoof file using Generate IPspoof Datapool command in the Conductor. This file is called ipspoof.dat. Ensure the name is specified in the script.

### External Sources:

None

## WWW\_ABORT\_00007

The SSL library was not found on the playback machine.

### Description:

The SSL code contained in this script cannot be executed. No SSL library was found on the playback machine.

### Script Command:

DO\_Https      Click\_On  
Navigate\_To    XmlRequest  
Post\_To

### Causes:

The playback machine does not have SSL library installed The SSL libraries must be installed for QALoad to playback an SSL script.

### Actions:

Ensure that the SSL software is installed on the playback machine prior to running a script on the machine.

### External Sources:

None

## WWW\_ABORT\_00008

A required parameter for this call has been set to NULL.

### Description:

A parameter for this call that requires an explicit value has been set to NULL. This command cannot execute unless this value is specified.

### Script Commands:

<a href="#">DO_GetAnchorHREF</a>	<a href="#">DO_SSUseClientCert</a>	<a href="#">DO_BlockTrafficFrom</a>
<a href="#">DO_GetAnchorByNumber</a>	<a href="#">DO_AddHeader</a>	<a href="#">Navigate_To</a>
<a href="#">DO_GetFormActionStatement</a>	<a href="#">DO_SetAssumedContentType</a>	<a href="#">XmlRequest</a>
<a href="#">DO_GetFormValueByName</a>	<a href="#">DO_ProxyAuthorization</a>	<a href="#">Post_To</a>
<a href="#">Set</a>	<a href="#">DO_BasicAuthorization</a>	<a href="#">DO_GetHeaderFromReply</a>
<a href="#">DO_GetRedirectedURL</a>	<a href="#">DO_AllowTrafficFrom</a>	<a href="#">DO_GetCookie</a>

### Causes:

A NULL parameter for this script command was entered during script modification.

### Actions:

Ensure that the parameter for this call in the script is a valid value.

### External Sources:

None

## WWW\_ABORT\_00009

Reply mode does not match convert mode.

### Description:

Error occurs in DO\_WWWInitialize if convert mode is manually changed in the script (i.e., from HTTP\_MODE to HTML\_MODE or vice versa).

### Script Commands:

[DO\\_WWWInitialize](#) [DO\\_InitHttp](#)

### Causes:

Convert mode is manually changed in the script (i.e., from HTTP\_MODE to HTML\_MODE or vice versa).

### Actions:

Change the convert option to the desired mode and reconvert capture file to script.

### External Sources:

None

## WWW\_ABORT\_00011

Could not allocate memory when processing the script command.

### Description:

Memory could not be allocated on the playback machine for the processing of the indicated script command.

### Script Commands:

DO_Http	Navigate_To
DO_Https	Post_To
DO_UseProxy	Click_On
DO_AddHeader	XmlRequest

### Causes:

- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.

### External Sources:

None

## WWW\_ABORT\_00016

The maximum retry count specified for the script is invalid.

### Description:

The maximum WWW request retry count specified as a parameter (value) for the DO\_SetMaximumRetries call or the Set[CONNECTION\_RETRIES] call is not in the acceptable range of 1 through 99.

### Script Commands:

DO\_SetMaximumRetries

Set

### Causes:

Script modification resulted in an invalid parameter passed to the call.

### Actions:

Ensure that the call contains a valid parameter to set the maximum retries for WWW requests.

### External Sources:

None

## WWW\_ABORT\_00019

This platform running the playback script does not support Windows Integrated Authentication.

### Description:

The playback machine is running on a non-Windows platform and does not support Windows Integrated Authentication with the server.

### Script Commands:

DO\_NTLMAuthorization

Set

### Causes:

- ! The script is being run on a different platform than the platform where the script was recorded.
- ! The script was modified to include Windows Integrated Authentication and run on non-Windows platform.

### Actions:

- ! Ensure that the correct playback machine was selected for the script.
- ! Disable the Windows Integrated Authentication API call if not applicable for script playback.

### External Sources:

None

## WWW\_ABORT\_00020

An invalid option was specified to be cleared.

### Description:

The parameter specifying the option to be cleared for the Clear or DO\_Clear command is not a valid WWW option. The Function Wizard enumerates the valid parameter values for this call.

### Script Commands:

DO\_Clear

Clear

### Causes:

Script modification resulted in an incorrect parameter passed to the DO\_Clear/Clear call.

### Actions:

Ensure the parameter (nType) passed to the DO\_Clear/Clear call is correct.

### External Sources:

None

## WWW\_ABORT\_00101

URL, value <url> is invalid.

### Description:

The parameter passed to the API call is not a valid URL address. The URL address could not be processed.

### Script Commands:

DO\_Http    Navigate\_To

DO\_Https    Post\_To

Click\_On    XmlRequest

### Causes:

- ! Script modification resulted in an invalid value passed to the API call.

### Actions:

- ! Modify the API call parameter (URL) to a valid URL address.

### External Sources:

None

## WWW\_ABORT\_00108

Form field, value <field type> is invalid.

### Description:

The form type specified for the DO\_GetFormValueByName command must be one of the valid form types for the HTML DOM model supported by QALoad.

### Script Commands:

DO\_GetFormValueByName

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The recorded session captured a form value that is not supported by QALoad playback.

### Actions:

- ! Modify the form type value parameter to a valid form type supported by the QALoad HTML DOM model.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ABORT\_00116

Not enough space provided in output buffer. Needed: <space>.

### Description:

The size of the destination buffer is not big enough to hold the result from the API command.

### Script Commands:

DO\_GetHeaderFromReply

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

#### Actions:

- ! Record another session to get the WWW site's current behavior.
- ! Modify the API command to accommodate for the small buffer by providing a bigger one.

#### External Sources:

None

## WWW\_ABORT\_00135

Unable to open binary file.

#### Description:

The filename specified in the error message could not be opened as a binary file during the response from the last page request.

#### Script Commands:

Post\_To Click\_On

Navigate\_To DO\_Http

XmlRequest DO\_Https

#### Causes:

- ! The file sent may be corrupted.
- ! There is a problem on the WWW server machine.

#### Actions:

- ! Ensure the integrity of the WWW server environment.
- ! Ensure the specified file is not corrupt on the server.
- ! Ensure the integrity of the network.

#### External Sources:

None

## WWW\_ABORT\_00143

HTTP request is invalid. <Brief description>

### Description:

The Request string specified for the API command is invalid.

### Script Commands:

DO\_Http DO\_Https

Navigate\_To XmlRequest

Post\_To Click\_On

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! Use of variables that are set at runtime, which could contain unexpected data.

### Actions:

- ! Ensure that a valid parameter string value is passed to the API command. E.g. Check for the correctness of each component in the parameter string value such as the request method, URL, HTTP version, HTTP header fields.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.

### External Sources:

None

## WWW\_ABORT\_00170

The SSL version is invalid. Valid versions are: SSLv2, SSLv3, and TLSv1.

### Description:

An invalid SSL version was returned by the WWW server. Only versions SSLv2, SSLv3, and TLSv1 are supported by QALoad.

### Script Commands:

Post\_To Click\_On

Navigate\_To DO\_Https

XmlRequest



**Causes:**

The WWW server uses a version of SSL not supported by QALoad.

**Actions:**

Contact the WWW server administrator to request a supported SSL version be used.

**External Sources:**

None

## WWW\_ABORT\_00180

An internal string manipulation error has occurred.

**Description:**

An internal string manipulation error has occurred, for example, when a substring search passed an invalid parameter. The substring search parameters are provided in the error message.

**Script Commands:**

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmlRequest    DO\_Https

**Causes:**

- ! The WWW server had an error and returned an invalid response.
- ! The network may be overloaded with traffic and a corrupted response was returned.

**Actions:**

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Contact QALoad technical support if no cause can be found.

**External Sources:**

None

## WWW\_ABORT\_00407

HTTP Proxy Server or Web Server authentication failed.

### Description:

The HTTP Proxy Server or Web Server failed to authenticate the credentials supplied in the script.

### Script Commands:

DO\_Http    Navigate\_To

DO\_Https    Post\_To

Click\_On    XmlRequest

### Causes:

Script modification resulted in setting an invalid username and password combination, causing one of the following:

- ! The HTTP proxy server failed to authenticate the supplied credentials.
- ! A Web server using Basic authorization failed to authenticate the supplied credentials.
- ! A Web server using Windows Integrated Authentication failed to authenticate the supplied credentials.

### Actions:

Ensure that a valid username and password is set either in the DO\_ProxyAuthorization, DO\_BasicAuthorization, DO\_NTLMAuthorization, or Set functions, depending on the cause of the error.

### External Sources:

None

## WWW\_ABORT\_01000

Get option <option> is invalid. <Brief description>.

### Description:

The API option passed to the Get API command is invalid.

### Script Commands:

Get

**Causes:**

- ! Script modification resulted in an invalid option passed to the API command.

**Actions:**

- ! Ensure that a valid API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the Get API command.

**External Sources:**

None

**WWW\_ABORT\_01001**

Get option <option>, value <value> is invalid. <Brief description>.

**Description:**

The parameter value described by the API option is invalid for the Get API command.

**Script Commands:**

Get

**Causes:**

- ! Script modification resulted in an invalid parameter value passed to the API command.

**Actions:**

- ! Ensure that a valid parameter value described by the API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the Get API command.

**External Sources:**

None

**WWW\_ABORT\_01100**

Set option <option> is invalid. <Brief description>.

### Description:

The API option passed to the `Set API` command is invalid.

### Script Commands:

`Set`

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.

### Actions:

- ! Ensure that a valid option value is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the `Set API` command.

### External Sources:

None

## WWW\_ABORT\_01101

`Set` option <option>, value <value> is invalid. <Brief description>.

### Description:

The parameter value described by the API option is invalid for the `Set API` command.

### Script Commands:

`Set`

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

### Actions:

- ! Ensure that a valid option type is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the `Set API` command.

### External Sources:

None

## WWW\_ABORT\_01200

Specifier <option> is invalid. <Brief description>.

### Description:

The API Specifier option is invalid for the API command.

### Script Commands:

Get

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.

### Actions:

- ! Ensure that a valid API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

### External Sources:

None

## WWW\_ABORT\_01201

Specifier <option>, value <value> is invalid. <Brief description>.

### Description:

The parameter value described by the API Specifier option is invalid for the API command.

### Script Commands:

Get

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ABORT\_01300

Click option <option> is invalid. <Brief description>.

### Description:

The API Click\_On option is invalid for the Click\_On API command.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.

### Actions:

- ! Ensure that a valid API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

### External Sources:

None

## WWW\_ABORT\_01301

Click option <option>, value <value> is invalid. <Brief description>.

### Description:

The parameter value described by the API Click\_On option is invalid for the Click\_On API command.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ABORT\_01400

Link option <option> is invalid. <Brief description>.

### Description:

The API Link option is invalid for the API command.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.

### Actions:

- ! Ensure that a valid API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

### External Sources:

None

## WWW\_ABORT\_01401

Link option <option>, value <value> is invalid. <Brief description>.

### Description:

The parameter value described by the API Link option is invalid for the API command.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ABORT\_01500

Verify option <option> is invalid. <Brief description>.

### Description:

The API Verify option is invalid for the API Verify command.

### Script Commands:

Verify

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.

### Actions:

- ! Ensure that a valid API option is used.



- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

#### External Sources:

None

## WWW\_ABORT\_01501

Verify option <option>, value <value> is invalid. <Brief description>.

#### Description:

The parameter value described by the API Verify option is invalid for the API Verify command.

#### Script Commands:

Verify

#### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.

#### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

#### External Sources:

None

## WWW\_ABORT\_01700

The reply did not contain a body to parse.

#### Description:

During WWW playback of the DO\_GetCitrixICAFile command, the WWW server response did not contain a valid body.

#### Script Commands:

DO\_GetCitrixICAFile

### Causes:

- ! The WWW server had an error and returned an error page.
- ! The network may be overloaded with traffic and an incomplete response was returned.
- ! The requested ICA file has not been properly configured on the web server.

### Actions:

- ! Check the server to see if any error has occurred on it. Checking the condition of a web server varies from server to server; please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Check with the web server administrator to see if the Citrix Web Interface page has a valid entry for the requested ICA file.

### External Sources:

None

## WWW\_ABORT\_01701

Failed to create temporary ICA file.

### Description:

During WWW playback of the DO\_GetCitrixICAFile command, the attempt to create a temporary ICA file failed.

### Script Commands:

DO\_GetCitrixICAFile

### Causes:

- ! The QALoad BinaryFiles directory does not exist.
- ! There is insufficient disk space to create the file.
- ! The current user does not have access rights to create files in the BinaryFiles directory.

### Actions:

- ! In the QALoad installation directory, create a directory named "BinaryFiles".
- ! Verify that there is sufficient disk space to create files in the BinaryFiles directory.
- ! Verify that the current user can create files in the BinaryFiles directory.

### External Sources:

None

## WWW\_ABORT\_01702

The reply is not a supported ICA file format.

### Description:

During WWW playback of the DO\_GetCitrixICAFile command, the web server response was not in the expected ICA file format. The server response must have the content-type field set to "application/x-ica".

### Script Commands:

DO\_GetCitrixICAFile

### Causes:

- ! The WWW server had an error and returned an error page.
- ! The network may be overloaded with traffic and an incomplete response was returned.
- ! The requested ICA file has not been properly configured on the web server.

### Actions:

- ! Check the server to see if any error has occurred on it. Checking the condition of a web server varies from server to server; please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Check with the web server administrator to see if the Citrix Web Interface page has a valid entry for the requested ICA file.

### External Sources:

None

## WWW\_ABORT\_01800

HTTP GET encoding option <option> is invalid. <Brief description>.

### Description:

The HTTP GET encoding option value specified in the script command is invalid. The HTTP GET command supports these encoding options:

USE\_FORM\_ENCODING

USE\_LINK\_ENCODING

### Script Commands:

NavigateTo

DO\_Http

### Causes:

Script modification resulted in an invalid encoding option value passed to the script command.

### Actions:

- ! Ensure that a valid script command option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the script command reference to find details about valid parameter values for the script command.

### External Sources:

None

## WWW\_ABORT\_01801

HTTP POST encoding option <option> is invalid. <Brief description>.

### Description:

The HTTP POST encoding option value specified in the script command is invalid. The HTTP POST command supports these encoding options:

TEXT\_PLAIN

MULTIPART\_FORM\_DATA

WWW\_FORM\_URLENCODED

MISSING\_CONTENT\_TYPE

POST\_RAW\_DATA

### Script Commands:

PostTo

DO\_Http

### Causes:

Script modification resulted in an invalid encoding option value passed to the script command.

### Actions:

- ! Ensure that a valid script command option is used.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the script command reference to find details about valid parameter values for the script command.

### External Sources:

None

## WWW\_ERROR\_00009

The page requested to get the redirected URL does not actually redirect to a different URL.

### Description:

The page that was requested did not redirect to a different URL. The request for the redirected URL is invalid for this request.

### Script Commands:

DO\_GetRedirectedURL

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! It is recommended that DO\_DynamicRedirectHandling or select Dynamic Redirect Handling in the WWW options.
- ! Modify the script to remove this call from the script for this request.

### External Sources:

None

## WWW\_ERROR\_00026

IP Address, value <IP address> is invalid.

### Description:

The IP address specified is not a valid IP spoof address. IP spoofing cannot be enabled, as this address is not valid for the playback machine.

### Script Commands:

[DO\\_IPSpoofEnable](#)

### Causes:

- ! One or more of the IP addresses specified in the IP spoof datapool file are incorrect and do not correspond with the IP addresses of the machine specified for playback.

### Actions:

- ! Check to see that the IP addresses specified in the IP spoof datapool file are correct and correspond to the IP addresses for the playback machine.

### External Sources:

None

## WWW\_ERROR\_00100

An internal error occurred during processing of the script command.

### Description:

An exception was thrown while processing the script command. The error string indicates the nature of the error.

### Script Commands:

<a href="#">DO_Http</a>	<a href="#">Navigate_To</a>
<a href="#">DO_Https</a>	<a href="#">Post_To</a>
<a href="#">DO_GetAnchorHREF</a>	<a href="#">XmlRequest</a>
<a href="#">DO_GetAnchorByNumber</a>	<a href="#">Set</a>
<a href="#">DO_GetRedirectedURL</a>	<a href="#">Click_On</a>
<a href="#">DO_ProxyExceptions</a>	

### Causes:

- ! Script modification resulted in an abnormal condition encountered by the script command.
- ! An unexpected condition resulted while executing the script.

### Actions:

- ! The playback machine may not be a suitable environment for the number of VUs specified for the load test.
- ! Script modifications may have introduced a bug to the script.
- ! Contact QALoad technical support if no cause can be found.

### External Sources:

None

## WWW\_ERROR\_00103

The specified anchor tag was not found in the HTML document returned by the last page request.

### Description:

The anchor tag specified by the name parameter to the DO\_GetAnchorHREF call was not among the anchor tags found in the HTML document returned from the last request.

### Script Commands:

DO\_GetAnchorHREF

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid value passed as the anchor tag parameter to the DO\_GetAnchorHREF call.

### Actions:

- ! Modify the DO\_GetAnchorHREF statement to find the correct name of the anchor tag in the HTML document reply.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00104

The specified anchor identified as the nth anchor tag was not found in the HTML document returned by the last page request.

### Description:

The anchor specified as the nth anchor tag parameter to the DO\_GetMapHREF call was not found in the HTML document returned from the last request. The page request sent a smaller number of anchor tags than the number specified in the DO\_GetAnchorByNumber call.

### Script Commands:

[DO\\_GetAnchorByNumber](#)

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid value passed as the anchor number parameter to the DO\_GetAnchorByNumber call.

### Actions:

- ! Modify the DO\_GetAnchorByNumber statement to find the correct anchor tag by number in the HTML document reply.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00106

The region identified as the nth region was not found in the HTML document returned by the last page request.

### Description:

The region specified as the nth region parameter to the DO\_GetClientMapHREF call was not found in the HTML document returned from the last request. The page request sent a smaller number of regions than the number specified in the DO\_GetClientMapHREF call.

### Script Commands:

[DO\\_GetClientMapHREF](#)

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid value passed as the map tag parameter to the DO\_GetClientMapHREF call.



### Actions:

- ! Modify the DO\_GetClientMapHREF statement to find the region in the HTML document reply.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00107

The specified form identified as the nth form tag was not found in the HTML document returned by the last page request.

### Description:

The form specified as the nth form tag parameter to the API call was not found in the HTML document returned from the last request. The page request sent a smaller number of form tags than the number specified in the API call.

### Script Commands:

DO\_GetFormActionStatement

DO\_GetFormValueByName

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid value passed as the form number parameter to the API call.

### Actions:

- ! Modify the API call to find the correct form tag by number in the HTML document reply.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00109

The field name specified was not found in the form specified.

### Description:

The field specified as the third (FieldName) parameter was not found in the form specified as the second (FormName) parameter for the DO\_GetFormValueByName call.

### Script Commands:

[DO\\_GetFormValueByName](#)

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid value passed as the field name parameter to the DO\_GetFormValueByName call.

### Actions:

Modify the field name parameter to a valid field in the form specified for the DO\_GetFormValueByName call.

### External Sources:

None

## WWW\_ERROR\_00111

The response header returned from the last request did not contain the cookie specified.

### Description:

The last reply did not contain the cookie specified by name as the first parameter for the DO\_GetCookieFromReplyEx call.

### Script Commands:

[DO\\_GetCookieFromReplyEx](#)

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid first parameter for the DO\_GetCookieFromReplyEx call for this page request.

### Actions:

- ! Remove the script command from the script.
- ! Modify the DO\_GetCookieFromReplyEx call specifying the correct cookie name as the first parameter.

### External Sources:

None

## WWW\_ERROR\_000112

The WWW server did not return a valid HTTP page to extract the HTTP error number.

### Description:

A valid HTTP page was not returned in the response from the last HTTP request. The server HTTP response cannot be extracted from the reply.

### Script Commands:

DO\_GetLastHttpError

### Causes:

The WWW server could not process the last HTTP request properly.

### Actions:

- ! Ensure the WWW server is available and able to process requests.
- ! Ensure the last page request is a valid request.

### External Sources:

None

## WWW\_ERROR\_00113

Response not found.

### Description:

The response from the server was not found because the server has not sent any data that has been stored.

### Script Commands:

DO\_VerifyDocTitle

### Causes:

- ! The WWW server did not send a response that could be stored by QALoad.

### Actions:

- ! Ensure the WWW server is available and able to process requests and send a response back.
- ! Ensure the last page request is valid and that the WWW server understands it.

### External Sources:

None

## WWW\_ERROR\_00114

No HTTP response was received from the server to extract the header value.

### Description:

The server did not send a response for the last page request. There is no HTTP header to retrieve the header value.

### Script Commands:

[DO\\_GetHeaderFromReply](#)

### Causes:

The WWW server could not process the last HTTP request properly.

### Actions:

- ! Ensure that the WWW server is available and able to process requests.
- ! Ensure that the last page request is a valid request.

### External Sources:

None

## WWW\_ERROR\_00124

The identifying left (pre-) string delimiter to extract a string value was not found in the HTML document reply.

### Description:

The left-side string delimiter passed in as the second parameter to the [DO\\_GetUniqueStringEx](#) call was not found in the HTML document reply.

### Script Commands:

[DO\\_GetUniqueStringEx](#)

### Causes:

- ! The WWW server sent an unexpected reply.
- ! The left-side delimiter string specified for the DO\_GetUniqueStringEx call is not correct.
- ! The WWW site has changed its behavior from the time the session was recorded.

### Actions:

- ! Modify the DO\_GetUniqueStringEx call to the correct left-side delimiter text identified in the HTML response.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00126

The replay machine could not create a socket for communication with the server.

### Description:

The socket to initiate communication with the WWW server could not be created on the playback machines.

### Script Commands:

Post\_To Click\_On

Navigate\_To DO\_Http

XmlRequest DO\_Https

### Causes:

- ! The playback machine may have exhausted all available sockets.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

Ensure the playback machine has enough free resources to run the number of VUs allocated to the player on this machine. If this error is occurring on a Windows player, registry settings can be adjusted to both increase the maximum number of sockets and to reduce the time wait delay sockets go through after they have been shutdown.

To increase the maximum number of sockets:

- ! Run regedit.exe.

- ! Create the MaxUserPort key in the registry at HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters.
- ! Set the value of MaxUserPort to be large value, 30,000 or more. NOTE: the maximum value is 65534.

To reduce the time wait delay:

- ! Run regedit.exe.
- ! Create the TcpTimedWaitDelay key in the registry at HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters.
- ! Set the value of TcpTimedWaitDelay to 30.

### External Sources:

- ! [Microsoft Knowledge Base Article 149532](#)
- ! [Microsoft Knowledge Base Article 196271](#)
- ! [Microsoft Knowledge Base Article 328476](#)
- ! [Microsoft Knowledge Base Article 319502](#)

## WWW\_ERROR\_00127

The playback machine could not bind a socket with the IP address specified.

### Description:

The playback machine could not bind a socket to the static IP address specified in a previous DO\_IPspoofEnable or Set command.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmlRequest    DO\_Https

### Causes:

The value specified as a spoof IP address is not associated with a network card on the playback machine.

### Actions:

Ensure that the playback machine has been set up with the static IP address associated with the value specified in the DO\_IPspoofEnable or Set command.

### External Sources:

None

## WWW\_ERROR\_00128

The replay machine was unable to connect to the WWW server.

### Description:

The replay machine socket to initiate communication with the WWW server could not set up a connection to send the last page request. No reconnect was attempted due to the nature of the error

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmlRequest    DO\_Https

### Causes:

- ! The WWW server may not be available and receiving socket connections.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure that the WWW server is available and able to process requests.

### External Sources:

None

## WWW\_ERROR\_00130

The attempt to send the page request failed.

### Description:

The last attempt to send a page request to the host failed. The error number is specified in the message.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmlRequest    DO\_Https

### Causes:

- ! The WWW server may not be available and receiving socket connections.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure the WWW server is available and able to process requests.

### External Sources:

None

## WWW\_ERROR\_00131

The replay machine was unable to connect to the WWW server despite retries.

### Description:

The replay machine socket to initiate communication with the WWW server could not set up a connection to send the last page request, after the maximum number of reconnection attempts.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure the WWW server is available and able to process requests.



- ! Increase the number of connection retries using either the EasyScript `DO_SetMaximumRetries` or Visual Script `Set[CONNECTION_RETRIES]` script command. Use the Function Wizard for help in scripting.

### External Sources:

None

## WWW\_ERROR\_00132

The reply for the last request was not received within the timeout value specified.

### Description:

The WWW server did not return a reply message to the last request within the timeout value set for the page request.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.
- ! The timeout value set in the script is too low.

### Actions:

- ! Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure that the WWW server is available and able to process requests.
- ! Increase the timeout value parameter of the appropriate `Set[USER_PATIENCE]` (Visual Script) or `DO_SetTimeout` (EZScript) commands. Use the Function Wizard for help in scripting.

### External Sources:

None

## WWW\_ERROR\_00133

No data was available for download from the WWW server for the last request.

### Description:

For the last request sent, there was no data available for download in the response returned from the WWW server, after one retry.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmIRequest    DO\_Https

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure that the WWW server is available and able to process requests.

### External Sources:

None

## WWW\_ERROR\_00138

The specified file sent as part of the response for the last request differed in size from the expected size value

### Description:

The actual size of the filename specified in the error message is not the expected size of the filename from the WWW server response.

### Script Commands:

Post\_To        Click\_On

Navigate\_To DO\_Http  
XmlRequest DO\_Https

#### Causes:

- ! The file sent may be corrupted.
- ! There is a problem on the WWW server machine.

#### Actions:

- ! Ensure the integrity of the WWW server environment.
- ! Ensure that the specified file is not corrupt on the server.
- ! Ensure the integrity of the network.

#### External Sources:

None

## WWW\_ERROR\_00140

The document title received in the last request does not match the expected title.

#### Description:

The document title parsed from the server response does not match the first parameter (szTitle) passed to the DO\_VerifyDocTitle call.

#### Script Commands:

DO\_VerifyDocTitle

#### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! The WWW server does not send a consistent document title as part of the response to this request.
- ! Script modification resulted in an invalid value passed as the first parameter (szTitle) to the DO\_VerifyDocTitle call.

#### Actions:

- ! Modify the first parameter (szTitle) of the DO\_VerifyDocTitle call to the expected document title name in the HTML document reply.
- ! Remove the DO\_VerifyDocTitle call if the server response is not expected to be consistent.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00144

The HTTP status response value is invalid.

### Description:

During WWW playback, an invalid HTTP status response was received from the WWW server, with a value less than 100 or greater than 599.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

- ! The WWW server had an error and returned an error page with invalid status.
- ! The network may be overloaded with traffic and a corrupted response was returned.

### Actions:

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.

### External Sources:

None

## WWW\_ERROR\_00145

An error has occurred while inflating GZIP-encoded content.

### Description:

An internal error has occurred while inflating GZIP-encoded content received from the WWW server.

### Script Commands:

Post\_To        Click\_On

Navigate\_To DO\_Http  
XmlRequest DO\_Https

#### Causes:

- ! The WWW server had an error and returned invalid GZIP-encoded content.
- ! The network may be overloaded with traffic and a corrupted response was returned.

#### Actions:

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Contact QALoad technical support if no cause can be found.

#### External Sources:

None

## WWW\_ERROR\_00146

An internal string manipulation error has occurred.

#### Description:

An internal string manipulation has occurred, for example, when the calculated index into a string exceeded its length.

#### Script Commands:

Post\_To Click\_On  
Navigate\_To DO\_Http  
XmlRequest DO\_Https

#### Causes:

- ! The WWW server had an error and returned an invalid response.
- ! The network may be overloaded with traffic and a corrupted response was returned.

#### Actions:

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.

- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Contact QALoad technical support if no cause can be found.

### External Sources:

None

## WWW\_ERROR\_00147

No data was available in the response from the WWW server for the last request.

### Description:

For the last non-idempotent request sent, there was no data available for download in the response returned from the WWW server.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XmlRequest    DO\_Https

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure that the WWW server is available and able to process requests.

### External Sources:

None

## WWW\_ERROR\_00148

The complete reply for the last request was not received within the timeout value specified.

### Description:

The WWW server did not return a complete reply message to the last request within the timeout value set for the page request. Incomplete data may have been returned from the host.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.
- ! The timeout value set in the script is too low.

### Actions:

- ! Ensure that the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Ensure that the WWW server is available and able to process requests.
- ! Increase the response timeout value using either the EasyScript `DO_SetTimeout` or Visual Script `Set[USER_PATIENCE]` script command. Use the Function Wizard for help in scripting.

### External Sources:

None

## WWW\_ERROR\_00149

All browser connections are in use, no more are available.

### Description:

All concurrent browser connections are in use, and no more connections are available. The maximum number of browser connections is set with the `DO_SetMaxBrowserThreads` or `Set[BROWSER_THREADS]` command.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http

[XmlRequest](#)    [DO\\_Https](#)

### Causes:

- ! The WWW server is extremely low on resources.
- ! The network may be overloaded with traffic.
- ! The maximum browser connections value set in the script is too low.

### Actions:

- ! Ensure that the WWW server is available and able to process requests.
- ! Increase the maximum browser connections value using either the EasyScript `DO_SetMaxBrowserThreads` or Visual Script `Set[BROWSER_THREADS]` script command. Use the Function Wizard for help in scripting.

### External Sources:

None

## WWW\_ERROR\_00150

The request contained an invalid host port number, less than 0 or greater than 65535.

### Description:

A request was created which contained an invalid host port number. The host port number must be in the range of 0 to 65535, inclusive.

### Script Commands:

[Post\\_To](#)        [Click\\_On](#)  
[Navigate\\_To](#)    [DO\\_Http](#)  
[XmlRequest](#)    [DO\\_Https](#)

### Causes:

A script modification was made which resulted in a request with an invalid port number.

### Actions:

- ! Correct the script modification.
- ! Contact QALoad technical support if no cause can be found.



### External Sources:

None

## WWW\_ERROR\_00151

An attempt to retrieve the local host name failed.

### Description:

An internal error has occurred upon an attempt to retrieve the name of the local host computer.

### Script Commands:

N/A

### Causes:

An internal network or socket error has occurred.

### Actions:

Contact QALoad technical support if no cause can be found.

### External Sources:

None

## WWW\_ERROR\_00152

The requested URL could not be resolved to a valid host.

### Description:

The attempt to resolve the requested URL to a host address failed.

### Script Commands:

Post_To	Click_On
Navigate_To	DO_Http
XmlRequest	DO_Https

### Causes:

- ! Script modification resulted in a WWW request with an invalid URL address specified.
- ! The requested URL address is no longer valid and cannot be resolved.

### Actions:

- ! Ensure that the appropriate URL address was specified in the script.
- ! Ensure that the behavior of the WWW site is as expected by doing another session record.

### External Sources:

None

## WWW\_ERROR\_00153

The Proxy Automatic Configuration script returned an error.

### Description:

The Proxy Automatic Configuration (PAC) script, retrieved from the URL address specified in the `DO_UseProxyAutomaticConfiguration` or `Set[PROXY_SCRIPT]` script command, returned the indicated error in the specified function.

### Script Commands:

`DO_UseProxyAutomaticConfiguration`

`Set`

### Causes:

- ! The PAC script retrieved from the specified proxy configuration server is invalid.
- ! The specified proxy configuration server is incorrect.

### Actions:

Contact the administrator of the proxy configuration server and confirm that the proxy automatic configuration script is correct.

### External Sources:

None

## WWW\_ERROR\_00160

The frame referenced by the Get call could not be found in the current HTML document.

### Description:

The frame referenced by the Get call (with the FRAME option as the first parameter) could not be found based on the parameters (specifier, description, and/or count) set for the Get call.

### Script Commands:

Get

### Causes:

- ! The WWW site has changed its behavior from the time the session was recorded.
- ! Script modification resulted in an invalid parameter set for the Get call.

### Actions:

- ! Ensure that the parameters passed to the Get call are correct.
- ! Record another session to get the WWW site's current behavior.

### External Sources:

None

## WWW\_ERROR\_00171

Unable to connect to WWW server using SSL.

### Description:

The replay machine was unable to establish a connection to the WWW server using SSL.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Https  
XmlRequest

### Causes:

- ! The WWW server may not be available and receiving socket connections.
- ! The WWW server may not be accepting SSL connections.

### Actions:

- ! Ensure the WWW server is available and accepting SSL connections.
- ! Contact QALoad technical support if no cause can be found

### External Sources:

None

## WWW\_ERROR\_00172

Unable to create a new SSL context.

### Description:

An internal error occurred when attempting to create a new SSL context for connection to the WWW server using SSL.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Https  
XmlRequest

### Causes:

- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

### Actions:

- ! Ensure the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Contact QALoad technical support if no cause can be found

### External Sources:

None

## WWW\_ERROR\_00173

Unable to get the SSL cipher list from the WWW server..

### Description:

An error occurred when attempting to get the SSL cipher list from the WWW server.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Https  
XmlRequest

**Causes:**

- ! The WWW server may not be available and receiving socket connections.
- ! The WWW server may not be accepting SSL connections.

**Actions:**

- ! Ensure the WWW server is available and accepting SSL connections.
- ! Contact QALoad technical support if no cause can be found

**External Sources:**

None

**WWW\_ERROR\_00174**

Unable to create a new SSL object.

**Description:**

An internal error occurred when attempting to create a new SSL object for connection to the WWW server using SSL.

**Script Commands:**

Post\_To      Click\_On  
Navigate\_To   DO\_Https  
XmlRequest

**Causes:**

- ! The system is extremely low on resources.
- ! The playback machine is running more VUs than is proper for its specifications.

**Actions:**

- ! Ensure the playback machine has enough free resources to run the number of VUs allocated to player on this machine.
- ! Contact QALoad technical support if no cause can be found

**External Sources:**

None

## WWW\_ERROR\_00175

Unable to set SSL cipher list.

### Description:

An internal error occurred when attempting to set the SSL cipher list for connection to the WWW server using SSL.

### Script Commands:

Post\_To      Click\_On  
Navigate\_To   DO\_Https  
XmlRequest

### Causes:

Internal error.

### Actions:

Contact QALoad technical support.

### External Sources:

None

## WWW\_ERROR\_00176

Unable to use SSL object.

### Description:

An internal error occurred when attempting to use an SSL object for connection to the WWW server using SSL.

### Script Commands:

Post\_To      Click\_On  
Navigate\_To   DO\_Https  
XmlRequest

### Causes:

Internal error.

**Actions:**

Contact QALoad technical support.

**External Sources:**

None

**WWW\_ERROR\_00190**

An internal XML parsing error has occurred.

**Description:**

An XML parsing error has occurred, causing an internal stack overflow.

**Script Commands:**

XmlRequest

**Causes:**

- ! The WWW server had an error and returned an invalid response.
- ! The network may be overloaded with traffic and a corrupted response was returned.

**Actions:**

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.
- ! Contact QALoad technical support if no cause can be found.

**External Sources:**

None

**WWW\_ERROR\_01202**

Specifier <option> not found. <Brief description>.

**Description:**

The API Specifier option was not found in the parsed and or unparsed response(s) from the server.

## Script Commands:

Get

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

## External Sources:

None

## WWW\_ERROR\_01203

Specifier <option>, value <value> not found. <Brief description>.

### Description:

The parameter value described by the API Specifier option was not found in the parsed and or unparsed response(s) from the server.

## Script Commands:

Get

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Ensure that the server is responding with the expected data.



- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ERROR\_01402

Link option <option> not found. <Brief description>.

### Description:

The API Link option was not found in the parsed and or unparsed response(s) from the server.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

### External Sources:

None

## WWW\_ERROR\_01403

Link option <option>, value <value> not found. <Brief description>.

### Description:

The parameter value described by the API Link option was not found in the parsed and or unparsed response(s) from the server.

### Script Commands:

Click\_On

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ERROR\_01502

Verify option <option> not found. <Brief description>.

### Description:

The API Verify option was not found in the parsed and or unparsed response(s) from the server.

### Script Commands:

Verify

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.

- ! Use the API command reference to find details about valid API options for the API command.

#### External Sources:

None

## WWW\_ERROR\_01503

Verify option <option>, value <value> not found. <Brief description>.

#### Description:

The parameter value described by the API Verify option was not found in the parsed and or unparsed response(s) from the server.

#### Script Commands:

Verify

#### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

#### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

#### External Sources:

None

## WWW\_ERROR\_01600

Fill in control option <option> not found. <Brief description>.

#### Description:

The API Fill\_In option was not found in the parsed and or unparsed response(s) from the server.

### Script Commands:

Fill\_In

### Causes:

- ! Script modification resulted in an invalid option passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid API option is used.
- ! Ensure that the server is responding with the expected data.
- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid API options for the API command.

### External Sources:

None

## WWW\_ERROR\_01601

Fill in control option <option>, value <value> not found. <Brief description>.

### Description:

The parameter value described by the Fill\_In option was not found in the parsed and or unparsed response(s) from the server.

### Script Commands:

Fill\_In

### Causes:

- ! Script modification resulted in an invalid parameter value passed to the API command.
- ! The server is not sending the same expected data that was received during capture. Most likely the WWW site has changed.

### Actions:

- ! Ensure that a valid parameter value described by the API option is used.
- ! Ensure that the server is responding with the expected data.

- ! Use the description that is given in the error message at runtime to help you troubleshoot the problem.
- ! Use the API command reference to find details about valid parameter values for the API command.

### External Sources:

None

## WWW\_ERROR\_03001

One or more [Content Checks](#) failed.

### Description:

During WWW playback, a required content string was not found or a prohibited content string was detected. It is possible that multiple content check violations have occurred. If multiple content check violations have occurred, then the different violation will be separated by semicolons.

### Script Commands:

[Post\\_To](#)    [Click\\_On](#)

[Navigate\\_To](#) [DO\\_Http](#)

[XmlRequest](#) [DO\\_Https](#)

### Causes:

- ! The WWW server had an error and returned an error page.
- ! The script is not correctly parameterized.
- ! The network may be overloaded with traffic and an incomplete page was returned.

### Actions:

- ! Check the server to see if any error have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Either the content check or the data sent to the server with in [Fill\\_In](#), [Set CGI\\_PARAMETER](#), [Set POST\\_DATA](#), or [Set POST\\_FILE](#) needs to be properly parameterized correctly.
- ! Check with the network administrator to see if the network has been overloaded during the performance test.

### External Sources:

None

## WWW\_WARNING\_00300

An attempt to create a cookie failed.

### Description:

An HTTP response header contained an invalid cookie name or value. The cookie has been ignored (skipped).

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

A CGI script error or other WWW server error may have occurred.

### Actions:

- ! Check the server to see if any errors have occurred on it. Checking the condition of a web server varies from server to server, please refer to your server's documentation.
- ! Contact QALoad technical support if no cause can be found.

### External Sources:

None

## WWW\_WARNING\_00301

A sub-request was skipped.

### Description:

An error occurred in an attempted sub-request. The sub-request was ignored (skipped), and the script continued. The specific error is described in the warning message text.

### Script Commands:

Post\_To        Click\_On  
Navigate\_To    DO\_Http  
XMLRequest    DO\_Https

### Causes:

An additional sub-request specified in the script may no longer be valid for the WWW server.

**Actions:**

- ! Remove the additional sub-request from the script.
- ! Contact QALoad technical support if no cause can be found.

**External Sources:**

None





## Customer Support

## Compuware Customer Support

At Compuware, we strive to make our products and documentation the best in the industry. Feedback from our customers helps us maintain our quality standards. If you need support services, please obtain the following information before calling Compuware's 24-hour product support hotline:

- ! The release (version), and build number of your QALoad installation. This information is displayed when you select the About command from any QALoad component's Help menu.
- ! Installation information, including installed components, whether it is installed in the default directories, and so on.
- ! Environment information, such as the operating system and release on which the product is installed, memory, hardware/network specifications, and the names and releases of other applications that were running.
- ! The location of the problem in the QALoad software, and the actions taken before the problem occurred.
- ! The exact QALoad error message, if any.
- ! The exact application, licensing, or operating system error messages, if any.
- ! Your Compuware client, office, or site number, if available.

## Contact Information

Compuware Corporation  
One Campus Martius  
Detroit, MI 48226-5099

(800) 538-7822

## World Wide Web Information

To access Compuware Corporation's site on the World Wide Web, point your browser at <http://www.compuware.com>. The Compuware site provides a variety of product and support information.

## FrontLine Support Web Site

You can access online technical support for Compuware products using our FrontLine support Web site. FrontLine provides fast access to critical information about your QACenter product. You can read or download documentation, frequently asked questions, and product fixes, or email your questions or comments. To access FrontLine, you must first register and obtain a password. To register, point your browser at <http://frontline.compuware.com>.

## ZipFile Wizard

You can use the [ZipFile Wizard](#) to transmit smaller files to QALoad Technical Support. This simplifies the task of collecting the files needed to assist you in resolving your problem.

## Overview of the ZipFile Wizard

The ZipFile Wizard simplifies the task of collecting the files needed by the Technical Support team to analyze and resolve a problem that you might be having with QALoad. It facilitates navigation through QALoad's installation so you can easily select the required files without actually knowing where they reside. Once selected, the files are collected and compressed into a ZIP file that optionally can be transmitted to the QALoad Technical Support team.



## Accessibility

## Accessibility Features

Compuware is committed to compliance with Section 508 standards for accessibility in software products. Section 508 standards were enacted by Congress in 1998 as an amendment to the Rehabilitation Act. The standards require federal agencies to increase the accessibility of their electronic information to people with disabilities. Software that is fully compliant with Section 508 standards provides information access to people with disabilities that is comparable to the information access available to people without disabilities. Software that is compliant with exceptions, such as QALoad, provides support for most, but not all, criteria of compliance.

This topic describes the level of accessibility currently available in QALoad, including the product documentation.

## Accessibility of QALoad Components

All components of QALoad — Script Development Workbench, Conductor, Player, and Analyze — support the basic criteria of accessibility for software applications. For most categories of compliance, there are exceptions in which assistive technologies do not work in all situations or the alternate methods of information retrieval or product function are not always available. However, the following basic accessibility features are available in QALoad:

- ! Product functions are executable from the keyboard
- ! The application does not disrupt or disable activated features of other products that are identified as accessibility features
- ! The product provides an on-screen indication of the current focus and the focus can be tracked by assistive technologies
- ! The identity, operation, and state of elements of the user interface are available to assistive technologies
- ! Textual information is provided through the operating system functions for displaying text
- ! The application does not override user-selected contrast and color selections
- ! Color-coding is not used as the only means of conveying information
- ! Electronic forms allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form

## Accessibility of QALoad Documentation

Generally, the QALoad documentation is accessible and can be read by screen readers. Alternate formats of the documentation are not currently available.

### Online Help

QALoad's online help system is HTML-based and can be read by screen readers. All graphics in the online help have text descriptions. Topics in the online help can be printed.

### Release Notes

The QALoad Release Notes is an HTML document that can be read by screen readers and printed.

## Installation Guide

The QACenter Performance Edition Installation and Configuration Guide is an accessible PDF-based book that provides text descriptions for images in addition to the ability to be read by some screen readers and the Read Aloud feature of Adobe Acrobat. To take advantage of the accessibility features in the Installation Guide, you must have Adobe Acrobat Reader 6.0 or later. This book can be printed.

## Assistive Technology Tools that Enhance the Accessibility of QALoad

There are many third-party assistive technology tools that you can use to access the QALoad user interface and product documentation by alternate means. These products perform a variety of functions, such as enlarging the user interface and reading text on the interface or in the documentation. Many features are available in Windows, such as:

- ! Windows Narrator
- ! Windows accessibility wizard (includes features such as SoundSentry, ShowSounds, StickyKeys, and MouseKeys)
- ! Windows On-Screen Keyboard
- ! Microsoft Magnifier

Refer to the Windows documentation to learn more about using these features. Most other tools fall into one of the following two categories:

- ! Screen readers: Software programs that present graphics and text as speech. A screen reader is used to verbalize, or "speak," everything on the screen including names and descriptions of control buttons, menus, text, and punctuation. (Example: JAWS for Windows by Freedom Scientific, Inc.)
- ! Screen enlargers (or screen magnifiers): Software that works like a magnifying glass on other applications. They enlarge a portion of the screen as the user moves the focus — increasing legibility for some users. Some screen enlargers allow you to zoom in and out on a particular area of the screen. (Example: ZoomText Magnifier by AI Squared)

## Product Shortcut Keys

The following tables list the defined shortcut keys for each component of QALoad. You can use these key combinations to open dialog boxes, start or stop processes, or interact in other ways with QALoad without using a mouse.

### Script Development Workbench

Shortcut Key Combination	Action
CTRL+N	Open the New dialog box, from which you can create new scripts or datapools.
CTRL+O	Open the Open dialog box, from which you can open various product files.
CTRL+S	Save the active document.
CTRL+P	Print the active document

CTRL+Z	Undo the last action.
CTRL+Y	Redo the last action.
CTRL+X	Cut.
CTRL+C	Copy.
CTRL+V	Paste.
CTRL+F	Find.
CTRL+H	Replace.
CTRL+G	Open the Go to Line dialog box, from which you can go to a specific line number in the active script.
CTRL+F2	Toggle bookmark on/off.
F2	Move to next bookmark.
SHIFT+F2	Move to previous bookmark.
CTRL+SHIFT+F2	Clear all bookmarks.
CTRL+ALT+C	Start a recording.
CTRL+ALT+T	Stop a recording.
CTRL+ALT+R	Restart a recording.
CTRL+ALT+U	Resume a recording.
F7	Compile the active script.
CTRL+F5	Validate the active script.
CTRL+T	Open the FTP Transfer dialog box, from which you can send a file via FTP.
F1	Open the QALoad online help.
ALT+F4	Close the Script Development Workbench.

## Conductor

Shortcut Key Combination	Description
F1	Open the QALoad online help.
CTRL+X	Cut.
CTRL+C	Copy.



CTRL+P	Paste.
ALT+F4	Close the Conductor.

## Analyze

Shortcut Key Combination	Description
CTRL+O	Open a timing file.
CTRL+P	Print the active document.
CTRL+C	Copy Summary and Data selections.
CTRL+A	Select all items.
CTRL+U	Unselect all items.
F1	Open QALoad online help.
ALT+F6	Move to the next tab in the Data window.
ALT+F4	Close Analyze.

## Player

Shortcut Key Combination	Description
CTRL+N	Clear any current messages from the Player's main window.
CTRL+S	Save a text file of the messages reported by a QALoad Player during a test.
CTRL+P	Print Player output.
CTRL+Z	Undo the last action.
CTRL+X	Cut.
CTRL+C	Copy.
CTRL+V	Paste.
F1	Open QALoad online help.
ALT+F4	Close the Player.

To request a Voluntary Product Accessibility Template (VPAT) or for more information regarding accessibility of QALoad or any other Compuware product, see <http://www.compuware.com/accessibility/>.



## Glossary

## QALoad Glossary

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[Analyze](#)

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