



extend Interoperability Suite 10.4.1

Release Notes

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extend Release Notes

These release notes contain information that might not appear in the Help. Read them in their entirety before you install the product.



Note: This document contains links to external web sites. Micro Focus cannot be responsible for the contents of the website or for the contents of any site to which it might link. Web sites by their nature can change very rapidly and although every attempt is made to keep links up-to-date, Micro Focus cannot guarantee that external links will always work as expected.

extend System Requirements



Note: This product includes software developed by the University of California, Berkeley and its contributors.

Hardware Requirements

extend software has the following requirements:

For Windows:

- The amount of disk space needed to install the ACUCOBOL-GT development system is typically less than 35 MB.
- AcuBench® requires at least 20 MB for installation.
- You need an additional 40 MB to install all of the other extend products.
- Use of .NET controls with the runtime and thin client requires .NET Framework 4.0.

For all other platforms:

The amount of disk space needed to install all extend products is typically less than 35 MB.

Supported Operating Systems

All supported operating systems are both 32- and 64-bit unless otherwise noted.

Operating System	Processor
AIX 6.x	PowerPC
AIX 7.x	PowerPC ¹
FreeBSD 9.x	x86-64 ^{2,3}
HP/UX 11v3	Itanium-2
HP/UX 11v3	PA-RISC ³
Linux libc 2.5	x86-64
Linux libc 2.5	PowerPC
Solaris 10	SPARC
Solaris 11.3	SPARC
Windows XP	x86-64 ^{2,3,4}
Windows Server 2003	x86-64 ^{2,3,4}
Windows 7	x86-64
Windows 8.1	x86-64
Windows 10	x86-64

¹ For the AIX 7.1 platform, the minimum requirement is version 7.1 Technology Level 4 (7100-04)); for the AIX 7.2 platform, the minimum requirement is version 7.2 SP1.

² 32-bit only.

³ The extend Interoperability Suite version 10.4.1 is the final version to provide support for this platform.

Operating System	Processor
⁴ AcuBench 10.4.1 no longer supports this and earlier Windows platforms because they do not support several third-party libraries used by AcuBench.	

Additional Requirements

General requirements

Linux-based platforms require glibc version 2.5 or later.

AcuServer:

- Each server machine must be networked to UNIX, Linux, or Windows clients with TCP/IP. TCP/IP is not sold or supplied by Micro Focus.
- All servers must have a copy of the AcuServer license management file.
- Windows clients can run any TCP/IP software that uses a WINSOCK2 compliant ws2_32.dll.
- Unless you have an unlimited license for AcuServer, all UNIX servers must run the current version of acushare, which is included on the AcuServer distribution media.
- All servers must have a copy of the license file activated by the product installation script. This file is named acuserve.alc.
- Client machines must have an ACUCOBOL-GT AcuServer-enabled runtime. All Windows runtimes Version 5.0 and later are AcuServer-enabled. To verify that your UNIX runtime is AcuServer-enabled, type `runcbl -v` in a Command prompt and look for this line.

AcuServer client

- Servers being accessed by the ACUCOBOL-GT Web runtime must have a multiple-user ACUCOBOL-GT runtime license that accommodates each concurrent user that is anticipated. (If you anticipate 100 concurrent users of the Web runtime, you need a 100-user runtime license on the server in addition to the AcuServer license file. Alternatively, runtime users can install a local or network floating license for the runtime themselves.

AcuBench:

- Intel Pentium III CPU, 300 MHz; Intel Pentium IV, 2 GHz recommended
- 128 MB of RAM recommended
- 120 MB of available hard disk space recommended
- mouse
- 800 x 600 VGA display or better; 1024 x 768 VGA display recommended

AcuToWeb:

gcc versions AcuToWeb requires the following gcc versions or later on the following platforms:

Platform	Minimum requirement
Aix6.1	GCC 7.1.0
Aix7.1	GCC 7.1.0
Aix7.2	GCC 7.1.0
HP 11.31 PA-RISC	GCC 4.3.1
HP 11.31 IA	GCC 4.2.3
Linux	GCC 4.8.0
Linux PPC	GCC 4.1.2-46
Sun Solaris 10	GCC 3.4.3

Platform	Minimum requirement
Sun Solaris 11	GCC 4.8.2

Linux-based platforms For Linux-based platforms, the following packages must be added:

Debian-based	libc6:i386 libstdc++6:i386
RHEL/Centos-based	libstdc++.i686
SUSE-based	libstdc++6-32bit

AIX and Solaris platforms AIX and Solaris platforms require the Foreign Function Interface Library (libffi) is installed. More information and the installation packages can be found at the following:

AIX platforms You can download an RPM package from:
<http://www.bullfreeware.com/affichage.php?id=3638>

And then install it using:

```
rpm -Uvh http://www.bullfreeware.com/download/bin/3638/libffi-20170516-1.aix6.1.ppc.rpm
```

Solaris platforms You can download the package from:
<https://www.opencsw.org/packages/libffi6/>

General information on libffi can be found at:

<https://cffi.readthedocs.io/en/latest/installation.html>

If you are running on the Solaris 11 platform, the minimum version required to run the AcuToWeb Gateway is version 11.3.

AcuSQL:

- Your COBOL application must run on a Windows system or a UNIX system supported by Micro Focus. Unless otherwise indicated, the references to Windows in this manual denote supported Windows operating systems. Where necessary, individual versions of those operating systems are referred to by their specific version numbers.
- AcuSQL must be installed with the ACUCOBOL-GT development system on your Windows or UNIX system.
- If using a database other than Microsoft SQL Server, you must have a working ODBC level 2 API connection to your database, including any required networking software support.
- For SQL Server, if running the AcuSQL interface to Microsoft SQL Server, you must have the SQL Server client software from Microsoft. Use the Query Analyzer to see if the SQL Server client software from Microsoft is on your system. For information on opening the Query Analyzer, see the SQL Server client documentation. If the Query Analyzer opens and you are able to connect to the database, the client libraries are most likely all present. Your SQL Server data source may be hosted on one or more of the supported server operating systems.
- If you are running the AcuSQL interface to MySQL, you must have the following software:
 - MySQL 5.0 Database Server Version 5.0.18 or later (Generally Available release). Testing was done with MySQL 5.0.18 Standard.
 - MySQL Connector/ODBC Version 3.51.11 or later (Generally Available release). Testing was done with the libmyodbc3-3.51.12.so library. This file is available from <http://dev.mysql.com>.

You can check the version of your server by connecting using mysql. The version prints upon connection. For example:

```
[testing ]: mysql
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 29 to server version:
5.0.18-standard
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.
```

Once in MySQL, you can also use the following:

```
mysql> select version();
+-----+
| version() |
+-----+
| 5.0.18-standard |
+-----+
1 row in set (0.09 sec)
```

- If your application accesses DB2 data, IBM's DB2 Connect™ software is recommended. Access to DB2 databases has been tested with DB2 Connect. However, any vendor's properly configured ODBC level 2 API connectivity software should work. Your DB2 data source may be hosted on one (or more) of the supported operating systems.

Acu4GL (for ODBC) driver requirements:

Your ODBC driver must include the following functions:

- all Core ODBC driver functions
- the Level 1 function SQLColumns
- the Level 1 function SQLTables

Depending on the method of record locking you choose, your driver may also need to support some of the following function calls:

- SQLSetStmtOption
- SQLSetScrollOptions
- SQLExtendedFetch
- SQLSetPos

See A_ODBC_LOCK_METHOD in the extend online help for more information.

To test the capabilities of your ODBC driver, we have included a driver test program on your Acu4GL for ODBC installation disks. You can also consult your driver documentation to ensure that it meets these requirements.

Windows Installation

License Files for Windows

You may request a license file for one or more users. The number of users (user limit) is set in your license agreement with Micro Focus.

When you receive your products, the package includes product codes and product keys for every product you ordered. You must have the product codes and product keys to create the license file.

When you install or update your license file, place it in the appropriate directory for your version of Windows. The location is:

```
C:\ProgramData\Micro Focus\extend\x.x.x\x86\product-license.alc
```

(Where x.x.x is the product version number.)



Note: This location is new to extend 9.0 and later, and differs from past versions of extend products. See *Appendix C - Changes Affecting Previous Versions* in the *ACUCOBOL-GT Appendices* manual for details.

When you have multiple users or products, you may copy the license file onto each machine containing the corresponding product or place the products and license file on a shared drive. Each product must be able to locate its license file in order to function.



Note: The ACUCOBOL-GT Transaction Server runtime license file is named wrun32.1lc. If you are using other *extend* products, the license files must be concatenated into a special file.

The Activator Utility

The Activator Utility automates the process of creating a license file.

During installation, select **Install License Activator** on the Installation Settings page to install the Activator Utility (activator.exe). It is installed in the \AcuGT\bin sub-directory of the installation directory.



Note: Always use the version of the Activator supplied with the version of the product you have installed.

To create the required license files during installation, select **Launch License Activator** on the Installation Settings page. This will launch the Activator Utility when the selected products have installed, enabling you to enter the product code and key pairs required to create the license files.

You can also create license files after the installation by running the Activator Utility (activator.exe) from the location detailed above or from the Start menu.

During product installation, if the Activator detects the presence of an existing license file, the extension of the existing file is changed before a new license file is created. For example, runcbl.alc is renamed runcbl.al!. If the Activator is unable to rename the existing license file, it quits with an error message, and no new license file is created. If a license file with the back-up extension already exists, the Activator attempts to overwrite it. If that fails, the Activator quits with an error message and no new license file is created. On Windows platforms, file attributes such as Read Only are also preserved.

Changing or Updating a Windows License File

If you need to alter your license file information, contact your Micro Focus *extend* representative for updated product code(s) and product key(s). When you receive them, launch the Activator and enter the new information as prompted.



Note: If you have copied a license file to a non-default directory, remember to replace that file with a copy of the updated license file.

Installation on Windows Platforms

The Windows installation requires little interaction; the setup program copies the files into a directory you designate, or C:\Program Files\Micro Focus\extend x.x.x (where x.x.x is the version number) by default. On 64-bit machines, 32-bit executables are installed to C:\Program Files (x86).

Before you run an installation, you should ensure that you have your product codes and product keys, and the product media to hand. Refer to the appropriate installation instructions below.

Also, you should ensure that you do not have another version of the extend Interoperability Suite referenced in the PATH system environment variable, as having more than one version specified may cause unexpected results.

After the installation is complete, if you have installed both the compiler and runtime, you can begin to compile and execute your COBOL programs. Basic compilation and execution techniques are described in *Compiling Your Programs* and *Running Your Programs*.



Note: If you move or delete any .dll files that have been installed, your products may not run as expected.

AcuBench and AcuXDBC™ must be installed locally (on the client). Server-side products such as AcuServer™, AcuXDBC™ Server and AcuConnect® are to be installed only on server machines.

Supported Windows Platforms

For a full list of the supported operating systems, check the Product Availability section on the Micro Focus SupportLine Web site: <https://supportline.microfocus.com/prodavail.aspx>.

Installation Steps



Attention: The installation is supplied in two formats: .exe and .msi. On the installation CD, the .exe is located in the top level folder, and the .msi is located in the msi folder. If you plan to install Xcentrinity Business Information Server, or start AcuServer or AcuConnect from the installer, you must run the installation with administrator privileges, from an account that is in the Administrator group.

If you install from the CD, it will automatically run the .exe version with administrator privileges. To run the .msi, you must run it from a command prompt that has administrator privileges. To run the .msi with administrator privileges, click **Start**, and in the **Search programs and files** field, type cmd.exe, then in the list displayed, right-click **cmd.exe** and select **Run as administrator**: this opens a command prompt with administrator privileges, where you can run the install by typing the full path name of the .msi file.

Follow these steps to install your products.

1. Insert the product CD, or use the provided link to download the installation package from the Micro Focus website.

If you are using the CD, it runs the .exe version automatically.

2. If the .exe version does not start automatically, or you are using the downloaded installation package, do one of the following:
 - Navigate to the CD drive, then double-click the .exe.
 - Navigate to the location of the downloaded file, then double-click it. (See the above note if you are running the .msi version.)

The installation starts.

3. On the Welcome page, click **Next**.
4. On the **End-User License Agreement** page, select **I accept the terms in the License Agreement**, then click **Next**.
5. On the **Select Installation Folder** page, click **Browse** and select installation directories for 32-bit and 64-bit (if applicable) products. Alternatively, you can accept the default location(s), then click **Next**.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

6. On the **Product Selection** page, select the required products, then click **Next**.

You must have product codes and keys to activate each product; however, you can install all products now, and activate those products for which you do not have a license at a later date. (Be aware that if you attempt to use products for which you do not have a license, you may receive error messages indicating that no license file is available.)



Note: Ensure you select **Documentation** on this page to install and access the product user guides.

7. On the **Installation Settings** page, select one or more of the following, then click **Next**:

Select	To
Install License Activator	Install a copy of the License Activator
Launch License Activator	Launch the License Activator at the end of the installation process
Start AcuServer	Start AcuServer as a service
Start AcuConnect	Start AcuConnect as a service



Note: Starting either AcuServer or AcuConnect as a service will only occur if you have run the .exe or .msi version of the installer with administrator privileges (see note above). If a previous version of either product is already running on its default port, an additional prompt is displayed, asking you if you want to shut down that service; you must answer **Y** if the new version of AcuServer or AcuConnect is to start - see *Notes on AcuConnect and AcuServer Installation* for more details.

If you selected **Launch License Activator** on the **Installation Settings** page, the **Activator Wizard** appears.



8. Type your first product code and key in the appropriate fields.

The License Activator is case-insensitive and displays only uppercase characters. It also ignores embedded spaces and separating characters. Product codes and keys do not contain the letters "O" or "I".



Caution: If you have a license for both the Windows runtime (`wrun32.exe`) and an Alternate Terminal Manager (ATM) runtime (`run32.exe`) for the same machine, be aware that the Activator Utility creates a license file named `wrun32.alc` for each of them. To avoid a situation in which the Activator Utility overwrites the license file for the second runtime:

- Make a backup copy of the Windows runtime license file prior to creating (and renaming) the ATM runtime license.
- Create the ATM runtime license and rename it to match the executable (change `wrun32.alc` to `run32.alc`) before creating the Windows runtime license.

9. If you have more than one code and key pair to enter, select **More** after typing the first code/key pair. Repeat this process until you have entered all code and key pairs, then click **Finish**.

Each time you press **More**, the License Activator creates a separate license file for the product code and key you entered and returns you to the code and key entry screen.

10. Click **Finish** on the **Installation Complete** page to complete the installation.



Note: If license activation was successful, but you get a message during product startup indicating that the license file cannot be found, the license file may not be in the correct directory. The License Activator determines where to place the license file based on entries in the Windows registry. If no registry entry is found, the license file is placed in the same directory as the License Activator executable file, which is the `\AcuGT\bin` sub-directory of the default installation directory. If this is not the location of the product's executable file, move the license file to the directory containing the corresponding executable file; for example, move `wrun32.alc` to the directory containing `wrun32.exe`.

Silent Installation

On Windows platforms, you can perform a silent installation of the extend Interoperability Suite using the `msiexec` command, which requires that you use the `.msi` install package that is shipped with your product. This must be run from a command line prompt that has administrative privileges.

The syntax required is:

```
msiexec /i <msi-file> INSTALLDIR=<install-directory> [INSTALLDIR64=<64-bit-install-directory>]
ADDLOCAL=<product1,product2,...> [WINDOWSVERSION=<Win-version>] /qn [/L*v <log-file>]
```

where:

<msi-file>

The .msi installation file. This could be a 32-bit or a 64-bit version.

<install-directory>

The directory in which the product will be installed.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

<64-bit-install-directory>

The directory in which the 64-bit products will be installed. This is mandatory if you are using the 64-bit installer, because it installs both 32-bit and 64-bit versions of some products, using <install-directory> for the 32-bit versions and <64-bit-install-directory> for the 64-bit versions.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

<product1,product2,...>

A list of products and services to be installed; see *Product Variables for Silent Installation* for the comprehensive list of options.

<Win-version>

This is required for Windows versions 8 and later, in order to create the Extend Start menu. The only permissible value for <Win-version> is **PostWindows7**.

<log-file>

The path and file name of a log file in which to log the installation details.

Examples

32-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and (on Windows 8 and later) also creates the extend start menu in the Windows program list:

```
msiexec /i "extend(R) Version 10.2.0 x86.msi" INSTALLDIR=C:\AcuInstallDir  
ADDLOCAL=Runtime,Acu4GLMSSQL,AcuSQLRuntime  
WINDOWSVERSION=PostWindows7 /qn
```

64-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and the 64-bit runtime, Acu4GL for MSSQL, and AcuSQL runtime to the C:\AcuInstallDir64 directory:

```
msiexec /i "extend(R) Version 10.2.0 x64.msi" INSTALLDIR=C:\AcuInstallDir  
INSTALLDIR64=C:\AcuInstallDir64  
ADDLOCAL=Runtime,Runtime64,Acu4GLMSSQL,Acu4GLMSSQL64,AcuSQLRuntime,  
AcuSQLRuntime64 /qn
```

Comments

You can also use the msiexec command to run the installation with a user interface: omit the ADDLOCAL parameter and substitute /qn for /qf.

You can also use the msiexec command to install the thin client .msi file that is supplied with your product: omit the ADDLOCAL parameter.

Product Variables for Silent Installation

The following table contains a list of possible arguments that you can use with ADDLOCAL when running a silent installation. Most argument names are self-explanatory; the Notes column explains those that are not.

Argument name	Notes
Acu4GLDB2	
Acu4GLDB264	
Acu4GLMSSQL	
Acu4GLMSSQL64	
Acu4GLODBC	
Acu4GLODBC64	
Acu4GLOracle	
Acu4GLOracle64	
AcuBench	
AcuConnect	
AcuConnect64	
AcuConnectDistributedProcessing	
AcuConnectThinClient	
AcuServer	
AcuServer64	
AcuSQLPrecompiler	
AcuSQLPrecompiler64	
AcuSQLRuntime	
AcuSQLRuntime64	
AcuToWeb	
AcuXDBC	
AcuXDBC64	
AcuXDBCEnterpriseEdition	The 32-bit and the 64-bit versions of
	AcuXDBCEnterpriseEdition are mutually exclusive; you
	may only specify one of these versions during the
	installation.
AcuXDBCEnterpriseEdition64	
AcuxdbcsBat	
AcuxdbcsBat64	

Argument name	Notes
AcuXDBCServer	The 32-bit and the 64-bit versions of AcuXDBCServer are mutually exclusive; you may only specify one of these versions during the installation.
AcuXDBCServer64	
BIS	
Compiler	
DevSys	The ACUCOBOL-GT Development System, which includes the following: Compiler, Runtime, WebRuntime, ThinClient, and WebThinClient.
ExtendStartMenu	The entry shown on the Windows program menu for Windows versions 8 and later. The 32-bit and the 64-bit versions of ExtendStartMenu are mutually exclusive; you may only specify one of these versions during the installation.
ExtendStartMenu64	
LicenseActivator	
LicenseActivator64	
OnlineDocumentationCHM	
Runtime	
Runtime64	
ThinClient	
VCR redistrib	Installs the Microsoft redistributable files, required by the extend products, if they are not already installed.
VortexJar	Required for AcuXDBCEE. The enterprise edition of AcuXDBC needs the vortex.jar file, which enables a Java client application to connect to your Vision database.
VortexJar64	
WebRuntime	
WebThinClient	

Examples

32-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and (on Windows 8 and later) also creates the extend start menu in the Windows program list:

```
msiexec /i "extend(R) Version 10.2.0 x86.msi" INSTALLDIR=C:\AcuInstallDir
ADDLOCAL=Runtime,Acu4GLMSSQL,AcuSQLRuntime
WINDOWSVERSION=PostWindows7 /qn
```

64-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and the 64-bit runtime, Acu4GL for MSSQL, and AcuSQL runtime to the C:\AcuInstallDir64 directory:

```
msiexec /i "extend(R) Version 10.2.0 x64.msi" INSTALLDIR=C:\AcuInstallDir  
INSTALLDIR64=C:\AcuInstallDir64  
ADDLOCAL=Runtime,Runtime64,Acu4GLMSSQL,Acu4GLMSSQL64,AcuSQLRuntime,  
AcuSQLRuntime64 /qn
```

Windows 64-bit Installations

There are 64-bit versions of most extend products. These 64-bit versions are installed using a separate 64-bit version of the installer. The installation process follows the same steps as described in [Installation on Windows Platforms](#), with the following notable exceptions.

When running the 64-bit installer, if no 64-bit version exists for a selected product (for example, AcuBench), the 32-bit version is installed.

Products such as AcuConnect and AcuServer have 32-bit and 64-bit versions, and both are installed if you select these products during installation. You can also decide which version of the product to start on completion of the installation.

The AcuXDBC product is broken down into three installations: for the Data Interface, you can install both the 32-bit and 64-bit versions; and for the AcuXDBC Server and Enterprise Edition, you must choose which version to install.

By default, all 64-bit product versions are installed in the Program Files directory, and 32-bit product versions (and any supporting non-64-bit tools) are installed in the Program Files (x86) directory; although, you can change these locations during the installation. All the 32-bit versions are fully supported and functional in a 64-bit environment.



Remember: When running the license activator after the installation, the 64-bit version of the Activator utility is run, which installs license files into both the 32-bit and 64-bit directories. When running the Activator utility from the command prompt, make sure you are using the 64-bit command prompt to ensure the correct licenses are generated and placed in the correct locations; otherwise, if the 32-bit Activator utility is run, only license files for 32-bit products will be generated.

Installation Notes

Debugging files

The Windows distribution media now contains .pdb debugging files to assist customer support in solving runtime issues on a customer's machine - .pdb files enable runtime stack information to be generated.

To setup this ability, copy the .pdb files from the 32-bit or 64-bit Debug directories on the distribution media to the 32-bit or 64-bit directory of the installation. 32-bit files on the media are located in Debug\Win32\bin*.pdb, and 64-bit files on the media are located in Debug\x64\bin*.pdb.

Once the .pdb files are copied, follow any instructions given to you by Customer Support.


AcuConnect and AcuServer

During the installation process, if you are installing AcuConnect or AcuServer, you can choose to automatically start those services as part of the installation process.


Those services can only be started if certain conditions are met. For example, the services will attempt to start on a default port (AcuConnect 5632, AcuServer 6523). If an existing installation is already using that port, that service must be stopped if the installation is to create and run the new service. If you do not stop the existing service, the installation can only create the new service; it cannot run it.

```
C:\Program Files (x86)\Micro Focus\extend 10.1.1\AcuGT\bin\acurcl.exe
Shutting down AcuConnect on: OOH-H7GAR
There are 0 child processes on: OOH-H7GAR
Do you really want to shutdown AcuConnect [N]?
```

If there is no previous installation, a default AcuAccess configuration file is only created (in its default location of %PROGRAMDATA%\Micro Focus\extend\10.5.0) when the service starts.

 **Note:** For backward compatibility purposes, if the file is not found in the default location, ACUCOBOL-GT then automatically searches for the file in the %PROGRAMDATA%\Micro Focus\extend directory, and finally, the \etc directory.

If you configure the installation to not start the service, no AcuAccess file will exist until you start the products from their respective control panels (or command line equivalents). If a previous installation exists, ACUCOBOL-GT uses the first AcuAccess file found in one of the searched directories.

 **Note:** This file and directory are not removed when you uninstall a previous product.

BIN-REDIST and REDIST Installation Directories

The extend Windows distribution contains two directories: BIN-REDIST and REDIST.

REDIST contains thin client files that should be distributed along with the thin client.

BIN-REDIST contains Microsoft Redistributable files. These files are required in cases where the ACUCOBOL-GT bin directory and runtime are placed on a shared drive and users then map to that drive. The BIN-REDIST directory should be placed inside the shared bin directory.

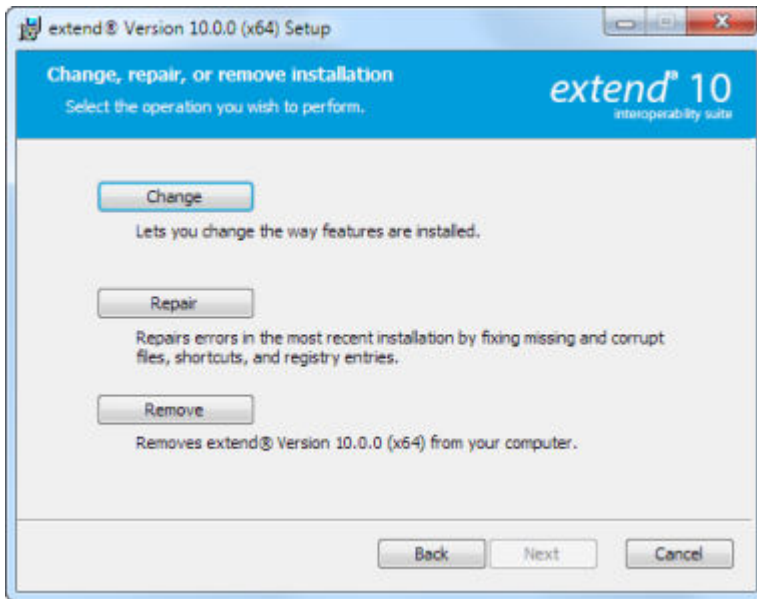
Uninstalling or Modifying Your Installation

You can uninstall or amend your current installation in one of two ways: you can run the installer again, or use the Programs and Features section in Windows. Both enable you to run the Installation Wizard, where you can perform the following program maintenance:

Change Enables you to add or remove products to and from your current installation. Any products that were already checked that you uncheck are uninstalled. Any additions are installed using the default installation path (C:\Program Files\Micro Focus\extend x.x.x - where x.x.x is the version number). There is no option to change to a non-default location, but you can overcome this with some products by copying the installed files from the default location to your preferred location. Note that this method will not work for AcuXDBC, AcuBench, and any server products that are registered as services.

Repair Enables you to reinstall the currently installed products.

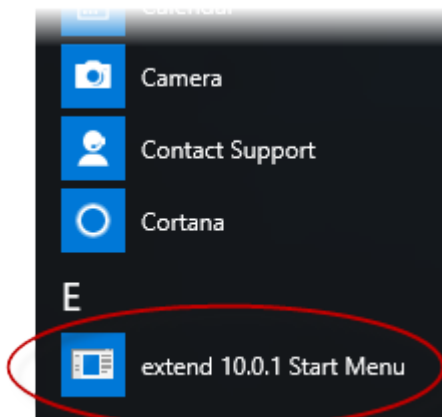
Remove Enables you to remove all products of your installation.



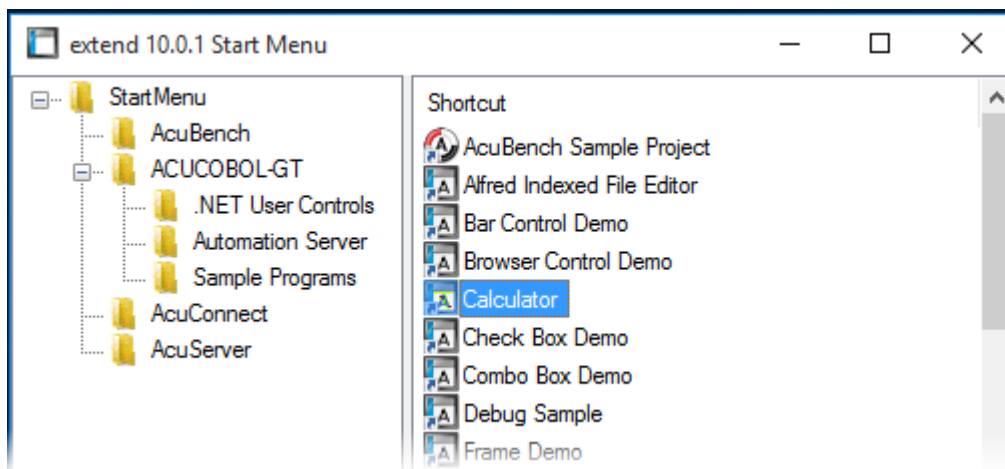
Launching extend Products on Windows 8 or Later

Since the introduction of Windows 8, the Windows program menu does not display programs in a hierarchical way. For the extend Interoperability Suite, this would mean that all the programs relating to AcuBench, ACUCOBOL-GT, AcuConnect, etc... would be displayed as a flat list, and it would be difficult to distinguish which programs were related to which products.

In order to show the programs grouped within the products they belong to, the extend Start Menu has been introduced. After installation of the extend Interoperability Suite, there will be one entry in the Windows programs menu - **extend x.x.x Start Menu** (where x.x.x is the version number of the installed product):



Launch this application to display a hierarchy that looks similar to the Windows program menus prior to Windows 8. Simply navigate the folders displayed in the left-hand pane to display shortcuts to the related programs in the right-hand pane. Select the required shortcut: at which point, the extend Start Menu closes and the program is launched.



Compiling Your Programs

The ACUCOBOL-GT compiler is most easily used via AcuBench. However, it is also possible to compile from the command prompt or the Windows Start menu, to establish an association between your source files and the compiler executable, or to set up one or more icons to compile individual files. For information regarding creating file associations and setting up icons, see your Windows documentation.

When you compile, if the system returns "Bad command or file name," you did not add the location of the compiler to the PATH environment variable, or you have not rebooted since installing the software.

You can check the current definition of PATH by typing `path` and pressing **Enter** at the command prompt. The default path is `C:\Program Files\Micro Focus\extend x.x.x\AcuGT\bin` (or `c:\Program Files (x86)\...` for 64-bit installations). If you do not update PATH with this entry, you must type the full path and program name to the compiler each time you compile; alternatively, you can create a `.bat` file.

Once you have verified that the compiler is in your PATH (or you have decided that you will specify the full path every time you compile), you are ready to compile your programs. Refer to *ACUCOBOL-GT User's Guide > Compiler and Runtime > Using the Compiler* for a complete list of compile options. You can also display a complete list of options by running the compiler command:

```
ccbl32 -help
```

One commonly used option is `-o`. This option is used to specify the name of the output object file. Note that ACUCOBOL-GT uses the naming convention `.acu` to indicate an ACUCOBOL-GT object file. If `-o` is not used, the compiler will name the file `source-name.acu`. If your source includes COPY files, you can copy the COPY files to your current working directory, specify their location with the `-Sp` option followed by the complete path of one or more directories, or set the `COPYPATH` environment variable. A typical compilation command might look like:

```
ccbl32 -Sp c:\work\lib -o sample.cbx sample.cbl
```

Running Your Programs

After a successful compilation, the resultant object file is ready for immediate execution (no link step is required). To run your program, make a note of the full path to your object file and return to the Windows desktop.

There are a variety of ways to run your program under Windows. The basic methods are:

- Running a command from the **Start** menu.
- Placing an icon for each program in a Program Group or folder, and then starting the program by double-clicking its icon.


- Naming your COBOL object files with a common file extension and then associating the extension with the runtime. After the association is established, you can run a program by double-clicking on the name of the file as it appears in Windows.
- Using the **wrun32** (or **crun32** if you are using the console runtime) command at the command prompt.

This document describes how to run a program from the **Start** menu only (although, the command line option is almost identical). The advantage of this method is that it requires no special setup. However, it is more time-consuming (than other methods) because you must type the command line options every time you execute the program. For greater convenience, it is best to set up a program icon: to do this, or to create a file association to the runtime, please refer to your Windows documentation.

1. Click the **Start** button.
2. On the Start menu, in the entry field, type the name of your ACUCOBOL-GT Windows runtime.

The default name is `wrun32.exe`. If you changed the name of the runtime executable, enter that name.

3. Following the name of the runtime, enter any runtime options required, followed by the path and name of the COBOL executable program you want to run.
4. After you have entered the complete command line, press **Enter** to execute the program.

 **Note:** If you did not add the `\bin` directory path to the `PATH` system environment variable (typically, that is: `c:\Program Files\Micro Focus\extend xxx\AcuGT\bin`), you will need to specify the full path to the runtime (`c:\Program Files\Micro Focus\extend xxx\AcuGT\bin\wrun32.exe`) each time in the command (and not simply `wrun32.exe`).


You can use the COBOL configuration variable `DEFAULT_PROGRAM` to specify the name of the program to execute when no program is specified on the command line. See *Appendix H* in the ACUCOBOL-GT documentation set for more configuration information.

Printing and Spooler Issues

ACUCOBOL-GT includes extended support for printing under Windows. In addition to the basic print spooler access procedures described below, the `WIN$PRINTER` runtime library routine provides easy access to extended Windows print spooler capabilities. See the entry for "WIN\$PRINTER" in *ACUCOBOL-GT Appendices Guide > Appendix I*. Rules for printer handling are illustrated in the *ACUCOBOL-GT User's Guide > Compiler and Runtime > Filename Interpretation > Assigning Files to Printers*.

Under Windows, you may print directly to the printer by defining `PRINTER` in the configuration file as `"-D PRN"`. Be aware that this does not prevent other programs from printing at the same time and as a result you may get intermixed pages.

You may also print using the Windows spooler, even if your reports have embedded control codes. The spooler allows many programs to create print files at the same time, and also allows the user to do other tasks while the report is being printed.

 **Note:** The configuration variable `WIN_SPOOLER_PORT` allows you to divert printer output to a file or port through the Windows print spooler. For more information, see *ACUCOBOL-GT Appendices Guide > Appendix H* of the ACUCOBOL-GT manual set.

Before you assign your print file to the Windows spooler, you must decide whether you want to control the format of each page directly (with embedded control codes) or whether you want the print spooler to format the pages.

Spooler Formatting

There are two ways to use the Windows spooler to format your print file: `"-P SPOOLER"` and `"-Q <printername>"`. See *Direct Control* for information on controlling the formatting yourself.

-P SPOOLER

If you want to use the default printer and font, simply assign your print file to "-P SPOOLER". For example, to assign "PRINTER1" to the spooler, enter the following line in your COBOL configuration file ("CBLCONFI"):

```
PRINTER1 -P SPOOLER
```

By default, the runtime system assigns the "PRINTER" device to the spooler. You may change this in the configuration file by assigning "PRINTER" to some other name.

When the runtime opens a file assigned to "-P SPOOLER", it automatically initiates a job with the Windows spooler and constructs print pages in accordance with your program. The runtime uses the default printer and font. If the user looks for the job in the spooler, it is named with the current title of the ACUCOBOL-GT window.



Note:

The Windows spooler operates by drawing your report on each page. It constructs its own control codes to handle formatting. If you assign your print file to "-P SPOOLER" and your file contains device-dependent control sequences (such as those used to shift to a condensed font, or to print a form and then fill it in), the codes will be passed to the spooler as data and thus will not be interpreted correctly. If you have reports that depend on embedded control codes, you should print those directly to the device, or assign the print file to "-P SPOOLER-DIRECT," as described below.

-Q <printername>

If you want the Windows spooler to format the pages of your report, but you want to use a particular printer, assign your print file to:

```
PRINTER1 -Q \\printername
```

in the configuration file (CBLCONFI). *Printername* is the printer designation as given in the **Devices and Printers** screen. The name may be up to 80 characters long and contain embedded spaces. The name may not include the semicolon character (;) or be surrounded by single or double quotes. The pages are printed in the manner described in "-P SPOOLER", above. The sample programs graphprn.cbl and prndemox.cbl contain examples of these functions.

To determine a valid printer name, use the WIN\$PRINTER library routine to obtain the name of the desired printer. (This is described in *Appendix I* under the WINPRINT-SET-PRINTER operation code in "Specifying a Printer".) Then add the following line to your code:

```
MOVE "-Q \\printername" TO WS-PRINTER-NAME.
```

When the runtime opens a file assigned to "-Q <*printername*>", it sets the Windows print spooler to use this printer. The printer driver must be installed on the computer from which you print. If *printername* is not recognized by the runtime, a dialog box allows you to choose a printer manually.



Note:

If you want to access a printer using a UNC path, you have to print directly to the printer by defining PRINTER as "-D PRN". If you use the UNC path, Windows formatting is not supported.

Direct Control

If you want to control the format of the printout yourself using embedded control codes, simply assign your print file to -P SPOOLER-DIRECT or to -Q <*printername*> using the DIRECT=ON option. For example, to assign the print job "PRINTER1" to the spooler and retain direct control over formatting, enter the following line in your COBOL configuration file (CBLCONFI):

```
PRINTER1 -P SPOOLER-DIRECT
```

Or, use the following command to assign PRINTER1 to the spooler for printing to a specific printer while retaining direct formatting control:

```
PRINTER1 -Q printername;DIRECT=ON
```

Both of these methods cause the print job to be sent to the printer via the Windows spooler, but the program does not use the spooler to format the pages. You must use embedded control codes to handle formatting (much as you would under UNIX if you used the UNIX spooler).

When using the -P SPOOLER-DIRECT option, you may use the WIN\$PRINTER library routine to choose a printer, but because you completely control the printer, the various options provided by WIN\$PRINTER are ignored. For example, WIN\$PRINTER does not set the page size, page orientation, or font. Information returned from WIN\$PRINTER, such as number of lines and columns on the page, may not be accurate and should not be used. This subject is discussed in detail in Appendix I "*Library Routines*" of the ACUCOBOL-GT manual set.

Because some print drivers do not flush the last page, be sure to end your last page with a form-feed (for example, WRITE ... BEFORE ADVANCING PAGE). This ensures that all pages are printed. The ACUCOBOL-GT runtime ensures that no extra blank pages are printed at the end.

If you code WRITE...AFTER ADVANCING PAGE instead of WRITE...BEFORE ADVANCING PAGE, you might receive a blank last page. This is because a blank line written on the new page causes the Windows subsystem to flush the page for some print drivers. ACUCOBOL-GT ensures that entirely empty lines are not sent to the device (only the form-feed will be sent). But it is essential that:

- You have specified trailing space removal in your COBOL code (the default for print files).
- You have set the configuration option MIN-REC-SIZE to "0".

Your other option is to specify WRITE... BEFORE ADVANCING PAGE to avoid this potential problem.

If the user looks for the job in the spooler, it is named with the current title of the ACUCOBOL-GT window.

Printing Multiple Jobs Simultaneously

If you need to print multiple jobs at the same time, you must open multiple File Descriptors that point to "-P SPOOLER" or "-P SPOOLER-DIRECT" simultaneously. For example, you may have two simultaneous print jobs:

```
SELECT FIRST-FILE
  ASSIGN TO PRINTER "-P SPOOLER".

SELECT SECOND-FILE
  ASSIGN TO PRINTER "-P SPOOLER".

..PROCEDURE DIVISION.

..

  OPEN OUTPUT FIRST-FILE.
  OPEN OUTPUT SECOND-FILE.
```

and both will print to the default Windows printer without interfering with each other. You can call WIN\$PRINTER USING WINPRINT-SETUP before one or both of the OPEN statements. Each file may have individual file status variables or may refer to a common file status variable.

This does not mean that you can open a single File Descriptor multiple times. For example, the following will return file status indicating that the file is already opened:

```
SELECT FIRST-FILE
  ASSIGN TO PRINTER "-P SPOOLER".

..

PROCEDURE DIVISION.
```

```
..  
OPEN OUTPUT FIRST-FILE.  
OPEN OUTPUT FIRST-FILE.
```

This is normal behavior and is consistent with the way file handling is implemented in COBOL and in other programming languages.

If you are using only the verbs OPEN, CLOSE, and WRITE, no further changes to your code are needed. If you are using WIN\$PRINTER functionality (other than WINPRINT-SETUP) you will need to specify which print job is affected. This can be done in two ways:

1. The simplest way is to execute the WIN\$PRINT operation immediately after an OPEN or WRITE statement on the intended job. Every execution of OPEN and WRITE sets the current job as the default so that subsequent activity using WIN\$PRINTER is automatically directed to the job that was last accessed with an OPEN or WRITE statement.

In this situation, if you have multiple jobs running, and you close one of them, the runtime switches to the next job in the list. For example, if you are printing jobs 1, 2, and 3, and you close job 2, the close command sets the current job to 3. If there is no job 3, the runtime attempts to set to the job that preceded the closed job (which in this case is job 1). If there are no jobs, the current job is initialized.

2. The other method is to use the WINPRINT-SET-JOB operation of the WIN\$PRINTER library routine. This operation is described in *Appendix I* of the ACUCOBOL-GT manual set.

UNIX Installation

License Files for UNIX

UNIX users may request a license file for one or more users.

When you receive your product(s), the package includes product codes and product keys for every product you ordered. You require these product codes and product keys to create license files.

The Activator Utility

The Activator utility automates the process of creating a license file. On UNIX platforms, the Activator utility operates through a command-line interface.

By default, the Activator utility program (activator) is placed in the same directory as the runtime and other binary executable files.

If you did not install the Activator utility with your other products, simply copy the file onto your computer and run it as you would any other executable.

Changing or Updating Your UNIX License Files

If you need to alter a license file, contact your Micro Focus *extend* representative for updated product codes and product keys. When you receive them, launch the Activator utility and enter the new product codes and product keys as prompted.

Installation Under UNIX

To install *extend* products on UNIX or Linux systems, you must have the product media, and the product codes and product keys for the products you intend to install. Your products are delivered via FTP.

Installation Process

1. Download the product from the Micro Focus SupportLine site.



Note: Before running the installer, ensure that the tar utility is on your PATH.

2. Enter the following:


```
/path/to/installer/installer-name [options]
```

where *installer-name* will be something similar to `setup_acucob1010pmk59shACU`.

The following options can be included:

Option	Description
<code>-d installation-path</code>	Specifies a new default install location offered during the installation. If not specified, the default location is the current working directory (.). Any specified directory must already exist.

Option	Description
-EULA	This option can be combined with the -EULA option, but if it is, it will specify the location of the extracted EULA, and not the location of the installed product. Extracts the EULA, in .htm format, to a location of your choosing. The product installation will not continue when using this option.
-help	Displays the available options that can be appended to the installation command.


 **Note:** If you install ACUCOBOL-GT as a shared object library and you don't install to the default location, you need to set an appropriate library path variable specifying the location of the shared objects. For example, on an AIX system, you would need to set the LIBPATH environment variable. Note that if you log in as root or a superuser, this variable must also be set in root's environment for ACUCOBOL-GT to start. Additionally, see [SHARED_LIBRARY_PREFIX configuration variable](#).

After installation, you must use the Activator utility to license the products installed.

- From the installation directory, enter the following command to run the Activator utility:

```
./bin/activator
```

- At the prompt, type the product code and product key pairs that came with your product package, pressing **Enter** after each pair: this updates the license file. Repeat this cycle until the code/key pairs for each product you have ordered are entered.

 **Note:** Each product searches for its license file in the same directory in which its executable resides. If you move the product's executable to a new directory, you must move its license file to the same location.

- To start the acushare license manager service, enter the following:

```
acushare -start
```

- Navigate to the sample sub-directory of your installation directory and try compiling and running the **tour** program, using the following commands:

```
ccbl tour.cbl
runcbl tour.acu
```

- If you get the message Can't find entry for 'terminal' in 'term-lib', you need to configure your terminal for ACUCOBOL-GT. See [Configuring Your Terminals](#).
- Once you have the sample program running, we recommend that you edit the cblconfig file supplied with ACUCOBOL-GT to meet the needs of your site. In particular, you should configure it to support the printers you have attached to your system.
- If you are using shared memory, see the instructions for configuring acushare in *ACUCOBOL-GT User's Guide > Runtime Manual > Shared Memory > Acushare Utility Program*.

SHARED_LIBRARY_PREFIX Configuration Variable

If you install ACUCOBOL-GT as a shared object library and you don't install to the default location, you need to set an appropriate library path variable (LIBPATH or LD_LIBRARY_PATH) specifying the location of the shared objects. The SHARED_LIBRARY_PREFIX variable helps the runtime find acInt.so (or acInt.sl) in case the LIBPATH (or LD_LIBRARY_PATH) variable is not set. libcInt.so (or .sl) is needed for AcuServer and AcuConnect support.

If a shared library name is specified without any directory information and the system call fails to load the shared library, the runtime will try to load the shared library from each of the directories specified in the SHARED_LIBRARY_PREFIX configuration variable.

The default value for SHARED_LIBRARY_PREFIX is /opt/acucorp/xxx/lib: /opt/acu/lib. The format of the value of SHARED_LIBRARY_PREFIX is the same as FILE_PREFIX. You can set SHARED_LIBRARY_PREFIX in the configuration file or environment, or programmatically with the SET verb.

Note that the runtime searches for and loads `acInt.so` (or `acInt.sl`) using the default value of `SHARED_LIBRARY_PREFIX`. This happens before reading the configuration file, environment, or running any COBOL code.

You can set `SHARED_LIBRARY_PREFIX` to an empty value if you do not want to use it.

Also, if the license is for AcuTSL, in a transactional server environment such as CICS, the runtime will add `/opt/acucorp/xxx/bin/runcbl.1lc` and `/opt/acu/bin/runcbl.1lc` to its list of license files to check. First the runtime checks `$ACUCOBOL/etc/license.acu`, then `/etc/license.acu`. If neither exists, the runtime will check `/opt/acucorp/xxx/bin/runcbl.1lc` and finally `/opt/acu/bin/runcbl.1lc`.

For cases in which users install ACUCOBOL-GT in the default location, `/opt/acucorp/xxx` or `/opt/acu`, and they have a license file, `runcbl.1lc` in their bin directory, they will not need to copy the license to `/etc/license.acu`.

Configuring Your Terminals

ACUCOBOL-GT requires data about the video environment it is running in. On Windows machines, it directly examines the hardware and configures itself appropriately. On UNIX machines, you must provide a description of the terminal you are using. This section describes briefly how to provide that information. Additional details are provided in the *Terminal Manager* section of the *ACUCOBOL-GT User's Guide*.

On systems that do not configure themselves automatically, describing the terminal to ACUCOBOL-GT involves two steps:

1. First, identify the terminal by setting the "TERM" variable.
2. Second, ensure that the terminal's characteristics are accurately described in the terminal database file.

TERM Variable

ACUCOBOL-GT determines the type of terminal you are using by looking at the setting of the "TERM" variable. On UNIX and Linux machines, TERM is an environment variable. Samples are presented below.

TERM should be set to the name of one of the entries in the terminal database. You can examine the database file for valid names. The first field of each entry consists of a list of accepted names. Some common names are "vt100", "tv925", and "wy50" for VT100, Televideo 925, and Wyse 50 terminals, respectively.

On most UNIX systems, the TERM environment variable is initialized as part of the login procedure. You will need to change this only if the name used is not one listed in the terminal database.

As an example, suppose you want to use a VT220 terminal. In the database, "vt220" is one of the accepted names for this type of terminal. On UNIX systems with the Bourne or Korn shell, the command would be:

```
TERM=vt220; export TERM
```

Using the C shell, the equivalent command is:

```
setenv TERM vt220
```

You may want to leave the TERM variable at its current setting to maintain compatibility with other software. If the setting is not correct for ACUCOBOL-GT, you can set the "A_TERM" variable instead. If both the A_TERM and TERM variables are set, ACUCOBOL-GT uses the definition of A_TERM. This allows you to have different settings for ACUCOBOL-GT and your other software.

Terminal Database

ACUCOBOL-GT comes with a database of terminal descriptions. On UNIX machines, this is called "a_termcap". This database contains encoded descriptions of many types of terminals. You need to select the terminal type in the database that most closely matches the terminal you are using. If you need to, you can add your own entries in the database.

By default, the terminal database should reside in a pre-selected directory on your machine. On UNIX systems (using the Bourne shell), you might use the command:

```
A_TERMCP=/usr/local/etc/a_termcap; export A_TERMCP
```

The *ACUCOBOL-GT User's Guide* contains more information about setting up terminals and making full use of their capabilities, and selecting terminal types.

Resolved Issues

The following are resolved issues for the extend products.

Acu4GL ECN List

This section includes the ECNs relating to Acu4GL:

ECN-GL583 Using % in a A4GL-WHERE-CONSTRAINT variable could crash Acu4GL for Informix

Incident: 3243725

RPI Number: 1121891

Product: Acu4GL

Module: Informix

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When using Acu4GL for Informix and when file tracing was enabled, a percent sign (%) in an extra A4GL-WHERE-CONSTRAINT sometimes caused the runtime to crash, especially when also in a LIKE phrase. This has been corrected.

ECN-GL584 Failure to read data from national columns

Product: Acu4GL

Module: MSSQL

Machines Affected: UNIX

Known Versions Affected: 10.4.0

DESCRIPTION:

When reading national data (nchar, nvarchar), the interface failed to read (error 23) if the key had national data. This has been corrected.

ECN-GL585 Wrong error code returned for 4GL-WHERE-CONSTRAINT

Defect Number: 104105

Product: Acu4GL

Module: Oracle

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When the 4GL-WHERE-CONSTRAINT had syntax errors, the error returned by the Oracle interface was different from the error returned by either the SQL Server or Informix interfaces. This has been fixed.

AcuBench ECN List

This section includes the ECNs relating to AcuBench:

ECN-WB723 Tab stops not working correctly

Incident: 3241647

RPI Number: 1121647

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.3.1 and later

DESCRIPTION:

A problem that prevented tab stops from working correctly has been fixed.

ECN-WB724 Incorrect code generation, using EVENT-CONTROL-ID when no event

Defect Number: 49009

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When generating code for a screen with controls, the generated code referenced EVENT-CONTROL-ID even when EVENT-CONTROL-ID was not set. This has been corrected.

ECN-WB725 Drag 'n drop defaults to date-entry rather than entry-field

Defect Number: 69379

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.4.0

DESCRIPTION:

The default control type for building screens using drag 'n drop was erroneously set to the date-entry control, but should have been set to the entry field control. In this release, the default is correctly set to the entry field control.

ECN-WB726 Regeneration of source files caused a crash

Defect Number: 120015

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When a COBOL program had a working-storage variable of type HANDLE OF OBJECT, AcuBench would crash when loading the workspace that had that COBOL program. This has been fixed.

ECN-WB727 Project regeneration optimization

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

The process of searching for variables when regenerating a project has been optimized to improve performance when regenerating large projects.

ECN-WB728 Quoted strings generate incorrectly

Defect Number: 119005

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When writing SCREEN SECTION code with long strings, the code was sometimes generated incorrectly. In particular, the string was sometimes wrapped too early. This has been corrected.

ECN-WB730 GDI resource leak

Defect Number: 120015

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

Microsoft enforces a limit of 10,000 for a type of graphical resource called Graphic Device Interface (GDI). AcuBench introduced a GDI leak that caused the limit to be exceeded with very large projects¹, which stopped graphical programs from working. This has been corrected.

¹ The AcuBench test case project contained almost 1000 program structure files.

ACUCOBOL-GT ECN List

This section includes the ECNs relating to ACUCOBOL-GT:

ECN-4705 File handling update

Incident: 3239631

RPI Number: 1121450

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.3.0 and later

DESCRIPTION:

The debugger allowed an object file to be replaced even when that file was not active in the debugger. Debugger file handling has been updated to disallow this.

ECN-4706 Large arrays not loading correctly

Incident: 3246144

RPI Number: 1122088

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.3.0 and later

DESCRIPTION:

The functionality to handle large variable-sized arrays, introduced in version 10.3.0 (ECN-4532), did not properly load arrays defined with the number of OCCURS in excess of 32767. This has been fixed.

ECN-4707 Using a BITMAP-HANDLE of 0 leaves the previous bitmap

Incident: 3243319

RPI Number: 1121806

Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: All

DESCRIPTION:

Changing a BITMAP-HANDLE for a bitmap control to a null value (0) did not correctly erase the existing bitmap, and instead left the previous bitmap showing.



Important: This change affects all previous versions. To apply this change to applications compiled using a previous version, you must recompile with version 10.4.1 or later, for 10.4 semantics or later.

ECN-4708 border color bleeds through to the active tab

Defect Number: 49064
Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: All

DESCRIPTION:

When an ENTRY-FIELD control on a TAB control had a BORDER-COLOR defined, that border color would bleed through to the active tab. This has been fixed.

ECN-4709 Labels disappear on TAB when BORDER-WIDTH > 1

Defect Number: 11623
Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: 9.2.5 and later

DESCRIPTION:

When a TAB control had labels defined with the TRANSPARENT style, and the TAB had a TAB-BORDER-WIDTH property set to a value greater than 1, labels sometimes disappeared when the tab was redisplayed. This has been corrected.

ECN-4710 COPY REPLACING text incorrectly resolved

Defect Number: 6034
Product: ACUCOBOL-GT
Module: Compiler
Machines Affected: All
Known Versions Affected: All

DESCRIPTION:

When using debugging lines, meaning lines with a D in the indicator area, using the -Sp option correctly included those lines. However, when the -Sp option was omitted, the code was included in the object as is, even when a prior REPLACE statement replaced the code with alternative code. This has been corrected.

ECN-4711 Printer dialog box fails to appear when calling WIN\$PRINTER with WINPRINT-SETUP-EX

Defect Number: 40027

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.1.0 and later

DESCRIPTION:

The Printer dialog box failed to appear when calling WIN\$PRINTER with the WINPRINT-SETUP-EX opcode. This has been corrected.

Starting in version 10.1.0, the parameter passed when using the WINPRINT-SETUP-EX opcode is no longer a single value, but is instead a group item. In this release, the parameter has changed to the following, which is defined in the winprint.def file:

```
03 WPRTDATA-SETUP-EX REDEFINES
  WPRTDATA-SET-STD-FONT.
05 WPRTDATA-SETUP-EX-FLAGS      PIC 9(9) COMP-5 SYNC.
  88 WPRT-PRINTTOFILE          VALUE 32.
  88 WPRT-DISABLEPRINTTOFILE   VALUE 524288.
  88 WPRT-HIDEPRINTTOFILE      VALUE 1048576.
05 WPRTDATA-SETUP-EX-PARENTWND POINTER.
```

In comparison with the previous behavior, the original FLAGS value is retained, and if you are using a window handle, the PARENTWND value is a parent window.

If you pass just the FLAGS value, the runtime defaults the PARENTWND value to NULL, which sets the runtime main window as the parent. However, we recommend that you modify any programs that call WIN\$PRINTER with this opcode to use the new group where possible.

ECN-4712 C\$DARG returns 32 (OMITTED) on the GIVING argument of a CALL

Defect Number: 53061

Product: ACUCOBOL-GT

Module: Compiler

Machines Affected: All

Known Versions Affected: 9.0.0 and later

DESCRIPTION:

The standard library functions C\$DARG and C\$CARG sometimes failed with the GIVING parameter of the CALL statement. This has been fixed.



Note: These library functions are used to find information about parameters passed to a COBOL program – C\$DARG by parameter number, and C\$CARG by name. For more information, see the C\$DARG and C\$CARG topics in your ACUCOBOL-GT documentation.

ECN-4713 Resizeable window with layout manager has extraneous black border

Defect Number: 9084

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.0.0 and later

DESCRIPTION:

When a RESIZEABLE window had a layout manager, extra bars sometimes appeared around the edges of the window. This has been corrected.

ECN-4714 Columns difficult to resize after widening

Defect Number: 9866

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

For a grid with resizeable columns, and with WIN32-NATIVECTLS set to ON, widening a column to the right edge would cause the column separator to extend past the right edge of the grid window, making it difficult to subsequently change the width of the column. This has been corrected.

ECN-4715 Problem closing loaded objects that contain the atexit() function

Defect Number: 57053

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: UNIX

Known Versions Affected: All

DESCRIPTION:

Upon shutdown, most UNIX runtimes call the dlclose() function on objects that have been loaded. However, when an object being closed has registered a function with atexit() this sometimes caused a crash in exit() because the object was no longer available to the process.

Some UNIX runtimes, such as Linux and Solaris, call the functions registered with atexit() just before the object is closed, thus avoiding this problem. Other runtimes such as AIX, HP-UX, and FreeBSD, do not.

To correct this problem on UNIX runtimes on which it occurs, this release includes a new configuration variable, `CLOSE_LOADED_OBJECTS`. The default value is 1 on the systems that can do this safely and 0 on those that cannot.

If you want loaded objects to be closed during runtime shutdown, you can set the value to 1 on any system. However, this could cause a crash if the object has registered an `atexit()` function.

ECN-4716 Problem with AUTOFILL entry field list navigation

Defect Numbers: 11279 and 12128

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.0.0 and later

DESCRIPTION:

Problems that were causing the cursor to disappear after typing the initial character into an AUTOFILL entry field, and the AUTOFILL list to disappear after pressing the down arrow button have been fixed.

ECN-4718 Compiler fails to produce .NET assembly

Defect Number: 65070

Product: ACUCOBOL-GT

Module: Compiler

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

Cast to unsigned .NET types, including handles, coded into the linkage section of a COBOL program compiled with the `--netdll` or `--netexe` compiler directive sometimes prevented the compiler from producing the .NET assembly. This has been corrected.

ECN-4719 Console runtime crashes when used with Thin Client

Defect Number: 70064

Product: ACUCOBOL-GT

Module: Console Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When used as the runtime for the Thin Client, the console runtime (`crun32.exe`) immediately exited with a "Not enough memory" error. This has been corrected.

ECN-4722 Debugger highlights wrong execution line

Defect Number: 10365

Product: ACUCOBOL-GT

Module: Console Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When a COBOL program had a forward slash (/) in the indicator area, and was compiled both for debug and with some compiler listing options, the wrong line numbers were sometimes written to the object file, causing the runtime to highlight the wrong line in the debugger. This has been fixed.

ECN-4724 Thin client auto-update to version 10.3.0 fails

Defect Number: 86142

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: 10.3.0 and later

DESCRIPTION:

A memory access violation (MAV) occurred when a version of AcuThin earlier than 10.3.0 accessed the auto-update feature to upgrade to version 10.3.0 and later. This has been fixed.

ECN-4725 Buffer exceeded when parsing old-style XFDs with long names

Defect Number: 91002

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

Old-style (non-XML) XFDs with long names for key columns or field columns sometimes exceeded the buffer capacity, resulting in memory corruption. The corrupted memory often caused erratic behavior. This has been corrected.

ECN-4726 C\$COPY sometimes hung when W \$PROGRESSDIALOG was used concurrently

Defect Number: 90100

Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: All
Known Versions Affected: All

DESCRIPTION:

When W\$PROGRESSDIALOG was called from WPROGRESSDIALOG-C-COPY, the thin client sometimes hung when copying small files from the display-host to the server.

ECN-4728 Compiler crashed with AcuSQL and Oracle

Defect Number: 101004
Product: ACUCOBOL-GT
Module: Compiler
Machines Affected: UNIX
Known Versions Affected: All

DESCRIPTION:

When using the -Pc option to test SQL against an Oracle server, the compiler sometimes incorrectly parsed an error file, causing the compiler to crash. This has been corrected.

ECN-4729 Terminating a control could cause a memory access violation

Defect Number: 104047
Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: All

DESCRIPTION:

When using threads, it was possible to terminate a control that was previously destroyed in another thread, causing a Memory Access Violation (MAV). This has been corrected.

ECN-4731 C optimizer error in FUNCTION REVERSE

Defect Number: 108093
Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: HP-UX 11.31 IA-64
Known Versions Affected: All

DESCRIPTION:

A C optimizer error caused a memory error in FUNCTION REVERSE on HP-UX 11.31 IA-64. This error has been worked around by rearranging the code that implements this function.

ECN-4732 C\$XML reports no-memory errors unreliably

Defect Number: 108096

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When parsing a very large XML file, C\$XML sometimes reported end-of-file when the correct response was to report a NO-MEMORY error. This has been fixed.

ECN-4733 File error caused CXML-PARSE-NEXT-RECORD to fail

Defect Number: 110081

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When using CXML-PARSE-NEXT-RECORD to parse an XML file one record at a time, a file error on a different file caused C\$XML to fail to parse the next record, returning 0 (fail). This has been fixed.

ECN-4736 .NET error with embedded objects in Thin Client

Defect Number: 123025

Product: ACUCOBOL-GT

Module: Thin Client

Machines Affected: Windows

Known Versions Affected: 10.2.0 and later

DESCRIPTION:

When using an embedded .NET object in thin-client mode, the thin client sometimes failed to locate the embedded object before attempting to pass it to a method. This has been fixed.

ECN-4737 CXML-GET-COMMENT fails on top level

Defect Number: 132011

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: 10.3.1

DESCRIPTION:

When using the top-level parser handle, CXML-GET-COMMENT failed to return the top-level comment. This has been corrected.

ECN-4738 Erroneous "linkage item too small" error

Defect Number: 143023

Product: ACUCOBOL-GT

Module: Compiler

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

This change fixes a second instance of an incorrect "linkage item too small" error when the -Za option is used. See *ECN-2647* for a discussion of this error, when it happens, and how to avoid it.

ECN-4739 MAV error when using file tracing with XML files

Defect Number: 147010

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When tracing file operations (configuration FILE-TRACE > 6), the runtime sometimes generated a MAV for some XML files. Usually, these files have long attribute values for elements.

ECN-4740 XML PUT TEXT fails when writing to a UNC path

Defect Number: 58015

Product: ACUCOBOL-GT

Module: XML Extensions

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

If the current working directory is a UNC path, e.g., a network share, XML extensions could not create some required files, causing XML PUT TEXT to fail with an error 13.

The Windows command line did not allow the current working directory to be set to a UNC path name such as \\SERVERNAME\SHARE\DIR1\DIR2. Instead, the UNC path must be mapped to a drive letter. XML

Extensions works fine in this mode. However, a UNC path may be specified when launching a Windows program such as WRUN32 from a Windows shortcut. You can also use PowerShell to set a UNC working directory. Neither of these methods was properly supported in XML Extensions.

This problem has been resolved.

ECN-4744 \$IO OPEN-MODE overflow

Defect Number: 156106

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

The fileys.def file defined OPEN-MODE as a SIGNED-SHORT, but it should be a SIGNED-INT to enable it to hold Fbulk-addition as an open mode value. This has been resolved, and includes a corresponding runtime change to correctly pass the open mode to `i_open()`.

ECN-4745 COLUMN-DIVIDERS ignored for header rows

Defect Number: 10400

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When using header rows in a grid, the column-divider values were ignored for those columns in the row header. This has been corrected.

AcuRCL ECN List

This section includes the ECNs relating to AcuRCL:

ECN-RCL019 AcuAccess record display is unreadable

Incident: 3240521

RPI Number: 1121529

Product: AcuRCL

Module: acurcl

Machines Affected: All

Known Versions Affected: 10.3.0 and later

DESCRIPTION:

When using the -access option with the acurcl command, or when using the acuserve command with option 4 to display the security records, the resulting output was not lined up correctly under the headings making it hard to read. For example:

Client Machine Name	Client Username	Local Username	Password	Umask
my-machine username 002		my-local-name		my- <none>

The formatting has been corrected to line up the columns correctly. For example:

Client Machine Name	Client Username	Local Username	Password	Umask
my-machine	my-username	my-local-name	<none>	002

AcuSQL ECN List

This section includes the ECNs relating to AcuSQL:

ECN-SQL164 Group item and internal SQLDA structure mismatch

Product: AcuSQL

Modules: acusql, esqllib

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

The SQLDA group item did not match the internal SQLDA structure when running on 64-bit machines. This has been corrected.

ECN-SQL165 Compiler fails with "exec: No such file or directory" error

Defect Number: 10461

Product: AcuSQL

Module: Compiler

Machines Affected: UNIX

Known Versions Affected: 8.0.0 and later

DESCRIPTION:

When invoking acusql on UNIX, the PATH environment variable was ignored. If the compiler was subsequently invoked without specifying a full or relative path, acusql was not found, resulting in an "exec: No such file or directory" error. This has been fixed.

ECN-SQL166 Function Sequence error when precompiling with check

Defect Number: 87107

Product: AcuSQL

Module: acusql.dll

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

Using the -Pc precompiler option to check SQL syntax against a live database resulted in a Function Sequence error. This has been fixed.

ECN-SQL167 AcuSQL fails to bind parameter properly

Defect Number: 118013

Product: AcuSQL

Module: SQL Server

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When using a variable with a system catalog, ODBC sometimes returns erroneous information indicating that a bound parameter should be an nchar, and when sending nchar-type data, returns no results at all. This has been corrected.

AcuToWeb ECN List

This section includes the ECNs relating to AcuToWeb:

ECN-AW160 Asterisk (*) in a configuration file could hang control panel

Defect Number: 59063

Product: AcuToWeb

Module: acutoweb.exe

Machines Affected: Windows

Known Versions Affected: 10.2.0 and later

DESCRIPTION:

If a gateway.conf file had an asterisk (*) as the first character of a line, it sometimes caused the control panel to hang when attempting to parse that file. This has been corrected.

ECN-AW161 Display and print updates

Defect Numbers: 32022, 27188, 10488, 45023, 45032, 46029, 52032, 53027, 59107, 74001, 75001, 104206, 146002, 138194, 146137

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

The following display and print issues have been fixed in this release:

- List-Box display column data appeared truncated¹
- Combo-Box drop-list first entry duplicated and selection not displayed¹



Note: On Safari, the first empty element in the combobox is a permanent restriction.

- Multi-line records in a paged grid were displayed incorrectly¹
- The **Date Entry** control required that you click on a date instead of allowing a date selection using the month/year drop-down boxes¹
- The **Date Entry** control LONG-DATE format contained commas¹
- The context menu on **Push Button** appeared far from the original point under iOS devices¹
- Check-Box with SIZE phrase was not drawn accordingly
- Combo-Box triggered unnecessary NTF-SELCHANGE
- Enabled scrolling within a control on a mobile device
- Some CSS's display differently in 10.4.x as compared to earlier versions
- Checkbox labels that appeared in 10.3.1 were missing in 10.4.0 even when using the same CSS
- Controls sometimes sent incorrect exception termination values
- Grid didn't scroll down when adding new rows

¹ Fixed in version 10.4.0.

ECN-AW162 Custom Themes Generator - ATW-CSS property not working on some controls

Defect Number: 121049

Product: AcuToWeb

Module: acutoweb.exe

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

With the exception of the Push Button control, the custom ATW-CSS property was never used in the generated CSS. This has been corrected.

ECN-AW164 Using a .PEM file in SSL_CERT_FILE generated a log error

Defect Number: 104272

Product: AcuToWeb

Module: acutoweb.exe

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

Using a .PEM file in SSL_CERT_FILE to enable SLL in ATW caused an error to be written to the log. This has been corrected.

AcuXDBC ECN List

This section includes the ECNs relating to AcuXDBC:

ECN-XD130 Updated query functions in vortex.jar

Defect Number: 61328

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

The following query functions have been updated as follows in vortex.jar:

- ResultSet**
- Fixed private Hashtable declaration
 - Added support for getCharacterStream()

DbMetaData Fixed getPseudoColumns(), getSuperTypes(), getSuperTables(), and getUDTS() to return empty resultset instead of null.

ECN-XD133 AcuXDBC fetch 0 error

Defect Number: 121054

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

Known Versions Affected: 10.3.1 and later

DESCRIPTION:

When using Excel, an AcuXDBC fetch 0 was returned in error. This has been corrected.

ECN-XD134 AcuXDBC sub-table contains more occurrences than defined

Defect Number: 121054

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

Known Versions Affected: 10.3.1 and later

DESCRIPTION:

A COBOL array and XFD have defined depth. AcuXDBC was generating a table definition that was deeper than what was defined. This has been corrected.

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