MICRO FOCUS

Orbix 3.3.16

Release Notes

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Contents

Orbix 3.3.16 Release Notes

Orbix 3.3.16 is a service pack release of Orbix 3.3 from Micro Focus.

These release notes contain information about the Orbix 3.3.16 release. They contain information that might not appear elsewhere in the documentation. Read them in their entirety before you install the product.

For details of the changes that were made in earlier releases of Orbix 3.3, see:

- For changes made in Orbix 3.3.15, see the ***Orbix 3.3 SP15 Release Notes***, available at https://www.microfocus.com/documentation/orbix/orbix33sp15/
- For changes made in Orbix 3.3.14, see the ***Orbix 3.3 SP14 Release Notes***, available at https://www.microfocus.com/documentation/orbix/orbix33sp14/
- For changes made in Orbix 3.3.13, see the ***Orbix 3.3 SP13 Release Notes***, available at https://www.microfocus.com/documentation/orbix/orbix33sp13/
- For changes made in Orbix 3.3.12, see the ***Orbix 3.3 SP12 Release Notes***, available at https://www.microfocus.com/documentation/orbix/orbix33sp12/
- For changes made between Orbix 3.0.1 and Orbix 3.3.11, see the ***Orbix 3.3 SP11 Release Notes***, available at https://www.microfocus.com/documentation/orbix/orbix33sp11/

CORBA Compliance

Orbix 3.3.16 complies with the following specifications:

- CORBA 2.1.
- GIOP 1.1 and 1.0
- C++ Language Mapping (formal/99-07-41)
- IDL-to-Java Language Mapping (formal/99-07-53)

Interoperability

The Java and C++ editions of Orbix 3.3 SP 16 are tested and are interoperable with each other except for those areas that are documented as Known Issues for each edition.

Product Structure

Orbix 3.3.16 includes:

- Orbix C++ edition
- Orbix Java edition
- OrbixNames
- OrbixSSL C++ edition
- OrbixSSL Java edition

Note: The distinction between "Orbix Core Services" and the "Orbix Full Services" product, which was made in previous release, no longer applies from Orbix 3.3.13. Some components that formed part of the previous "Orbix Full Services" are no longer supported.

All components still supported are part of the single Orbix 3.3.16 product.

The following features of previous Orbix 3 versions are **no longer supported**:

- Orbix Code Generation Toolkit
- OrbixEvents
- OrbixOTS
- Orbix Wonderwall

New Features

Orbix 3.3.16 includes the following new features:

- Java 11 support

Java 11 support

Orbix now supports Java 11.

Note: See Known Issues for details of changes in cipher suites and certificates needed for Java 11.

Platforms and Compilers

For the latest information on supported platforms, compilers, and Java versions, see the Product Availability page.

Note:

1. Support for SUSE Linux Enterprise Server 15 and Red Hat Enterprise Linux 8 has been added.
2. Support for Windows Server 2019 has been added.
3. Support for Visual Studio 2017 and Visual Studio 2019 has been added to the product this release. The Orbix installer for Visual Studio 2015 can now be used for all applications built with Visual Studio 2015, 2017, and 2019.

Migration from Previous Versions

For information on migrating from an earlier version of Orbix to Orbix 3.3 SP 16, see ***Migrating Orbix Applications to Orbix 3.3*** available with the rest of the Orbix 3.3 SP16 documentation at https://supportline.microfocus.com/productdoc.aspx.

To upgrade to Orbix 3.3.16 from existing Orbix 3.3.x installations, carry out the following procedure:

Note: The services that made up the "Orbix Full Services" product in previous releases are no longer supported, as described in "Product Structure". For customers who are upgrading from a full services installation of Orbix to Orbix 3.3.16, such as Solaris Sparc or HP-UX Itanium (32-bit), Micro Focus recommends some additional steps in the upgrade procedure, which are noted below.

- Ensure that all Orbix services are stopped.
- Back up existing installations before you upgrade to Orbix 3.3.16.
- If you are upgrading from a full services installation of Orbix to Orbix 3.3.16, such as on Solaris Sparc or HP-UX Itanium (32-bit):
    - Rename the installation folder of the Orbix 3.3.x installation, so that it is not overwritten.

- Install Orbix 3.3.16 to the old location of the Orbix 3.3.x installation.
- Overlay the **config** folder of the Orbix 3.3.x installation to the **config** folder of the Orbix 3.3.16 installation, in order to preserve the previous configuration and databases (such as IMR, NamesRep).

- In other circumstances, simply run the Orbix 3.3.16 installer. The Orbix installer overwrites the existing version.

For details on installing Orbix 3.3.x service packs, see the ***Orbix Installation Guide***, available with the rest of the Orbix 3.3.16 documentation at:

https://www.microfocus.com/support-and-services/documentation/

Changing Java Version after Installation

While it is always possible to change the version of Java used by the product, changing Orbix 3.3.16 from using JDK 7 or 8 to JDK 11 will require some extra changes.

See the section "*Changing Java version after installation*" in the ***Orbix 3.3 SP16 Installation Guide*** for details.

Unsupported Features

The following features are no longer supported by Orbix 3.3.16:

- Legacy cipher suites

Legacy cipher suites

Advances in cryptanalysis mean that many older encryption methods can no longer be considered secure, and cipher suites using such methods cannot be recommended and may even not be supported by recent JDK versions.

Therefore, Orbix 3.3 SP16 no longer supports the export-strength cipher suites.

Known Issues

Orbix 3.3.16 may be affected by the following known issues:

- Java 11 and security
- Older security algorithms with recent JDKs
- Benign warning when launching the Windows installer

Java 11 and security

Java 11 also includes a number of security updates, and for older applications the current deployed security certificates may not work out of the box (for example, the key size, or signature algorithm strength may not satisfy the default security configuration of the JDK). Where feasible Micro Focus recommends upgrading any security certificates and cipher suites to work with the default security configuration in Java 11.

Older security algorithms with recent JDKs

Recent JDKs may by default disable the use of what are considered legacy algorithms. This includes older protocols, ciphers, digests and also may include insisting that key sizes used are above a certain size. This is due to progress in cryptanalysis which has rendered some of these older algorithms no longer strong enough.

Micro Focus highly recommends that any certificates used in secure Orbix applications that are signed using older functions, such as with an MD5 digest signature, are regenerated to use at least a SHA-2 digest signature.

Benign warning when launching the Windows installer

When installing Orbix 3.3 SP16 on Windows, the installer may issue a warning about a missing java.dll, or a registry key specifying the wrong version of Java. This is a benign warning and can be safely ignored.

This warning is issued because the installer does a thorough search across the system for a usable version of Java with which to launch the installer. When an incomplete installation is found, the warning may be issued.

Such an incomplete Java installation is typically a leftover install of Java JRE installed via the "Java Update" mechanism. In order to ensure that the installation is wiped properly, run the "Java Update" installer, and at the end of the installation, agree to uninstall previous older JRE installations.

Deprecated Features Policy

When a feature is deprecated it means that:

- No support for this feature is given for the current version and for subsequent versions (we do not explain how to use it, and we do not fix any bugs in this feature).
- If you have not used this feature before, DO NOT start using it with this release.
- If you are already using this feature, you should remove it if at all possible.
- The feature may not be present in future versions of the product.

Other Resources

The following additional resources are available:

- For the latest information on supported platforms and compilers, see the Product Availability page.
- The most up-to-date versions of Orbix technical documentation are available at:

  https://www.microfocus.com/documentation/orbix/

- The Orbix Knowledge Base is a database of articles that contain practical advice on specific development issues, contributed by developers, support specialists, and customers. This is available at: https://community.microfocus.com/t5/Orbix-Knowledge-Base/tkb-p/wikiid-155
- Contact Micro Focus technical support at:

  http://www.microfocus.com

Orbix 3.3.16 C++ Edition

This section describes changes made specifically to Orbix C++ Edition that are relevant to Orbix 3.3 SP 16.

New Features

Orbix 3.3 SP 16 C++ Edition is binary compatible with Orbix 3.3 C++ Edition.

It includes no new features.

Deprecated Features

The following is a list of deprecated features in Orbix C++ Edition. See "Deprecated Features Policy" for what deprecation of a feature entails.

Feature	Description	Feature Removed	When Deprecated
_bind()	Should use other means.	No	Orbix 3.0
Transformers	Can use SSL for security.	No	Orbix 3.0
Piggy backing data with filters	Should use Service Contexts.	No	Orbix 3.0
Opaque data type		No	Orbix 3.0
Orbix network protocol (POOP)	Must use IIOP instead.	No	Orbix 3.0
IDL compiler options `-i` and `-f`		No	Orbix 3.0
IR	Replaced with the IFR.	Yes	Orbix 3.0
Locator	Can implement own load balancing solution.	Yes	Orbix 3.3
Non-native exceptions	Must use Native Exceptions	Yes	Orbix 3.3
TIE macro DEF_TIE(I,X)	Use other form	Yes	Orbix 3.3
Configuration Explorer (`ConfigurationExplorer.bat`)	Configure Orbix components without modifying the configuration files directly.	No	Orbix 3.3 SP 5
Server Manager (ServerManager.bat)	Allows you to manage the Implementation Repository.	No	Orbix 3.3 SP 5
`setenvs.csh` and `setenvs64.csh`	The c-shell environment scripts in the Unix product installations.	No	Orbix 3.3 SP 16

Note: Orbix 3.0 was released February 1999 and Orbix 3.3 was released September 2000.

Known Issues

The following table summarizes known issues for Orbix 3.3.16 C++ Edition.

Incident ID	Synopsis
ORBTHREE-1	Orbix daemon memory leak.
64991	There is a known problem using C++ keywords in various situations in the IDL file. Using C++ keywords for attribute names, operations names and field names (of structures and exceptions) works. However, using C++ keywords as the type name of a module, interface, exception, or struct does not work. Customers should avoid using C++ keywords in the IDL as the type names of modules, interfaces, exceptions, and structs.
56121	The IDL compiler issues warnings if the IDL contains identifiers that are reserved keywords but not all lower case. For example, the IDL `interface Attribute{};` causes `Warning: identifier Attribute clashes with keyword` even though it is a valid interface name and is case-different from the reserved keyword `attribute`.
55600	No overloaded output-streaming operator (<<) is provided for the unsigned long long CORBA type (`CORBA::ULongLong`) in Orbix 3.3.
55599	No overloaded output-streaming operator (<<) is provided for the signed long long CORBA type (`CORBA::LongLong`) in Orbix 3.3.
55547	Orbix 3.3 generated IDL stub code on Windows NT for multi-dimensional arrays as in parameters should work around known VC6 multidimensional array const bug.
56334	When service context handlers in Orbix runtime encounter an abnormal condition, the diagnostic messages are not very informative.
-	Oracle Solaris Studio 12.4 compiler is not supported with Orbix 3.3.16. A compiler issue was uncovered while certifying Orbix 3.3.14 with Studio 12.4. The compiler issue relates to an inconsistent behavior in passing parameters on function calls between Studio 12.4 and earlier compiler versions. Micro Focus has worked with the compiler vendor and the issue has been resolved in Solaris Studio 12.6. Orbix 3.3 SP16 has been certified against Solaris Studio 12.6 on Solaris 11.

Actional Integration

Usage of the Actional Integration feature in conjunction with a Thread Filter will result in the Actional Integration not reporting correctly when the ThreadFilter `inRequestPreMarshal()` method implementation returns -1. This is caused by the fact that the Actional Interceptor is implemented using Filters, and returning `-1` from a ThreadFilter `inRequestPreMarshal()` method causes all sub-sequent Filters in the Filter to not be invoked.

On HP-UX systems, the Actional Integration feature may fail to dynamically load within single-threaded processes.

The Actional Integration feature is implemented as a shared library that is dynamically loaded by the Orbix C++ runtime. This shared library links to a multi-threaded Actional C SDK library,

used to communicate with the Actional Agent service. The HP-UX dynamic loader may fail to dynamically load this multi-threaded library within a single threaded process (that is, the orbix daemon).

In order to work around this issue, the LD_PRELOAD environment variable should be set so that the `pthread` library is preloaded.

To diagnose this issue and determine the location of the `pthread` library, perform the following on HP-UX Itanium systems:

4. Set the environment variable IT_SHLIB_VERBOSE to `1`
5. Execute your single-threaded process
6. Look for the following line in the output:
   - `/usr/lib/hpux32/dld.so: Cannot dlopen load module '/usr/lib/hpux32/libpthread.so.1' because it contains thread specific data`

To resolve the issue, set LD_PRELOAD as mentioned below:

```
LD_PRELOAD=/usr/lib/hpux32/libpthread.so.1
```

IPv6 Enablement

Orbix 3.3 SP 16 has the following known issue in regarding to the use of the IPv6 enablement of the product:

- The POOP Protocol or Orbix Protocol is **not** supported with IPv6 communications, and IIOP should be used in its place.

Stopping double deletion of CORBA::Any when un-marshaling CORBA::Anys during DSI invocation processing

Some applications use the following pattern for memory management of `CORBA::Anys` required for DSI request processing. This is incorrect and causes a memory corruption error with this version of Orbix:

```
CORBA::NVList_ptr pArgList;
if (CORBA::Orbix.create_list(1, pArgList))
 {
 CORBA::Short value_of_n = 0;
 // create an any on heap. This is the representative
 // of the in argument.  All of the arguments (anys)
 // will be stored in an NV list
 //
 CORBA::Any* pAny = new CORBA::Any(CORBA::_tc_short,
     &value_of_n, 0);
 // populate the NV list with the heap allocated any
 // and name of "n"
 //
 pArgList->add_value("n", *pany, CORBA::DSI_ARG_IN);
 // read all the arguments (values) from the request
 // into the NV list
 //
 rSrvReq.params(pArgList);
 // do invocation processing
 // ************* NOTE *****************
```

```
    // Deleting the CORBA::Any is an error as the Orbix
    // runtime will do so.
    //
    delete pAny;  // Error!  Don't do this.
  }
```

This code would not have caused problems prior to Orbix 3.3.1, because Orbix 3.3 and earlier versions did not properly delete the `Any`. Since Orbix 3.3.1, Orbix deletes the `Any`, so it is no longer necessary to do it.

Resolved Issues

The resolved issues for Orbix C++ Edition that customers have reported are listed in this section. The numbers that follow each issue are the Reported Problem Incident number followed by the Customer Incident Numbers (in parentheses). RPIs that have numbers only (and no text) are included to confirm that the RPIs have been fixed, since no further information is required.

- A debug tracing message related to failed network lookups has been removed from the Orbix C++ edition.

  633858

- Support has been added for Orbix 3.3 on Windows Server 2019.

  1119951 (3224702)

Orbix 3.3.16 Java Edition

This section describes changes made specifically to Orbix Java Edition that are relevant to Orbix 3.3 SP 16.

Orbix 3.3 SP 16 Java Edition is binary compatible with Orbix 3.3 Java Edition.

Deprecated Features

The following is a list of features deprecated in Orbix Java Edition. See "Deprecated Features Policy" for what deprecation of a feature entails.

Feature	Description	Feature Removed	When Deprecated
_bind()	Use other means.	No	OrbixWeb 3.2
Transformers	Can use SSL for security.	No	OrbixWeb 3.2
Piggy backing data with filters	Should use Service Contexts.	No	OrbixWeb 3.2
Opaque data type		No	OrbixWeb 3.2
Orbix network protocol (POOP)	Must use IIOP instead.	No	OrbixWeb 3.2
IDL compiler options `-i` and `-f`		No	OrbixWeb 3.2
Orbix Java activator (`Orbixdj.bat`)	Java activator in graphical mode	No	Orbix 3.3 SP 5
Orbix Java utilities (such as `putitj`)	Use C++ utilities instead	No	Orbix 3.3 SP 14
`setenvs.csh` and `setenvs64.csh`	The c-shell environment scripts in the Unix product installations.	No	Orbix 3.3 SP 16

Known Issues

The following table summarizes known issues for Orbix 3.3.16 Java Edition.

Incident ID	Synopsis
65605	The Server Manager GUI does not update when a server is started and then stopped (affects Orbix 3.3.2 and upwards). This GUI is deprecated.
64957	Fragmentation error occurs on the client side if large chunk of data is sent in fragments from an ASP 5.*x* and higher server. The fragments received from the ASP server are malformed. This is an interoperability issue between ASP and Orbix Java 3.3 SP 5.
-	32-bit Solaris runtimes require a 64-bit JDK. From Java 8, Oracle no longer ship the 32-bit Java runtime on Solaris platforms; see http://www.oracle.com/technetwork/java/javase/8-compatibility-guide-2156366.html for details. This means that customers can no longer use Java 8 on Solaris to load any 32-bit JNI libraries. • For **Java 8** users, Micro Focus supplies 64-bit counterparts of these JNI libraries on Solaris which ensure that they will continue to work with Java 8 on Solaris. • Orbix 3.3 users using a **Java 7** who require a 64-bit JVM runtime can specify this by setting the "`-d64`" option to the Java VM executable, or by directly using the 64-bit Java process: *<JAVA_HOME>*`/bin/sparcv9/java`.
-	An exception may be thrown by the `orbixdj` utility with Java versions newer than 1.7 update 27. See "Orbixdj Security Permissions" for details.

Orbixdj Security Permissions

When using the `orbixdj` utility with Java versions newer than 1.7 update 27, the following exception may be thrown by the Java virtual machine. This is because of a security vulnerability that requires an explicit policy to be set to allow the CORBA InputStream and OutputStream to be sub-classed.

```
Exception in thread "Request Processor" java.security.AccessControlException: access
        denied ("java.io.SerializablePermission" "enableSubclassImplementation")
   at java.security.AccessControlContext.checkPermission(AccessControlContext.java:457)
   at java.security.AccessController.checkPermission(AccessController.java:884)
   at java.lang.SecurityManager.checkPermission(SecurityManager.java:553)
   at org.omg.CORBA_2_3.portable.InputStream.checkPermission(InputStream.java:67)
   at org.omg.CORBA_2_3.portable.InputStream.<init>(InputStream.java:84)
   at IE.Iona.OrbixWeb.CORBA.InputCoder.<init>(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.MarshalBuffer.create_input_stream(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.Request.create_input_stream(Unknown Source)
   at IE.Iona.OrbixWeb.Activator.DJAuthenticationFilter.inRequestPreMarshal(Unknown
        Source)
   at IE.Iona.OrbixWeb.CORBA.ServerRequest.inRequestPreMarshal(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.ServerDispatcher.dispatchSpecial(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.BOAImpl.processRequest(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.BOAImpl.processOneEvent(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.BOAImpl.processEvents(Unknown Source)
   at IE.Iona.OrbixWeb.CORBA.EventHandler.run(Unknown Source)
   at java.lang.Thread.run(Thread.java:745)
```

To resolve this problem, you must update the `java.policy` file under `<JAVA_HOME>/jre/lib/security` as follows, to allow this subclassing to continue:

```
grant {
   // ...
   permission java.io.SerializablePermission "enableSubclassImplementation";
                                                                          }
```

Resolved Issues

The resolved issues for Orbix Java edition that customers have reported are listed in this section. The numbers that follow each issue are the Reported Problem Incident number followed by the Customer Incident Numbers (in parentheses). RPIs that have numbers only (and no text) are included to confirm that the RPIs have been fixed, since no further information is required.

- The default value for the IT_CONNECT_ATTEMPTS configuration variable in the Java ORB is now 10. This matches the value in the C++ ORB. See the Orbix 3.3.16 *Administrator's Guide Java Edition* for details of this variable.

  RPI 639842; RPI 632209

- In Orbix 3 for Java, the extraction of data from an object of type `Any` was resulting in the JVM throwing a NullPointerException. This occurred when the `Any` type was constructed with the default ORB instance instead of the current ORB instance, and the default ORB instance had been garbage collected by the JVM. This has been corrected.

  1120720 (3223692)

- Support has been added for Orbix 3.3 on Windows Server 2019.

  1119951 (3224702)

OrbixNames 3.3.16

This section describes changes made specifically to the OrbixNames product that are relevant to OrbixNames 3.3 SP 16.

New Features

OrbixNames 3.3 SP 16 is binary compatible with OrbixNames 3.3. There are no new features.

Deprecated Features

The following is a list of features deprecated in OrbixNames:

Feature	Description	Feature Removed	When Deprecated
Names Service browser (`NamesBrowser.bat`)	Allow you to monitor and manage the Naming Service externally to your applications.	No	Orbix 3.3 SP5
Names java utilities (such as `lsnsj`)	Use C++ utilities instead	No	Orbix 3.3 SP14

Known Issues

There are no known issues for OrbixNames 3.3.16.

Resolved Issues

The resolved issues for OrbixNames that customers have reported are listed in this section. The numbers that follow each issue are the Reported Problem Incident number followed by the Customer Incident Numbers (in parentheses). RPIs that have numbers only (and no text) are included to confirm that the RPIs have been fixed, since no further information is required.

OrbixSSL 3.3.16 C++

This section describes changes made specifically to OrbixSSL C++ that are relevant to Orbix 3.3 SP 16.

OrbixSSL 3.3 SP 16 C++ Edition is binary compatible with Orbix 3.3 C++ Edition.

Deprecated Features

The following is a list of deprecated features in OrbixSSL C++:

Feature	Feature Removed	When Deprecated
Support for the following cipher suites: • SSLV3_RSA_WITH_RC4_128_SHA • SSLV3_RSA_WITH_RC4_128_MD5 • SSLV3_RSA_WITH_3DES_EDE_CBC_SHA • SSLV3_RSA_WITH_DES_CBC_SHA • SSLV3_RSA_EXPORT_WITH_DES40_CBC_SHA • SSLV3_RSA_EXPORT_WITH_RC2_CBC_40_MD5 • SSLV3_RSA_EXPORT_WITH_RC4_40_MD5	No	Orbix 3.3.14

Resolved Issues

None.

OrbixSSL 3.3.16 Java

This section describes changes made specifically to OrbixSSL Java that are relevant to Orbix 3.3 SP 16.

OrbixSSL 3.3 SP 16 Java Edition is binary compatible with OrbixSSL 3.3 Java Edition.

Deprecated Features

The following is a list of features deprecated in OrbixSSL Java:

Feature	Feature Removed	When Deprecated
Support for the following cipher suites: • SSLV3_RSA_WITH_RC4_128_SHA • SSLV3_RSA_WITH_RC4_128_MD5 • SSLV3_RSA_WITH_3DES_EDE_CBC_SHA • SSLV3_RSA_WITH_DES_CBC_SHA • SSLV3_RSA_EXPORT_WITH_DES40_CBC_SHA • SSLV3_RSA_EXPORT_WITH_RC2_CBC_40_MD5 • SSLV3_RSA_EXPORT_WITH_RC4_40_MD5	No	Orbix 3.3.14

Resolved Issues

The resolved issues for OrbixSSL Java that customers have reported are listed in this section. The numbers that follow each issue are the Reported Problem Incident number followed by the Customer Incident Numbers (in parentheses). RPIs that have numbers only (and no text) are included to confirm that the RPIs have been fixed, since no further information is required.

- Support for Java 11 has been added.

  RPI 637210