

webMethods EntireX

Release Notes

Version 9.0.1

June 2013

This document applies to webMethods EntireX Version 9.0.1.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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1 What's New in Version 9

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High Availability

Under High Availability we understand an environment with engineered redundancy which, if any one component fails, guarantees the integrity of the system as a whole. To achieve high availability, EntireX uses existing third-party clustering technology.

See also *High Availability in EntireX*.

Configuration Enhancements

Multiple enhancements have been made to simplify configuration of many EntireX components:

- [Simplified Configuration for DIV Persistent Store](#)
- [RPC Parameters](#)
- [Dynamic Memory Management](#)
- [Specifying poolsize using Java System Property](#)
- [RPC Security](#)

Simplified Configuration for DIV Persistent Store

The persistent store handler for Data In Virtual (DIV) has been enhanced. Set `PSTORE-VERSION=4` to use the new handler, which requires much less configuration data. See `PSTORE-VERSION`.

RPC Parameters

New parameters are available to simplify configuration of RPC servers:

- `marshalling`
For Batch RPC Server and IMS RPC Server, new parameter `marshalling` is used together with server mapping files (SVMs) and replaces the complex parameter `runoption`, which is now deprecated.
- `workermodel`
For Batch RPC Server, new parameter `workermodel` replaces parameters `minworker`, `maxworker` and `endworker`, which are now deprecated.

Examples:

```
Workermodel=(SCALE, 1,5,fastshrink) replaces MinWorker=1; MaxWorker=5;  
                                         EndWorker=Immediately
```

```
Workermodel=(SCALE, 3,10,slowshrink) replaces MinWorker=3; MaxWorker=10;  
                                         EndWorker=Timeout
```

```
WorkerModel=(FIX, 4)                replaces MinWorker=4; MaxWorker=4;
                                     EndWorker=Never
```

To reflect these new parameters, a new configuration file is provided. See member `CONFIG` in the source library `EXP_vrs.SRCE`. All deprecated parameters are still supported, but may be dropped in a future version; there is currently no need to adapt your configuration file, although this is recommended.

Dynamic Memory Management

Dynamic memory management is a feature to handle changing Broker workload without any restart of the Broker task. It increases the availability of the Broker by using various memory pools for various Broker resources and by being able to use a variable number of pools for the resources. This feature was available in previous versions of EntireX but is now activated by default. See *Dynamic Memory Management* under *Broker Resource Allocation* in the general administration documentation and `DYNAMIC-MEMORY-MANAGEMENT` under *Broker Attributes* in the administration documentation.

Specifying poolsize using Java System Property

Parameter `poolsize` for specifying the maximum number of socket connections with Java-based EntireX applications can now be set using the new Java property `entirex.socket.poolsize`. See *Socket Parameters for TCP and SSL Communication* under *Writing Advanced Applications - EntireX Java ACI*.

RPC Security

The Batch, CICS, IMS, UNIX, Windows, Micro Focus and .NET RPC Servers now provide logic to detect the security setup of the broker kernel automatically. This means the RPC server option `KERNELSECURITY` (`KSEC` under CICS) is now deprecated. The parameter is currently still supported for reasons of compatibility.

EntireX and the Cloud

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers. EntireX supports Amazon EC2 on the following platforms:

- Windows Server 2008 Standard and Enterprise editions (64-bit)
- Red Hat Enterprise Linux Server 6

See [EntireX Platform Coverage](#) for full list of supported platforms.

Security Enhancements

- [Additional Authorization Call to EntireX Security](#)
- [Support of UsernameToken](#)

Additional Authorization Call to EntireX Security

An additional authorization check is now performed for a user against a specified application in a RACF security environment. This prevents, for example, a password being revoked for a user who does not have access at all to a particular application. See `APPLICATION-NAME`.

Support of UsernameToken

The XML/SOAP RPC Server uses UsernameToken security for a Web service if the configuration contains the attribute `usernameToken` in `<xmm>`. The XML/SOAP RPC Server supports two kinds of UsernameToken:

- PasswordText
- PasswordDigest

See *XML/SOAP RPC Server with UsernameToken* in the UNIX and Windows administration documentation.

Workbench Enhancements

- [IDL Tester](#)
- [COBOL Wrapper](#)
- [Natural Wrapper](#)
- [IDL Extractor for XML Document](#)
- [IDL Extractor for XML Schema](#)
- [IDL Extractor for WSDL](#)
- [IDL Extractor for Integration Server](#)

- XML Mapping Editor

IDL Tester

In earlier versions, the IDL Tester cluttered up your projects with multiple Java assets. These assets are now generated into your temp directory and are removed automatically when the Designer is shut down. The Java Wrapper can still generate test classes into a Java project if required.

COBOL Wrapper

You can now customize the names for the generated COBOL client interface objects. See *Customize Automatically Generated Client Names* under *Generate COBOL Source Files from Software AG IDL Files*.

You can also customize the names for the generated COBOL server. See *Customize Automatically Generated Server Names* under *Generate COBOL Source Files from Software AG IDL Files*.

For IDL unbounded arrays (see `array-definition` under *Software AG IDL Grammar* in the *IDL Editor* documentation under *Software AG IDL Grammar* in the *IDL Editor* documentation) which are mapped to COBOL tables with the `DEPENDING ON` clause (see *Tables with Variable Size - DEPENDING ON Clause*), index variables in the `LINKAGE SECTION` of client interface objects and server skeletons are generated unsigned, that is, with the data format `PIC 9(8) BINARY` instead of `PIC 9 S(8) BINARY`. See `ODOTAB-A1-11` in the example below.

```
IDL:
1 ODOTAB-A1      (A1/V11)

Generated LINKAGE SECTION:
02 ODOTAB-A1-11                               PIC 9(8) BINARY.
02 ODOTAB-A1X OCCURS 1 TO 11 DEPENDING ON ODOTAB-A1-11.
 03 ODOTAB-A1                               PIC X(1).
```

Natural Wrapper

The Natural Wrapper allows you to customize the names for the generated Natural client interface objects and to enable/disable - for each IDL program - the generation of Natural client test programs. See *Step 2: Customize Natural Client Names* under *Using the Natural Wrapper for the Client Side within NaturalONE*

The Natural Wrapper also generates RPC servers; you can customize the names for these. See *Using the Natural Wrapper for the Server Side within NaturalONE*.

There are no longer any restrictions in IDL program names; these can be longer than eight characters or even contain characters not allowed in Natural names. The names are adapted during wrapping.

These features require some support from the Natural RPC server used for generation. See *Prerequisites for Natural Wrapper* in the respective section of the Release Notes.

IDL Extractor for XML Document

The **Options for Target Programming Language** page has been redesigned. Generated names for IDL library and IDL programs depend on the selected target programming language and correspond to the customized name feature of the *Natural Wrapper* and *COBOL Wrapper*. Option combinations that do not match the selected target programming language are disabled and cannot be selected. See Step 5: Specify Options for Target Programming Language.

IDL Extractor for XML Schema

The **Options for Target Programming Language** page has been redesigned. Generated names for IDL library and IDL programs depend on the selected target programming language and correspond to the customized name feature of the *Natural Wrapper* and *COBOL Wrapper*. Option combinations that do not match the selected target programming language are disabled and cannot be selected. See Step 5: Specify Options for Target Programming Language.

IDL Extractor for WSDL

The **Options for Target Programming Language** page has been redesigned. Generated names for IDL library and IDL programs depend on the selected target programming language and correspond to the customized name feature of the *Natural Wrapper* and *COBOL Wrapper*. Option combinations that do not match the selected target programming language are disabled and cannot be selected. See *Step 6: Specify Options for Target Programming Language* in the IDL Extractor for WSDL documentation.

IDL Extractor for Integration Server

The **Select the Integration Server Package to Extract** page has been redesigned. Generated names for IDL library and IDL programs depend on the selected target programming language and correspond to the customized name feature of the *Natural Wrapper* and *COBOL Wrapper*. Option combinations that do not match the selected target programming language are disabled and cannot be selected. See Step 3: Select the Integration Server Package to Extract.

XML Mapping Editor

SOAP mapping with mapping parameter `Generate Array Envelope Element` has been changed: The generation for simple type arrays also respects the setting of this parameter. To enable the old behavior (arrays of type simple always get a wrapping element) add the following line to `eclipse.ini`:

```
-Dentirex.xmlmappeditor.enableSimpleTypeWrapping=false
```

Brainstorm Ideas

Brainstorm is a one-stop portal for all Software AG customers to submit feature requests, vote on ideas that have been posted by other customers and get your voice heard. All product categories are moderated by product managers, and ideas get responded to and updated on a regular basis. Here is a selection of Brainstorm ideas that have been implemented in EntireX. The number in angle brackets is the Brainstorm ID.

- Fewer unwanted Java artifacts created when testing IDL files [1033097]. See *EntireX IDL Tester*.
- Job names and CICS transaction names in SMF records [10102119]. See *APPLICATION-NAME* in the ACI Programming documentation under *Information Reply Structures* under *Broker CIS Data Structures* in the ACI Programming documentation.
- Improved default handling for preserving whitespace in XML and Web services scenarios [10382004]. See *Whitespace Handling* under *Writing Advanced Applications with the XML/SOAP Wrapper*.
- Re-architected alias and short-name handling [1039561]. See, for example, *Step 2: Customize Natural Client Names* under *Using the Natural Wrapper for the Client Side within NaturalONE*.
- Arabic shaping with UTF-8 [1042468]. The conversion routines of EntireX now support Arabic shaping (based on code pages Windows-1256 and IBM420). See *Arabic Shaping* under *Introduction to Internationalization*.
- CICS RPC Server User Exits [1046480]. See *User Exits* under *Introduction to CICS RPC Server*.
- Authorization call (align Top Secret and RACF handling) [1046522]. See *APPLICATION-NAME* and *FACILITY-CHECK* under *Broker Attributes* in the administration documentation.

Documentation Enhancements

In addition to documentation for the new features listed on this page, the following topics have also been addressed:

- **Common Integration Scenarios**
Common integration scenarios are described, with cookbooks and links to the relevant sections of the documentation. See, for example, *Calling COBOL from Integration Server*.
- **RPC Servers**
The documentation for *Batch*, *CICS* and *IMS* RPC Servers has been thoroughly reworked; documentation for other RPC servers has also been enhanced.

■ **High Availability**

Under High Availability we understand an environment with engineered redundancy which, if any one component fails, guarantees the integrity of the system as a whole. To achieve high availability, EntireX uses existing third-party clustering technology. A new documentation section provides an introduction to clustering technology and describes how to set up in EntireX the redundant RPC servers and brokers you will need to achieve high availability. See *High Availability in EntireX*.

■ **EntireX and Web Services**

The introduction to EntireX support for Web services has been enhanced and provides links to the relevant sections of the documentation. See *EntireX and Web Services*.

Other Changes and Enhancements

- [IDMSETB](#)
- [Support of IPv6](#)
- [New API RPC-CNTX](#)
- [Deploying Packages in Integration Server](#)
- [EXXMSG - Command-line tool for Displaying Error Messages](#)
- [Modified Codepage Handling with CICS ECI RPC Server and IMS Connect RPC Server](#)
- [CICS RPC Server](#)
- [Job Names and Transaction IDs in SMF Records](#)
- [Whitespace Handling in the XML/SOAP Runtime](#)
- [Administration Service Commands](#)
- [License Key Handling under z/OS](#)

IDMSETB

A new broker stub is provided to support IDMS/DC. See *IDMSETB* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation and *Using the COBOL Wrapper for IDMS/DC with Call Interfaces (z/OS)* in the COBOL Wrapper documentation.

Support of IPv6

SSL and TCP/IP transport is now supported in IPv4 and IPv6 networks. Mixed IPv4 and IPv6 scenarios are also supported. See *IPV6*.

New API RPC-CNTX

Using API RPC-CNTX you can provide a context for Natural RPC client applications without setting a STEPLIB or copying APIs from SYSEXT to user libraries. See *Interface RPC-CNTX for the Natural RPC Client Programmer*.

Deploying Packages in Integration Server

The deploying of packages in Integration Server has been enhanced in this release.

EXXMSG - Command-line tool for Displaying Error Messages

EXXMSG is a command-line tool that displays the text of an EntireX error message for a supplied error number. It is available on all platforms.

See *EXXMSG - Command-line Tool for Displaying Error Messages*.

Modified Codepage Handling with CICS ECI RPC Server and IMS Connect RPC Server

The CICS ECI RPC Server and IMS Connect RPC Server now use only the encoding specified with the parameter `entirex.bridge.targetencoding` when communicating with the EntireX Broker. This behavior is new in this version. Make sure you have enabled conversion in the Broker attribute file so the data can be converted correctly. This is typically achieved by setting service-specific attribute `CONVERSION` to "SAGTCHA".

See `entirex.bridge.targetencoding` under *Configuring the CICS ECI Side | Configuring the IMS Connect Side* in the IMS Connect RPC Server documentation in the respective RPC server documentation.

CICS RPC Server

A user exit is provided to influence/control the logic of the CICS RPC Server. See *User Exits*.

Job Names and Transaction IDs in SMF Records

Broker ACI field `APPLICATION-NAME` has been enhanced to improve logging and accounting. If the program that issued the broker call is running on a mainframe system, the eight-byte job name is used as application name. If the job name is shorter than eight bytes, it is padded with underscore characters. If the z/OS program issuing the broker call is running in a TP monitor (except IDMS/DC), a dash sign is set as ninth byte. The following eight bytes from position 10-17 contain monitor-dependent data. See *APPLICATION-NAME* in the ACI Programming documentation for details.

Whitespace Handling in the XML/SOAP Runtime

The default handling for preserving whitespace in XML and Web services scenarios has been enhanced. The XML/SOAP Runtime trims whitespace in values by default. The whitespace handling is also determined by defining attribute `xml:space` (see XML specification) on element(s). The attribute `xml:space` has the higher priority and is inherited from children of the element recursively. See Whitespace Handling under *Writing Advanced Applications with the XML/SOAP Wrapper*.

Administration Service Commands

The administration service monitors and controls all local brokers; remote brokers can also be monitored. The administration service is addressed via the System Management Hub or the administration service command-line utility `etbsrv`. To run the commands from utility `etbsrv`, System Management Hub is not required. This feature was designed to be used in a clustering environment, but can also be used in a standard environment.

See also the respective section of the documentation.

License Key Handling under z/OS

Under z/OS, the EntireX Broker no longer starts up if the license key is invalid.

2 EntireX Platform Coverage

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List of Components per Platform

	z/OS 1.12, 1.13	zVSE Version 4.3, 5.1	BS2000/OSD 6.0, 7.0, 8.0, 9.0	z/VM 5.4, 6.1	SUSE Linux Enterprise Server 11 for IBM System z (64-bit)	Red Hat Enterprise Linux 6 for IBM System z (64-bit)	Solaris UltraSPARC 10, 11 (64-bit)	HP-UX 11i v3 for Itanium 2 (64-bit)	AIX Power 7.1 (64-bit)	OpenVMS 8.3-1H1, 8.4 for Itanium (64-bit)	IBM i 6.1, 7.1	SUSE Linux Enterprise Server 11 for x86-64 (64-bit)	Red Hat Enterprise Linux 6 for x86-64 (64-bit) and Amazon EC2 (64-bit)	Windows 32-bit, see (7) below	Windows 64-bit, see (8) below
EntireX Broker	x ⁽⁴⁾	x ⁽⁶⁾	x		x	x	x	x	x			x	x	x	x
EntireX Workbench												x	x	x	x
EntireX RPC															
Batch RPC Server	x	x	x												
CICS RPC Server	x	x													
IMS RPC Server	x														
COBOL Server/Client	x	x	x												
Micro Focus RPC Server					x	x	x	x	x			x	x	x	x
PL/I Server/Client	x														
C RPC Server/Client			x ⁽⁵⁾		x	x	x	x	x		x	x	x	x	x
Java RPC Server/Client	x ⁽³⁾				x	x	x	x	x			x	x	x	x
XML/SOAP RPC Server/Client	x ⁽³⁾				x	x	x	x	x			x	x	x	x
WebSphere MQ RPC Server	x ⁽³⁾				x	x	x	x	x			x	x	x	x
WebSphere MQ Listener	x ⁽³⁾				x	x	x	x	x			x	x	x	x
DCOM RPC Client ⁽¹⁾														x	
.NET RPC Server/Client ⁽¹⁾														x	x
RPC-ACI Bridge	x ⁽³⁾				x	x	x	x	x			x	x	x	x
CICS ECI RPC Server	x ⁽³⁾				x	x	x	x	x			x	x	x	x
IMS Connect RPC Server	x ⁽³⁾				x	x	x	x	x			x	x	x	x
EntireX ACI															
Broker Stubs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Java ACI	x				x	x	x	x	x			x	x	x	x
ActiveX Control														x	
System Management Hub					x	x	x	x	x			x	x	x	x
Broker Agent	x				x	x	x	x	x			x	x	x	
JMS Support					x	x	x	x	x			x	x	x	x

Platform and Version Support

Software AG provides EntireX support for the operating/teleprocessing system versions supported by their respective manufacturers. In general, when an operating/teleprocessing system provider stops supporting a version of an operating/teleprocessing system, Software AG will stop supporting that operating/teleprocessing system version.

Software AG plans to provide support for previous versions of EntireX and predecessor products of EntireX as follows:

End-of-Maintenance Dates for Previous Versions of EntireX

With this release of EntireX, product versions not listed below are no longer supported.

Product Release	Platform	Release Date	End-of-Maintenance Date
EntireX Communicator 7.1	IBM i Series 6.1	April 2010	
	IBM i Series 7.1	November 2012	
EntireX Communicator 7.2	z/VSE 4.3	July 2008	31 May 2014
	z/VSE 5.1	November 2011	
EntireX Communicator 7.3	z/VM 5.4	September 2008	31 December 2014
	z/VM 6.1	October 2009	30 April 2013
	z/VM 6.2	December 2011	
webMethods EntireX 8.0	OpenVMS IA-64	December 2008	
webMethods EntireX 8.1	BS2000/OSD	December 2009	
webMethods EntireX 8.2	z/OS, UNIX, Windows	December 2010	30 June 2014
	HP-UX 11i v3 for PA RISC	December 2010	31 December 2016
webMethods EntireX 9.0	z/OS, UNIX, Windows	June 2013	

If you have access to Empower, you can also see the detailed and most recent information in the EntireX Roadmap.

Current Version of webMethods EntireX per Operating System

Operating System	EntireX Version
z/OS V1.12, V1.13	9.0
z/VSE V4.3, V5.1	7.2.3
BS2000/OSD 6.0, 7.0, 8.0, 9.0	8.1 SP1
z/VM 5.4, 6.2	7.3
OpenVMS 8.3-1H1, 8.4 for Itanium (64-bit)	8.0
SUSE Linux Enterprise Server 11 for IBM System z (64-bit)	9.0
Red Hat Enterprise Linux 5 for IBM System z (64-bit)	8.2
Red Hat Enterprise Linux 6 for IBM System z (64-bit)	9.0
Red Hat Enterprise Linux 6 for Amazon EC2 (64-bit)	9.0
Solaris SPARC 10, 11 (64-bit)	9.0
HP-UX 11i v2 for PA-RISC HP-UX 11i v3 for PA-RISC	8.2
HP-UX 11i v2 for Itanium 2	8.1
HP-UX 11i v3 for Itanium 2	9.0
AIX 6.1 (64-bit)	8.2
AIX 7.1 (64-bit)	9.0
IBM i Series	7.1
SUSE Linux Enterprise Server 10 for x86 (32-bit)	8.1
SUSE Linux Enterprise Server 10 for AMD64 and EM64T (x86-64)	8.1
SUSE Linux Enterprise Server 11 for x86 (32-bit)	8.2
SUSE Linux Enterprise Server 11 for AMD64 and EM64T (x86-64)	9.0
Red Hat Enterprise Server Linux 5 for x86 (32-bit)	8.2
Red Hat Enterprise Server Linux 5 for AMD64 and EM64T (x86-64)	8.2
Red Hat Enterprise Server Linux 6 for AMD64 and EM64T(x86-64)	9.0
Windows XP Professional (32-bit, x86) Windows Vista (32-bit, x86) Windows Server 2003 Standard and Enterprise editions (32-bit, x86)	8.2
Windows 7 Professional, Ultimate and Enterprise editions (32-bit, x86) Windows 8 (32-bit, x86) Windows Server 2008 Standard and Enterprise editions (32-bit, x86) Windows 7 Professional, Ultimate and Enterprise editions (64-bit, x86-64) Windows 8 (64-bit, x86-64) Windows Server 2008 Standard and Enterprise editions (64-bit, x86-64 and Amazon EC2) Windows Server 2012 Datacenter and Standard editions (64-bit, x86-64)	9.0

Functionality Dropped in this Release

■ Operating System Support

The following operating systems are no longer supported:

- Linux 32-bit versions. We therefore recommend you migrate to the corresponding 64-bit OS version.
- Windows XP, Windows Vista, Windows 2003.
- HP-UX PA-Risc (64-bit). Applies to EntireX 9.0 only. EntireX will continue to be supported on this platform with version 8.2 until December 2016.

■ RPC Parameters

Configuration of RPC servers has been simplified, and the following parameters are now deprecated on some platforms:

- `runoption`
For Batch RPC Server and IMS RPC Server the complex parameter `runoption` is replaced by the new parameter `marshalling`, which is set by default to `COBOL`. `marshalling` is used together with server mapping files (SVMs).
- `minworker`, `maxworker`, `endworker`
For Batch RPC Server, parameters `minworker`, `maxworker` and `endworker` are replaced by new parameter `workermodel`.

See examples under [RPC Parameters](#) in section *What's New in Version 9*.

- `kernelsecurity`
The RPC server option `kernelsecurity` (KSEC under CICS) is deprecated. EntireX RPC servers now provide logic to detect the security setup of the broker kernel automatically. Applies to Batch, CICS, IMS, UNIX, Windows, Micro Focus and .NET RPC Servers.

Support for these parameters is currently still provided for compatibility reasons.

■ Broker Attributes

The Broker attributes `NET-RESTART`, `NET-RETRY-LIMIT` and `NET-RETRY-TIME` are no longer supported.

■ DCOM Wrapper Proxy Objects

The generation of DCOM Wrapper proxy objects is no longer supported.

■ ACI for .NET

The EntireX Broker ACI for .NET is no longer supported.

■ Broker Stubs

Entire Net-Work is no longer supported for Broker stubs used on UNIX or Windows.

Functionality to be Dropped in Future Releases

The following features and platforms are not planned to be supported in future versions.

- **SNMP support and Administration using System Management Hub**

In the next versions EntireX will establish a new kind of administration based on webMethods Command Central. System Management Hub (SMH) and the respective SNMP support will be dropped when the new administration framework adequately replaces the SMH-based administration.

- **Broker Agents**

The Broker SSL Agent and Broker TCP Agent will be removed in a future version.

- **ACI for Natural**

The LDAs NATDEF12 and NATDEF21 are deprecated and will no longer be delivered in the future.

The LDAs NATDEF12 and NATDEF21, which define API version 2 only, are consolidated into the LDA NATDEF in the Natural library SYSETB. If there were duplicate field names in NATDEF12 and NATDEF21, they are defined as REDEFINES in NATDEF. NATDEF12 and NATDEF21 are deprecated and will not be delivered in future releases. Use NATDEF in your application for Broker control block definition. Also, some of the fields in NATDEF are marked as deprecated. Do not use these in your application either.

- **IDL Compiler Native Batch Interface**

The IDL Compiler native batch interface for the C Wrapper and .NET Wrapper is deprecated and will be dropped in the future. For the C Wrapper, use the Eclipse batch interface instead. See *Using the C Wrapper in Command-line Mode*.

Customer-written templates for the IDL Compiler are also deprecated, and support for these templates will be dropped in a future version.

- **COBOL Wrapper**

The Generic RPC Services Module (see *Generic RPC Services Module*) COBSRVIB and COBSRVID delivered on mainframe will be removed. Instead, use the modules generated by the EntireX Workbench. The CICS module COBSRVIC in source as well as load format will stay.

- **RPC Parameters**

Support for all RPC parameters listed as “deprecated” under [Functionality Dropped in this Release](#) may be dropped in a future version. We recommend you use the alternatives provided.

- **Broker ActiveX Control**

The EntireX Broker ActiveX Control will be removed in a future version.

- **Location Transparency**
Support for location transparency functionality will be dropped in the next version.
- **PL/I MVS Compiler**
Support for IBM compiler PL/I for MVS & VM will be dropped in a future version. Support for compiler Enterprise PL/I for z/OS will continue.
- **Partner Broker ID**
Partner Broker ID will not be supported in a future version.
- **JBoss**
Support for application server JBoss will be dropped in a future release.
- **Microsoft Visual Studio Wizard for EntireX .NET Wrapper**
The Visual Studio Wizard for .NET Wrapper as a plug-in for Microsoft Visual Studio 2010 will be removed in a future version. This functionality will continue to be provided by the EntireX Workbench.
- **Microsoft Visual Studio Wizard for EntireX DCOM Wrapper**
The Microsoft Visual Studio Wizard for EntireX DCOM Wrapper as a Software AG plug-in will be removed in a future version. This functionality will continue to be provided by the EntireX Workbench.
- **EntireX Wrapper for Enterprise JavaBeans**
The possibility to enable Java-based components to access an EntireX RPC server using Enterprise JavaBeans will be removed with the EntireX Wrapper for Enterprise JavaBeans in a future version.

Functionality to be Modified in Future Releases

- **Error Messages from Java-based Components**
Error messages issued by Java-based EntireX components usually look like “Broker Error 1234 1234: *some error text*” even if the error is not related to the Broker. Therefore, “Broker Error” will be changed to “Error” in such error messages.

3 EntireX Prerequisites

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This chapter describes the product prerequisites for the following EntireX platforms:

-  **Note:** Software AG supports third-party technology, for example operating system versions, products or functionality, only for as long as this technology is officially supported by the third-party vendor.

z/OS Prerequisites

-  **Note:** z/OS 1.12 or higher is required for all components. For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, see [Product Compatibility for IBM Platforms](#) on the Software AG website.

Component	Prerequisites
EntireX Broker	<ul style="list-style-type: none"> ■ Transport Options <ul style="list-style-type: none"> ■ TCP-based communications: IBM TCP Stack ■ SSL-based communications: IBM GSK ■ NET-based communications: Entire Net-Work. See note below. ■ EntireX Security SAF-compatible security system for host z/OS compatible Broker kernel: <ul style="list-style-type: none"> ■ Resource classes/types and profiles as required by the installed security system. This can require a machine IPL in the case of RACF. ■ If you are using the trusted SAF user ID feature with the CICS TP monitor, set ADAGSET macro parameter SAF=YES when installing the Adabas/CICS link module.
CICS RPC Server Batch RPC Server IMS RPC Server	<ul style="list-style-type: none"> ■ If applicable, see prerequisites for COBOL Wrapper and PL/I Wrapper. ■ Same prerequisites as Broker Stubs. ■ IBM Assembler for CICS RPC Server.
Broker Stubs	<ul style="list-style-type: none"> ■ Transport Options See Broker prerequisites above. ■ Lowest Supported Applications Environment Versions <ul style="list-style-type: none"> ■ For CICS applications: CICS TS 3.1 ■ For IMS-based applications: IMS 8 ■ For Com-plete based applications: Com-plete 6.5; stub COMETB requires APS331 SP5 ■ For Natural-based applications: NAT 4.2.6

Component	Prerequisites
Workbench	<ul style="list-style-type: none"> ■ COBOL Wrapper <ul style="list-style-type: none"> ■ To compile the sources generated by the EntireX Workbench component COBOL Wrapper: Compiler supported by the COBOL Wrapper: standard COBOL compiler, for example IBM Enterprise COBOL for z/OS 4.2. ■ For client side, see prerequisites for Broker stubs. ■ For server side, an RPC server. See prerequisites for relevant RPC server above. ■ PL/I Wrapper <ul style="list-style-type: none"> ■ To compile the sources generated by the EntireX Workbench component PL/I Wrapper: Compiler supported by the PL/I Wrapper, for example PL/I for MVS & VM V1R1.1, or the newer Enterprise PL/I for z/OS V4.R1. ■ For client side, see prerequisites for Broker stubs. ■ For server side, an RPC server. See prerequisites for relevant RPC server above. ■ IDL Extractor for Natural <p>To extract from z/OS, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:</p> <ul style="list-style-type: none"> ■ Natural 4.2.7.4 is required for improved handling if IDL extractions fails. ■ Natural 4.2.7 or higher is required to make use of the following features: <ul style="list-style-type: none"> ■ during runtime to support a redesigned interface including support for REDEFINES, map to suppress etc. ■ Optional replacing of special characters ("@") in parameter names by underscore ■ Natural 4.2.6.2 or higher is required for object extractions to make use of the features (introduced with EntireX 8.1 SP2). <ul style="list-style-type: none"> ■ Optional replacing of special characters ("#", "\$", "&", "/") in parameter names by underscore ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate. ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays. ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays. ■ Natural 4.2.6.1 or lower can be used, but if extracted from objects there is no support of the features supported by Natural 4.2.6.2 (see above). ■ Natural Wrapper <p>To generate a client interface object, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:</p> <ul style="list-style-type: none"> ■ Natural 4.2.7.11 or higher or Natural 8.2.2.6 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 4a: Customize Natural Client Names</i>

Component	Prerequisites
	<p><i>and Save Remotely (Optional) Step 4b: Customize Natural Client Names and Save Locally (Optional).</i></p> <ul style="list-style-type: none"> ■ Natural 4.2.7.8 or higher or Natural 8.2.2.2 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional) Step 4b: Customize Natural Client Names and Save Locally (Optional).</i> ■ Natural 4.2.7.4 or higher is required if a <i>CVM File</i> is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, <i>REDEFINES</i> or <i>map</i> to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation. ■ Natural 4.2.6.2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. ■ Natural 4.2.5.5 to Natural 4.2.6.1 generates Natural client interface objects only. <p>To generate a server skeleton, a standard Natural RPC server is required with Natural version 4.2.7.11 or higher or Natural 8.2.2.6 or higher. See <i>Using the Natural Wrapper for the Server Side.</i></p>
Attach Manager	<ul style="list-style-type: none"> ■ Transport Options <ul style="list-style-type: none"> ■ TCP-based communications: IBM TCP Stack ■ NET-based communications: Entire Net-Work. See note below. <p>The attach services supplied with Broker Services are still supported in this version but will be replaced in the future.</p>

Additional Notes for z/OS

■ Entire Net-Work

- EntireX works with any supported version of Entire Net-Work. We recommend you use the latest version, which for z/OS is currently 6.3. The Adabas version we recommend is 8.2.
- Adabas Cross-Memory Services are required if you are using NET transport or using Adabas as your persistent store. We recommend using at least the version delivered with EntireX (WAL825). See *Installing Adabas Components for EntireX under z/OS* in the z/OS installation documentation.

UNIX Prerequisites

Component	Prerequisites
EntireX Broker	<ul style="list-style-type: none"> ■ Supported transport methods: SSL and/or TCP/IP.
EntireX Workbench	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ Eclipse SDK 3.6. ■ Web Services Stack plug-ins version 9 (to install EntireX Workbench in standalone mode). ■ C Wrapper <ul style="list-style-type: none"> ■ For target platform UNIX, ANSI C Compiler. ■ For other target platforms, see prerequisites for that platform, for example Windows BS2000/OSD. ■ COBOL Wrapper <ul style="list-style-type: none"> ■ See prerequisites for target platform, for example z/OS Windows BS2000/OSD IBM i. ■ For Micro Focus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment. ■ Wrapper for EJB <ul style="list-style-type: none"> ■ J2EE 1.5 (JBoss, Oracle WebLogic Server, IBM WebSphere or others). ■ Ant 1.6.1. ■ XDoclet 1.2.1. ■ IDL Extractor for Natural <ul style="list-style-type: none"> ■ To extract from UNIX, a standard Natural RPC server is required with one of the following versions. The scope of the extraction depends on the version: <ul style="list-style-type: none"> ■ Natural 6.3.11 or higher is required for improved handling if IDL extractions fails. ■ Natural 6.3.10 or higher is required for optional replacing of special characters ("@" in parameter names by underscore for object extractions. ■ Natural 6.3.9 or higher is required during runtime to support a redesigned interface including support for REDEFINES, suppress etc. ■ Natural 6.3.8 or higher is required for object extractions to make use of the following features (introduced with EntireX 8.1 SP2): <ul style="list-style-type: none"> ■ Optional replacing of special characters ("#", "\$", "&", "/") in parameter names by underscore ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate. ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays.

Component	Prerequisites
	<ul style="list-style-type: none"> ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays. ■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features supported by Natural 6.3.8 (see above). ■ To extract from other platforms, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS Windows BS2000/OSD IBM i. ■ Natural Wrapper <ul style="list-style-type: none"> ■ To generate a client interface object, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version: <ul style="list-style-type: none"> ■ Natural 6.3.13 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 6.3.12 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 6.3.11 or higher is required if a <i>CVM File</i> is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, <i>REDEFINES</i> or <i>map</i> to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation. ■ Natural 6.3.8 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. ■ Natural 6.3.7 generates Natural client interface objects only. ■ To generate a server skeleton, a standard Natural RPC server is required with Natural version 6.3.13 or higher. See <i>Using the Natural Wrapper for the Server Side</i>. ■ To generate into another platform, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS Windows BS2000/OSD. ■ To generate with the default RPC environment installed in a UNIX NaturalONE environment, the scope of the generation depends on the version: <ul style="list-style-type: none"> ■ NaturalONE 8.2.6 or higher is required to generate Natural RPC server skeletons (subprograms (NSNs) with their parameter data areas (PDAs)) and adapt their names, see <i>Step 2: Customize Natural Server Names</i>. ■ NaturalONE 8.2.6 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 2: Customize Natural Client Names</i>. ■ NaturalONE 8.2.5 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 2: Customize Natural Client Names</i>. ■ NaturalONE 8.1.5 or higher or NaturalONE 8.2.4 or higher is required if a <i>CVM File</i> is used in addition to an IDL file to support features introduced with EntireX 8.2

Component	Prerequisites
	<p>such as multiple Natural subprogram interfaces, REDEFINES or map to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation.</p> <ul style="list-style-type: none"> ■ NaturalONE 8.1.1 or higher or NaturalONE 8.2.1 or higher is required to generate Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. See <i>Step 2: Customize Natural Client Names</i>. ■ PL/I Wrapper <ul style="list-style-type: none"> ■ See prerequisites for target platform, for example z/OS. ■ XML/SOAP Wrapper, Web Services Wrapper <ul style="list-style-type: none"> ■ JAXP-capable XML Parser.
EntireX RPC	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ For Java-based RPC servers: Java 7 (recommended). ■ If you are using SSL, see <i>Using SSL</i> under <i>Setting the Transport Methods</i> under <i>Writing Advanced Applications - EntireX Java ACI</i> for details. ■ EntireX XML/SOAP Listener (formerly XML Servlet) <ul style="list-style-type: none"> ■ Servlet Engine supporting Java Servlet API 2.2 or higher. ■ XML/SOAP Wrapper Runtime <ul style="list-style-type: none"> ■ JAXP-capable XML Parser. ■ Micro Focus RPC Server <ul style="list-style-type: none"> ■ Micro Focus Server 5.1 or compatible COBOL runtime environment.
WebSphere MQ RPC Server	<ul style="list-style-type: none"> ■ To run the WebSphere MQ RPC Server or WebSphere MQ Listener, you need either the base Java classes or a full installation of WebSphere MQ. For WebSphere MQ version 7.0, 7.1 or 7.5 you need at least the JAR file <code>com.ibm.mq.jar</code>. Note that this file name is subject to change in a future version of WebSphere MQ. Check your IBM documentation for details.
EntireX ACI	<ul style="list-style-type: none"> ■ Broker Stubs <ul style="list-style-type: none"> ■ For Natural-based applications, all Natural versions supported by Software AG are valid. ■ Supported transport methods: SSL and/or TCP/IP. ■ Java ACI <ul style="list-style-type: none"> ■ Java 7 (recommended). ■ If you are using SSL, see <i>Using SSL</i> under <i>Setting the Transport Methods</i> under <i>Writing Advanced Applications - EntireX Java ACI</i> for details.
EntireX administration with System	<ul style="list-style-type: none"> ■ The corresponding version of System Management Hub from the webMethods suite.

Component	Prerequisites
Management Hub	

The products listed here have been thoroughly tested and are known to work. In most cases, more recent versions of the required components should also work.

Additional Notes for UNIX

■ Entire Net-Work

Entire Net-Work is no longer supported as transport method under UNIX. We recommend you use transport method TCP/IP.

- We strongly recommend you install the latest operating system and compiler patches.

Additional Notes for HP-UX 11.31 (11i v3)

It is required to install the following manufacturer's patch before you start the installation: PHCO_36900.

Additional Notes for Linux (x86 and IBM System z)

If the system is configured to run in parallel boot mode, the installed rc scripts will not work by default. To work around this problem on SUSE Enterprise Server, simply set `RUN_PARALLEL=no` in file `/etc/sysconfig/boot`.

During installation of EntireX, the Software AG Installer will ask whether you want to install using sudo authentication or run a script after installation. If you want to install using sudo, and you are installing on a SUSE Linux Enterprise Server or Red Hat Enterprise Linux Server system, you cannot use the option `Defaults env_reset`. Open the sudo configuration file `/etc/sudoers` and explicitly set the `Defaults env_reset` option with `!` (that is, `Defaults !env_reset`).

If you use the option `Defaults env_reset` instead of following the instructions above, you will have to use su authentication during installation.

If you are installing on a SUSE Linux Enterprise Server or Red Hat Enterprise Linux Server 6 system, install `glibc`, `libgcc`, `pam` and `ncurses` RPM from your operating system distribution, using the vendor instructions. For Red Hat Enterprise Linux Server 6 system, additionally install `compat-libstdc++`.

If you are using the EntireX Workbench on SUSE Linux Enterprise Server 11 (x86-64), install the RPM package `pango-devel` (64-bit) from your operating system distribution. Follow the instructions provided by the vendor.

Additional Notes for Linux x86

Please note that IBM Java or the GCJ Java should not be used with our products for Linux x86 platforms. Use only Oracle or Blackdown Java for our products on Linux x86. (Our products only support IBM Java on AIX and Linux for IBM System z).

Windows Prerequisites

Component	Prerequisites
EntireX Broker	<ul style="list-style-type: none"> ■ Supported transport methods: SSL and/or TCP/IP.
EntireX Workbench	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ Java 7 (recommended) ■ Eclipse SDK 3.6. ■ Web Services Stack plug-ins 8.2 (to install EntireX Workbench in standalone mode). ■ C Wrapper <ul style="list-style-type: none"> ■ For target platform Windows, Microsoft Visual Studio 2010. ■ For other target platforms, see prerequisites for that platform, for example UNIX BS2000/OSD. ■ COBOL Wrapper <ul style="list-style-type: none"> ■ See prerequisites for target platform, for example z/OS UNIX BS2000/OSD IBM i. ■ For Micro Focus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment. ■ DCOM Wrapper <ul style="list-style-type: none"> ■ C++ Compiler from Microsoft Visual Studio 2010. ■ For generated interface objects: Microsoft Visual Studio .NET 2010 C/C++ runtime environment. ■ To run DCOM components that were generated with the DCOM Wrapper, the Mini Runtime must be installed. See <i>Mini Runtime</i> under <i>Post-installation steps under Windows</i>. ■ DCOM Wrapper and .NET Wrapper Plug-ins for Microsoft Visual Studio <ul style="list-style-type: none"> ■ Microsoft Visual Studio 2010 ■ .NET Wrapper <ul style="list-style-type: none"> ■ .NET Framework 4.0. ■ C# Compiler from Microsoft Visual Studio 2010. ■ Wrapper for EJB <ul style="list-style-type: none"> ■ J2EE 1.5 (JBoss, Oracle WebLogic Server, IBM WebSphere or others). ■ Ant 1.6.1. ■ XDoclet 1.2.1.

Component	Prerequisites
	<ul style="list-style-type: none"> ■ IDL Extractor for Natural <ul style="list-style-type: none"> ■ Natural 6.3.11 or higher is required for improved handling if IDL extractions fails. ■ To extract from Windows, a standard Natural RPC server is required with one of the following versions. The scope of the extraction depends on the version: <ul style="list-style-type: none"> ■ Natural 6.3.10 or higher is required for optional replacing of special characters ("@" in parameter names by underscore for object extractions. ■ Natural 6.3.9 or higher is required during runtime to support a redesigned interface including support for REDEFINES, map to suppress etc. ■ Natural 6.3.8 or higher is required for object extractions to make use of the features (introduced with EntireX 8.1 SP2): <ul style="list-style-type: none"> ■ Optional replacing of special characters ("#", "\$", "&", "/") in parameter names by underscore ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate. ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays. ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays. ■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features supported by Natural 6.3.8 (see above). ■ To extract from other platforms, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS UNIX BS2000/OSD IBM i. ■ Natural Wrapper <ul style="list-style-type: none"> ■ To generate a client interface object, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version: <ul style="list-style-type: none"> ■ Natural 6.3.13 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 6.3.12 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 6.3.11 or higher is required if a CVM File is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, REDEFINES or map to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation. ■ Natural 6.3.8 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. ■ Natural 6.3.7 generates Natural client interface objects only.

Component	Prerequisites
	<ul style="list-style-type: none"> ■ To generate a server skeleton, a standard Natural RPC server is required with Natural version 6.3.13 or higher. See <i>Using the Natural Wrapper for the Server Side</i>. ■ To generate into another platform, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS UNIX BS2000/OSD. ■ To generate with the default RPC environment installed in a Windows NaturalONE environment, the scope of the generation depends on the version: <ul style="list-style-type: none"> ■ NaturalONE 8.2.6 or higher is required to generate Natural RPC server skeletons (subprograms (NSNs) with their parameter data areas (PDAs)) and adapt their names, see <i>Step 2: Customize Natural Server Names</i>. ■ NaturalONE 8.2.6 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 2: Customize Natural Client Names</i>. ■ NaturalONE 8.2.5 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 2: Customize Natural Client Names</i>. ■ NaturalONE 8.1.5 or higher or NaturalONE 8.2.4 or higher is required if a <i>CVM File</i> is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, <code>REDEFINES</code> or <code>map</code> to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation. ■ NaturalONE 8.1.1 or higher or NaturalONE 8.2.1 or higher is required to generate Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. See <i>Step 2: Customize Natural Client Names</i>. ■ PL/I Wrapper See prerequisites for target platform, for example z/OS. ■ XML/SOAP Wrapper, Web Services Wrapper JAXP-capable XML Parser.
EntireX RPC	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ For Java-based RPC servers: Java 7 (recommended). ■ If you are using SSL, see <i>Using SSL</i> under <i>Setting the Transport Methods</i> under <i>Writing Advanced Applications - EntireX Java ACI</i> for details. ■ EntireX XML/SOAP Listener (formerly XML Servlet) <ul style="list-style-type: none"> ■ Servlet Engine supporting Java Servlet API 2.2 or higher. ■ XML/SOAP Wrapper Runtime <ul style="list-style-type: none"> ■ JAXP-capable XML Parser. ■ Micro Focus RPC Server <ul style="list-style-type: none"> ■ Micro Focus Server 5.1 or compatible COBOL runtime environment.
WebSphere MQ RPC Server	<ul style="list-style-type: none"> ■ To run the WebSphere MQ RPC Server or WebSphere MQ Listener, you need either the base Java classes or a full installation of WebSphere MQ. For WebSphere MQ version 7.0, 7.1 or 7.5 you need at least the JAR file <code>com.ibm.mq.jar</code>. Note that this file name is

Component	Prerequisites
	subject to change in a future version of WebSphere MQ. Check your IBM documentation for details.
EntireX ACI	<ul style="list-style-type: none"> ■ Broker Stubs <ul style="list-style-type: none"> ■ For Natural-based applications, all Natural versions supported by Software AG are valid. ■ Supported transport methods: SSL and/or TCP/IP. ■ Java ACI <ul style="list-style-type: none"> ■ Java 7 (recommended). ■ If you are using SSL, see <i>Using SSL</i> under <i>Setting the Transport Methods</i> under <i>Writing Advanced Applications - EntireX Java ACI</i> for details.
EntireX administration with System Management Hub	<ul style="list-style-type: none"> ■ The corresponding version of System Management Hub from the webMethods suite.

The products listed above have been thoroughly tested and are known to work. In most cases, more recent versions of the required components should also work.

Additional Notes for Windows

- **Entire Net-Work**

Entire Net-Work is no longer supported as transport method under Windows. We recommend you use transport method TCP/IP.

BS2000/OSD Prerequisites

Component	Prerequisites
EntireX Broker	<ul style="list-style-type: none"> ■ BS2000/OSD V6.0, V7.0, V8.0, V9.0 ■ WAL814 or above
Batch RPC Server	<ul style="list-style-type: none"> ■ BS2000/OSD V6.0, V7.0, V8.0, V9.0 ■ WAL814 or above ■ If applicable, see prerequisites for C Wrapper COBOL Wrapper.
Broker Stubs	<ul style="list-style-type: none"> ■ BS2000/OSD V6.0, V7.0, V8.0, V9.0 ■ WAL814 or above
Workbench	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ EntireX Workbench version 9.0. ■ For the client side, see prerequisites for Broker stubs. ■ For the server side, an RPC server. See prerequisites for relevant RPC server above. ■ COBOL Wrapper To compile the applications generated by the EntireX Workbench component COBOL Wrapper: the IDL types U or UV require a compiler that supports COBOL data type NATIONAL, for example COBOL2000 V01.4B00, otherwise any ILCS-enabled COBOL compiler on BS2000/OSD. ■ C Wrapper To compile the applications generated by the EntireX Workbench component C Wrapper: any ILCS-enabled C/C++ compiler on BS2000/OSD ■ IDL Extractor for Natural To extract from BS2000/OSD, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version: <ul style="list-style-type: none"> ■ Natural 4.2.7.4 is required for improved handling if IDL extractions fails. ■ Natural 4.2.7 or higher is required to make use of the following features: <ul style="list-style-type: none"> ■ during runtime to support a redesigned interface including support for REDEFINES, map to suppress etc. ■ optional replacing of special characters ("@" in parameter names by underscore for object extractions ■ Natural 4.2.6.2 or higher is required for object extractions to make use of the following features (introduced with EntireX 8.1 SP2): <ul style="list-style-type: none"> ■ Optional replacing of special characters ("#", "\$", "&", "/") in parameter names by underscore

Component	Prerequisites
	<ul style="list-style-type: none"> ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate. ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays. ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays. ■ Natural 4.2.6.1 or lower can be used, but if extracted from objects there is no support of features supported by Natural 4.2.6.2 (see above). ■ Natural Wrapper To generate a client interface object, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version: <ul style="list-style-type: none"> ■ Natural 4.2.7.11 or higher or Natural 8.2.2.6 or higher is required to disable/enable the generation of Natural client test programs. See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 4.2.7.8 or higher or Natural 8.2.2.2 or higher is required to adapt the names for the Natural client interface objects (subprograms (NSNs) with their parameter data areas (PDAs)). See <i>Step 4a: Customize Natural Client Names and Save Remotely (Optional)</i> <i>Step 4b: Customize Natural Client Names and Save Locally (Optional)</i>. ■ Natural 4.2.7.4 or higher is required if a <i>CVM File</i> is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, <i>REDEFINES</i> or <i>map</i> to suppress. See <i>Redesigning the Extracted Interface</i> in the IDL Extractor for Natural documentation. ■ Natural 4.2.6.2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and Natural client test programs. ■ Natural 4.2.5.5 to Natural 4.2.6.1 generates Natural client interface objects only. To generate a server skeleton, a standard Natural RPC server is required with Natural version 4.2.7.11 or higher or Natural 8.2.2.6 or higher. See <i>Using the Natural Wrapper for the Server Side</i>.

Additional Notes for BS2000/OSD

- **Entire Net-Work**

EntireX works with any supported version of Entire Net-Work. We recommend you use the latest version, which for BS2000/OSD is currently WCP 6.2.1.

- The Adabas version we recommend is ADA 8.1.4.

IBM i Prerequisites

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none">■ IBM i 6.1, 7.1.■ Controller that supports TCP/IP protocol.■ Any IBM i ILE-enabled programming language.■ TCP/IP connection to an EntireX Broker kernel on a Windows, z/OS or UNIX platform.■ About 16 MB of disk space for the Broker stub installation and about 50 MB for the RPC server installation.■ Each process that includes the Broker stub occupies one additional MB of virtual memory.
EntireX Workbench	<ul style="list-style-type: none">■ COBOL Wrapper To compile the applications generated by the EntireX Workbench component COBOL Wrapper: standard COBOL compiler defined by the operating system.■ IDL Extractor for Natural To extract from IBM i, the Natural RPC server must be prepared to work together with the IDL Extractor for Natural. See <i>Natural RPC Server Configuration for the IDL Extractor for Natural under IBM i</i> in the IBM i administration documentation. If extracted from objects, there is no support of the IDL Extractor for Natural features introduced with EntireX 8.1 SP2 and EntireX 8.2.

OpenVMS Prerequisites

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none"> ■ HP Integrity Server ■ OpenVMS 8.3-1H1, Update V8.0 ■ OpenVMS 8.4, Update V6.0 ■ HP TCP/IP Services for OpenVMS ■ HP SSL V1.4-334

z/VM

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none"> ■ Supported z/VM Version z/VM version 5.4, 6.1. ■ Adabas Version Adabas version 8.1.3 or above and Entire Net-Work 6.1.2 or above. <p>Note: Maximum message size with NET transport when using the Broker stub under z/VM is 32 KB.</p> <ul style="list-style-type: none"> ■ Virtual Storage The z/VM Broker stub runs within an IBM Language Environment enclave. This means that if the calling program is not an IBM Language Environment, program an enclave will be automatically created, invisible to the application. However, you must allow sufficient virtual storage to allow the Language Environment enclave to be created. A storage size of 16 MB is recommended. ■ ESIZE When using SYSETB under z/VM you must allow sufficient ESIZE. We recommend setting ESIZE=64 KB.

Application Server Prerequisites

The Web application components of EntireX (XML/SOAP Listener, XML/SOAP Runtime, Wrapper for EJB runtime) support J2EE 1.5. They should therefore run on any Java application server that supports J2EE 1.5. The EntireX components have been tested and are supported on the following application servers:

Application Server	Platform					
	Windows	Solaris	Linux	AIX	HP-UX	Linux for IBM System z
Oracle WebLogic Server 12.c	x	x	x		x	
IBM WebSphere 8.5	x			x	x	x

See also *Deploying Web Services Stack Runtime* in the *Using the EntireX Web Services Wrapper* documentation.

Supported LDAP Servers

The following LDAP servers are currently supported by EntireX:

- IBM Tivoli Directory Server 6
- Microsoft Active Directory Domain Services
- Novell eDirectory 8
- OpenLDAP 2
- Apache Directory Server 1.5

Supported Browsers

The following browsers are currently supported by EntireX:

- Microsoft Internet Explorer 8.x, 9.x
- Mozilla Firefox 17 and higher
- Google Chrome 24.0 higher