# webMethods EntireX

## Release Notes

Version 8.1 SP2

March 2010

This document applies to webMethods EntireX Version 8.1 SP2.

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 8.1 SP2


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# Installation

## Upgrade Installation

This version can be installed over a version 8.1 SP1. No user-defined data of the earlier version is changed.

## Enhanced Uninstallation

When EntireX is uninstalled, the EntireX Mini Runtime and the Visual Studio plug-ins are uninstalled automatically.

## Broker Installation no longer requires Administration Component

When you install EntireX Broker, the Administration is enabled in a typical installation. However, it is no longer mandatory and can be unselected. Please note that the following EntireX functionality will no longer be available if you uselect Administration.

- Brokers cannot be created, modified, deleted, monitored, started and stopped. Exception: Default broker ETB001 can be started/stopped:
  - **UNIX**
    Enter one of the the following commands:
    - `<Installation_Dir>/EntireX/bin/defaultbroker start`
    - `<Installation_Dir>/EntireX/bin/defaultbroker stop`

    To run these commands, you need to source the EntireX environment file *<Installation_Dir>/EntireX/INSTALL/exxenv[.csh]*.

    See *Starting and Stopping the Default Broker* under *Setting up the Broker under UNIX* in the UNIX administration documentation.
  - **Windows**
    Use the appropriate start menu entry
    - **Software AG > Start Servers > Start EntireX Default Broker**
    - **Software AG > Stop Servers > Stop EntireX Default Broker**

    See *Starting and Stopping the Default Broker* under *Setting up the Broker under Windows* in the Windows administration documentation.
- RPC servers cannot be created, modified, deleted, monitored, started and stopped using System Management Hub. However, these tasks can still be performed manually.
- Location Transparency administration is not possible.

- Authorization Rules administration is not possible.
- Broker Agent administration is not possible.

## Software AG Designer

### Web Services Wrapper for Natural

In a NaturalONE project (requires NaturalONE being installed) in Software AG Designer you can directly generate a Web service from one or more Natural subprograms. See *Using the Web Services Wrapper for Natural*.

### IDL Extractor for Natural

- Optional replacing of special characters ('#', '$', '&', '/','§') in parameter names by underscore for source or object extraction is now provided. See *Step 5: Select Natural Sources from RPC Environment* under *Extracting Software AG IDL File from a New Natural RPC Environment* in the IDL Extractor for Natural documentation.
- Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate.
- The Natural reserved words LOCAL, OBJECT, CONTEXT, INDEPENDENT, HANDLE and OF, which can also be used as Natural parameter names, can now be extracted to IDL.
- You can now extract IDL from sources and objects for
  - Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unboundend arrays.
  - Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are now supported. They are mapped to IDL unboundend arrays.
- You can now directly extract IDL from one or multiple Natural subprograms in a Natural project in Software AG Designer.

### Natural Wrapper

In addition to client interface objects, the Natural Wrapper creates:

- a parameter area (PDA) describing IDL parameter in Natural syntax that can be used when writing a new Natural RPC client application.
- a test application (NSP) demonstrating how to set broker and server parameters and how to call the generated client interface object. The generated test application is very similar to the delivered RPC client examples; see *Basic RPC Client Examples - CALC, SQUARE* under *Delivered Client and Server Examples for Natural* in the Natural Wrapper documentation. See the readme file in EntireX directory *examples/RPC/basic/example/NaturalClient* under UNIX or Windows for more information on working with Natural RPC clients.

### Java Wrapper for Natural

In a NaturalONE project (requires NaturalONE being installed) in Software AG Designer you can directly generate a Java client interface object from one or more Natural subprograms. See *Using the Java Wrapper for Natural*.

### Web Services Tester

You can instantly test a Web service that you generated with the Web Services Wrapper by using the action menu function **Test EntireX Web Service** on the generated .aar Web service. This launches the EntireX XML Tester, which is preconfigured to test the Web service.

### Viewing the Web Services Stack Administration Page

You can browse the Web Services Stack Adminstation Page in the internal browser of the Designer by using the action menu item **Web Services Stack > View Web Services Stack...** of a project's or a Web service archive's (.aar) action menu. The page is displayed in a browser window of Designer and allows you to view the list of deployed Web services and view additional details of or perform actions on the Web Services Stack installation.

### RPC Environment Monitor

You can view the status of RPC Environments you have defined in your RPC Environments preference list (Window > Preferences > Software AG > EntireX > RPC Environments) in a new RPC Environment Monitor view. You can open this view with **Window > Show View > Other... > Software AG > RPC Environment Monitor**. The view displays a list of (nodename, RPC server name) pairs with green or red light signals that indicate the availability of the configured RPC environments.

## Other Enhancements

### Trace Level

It is now possible to specify a trace level for an individual transport method. See attribute `TRACE-LEVEL` in the *Adabas SVC/Entire Net-Work-specific Attributes* (`DEFAULTS=NET`), *TCP/IP-specific Attributes* (`DEFAULTS=TCP`) and *SSL-specific Attributes* (`DEFAULTS=SSL`).

Command syntax has been extended on those platforms that support operator commands. See *Transport-specific Commands* under *Operator Commands* in the platform-specific administration documentation.

### Attach Manager

The Attach Manager has been enhanced so that it can be launched automatically. In the current version, the automatic launch is disabled by default. If you require automatic launch, rename the file *AtmDefault.cfg.txt* in the EntireX config directory to *AtmDefault.cfg*. See the *Setting up the Attach Manager* in the UNIX and Windows administration sections for more information.

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# NaturalONE Support

NaturalONE is an Eclipse-based product that enables developers to create Web services, develop online systems incorporating powerful graphical interfaces, and manage or improve current applications.

- Natural Wrapper
- Natural Examples
- Java Wrapper for Natural
- Java Wrapper for Natural Business Services
- Web Services Wrapper for Natural
- Web Services Wrapper for Natural Business Services

## Natural Wrapper

The EntireX Natural Wrapper allows you to develop Natural client applications that access EntireX RPC-based server components.

See also *Natural Wrapper*.

## Natural Examples

The Natural examples have been updated and improved for easier usage. New examples have been created for Reliable RPC (client and server) in the section RPC/reliable.

## Java Wrapper for Natural

The EntireX Java Wrapper for Natural allows you to generate EntireX Java client interface objects from Natural subprograms in a NaturalONE project in Eclipse. The generated Java client interface objects can be used by Java application developers to access Natural server components, using EntireX/Natural RPC.

See also *Java Wrapper for Natural*.

## Java Wrapper for Natural Business Services

The Java Wrapper for Natural Business Services supports you to develop Java client applications that access Natural Business Services server components, using EntireX/Natural RPC.

See also *Java Wrapper for Natural Business Services*.

### Web Services Wrapper for Natural

The EntireX Web Services Wrapper for Natural allows you to develop Web Services that access Natural server components, using EntireX/Natural RPC.

See also *Web Services Wrapper for Natural*.

### Web Services Wrapper for Natural Business Services

The Web Services Wrapper for Natural Business Services supports users to develop Web Services that access Natural Business Service server components, using EntireX/Natural RPC.

See also *Web Services Wrapper for Natural Business Services*.

## CICS RPC Server

The default for the parameter `LOGN` of the macro `EMAINGEN` has changed from "NO" to "YES". This enables Reliable RPC with the default installation, because logon to broker is a prerequisite for Reliable RPC.

## COBOL Wrapper

### BS2000/OSD

- The COBOL Wrapper generates sources with the extension "cob" instead of "cbl". Copybooks are still not generated with extensions. This is consistent to the extension used in LMS Libraries and makes it easier to move them to LMS.
- IDL unbounded arrays now fully supported for BS2000/OSD. They are mapped to COBOL `OCCURS DEPENDING ON` instead fixed COBOL tables. See *Mapping Fixed and Unbounded Arrays* in the COBOL Wrapper documentation.

### Micro Focus

- Copybooks are generated with extension "CPY" instead "cpy". This is consistent with the Micro Focus COBOL compiler default extension used for copybooks. As a result COBOL client interface sources and copybooks can now be copied into a single directory without conflicts.
- For Windows, "broker" instead "broker32" is generated into the client interface objects as the broker stub name. This makes it easier to port a client application from windows to UNIX (or vice versa) without the need to regenerate the client interface objects.

### Reliable RPC

- In the RPC Communication Area for COMM-RELIABLE-STATUS, COBOL level 88 values are defined for easy checking the status of an UOW. See *COBOL Wrapper Reliable RPC Client Example - SENDMAIL* (Micro Focus | z/OS Batch | z/OS CICS | BS2000/OSD in the COBOL Wrapper documentation.

### Examples

- All COBOL examples have been updated and improved for easier usage. New examples have been created for the following:
  - CICS Channel Container example in the section RPC/advanced.
  - CICS LargeBuffer example in the section RPC/advanced.
  - CICS Reliable RPC Server example in the section RPC/reliable.
  - CICS client examples to demonstrate EXEC CICS LINK to client interface objects in the section RPC/basic/example and RPC/reliable.
  - Reliable RPC client and server example for Micro Focus in section RPC/reliable.

See also *Delivered Examples for the COBOL Wrapper*.

## IDL Extractor for COBOL

### Multistatus Error Page for Copybooks

- A new page is provided that summarizes all copybooks that could not be found during extraction.

### Continuation Lines

- Continuation lines, starting with a hyphen in the indicator area, are now supported.

### Siemens LMS Library Support

- You can now select a member from a Siemens LMS library on a remote computer. See *Step 3: Select the COBOL Source* under *Scenario I: Create New IDL and SVM* in the IDL Extractor for COBOL documentation. As a prerequisite, the Extractor Service must be defined with the Batch RPC Server. See *Extractor Service* in the BS2000/OSD Batch RPC Server documentation.

### CA Librarian Support

- You can now select a member from a CA Librarian data set on a remote computer. See See *Step 3: Select the COBOL Source* under *Scenario I: Create New IDL and SVM* in the IDL Extractor for COBOL documentation.
- As a prerequisite, the Extractor Service must be defined with the Batch RPC Server. See *Extractor Service* in the z/OS administration documentation.
- Supported Features:
  - Traditional CA Librarian DA master files are supported.
  - Extraction from multiple CA Librarian data sets is possible.
  - CA Librarian archive levels (history) are supported for the COBOL (main) source where the extraction starts.
  - Security RACROUTE is supported.
  - PDS data sets and CA Librarian data sets can be mixed, that is:
    - the COBOL source can reside in a PDS, and some copybooks in CA Librarian, and others in PDS
    - the COBOL source can reside in CA Librarian, and some copybooks in PDS and others in CA Librarian
    - -INC and COBOL COPY statements can be mixed in one source

Restrictions:

## C Wrapper

### Examples

- All C examples have been updated and improved for easier usage.
- The following examples are new:
  - Client to demonstrate the CICS Channel Container support of the COBOL Wrapper. See in the section RPC/advanced.
  - Client to demonstrate the CICS Large Buffer support of the COBOL Wrapper. See in the section RPC/advanced.
- Enter "/?" as a parameter to the client examples to display usage information. This makes old convention of calling the client examples with `-b brokerId class server service` obsolete.

## IDL Extractor for Natural

- The IDL Extractor for Natural supports Natural variable arrays (Natural V-Arrays, not X-Arrays) with the notation (../1:V) when extracted from a `CALLNAT` source.

## Installation Changes

### Software AG Installer

Under UNIX and Windows, installation is handled by the Software AG Installer (formerly web-Methods Installer). See *Installation Overview*.

### Autostart Broker

An option is provided during installation under UNIX and Windows to start a default broker and set the Autostart value to "on".

### z/OS Licensing Data Sets

Software AG licensing requires that the modules `LICMAIN` and `LICUTIL` can be loaded when the EntireX Broker starts up. These modules are distributed in the MLC*vrs*.LOAD library. See *z/OS Licensing Data Sets* under *EntireX Installation Overview* in the general installation documentation for more information.

## Examples

The delivered examples have been thoroughly reworked. There is a clearer separation, for example, between ACI and RPC, between basic and reliable RPC scenarios, between programming languages. The directory structure and naming conventions of the examples is identical on UNIX and Windows. The examples HELLO and POWER are no longer delivered. Examples CALC and SQUARE are delivered instead. See the relevant section of the Developer's Kit documentation for details.

## Merging and Refactoring

IDL refactoring is a process that checks all programs and structures in a single library if they contain identical groups. All identical groups are extracted in a single structure in the same library, and replaced with a structure reference. If a structure exists that is identical to the structure to be created, all references will point to the existing structure and a new one will not be created. Two groups are identical if each group has the same number and order of parameters, and each parameter in one group has the same name and the same type as the corresponding parameter in the other group. IDL refactoring can be performed on single or multiple IDL files.

See *Merging and Refactoring Software AG IDL*.

## Administration and Monitoring

### Administration Service

Broker agent handling has been thoroughly reworked. The number of broker agents has been drastically reduced, and they are responsible only for the representation layer. A separate process, the so-called Administration Service controls and monitors the local brokers.

See also:

- *Configuring the Administration Service* in the UNIX and Windows administration documentation
- *Starting or Restarting the Administration Service* in the UNIX administration and Windows installation documentation
- *Starting a Local Broker* in *Broker Administration using System Management Hub* in the UNIX and Windows administration documentation

## Migrating EntireX SMH Data from Previous Versions

If an older version of EntireX (7.3 or 8.0) is already installed under UNIX or Windows, some data can be migrated to the newer version. Only data defined in System Management Hub can be migrated. Data can be migrated automatically during installation, or manually after installation. See *Migrating EntireX SMH Data from Previous Versions* in the general installation documentation.

## IMS Connect RPC Server

The IMS Connect RPC Server introduced with EntireX 8.0.1 now supports so-called server mapping. This enables the RPC server to correctly support special COBOL syntax such as:

- JUSTIFIED clause
- SYNCHRONIZE clause
- OCCURS DEPENDING ON clause
- LEVEL-88 fields
- etc.

See *IMS Connect RPC Server*.

## Increased Platform Support

Windows Server 2008 standard and enterprise edition (32-bit) is now supported.

See *Platform Coverage* in the EntireX release notes for full details.

## Integration with other Software AG Products

### CentraSite Support

CentraSite is now integrated in all products of the webMethods suite.

See also *CentraSite Integration*.

## Broker Enhancements

**Note:** Attribute files from previous versions may require manual changes when used with EntireX Broker version 8.1.

### SSL Key in Broker Attribute File

Attribute KEY-PASSWD-ENCYRYPTED is provided to avoid a clear-text password as attribute value. KEY-PASSWD from earlier versions is an A32 field, while KEY-PASSWD-ENCRYPTED is A64. See KEY-PASSWD-ENCRYPTED under *Broker Attribute File* in the administration documentation.

### New Default Value for Broker Attribute WORKER-START-DELAY

If no value is specified for WORKER-START-DELAY, an internal value calculated by the broker is used to optimize dynamic worker management. See WORKER-START-DELAY under *Broker Attribute File* in the administration documentation. This change applies to all platforms.

### Default Value of Broker Attribute REUSE-ADDRESS

The default value of REUSE-ADDRESS (transports SSL and TCP) has been changed under Windows to "NO". We strongly recommend you do not change this value on this platform. The default remains "YES" on all other platforms.

See REUSE-ADDRESS and REUSE-ADDRESS under *Broker Attribute File* in the administration documentation.

### Deprecated Attributes

The following broker attributes are deprecated on all operating systems and will be removed in a future version of EntireX:

- NET-RESTART
- NET-RETRY-LIMIT
- NET-RETRY-TIME
- KEY-PASSWD

See *Broker-specific Attributes* (DEFAULTS=BROKER) under *Broker Attribute File* in the administration documentation.

### Broker Storage Report

The layout of the Storage Report has changed in this version. The size of the memory pool and the total size of all obtained memory pools is displayed. See *Storage Report* under *Broker Resource Allocation* in the general administration documentation.

### Stub Enhancements

Stub handling has been consolidated across all platforms.

#### z/OS

The names of the stubs under z/OS have been unified, and the transport method support has been enhanced.

- For batch, the new BROKER stub allows NET, TCP and SSL transport. See *BROKER* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.
- For CICS, the new CICSETB stub allows NET, TCP and SSL transport. See *CICSETB* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.
- For Com-plete, the new COMETB stub allows NET, TCP and SSL transport. See *COMETB* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.

This makes setup easier and the old stubs are now obsolete. Also, for all scenarios covered by the above stubs, the Relay Manager is now obsolete, too.

See *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.

Environment variables for the COMETB stub are now handled by a new, easy-to-use approach that is compliant with Com-plete. A partitioned data set is assigned by `DD EXAENV`. It represents the environment store for all Com-plete users. The member name is the name of the user logged on to Com-plete. If you want to define your own stub environment variables, add a text member with your user name and put all environment variables into it. See *EXAENV Environment Store* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.

#### Windows

The broker stub under Windows is now called broker.dll. This is to consolidate the names of stubs across platforms. Stub broker32.dll will continue to be supported for compatibility reasons.

See *Administering Broker Stubs under Windows* in the Windows administration documentation.

# 3 What's New in Version 8.1 for BS2000/OSD


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This version makes EntireX 8.1 functionality available to BS2000/OSD customers and provides compatibility with other platforms.

## EntireX 8.1 Compatibility

All new features of EntireX 8.0 and 8.1 are covered; the highlights are listed here. See the documentation for full details.

- EntireX Workbench version 8.1.0 with Hotfix 2 for Eclipse now supports platform BS2000/OSD.
- Comprehensive COBOL support and server mapping (SVM files). See ***COBOL Enhancements*** for a more extensive list in version 8.1. Most of these enhancements are applicable to BS2000/OSD also.
- Reliable RPC for asynchronous scenarios. See *Reliable RPC* in the Developer's Kit documentation.
- Simplified configuration of EntireX Broker (memory and worker management). See *Dynamic Memory Management* and *Dynamic Worker Management* under *Broker Resource Allocation* in the general administration documentation.
- webMethods ESB connectivity using the EntireX Adapter. This supports communication scenarios between ESB and COBOL/Natural under BS2000/OSD. See the separate webMethods EntireX Adapter documentation on the **Software AG Documentation** website.

## Increased Performance

The EntireX Broker architecture has been significantly improved. The underlying SMARTS layer (Software AG Multiple Runtime Architecture) of earlier versions has been removed. This, together with intelligent memory management, increases performance considerably. As a positive side effect, it also simplifies installation and administration.

## Remote Extraction from LMS (Library Manager)

COBOL sources/elements can now be extracted from LMS libraries directly. See *Scenario I: Create New IDL and SVM* in the IDL Extractor for COBOL documentation.

## Consolidated Broker Stubs

Stubs have been consolidated across all platforms. For BS2000/OSD, the stub BROKER handles all transport methods and languages, and replaces NATETB23 and BKIMBTIA.

Stub BKIMBTIA from previous versions is deprecated but still available in this version for reasons of backward compatibility. It will be removed in a future version.

Applications that have statically included stub BKIMBTIA from a previous version need to be re-linked. These previous stubs cannot run with the load library of EntireX version 8.1. We recommend you no longer use stub BKIMBTIA; use stub BROKER instead.

## Features Currently not Supported under BS2000/OSD

The following features are not supported in this version, but are planned to be supported in a future release or service pack.

### SSL

SSL transport is not currently supported under BS2000/OSD with this version of EntireX.

### C Wrapper - Unsupported Data Types

The following data types are currently not supported

- variable-length data types AV, BV, KV and UV
- unbounded arrays

### SAGTRPC

SAGTRPC is currently not supported.

### Command and Info Services IDLs

The Command and Info Services IDLs are currently not supported.

# 4 What's New in Version 8.1


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This chapter lists the major changes to EntireX.

# COBOL Enhancements


- IDL Extractor for COBOL
- COBOL Wrapper
- Micro Focus COBOL


## IDL Extractor for COBOL

### Supported Scenarios

The IDL Extractor for COBOL now supports three different scenarios:

- Create New IDL and SVM
- Append to Existing IDL and SVM
- Modify Existing IDL and SVM

See *IDL Extractor for COBOL*.

### CA Librarian Support

CA Librarian (-INC) or CA Panvalet (++INCLUDE) control statements within COBOL sources in local extractions are now supported. The referenced CA Librarian or CA Panvalet members are worked off similar to copybooks. Please note remote access to CA Librarian is not supported with this version, but using FTP you can download the CA Librarian members where the *EntireX Workbench* is running and extract them without replacing the CA Librarian (-INC) or CA Panvalet (++INCLUDE) control statements.

### Copybook Extensions

You can now specify the extensions for the copybook. See *Step 4: Define the Local Copybook Locations* under *Create New Local COBOL Extractor Environment (z/OS, z/VSE, BS2000/OSD and i5/OS)* and *Step 4a: Copybook Cannot be Found - Local Extraction (Optional)* under *Scenario I: Create New IDL and SVM*.

#### COBOL Program ID

You can now enter the COBOL program ID. See *Step 4c: Enter COBOL Program ID (Optional)* in the IDL Extractor for COBOL documentation. This is required if you are extracting from a copybook.

#### Ignore Copybooks

You can now ignore copybooks if they can not be found, see *Step 4.1x: Copybook Cannot be Found* - Local Extraction | Remote Extraction (z/OS) | Remote Extraction (BS2000/OSD) in the IDL Extractor for COBOL documentation.

#### Preferences by Operating System

Preferences are now distinguished by the target operating system. This allows you to have compiler directives suitable for the operating system, see *Step 2: Define the Default Settings*.

#### Ease of Use

The user interface, error messages and documentation have been enhanced in many respects.

#### Micro Focus COBOL

You can now extract from Micro Focus COBOL programs, see ***IDL Extractor for COBOL Enhancements for Micro Focus COBOL***.

### COBOL Wrapper

#### Generic RPC Services Module

The EntireX Workbench allows you optionally to generate the Generic RPC Services Module. See *Generic RPC Services Module*. Although the generic RPC service modules are also delivered on z/OS as COBSRVIB, COBSRVIC and COBSRVID for the various scenarios, generating them within the *EntireX Workbench* has the following advantages:

- The modules always match the generated client interface objects. If the *EntireX Workbench* is updated and the mainframe package not, inconsistencies may occur.
- The modules are generated with the correct literal apostrophe or quotes depending on the IDL COBOL wrapper properties or preference settings. The z/OS delivered once contain quotes. In earlier EntireX versions if apostrophes are required, a manual scan/replace has to be done. This is obsolete now.
- The correct broker stub name for the target platform z/OS batch, z/VSE batch, BS2000/OSD batch, i5/OS batch, z/VSE CICS, z/OS CICS, z/OS IMS MPP or z/OS IMS BMP is generated into the sources. Manual adaption is no longer necessary.

- The name is COBSRVI for all models, instead having different names (COBSRVIB, COBSRVIC and COBSRVID) for batch and the two CICS models. This simplifies porting and dynamic calling.

We recommend always using the *EntireX Workbench*-generated generic RPC services modules instead the mainframe delivered ones. See check box **Generate Generic RPC Service** under *COBOL Wrapper Generation Settings* in the COBOL Wrapper documentation.

#### IMS Interface Types

The COBOL Wrapper supports additionally the interface types "IMS MPP with standard linkage calling convention" and "IMS BMP with standard linkage calling convention" for clients, which replaces the interface type "IMS with standard linkage calling convention". The correct broker stub name is generated into the generic RPC services module (see *Generic RPC Services Module*). This means that manual adaption, for example for IMS BMP or IMS MPP, is no longer necessary. Use the *EntireX Workbench*-generated generic RPC services module, see check box **Generate Generic RPC Service** under *COBOL Wrapper Generation Settings* in the COBOL Wrapper documentation.

#### Starting COBOL Level

You can specify the starting COBOL level used in the generated copybooks for COBOL data items. This allows you to embed (include) the generated copybook into other existing COBOL structures. See *Using the Generated Copybooks* in the COBOL Wrapper documentation for usage examples. See input field **Starting COBOL level for data items in generated copybooks** in *COBOL Wrapper Generation Settings* in the COBOL Wrapper documentation.

#### DBCS under BS2000/OSD

COBOL systems on BS2000/OSD do not support DBCS. Therefore on this operating system, IDLs containing the IDL type K and KV force an error message during generation.

#### NATIONAL Clause for PIC N

The COBOL Wrapper generates additionally for IDL type U and UV the `NATIONAL` clause for PIC N COBOL data types for operating system z/OS and BS2000/OSD.

#### Command-line Interface

*EntireX Workbench* command-line interface provides new parameters and options:

- -rpcservice, to generate the generic RPC services module, see *Generic RPC Services Module*
- -copybooklevel
- -target MF_WINDOWS, to support Micro Focus COBOL
- -target MF_UNIX, to support Micro Focus COBOL
- -target IMS_MPP, for IMS MPP clients.

## Micro Focus COBOL

The EntireX Micro Focus COBOL RPC Server allows standard RPC clients to communicate with COBOL servers written with Micro Focus COBOL. It works together with the *COBOL Wrapper* and the *IDL Extractor for COBOL*.

It is able to call standard libraries (Windows DLLs or UNIX so|sl); Micro Focus proprietary formats such as intermediate code (*.int), generated code (*.gnt); and intermediate or generated code packaged in libraries (*.lbr).

The Micro Focus RPC Server works together with the *COBOL Wrapper* and the *IDL Extractor for COBOL*.

### COBOL Wrapper Enhancements for Micro Focus COBOL

With the*COBOL Wrapper* you can now generate Micro Focus COBOL clients and servers. See *Using the COBOL Wrapper for Micro Focus (UNIX and Windows)* in the COBOL Wrapper documentation and *Using the COBOL Wrapper for Micro Focus (UNIX and Windows)* in the COBOL Wrapper documentation.

- The generated interface is a call interface (similar to a batch interface for z/OS batch, z/VSE batch, BS2000/OSD batch). The IDL to COBOL mapping is the same as for all other COBOL environments (z/OS batch, z/VSE batch, BS2000/OSD batch and CICS) except the IDL types
  - I2 and I4 is mapped to COBOL COMP-5 instead of BINARY
  - I1 is mapped to COBOL COMP-5 instead of PIC X.
- The IDL types U and UV support Unicode NATIVE and Unicode PORTABLE encoding on the client side. On the server side Unicode NATIVE is supported.

### IDL Extractor for COBOL Enhancements for Micro Focus COBOL

With the IDL Extractor for COBOL you can now extract IDL from Micro Focus COBOL programs

- with COBOL data type COMP-5
- with COBOL data type PIC N. In Micro Focus COBOL it is unclear if this is Unicode or DBCS. There is the possibility to clarify the meaning of PIC N without any USAGE clause, see the *Step 2: Define the Default Settings*
- with source code format either in fixed or variable format, see *Step 2: Define the Default Settings*.
- with TABs in the source. There is the possibility to specify the TAB stop width, see *Step 2: Define the Default Settings*.

See *COBOL to Software AG IDL Mapping* in the IDL Extractor for COBOL documentation and *Create New Local Extractor Environment for Micro Focus (UNIX and Windows)*.

## Software AG Installer

Under UNIX and Windows, EntireX is now installed with the Software AG Installer. See *EntireX Installation Overview*. Installation procedures for other platforms are unchanged.

## CICS ECI Support

The EntireX CICS® ECI RPC Server allows standard RPC clients to communicate with CICS programs running on IBM CICS® version 3.2 and higher. The CICS ECI RPC Server transforms the RPCs from the clients into messages to CICS ECI. The CICS ECI RPC Server acts on one side as an RPC server and on the other side as a client for CICS ECI. The CICS ECI RPC Server is a Java component that can run on a different host to the one where CICS is running. This allows it to operate with a zero footprint of EntireX on the CICS host.

See *CICS ECI RPC Server*.

## XML/SOAP

This section covers the following topics:


- Relative Path for XML/SOAP Listener
- Password Encryption
- Test XML/SOAP Mapping
- HTTP Persistence
- Modifying the Configuration of XML/SOAP RPC Server
- Handling


### Relative Path for XML/SOAP Listener

See *Tracing, XML/SOAP Listener* under *Writing Advanced Applications - XML/SOAP Wrapper*.

### Password Encryption

The XML/SOAP RPC Server replaces non-encrypted passwords with encrypted passwords in properties and configuration file during startup. The Web Services Wizards write declared passwords as encrypted passwords in IDL-XML mapping files.

### Test XML/SOAP Mapping

You can now test Software AG XML/SOAP mapping in the context menu of the XMM file.

A new XML Tester **Raw View** allows faster error diagnosis. It shows the raw and unformatted HTTP request and response. See *XML Tester*.

### HTTP Persistence

The XML/SOAP RPC Server supports HTTP persistence (connection). That means a limited set of connections to each used destination is held and reused without the need to set up and tear down a connection for each call.

### Modifying the Configuration of XML/SOAP RPC Server

The EntireX Workbench supports two methods of modifying the configuration of XML/SOAP RPC Server:

- deploy an XMM to a specified XML/SOAP RPC Server directly
- interact with XML/SOAP RPC Server to perform configuration changes

The changes are activated immediately without restarting the XML/SOAP RPC Server.

See *Deployment to XML/SOAP RPC Server and Dynamic Configuration of XML/SOAP RPC Server* in the XML/SOAP Wrapper documentation.

### Handling

A formatted and colored display of the XML tree is now supported for XML sample documents and the XML Tester **Text View**.

# System Management Hub


- Administrating a Broker Attribute File and Log File using System Management Hub
- Customizable Tables
- Modify Remote Broker using System Management Hub
- Handling


### Administrating a Broker Attribute File and Log File using System Management Hub

You can now download, edit and upload a broker attribute file using System Management Hub. See *Administrating a Broker Attribute File* under *Broker Administration using System Management Hub* in the UNIX and Windows administration documentation.

You can now download and show a broker log file using System Management Hub. See *Administrating a Broker Log File* under *Broker Administration using System Management Hub* in the UNIX and Windows administration documentation.

### Customizable Tables

Tables in SMH can now be sorted by column. Columns can be hidden and shown as desired. Columns can be arbitrarily reordered to match the user's expectations. These changes can be stored in the user's profile.

### Modify Remote Broker using System Management Hub

You can now modify a remote UNIX or Windows broker locally using System Management Hub. The remote broker does not need to be registered on the remote machine beforehand. See *Administrating a Broker Instance* under *Broker Administration using System Management Hub* in the UNIX and Windows administration documentation.

### Handling

- The machine name is now displayed for servers.
- A selection list is now available for setting trace levels.
- For toggle commands, only the active state is shown. The inactive counterpart is now hidden (e.g. Connect PStore - Disconnect PStore).
- The number of confirmation messages that pop up has been reduced to a minimum. Only where the result of the action cannot be recognized on the status screen isa confirmation message still shown.
- Filters with wildcard support allow you to reduce the number of rows shown. This allows faster access to the information needed.

## Java Enhancements

### Enhanced Generation of Java Code

The Java Wrapper has been enhanced with a Bean-compliant generation of Java code. This allows easier integration into scripting languages or other Java tools.

### Support of Java Inner Classes

Java inner classes are now supported. See *Generating a Java Client Interface Object without Inner Classes (Bean-compliant)* under *Using the Java Wrapper*.

## Installation Changes

Under UNIX and Windows, EntireX is now installed using the Software AG Installer. This allows for download installations of EntireX. Also, multiple products can be installed in one go if so desired.

The EntireX UNIX and Windows installations have been aligned with respect to terminology, directory layout, and installation options.

Installation under other platforms remains largely unchanged. See *Installation Overview*.

## Integration with other Software AG Products

### Software AG Designer

The *EntireX Workbench* is now integrated into the Software AG Designer. It supports Eclipse 3.4.

### webMethods EntireX Adapter for ESB

The EntireX Adapter for ESB allows you to directly integrate any RPC client or server with the webMethods ESB / IS. All assets necessary to integrate with webMethods ESB, such as connections and adapter services, are generated by EntireX. Adapter services can be extracted to generate RPC clients calling wM ESB flow services.

### Optimize for Infrastructure

EntireX can be monitored with Optimize for Infrastructure. KPIs exist for the EntireX broker as well as server statistics.

### Migration from webMethods Mainframe (i.e. MIS)

With its strong COBOL capabilities and its IMS Connect and CICS ECI support, EntireX is now ready to cover all MIS migration scenarios. Besides that, EntireX has a broader platform reach (z/OS, z/VSE, z/VM, BS200/OSD, ...) and language support (COBOL, Natural, PL/I, ...).

## Broker Enhancements


- New Attributes
- New Default Value for SECURITY-LEVEL
- Dynamic Worker Management
- Broker Stubs


### New Attributes

- ACCESS-SECURITY-SERVER
- CIPHER-SUITE
- DYNAMIC-WORKER-MANAGEMENT
- IDT-NAME
- WARN-MODE
- WORKER-MAX
- WORKER-MIN
- WORKER-NONACT
- WORKER-QUEUE-DEPTH
- WORKER-START-DELAY

### New Default Value for SECURITY-LEVEL

The default value for Security-specific broker attribute `SECURITY-LEVEL` is now "AUTHENTICATION". In version 8.0, the default value for this attribute was "AUTHORIZATION". See `SECURITY-LEVEL` under *Broker Attribute File* in the administration documentation, and *Authentication* under *Configuration Options for Broker under z/OS* in the EntireX Security documentation.

### Dynamic Worker Management

The number of worker tasks can now be dynamically increased/decreased. See *Dynamic Worker Management* under *Broker Resource Allocation* in the general administration documentation.

### Broker Stubs

The names of the stubs on mainframe platforms have been unified, and the transport method support has been enhanced.

- For batch, the new `BROKER` stub allows NET, TCP and SSL transport. See *BROKER* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.
- For CICS, the new `CICSETB` stub allows NET and TCP transport. SSL transport will be supported by this stub in a future version also. See *CICSETB* under *Administration of Broker Stubs under z/OS* in the z/OS administration documentation.

This makes setup easier and the old stubs are now obsolete. Also, for all scenarios covered by the above stubs, the EntireX Relay Manager is now obsolete, too.

## Increased Platform Coverage

EntireX is now supported additionally on the following platforms:

- SUSE Linux Enterprise Server 11 for x86 (32-bit)
- SUSE Linux Enterprise Server 11 for AMD64 and EM64T (x86-64)

See ***EntireX Platform Coverage*** for full list.

## Other Enhancements

### Signed Executables on Windows

All Windows executables and DLLs are now signed.

# 5 EntireX Platform Coverage


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# List of Components per Platform

| | z/OS 1.9, 1.10, 1.11 | z/VSE Version 4.1, 4.2 | BS2000/OSD 6.0, 7.0, 8.0 | z/VM 5.3, 5.4, 6.1 | SUSE Linux Enterprise Server 11 for IBM System z (64-bit) | Red Hat Enterprise Linux 5 for IBM System z (64-bit) | Solaris SPARC 9 and 10 (64-bit) | HP-UX 11i v2 (64-bit) for PA-RISC<br>HP-UX 11i v3 (64-bit) for PA-RISC | HP-UX 11i v2 for Itanium 2 and 11i v3 for Itanium 2 (64-bit) | AIX 5.3 (64-bit)<br>AIX 6.1 (64-bit) | OpenVMS 8.3-1H1 for Itanium (64-bit) | i5/OS 5.4 - AS/400-RISC | SUSE Linux Enterprise Server 10 and 11 for x86 (32-bit) | SUSE Linux Enterprise Server 10 and 11 for x86-64 (64-bit) | Red Hat Enterprise Linux 5 for x86 (32-bit) | Red Hat Enterprise Linux AS 5 for x86-64 (64-bit) | Windows Server 2003 and 2008 Standard & Enterprise ed. (32-bit)<br>Windows XP Professional (32-bit)<br>Windows Vista (32-bit)<br>See note (1) below<br>Windows 7 Professional (32-bit), Enterprise (32-bit), Ultimate (32-bit) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EntireX Broker** | x[4] | x | x | | x | x | x | x | x | x | | | x | x | x | x | x |
| **EntireX Workbench** | | | | | | | | | | | | | x | x | x | x | x |
| **EntireX RPC** | | | | | | | | | | | | | | | | | |
| RPC Server | x | x | x | | | | | | | | | | | | | | |
| COBOL Server/Client | x | x | x | | | | | | | | | | | | | | |
| Micro Focus RPC Server | | | | | x | x | 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 | x | x |
| Java RPC Server/Client [3,4] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| XML/SOAP RPC Server/Client[3,4] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| WebSphere MQ RPC Server[3,4] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| WebSphere MQ Listener [3,4] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| DCOM RPC Client [2] | | | | | | | | | | | | | | | | | x |
| .NET RPC Server/Client [2] | | | | | | | | | | | | | | | | | x |
| RPC-ACI Bridge [3] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| CICS ECI RPC Server [3] | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| IMS Connect RPC Server [3] | x | | | | x | x | 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 | x | x |
| Java ACI | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| .NET ACI | | | | | | | | | | | | | | | | | x |
| ActiveX Control | | | | | | | | | | | | | | | | | x |
| **System Management Hub** | | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| **Broker Agent** | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| **JMS Support** | | | | | x | x | x | x | x | x | | | x | x | x | x | x |
| **IAF** | x | | | | x | x | x | x | x | x | | | x | x | x | x | x |

| | z/OS 1.9, 1.10, 1.11 | z/VSE Version 4.1, 4.2 | BS2000/OSD 6.0, 7.0, 8.0 | z/VM 5.3, 5.4, 6.1 | SUSE Linux Enterprise Server 11 for IBM System z (64-bit) | Red Hat Enterprise Linux 5 for IBM System z (64-bit) | Solaris SPARC 9 and 10 (64-bit) | HP-UX 11i v2 (64-bit) for PA-RISC<br>HP-UX 11i v3 (64-bit) for PA-RISC | HP-UX 11i v2 for Itanium 2 and 11i v3 for Itanium 2 (64-bit) | AIX 5.3 (64-bit)<br>AIX 6.1 (64-bit) | OpenVMS 8.3-1H1 for Itanium (64-bit) | i5/OS 5.4 - AS/400-RISC | SUSE Linux Enterprise Server 10 and 11 for x86 (32-bit) | SUSE Linux Enterprise Server 10 and 11 for x86-64 (64-bit) | Red Hat Enterprise Linux 5 for x86 (32-bit) | Red Hat Enterprise Linux AS 5 for x86-64 (64-bit) | Windows Server 2003 and 2008 Standard & Enterprise ed. (32-bit)<br>Windows XP Professional (32-bit)<br>Windows Vista (32-bit)<br>See note (1) below<br>Windows 7 Professional (32-bit), Enterprise (32-bit), Ultimate (32-bit) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Attach Manager** | x[2] | | | | x | x | x | x | x | x | | | x | x | x | x | x |

Please note that some UNIX platforms will be released after GA. See table ***Current Version of webMethods EntireX per Operating System*** for planned release dates.

In accordance with the license agreement you concluded with Software AG, your EntireX license includes either full functionality or specific EntireX components.

**Notes:**

(1) Windows Server 2008, Standard and Enterprise editions: EntireX on these platforms is a 32-bit version, but it is also supported on 64-bit Windows Server 2008 machines. This means that EntireX can be installed on this platform, but can only run in 32-bit mode.

(2) Application wizard for Visual Studio .NET 2005 and 2008 also provided in installation kit.

(2) The attach services supplied with Broker Services are still supported in this version but will be replaced in the future.

(3) Batch only. These components included as a TAR file in the z/OS installation kit and must be copied to your z/OS UNIX environment. See *Installing EntireX Java Components under z/OS UNIX* in the z/OS installation documentation.

(4) Batch only.

(5) Only servers are supported; a server example is delivered.

## Platform and Version Support

Software AG provides support for the operating system versions supported by their respective manufacturers. Generally, when an operating system provider stops supporting a version of an operating system, Software AG will stop supporting that operating system version as of the next service pack delivered by Software AG. Although it may be technically possible to run a new version of EntireX on an old operating system, Software AG cannot continue to support operating system versions that are no longer supported by the system's provider.

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 6.1 | OpenVMS Alpha | August 2001 | EntireX 6.1 will continue to be supported on this platform for as long as this platform itself is supported by Software AG. |
| EntireX Communicator 7.1 | i5/OS - AS/400-RISC | September 2004 | |
| | BS2000/OSD | September 2005 | December 31, 2010 |
| EntireX Communicator 7.2 | z/VSE | July 2008 | |
| EntireX Communicator 7.3 | Windows 2000 | November 2006 | December 31, 2008 |
| | Windows, Solaris, Linux Intel 32-bit | November 2006 | February 28, 2009 |
| | Linux Intel 64-bit | February 2007 | April 30, 2009 |
| | z/OS | November 2006 | August 31, 2009 |
| | AIX, HP-UX | December 2006 | August 31, 2009 |
| | Linux IBM System z 64 | February 2007 | August 31, 2009 |
| | VM/CMS - IBM | March 2007 | |
| webMethods EntireX 8.0 | Windows, Solaris, Linux Intel 32-bit | February 2008 | December 31, 2010 |
| | z/OS | February 2008 | December 31, 2010 |
| | Linux Intel 64-bit | April 2008 | December 31, 2010 |
| | AIX, HP-UX | August 2008 | January 31, 2011 |
| | Linux IBM System z 64 | August 2008 | March 31, 2011 |
| | OpenVMS IA-64 | December 2008 | |

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 V1,9, V1.10, V1.11 | 8.1 SP1 |
| z/VSE V4.1, V4.2 | 7.2.3 |
| BS2000/OSD 6.0, 7.0, 8.0 | 8.1 SP1 |
| z/VM V5.3, 5.4, 6.1 | 7.3 |
| OpenVMS 7.3 Alpha | 6.1.1 |
| OpenVMS 8.3-1H1 for Itanium (64-bit) | 8.0 |
| SUSE Linux Enterprise Server 11 for IBM System z (64-bit) | 8.1 SP1 (1) |
| RedHat Enterprise Linux 5 for IBM System z (64-bit) | 8.1 SP1 (1) |
| Solaris SPARC 9 and 10 (64-bit) | 8.1 SP1 |
| HP-UX 11i v2 for PA-RISC<br>HP-UX 11i v3 for PA-RISC | 8.1 SP1 |
| HP-UX 11i v2 for Itanium 2<br>HP-UX 11i v3 for Itanium 2 | 8.1 SP1 |
| AIX 5.3 (64-bit)<br>AIX 6.1 (64-bit) | 8.1 SP1 |
| i5/OS 5.4-AS/400-RISC | 7.1 |
| SUSE Linux Enterprise Server 10 and 11 for x86 (32-bit) | 8.1 SP2 |
| SUSE Linux Enterprise Server 10 and 11 for AMD64 and EM64T (x86-64) | 8.1 SP2 |
| Red Hat Enterprise Server Linux 5 for x86 (32-bit) | 8.1 SP2 |
| Red Hat Enterprise Server Linux 5 for AMD64 and EM64T (x86-64) | 8.1 SP2 |
| Windows Server 2003 Standard and Enterprise editions (32-bit)<br>Windows Server 2008 Standard and Enterprise editions (32-bit) (2)<br>Windows XP Professional (32-bit)<br>Windows Vista (32-bit)<br>Windows 7 Professional (32-bit)<br>Windows 7 Enterprise (32-bit)<br>Windows 7 Ultimate (32-bit) | 8.1 SP2 |

**Notes:**

(1) Planned for release in first quarter 2010.

(2) EntireX on Windows Server 2008 (Standard and Enterprise editions) is a 32-bit version, but it is also supported on 64-bit Windows Server 2008 machines. This means that EntireX can be installed on this platform, but can only run in 32-bit mode.

## Functionality Dropped in this Release

- **Broker Services**
  The attach services supplied with Broker Services are still supported in this version but will be replaced in the future.

  Broker Services documentation is provided as PDF. Please note that this documentation also includes features that have been dropped.
- **EntireX DCOM**
  EntireX DCOM support has been dropped (DCOM Wrapper is still supported).
- **C Wrapper**
  There is no official support for the C Wrapper on z/OS, but C header files were always part of the z/OS package in the past. All header files belonging to the C Wrapper (ERX, ERXARRAY, ERXVDATA and AUTOCONV in the EXP*vrs*.INCL data set) are no longer delivered on z/OS.
- **COBOL Wrapper**
  COBOL templates are no longer delivered in the IDL template directory. The IDL Compiler native batch interface for the COBOL Wrapper is no longer supported (as announced in the *Release Notes* of Version 8.0.1). Use the Eclipse batch interface instead. See *Using the COBOL Wrapper in Command-line Mode*.
- `MODE` parameter for BS2000/OSD Batch RPC Server is no longer supported. Several other parameters from earlier versions not listed under *BS2000/OSD Batch RPC Server* in the BS2000/OSD administration documentation are deprecated and will no longer be supported in future verstions.

## Functionality to be Dropped in Future Releases

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

- **Relay Manager**
  The Relay Manager will be dropped.
- **ACI for Natural**
  The LDAs NATDEF12 and NATDEF21 are deprecated and will no longer be delivered in the future.

  The LDs 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 no 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*.

  The IDL Compiler native batch interface for customer-written templates is not deprecated and will not be dropped. See *Writing your own Wrappers and Stubs* in the IDL Compiler documentation.
- **IDL Templates**
  The IDL template directory will be removed in a future release.
- **COBOL Wrapper**
  - On the *EntireX Workbench* command-line interface, the target IMS_ZOS is deprecated. Use the new values IMS_MPP or IMS BMP instead. The old target IMS_ZOS will be removed in a future release.
  - 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.
  - The COBOL Wrapper API Versions 1100, 1120 and 1130 are deprecated. Use the recent version 2000 instead. Support for the older versions 1100, 1120 and 1130 will be removed in a future release. See the field COMM-VERSION under *The RPC Communication Area (Reference)* in the COBOL Wrapper documentation.

    **Note:** Note: Although the numbering here is the same as the RPC protocol version numbering, there is no relation. It is an API version like the broker ACI version. The COBOL wrapper still supports all RPC protocol versions 1130 thru 2020.

- **Batch and CICS RPC Server**
  The parameter runoption is deprecated and will be removed in the future. The most information which can be set with the parameter is set correctly by the platform the RPC server is running or is inside the server mapping file. To support the programming language PL/I for the values PLI_LINKAGE and PLI_MVS_COMPILE there will be a new parameter MARSHALLING in the future.
- The Broker SSL Agent and Broker TCP Agent, together with the respective System Management Hub agent.
- Relay Manager. Functionality handled by the Relay Manager will be covered by the respective broker stub.
- Linux 32-bit versions will no longer be supported. We therefore recommend you migrate to the corresponding 64-bit OS version.
- The following parameters for EntireX BS2000/OSD Batch RPC Server are deprecated and will not be supported in future verstions:
  - `apivers`
  - `endworkers`

- minworkers
- maxworkers

- Broker attributes NET-RESTART, NET-RETRY-LIMIT and NET-RETRY-TIME are deprecated and will not be supported in the next version.
- Web Service Registration with UDDI version 1 will not be supported in the future.

## Functionality to be Modified in Future Releases

### ACI Function VERSION

The string returned by ACI function VERSION will change with the next EntireX version. The old string returned by all stubs (example):

```
EntireX Broker Stub Version=8.1.0, Patch
     Level=00, Highest API Supported=9
```

New string returned by all stubs will be similar to the example here:

```
EntireX Broker Stub XXXXXXXX Version=08.1.0.00, Highest API Supported=09
```

where "XXXXXXXX" is the name of the stub, for example "CICSETB".

### RPC Runtime Function ERXGetVersion

The string returned by the RPC runtime function ERXGetVersion will change with the next EntireX version. The old string returned, for example:

```
EntireX C Wrapper Version=8.1.0, Patch Level=0
```

New string returned will be similar to the the example here:

```
EntireX C Wrapper Version=08.1.0.00
```

# 6 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 1.9 or higher is required for all components.

| Component | Prerequisites |
|---|---|
| EntireX Broker | ■ **Transport Options**<br>■ TCP-based communications: IBM TCP Stack<br>■ SSL-based communications: IBM GSK<br>■ NET-based communications: Entire Net-Work. See **note below**.<br>■ **EntireX Security**<br>SAF-compatible security system for host z/OS compatible Broker kernel:<br>■ Resource classes/types and profiles as required by the installed security system. This can require a machine IPL in the case of RACF.<br>■ Optional: Trusted User ID. See *Trusted User ID* under *Configuration Options for Broker under z/OS* in the EntireX Security documentation. With version 7.4.3 or higher of ADASVC module, all prerequisites are delivered with the EntireX installation kit.<br>**Note:** 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.<br>■ **Relay Manager**<br>■ For CICS applications: CICS TS 2.3 or above.<br>■ For IMS-based applications: IMS 8 or above. |
| CICS RPC Server<br>Batch RPC Server<br>IMS RPC Server | ■ If applicable, see prerequisites for **COBOL Wrapper** and **PL/I Wrapper**.<br>■ Same prerequisites as **Broker Stubs**.<br>■ IBM Assembler for CICS RPC Server. |
| Broker Stubs | ■ **Transport Options**<br>See Broker prerequisites above. |

| Component | Prerequisites |
|---|---|
| | ■ **Lowest Supported Applications Environment Versions**<br>■ For CICS applications: CICS TS 2.3<br>■ For IMS-based applications: IMS 8<br>■ For Com-plete based applications: Com-plete 6.5; stub COMETB requires APS331 SP5<br>■ For Natural-based applications: NAT 4.2 |
| Workbench | ■ **COBOL Wrapper**<br>■ To compile the sources generated by the EntireX Workbench component COBOL Wrapper:<br>Compiler supported by the COBOL Wrapper: standard COBOL compiler e.g. IBM Enterprise COBOL for z/OS 3.3.1.<br>■ For client side, see prerequisites for **Broker stubs**.<br>■ For server side, an RPC server. See prerequisites for relevant RPC server above.<br>■ **PL/I Wrapper**<br>■ To compile the sources generated by the EntireX Workbench component PL/I Wrapper: Compiler supported by the PL/I Wrapper: PL/I for MVS & VM V1R1.1, Enterprise PL/I for z/OS and OS/390 V3R3.<br>■ For client side, see prerequisites for **Broker stubs**.<br>■ For server side, an RPC server. See prerequisites for relevant RPC server above.<br>■ **IDL Extractor for Natural**<br>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:<br>■ Natural 4.2.6 SP2 or higher is required for object extractions to make use of the features introduced with EntireX 8.1 SP2 for IDL Extractor for Natural.<br>■ Natural 4.2.6 SP1 or lower can be used, but if extracted from objects there is no support of the IDL Extractor for Natural features introduced with EntireX 8.1 SP2.<br>See ***IDL Extractor for Natural*** under *What's New in Version 8.1 SP2*.<br>■ **Natural Wrapper**<br>To generate and/or deploy into a z/OS Natural environment, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:<br>■ Natural 4.2.6 SP2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.<br>■ Natural 4.2.5 SP5 to Natural 4.2.6 SP1 generates Natural client interface objects only. |
| Attach Manager | ■ **Transport Options**<br>■ TCP-based communications: IBM TCP Stack<br>■ NET-based communications: Entire Net-Work. See **note below**. |

| Component | Prerequisites |
|---|---|
| | The attach services supplied with Broker Services are still supported in this version but will be replaced in the future. |

### 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 6.1. The Adabas version we recommend is 8.1.
  - Adabas Cross-Memory Services are required if you are using NET transport or using Adabas as your persistent store. See *Installing Adabas Components for EntireX* in the z/OS installation documentation.
- **SSL**
  - For CICS, the Relay Manager must be installed additionally. See *Relay Manager* in the z/OS administration documentation.

# UNIX Prerequisites

| Component | Prerequisites |
|---|---|
| EntireX Broker | ■ Supported transports: SSL and/or TCP/IP. |
| EntireX Workbench | ■ **General Prerequisites**<br>■ Java 1.5 or Java 1.6.<br>■ Eclipse SDK 3.4.<br>■ Web Services Stack plug-ins 8.0 (to install EntireX Workbench in standalone mode).<br>■ **C Wrapper**<br>■ For target platform UNIX, ANSI C Compiler.<br>■ For other target platforms, see prerequisites for that platform, for example Windows \| BS2000/OSD.<br>■ **COBOL Wrapper**<br>■ See prerequisites for target platform, for example z/OS \| BS2000/OSD \| i5/OS \| Windows.<br>■ For MicroFocus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment.<br>■ **EJB Wrapper**<br>■ J2EE 1.5 (JBoss, Oracle WebLogic Server, Sun Java System, IBM WebSphere or others).<br>■ Ant 1.6.1.<br>■ XDoclet 1.2.1.<br>■ **IDL Extractor for Natural**<br>■ 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: :<br>■ Natural 6.3.8 or higher is required for object extractions to make use of the features introduced with EntireX 8.1 SP2 for the IDL Extractor for Natural.<br>■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features introduced with EntireX 8.1 SP2 for the IDL Extractor for Natural.<br>See ***IDL Extractor for Natural*** under *What's New in Version 8.1 SP2*.<br>■ 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 \| i5/OS. |

| Component | Prerequisites |
|---|---|
| | ■ **Natural Wrapper**<br>■ To generate and/or deploy into a UNIX Natural environment, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version:<br>■ Natural 6.3.8 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.<br>■ Natural 6.3.7 generates Natural client interface objects only.<br>■ 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.<br>■ To generate Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs locally in a UNIX NaturalONE environment (8.1.1 or above), no prerequisites apply.<br>■ **PL/I Wrapper**<br>■ See prerequisites for target platform, for example z/OS.<br>■ **XML/SOAP Wrapper, Web Services Wrapper**<br>■ JAXP-capable XML Parser (SAX). |
| EntireX RPC | ■ **General Prerequisites**<br>■ Java 1.5 or 1.6.<br>■ If you are using location transparency, see **note** below.<br>■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.<br>■ **EntireX XML/SOAP Listener (formerly XML Servlet)**<br>■ Servlet Engine supporting Java Servlet API 2.2 or higher.<br>■ JAXP-capable XML Parser (SAX).<br>■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**<br>■ JAXP-capable XML Parser (SAX).<br>■ **Micro Focus RPC Server**<br>■ Micro Focus Server 5.1 or compatible COBOL runtime environment. |
| EntireX ACI | ■ **Broker Stubs**<br>■ For Natural-based applications, all Natural versions supported by Software AG are valid.<br>■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See **note** below and *Configuring an LDAP Server* in the UNIX administration documentation. |

| Component | Prerequisites |
|---|---|
| | ■ **Java ACI**<br>■ Java 1.5 or Java 1.6.<br>■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.<br>■ If you are using location transparency, see **note** below. |
| System Management Hub Agents | ■ Java 1.5 or Java 1.6.<br>■ Apache Web server (optional) |
| Broker HTTP(S) Agent (formerly Tunnel Servlet)<br>Broker TCP and SSL Agents<br>Broker Trace Utility | ■ Java 1.5 or Java 1.6. |

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.
- **Location Transparency with Java Components**
  - Java 1.5 or Java 1.6.
  - LDAP server must be available (this is not provided with EntireX).

    Under Solaris, LDAP version 11.8 or higher is prerequisite when using LDAP.

  See Configuration of an LDAP Server.
- 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 AIX**

We recommend that you install the highest AIX Technology Level available from IBM. For AIX 6.1 at least Service Pack 3 (6100-00-03-0808) has to be installed. The C++ Runtime Environment (fileset xlC.aix50.rte) version 8.0.0.3 contains an error that causes Java 5 to crash (see IY84212 - April 2006 XL C/C++ V8.0 for AIX Runtime PTF to resolve Java JVM crash after updating C++

runtime (xlC.aix50.rte) to level 8.0.0.3). If you have this version of the C++ Runtime Environment installed, update to version 8.0.0.4 or later.

**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 do the following:

| Operating System | Action |
|---|---|
| SUSE Linux Enterprise Server 10 | Comment out the option `Defaults env_reset`. |
| SUSE Linux Enterprise Server 11 or Red Hat Enterprise Linux Server 5 | 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 10 or Red Hat Enterprise Linux Server 5 system, install compat-libstdc++, glibc, libgcc, pam and ncurses RPM from your operating system distribution, using the vendor instructions.

**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 Sun 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 | ■ Supported transport methods: SSL and/or TCP/IP. |
| EntireX Workbench | ■ **General Prerequisites**<br>■ Java 1.5 or Java 1.6.<br>■ Eclipse SDK 3.4 (for Eclipse-based components).<br>■ Web Services Stack plug-ins 8.0 (to install EntireX Workbench in standalone mode).<br>■ **C Wrapper**<br>■ For target platform Windows, Microsoft Visual Studio 2008.<br>■ For other target platforms, see prerequistites for that platform, for example UNIX \| BS2000/OSD.<br>■ **COBOL Wrapper**<br>■ See prerequisites for target platform, for example z/OS \| UNIX \| BS2000/OSD \| i5/OS.<br>■ For MicroFocus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment.<br>■ **DCOM Wrapper**<br>C++ Compiler from Microsoft Visual Studio .NET 2005 or Microsoft Visual Studio 2005 or 2008.<br>■ For generated interface objects: Microsoft Visual Studio .NET 2005 or 2008 C/C++ runtime environment.<br>■ **DCOM Wrapper and .NET Wrapper Plug-ins for Microsoft Visual Studio**<br>Microsoft Visual Studio 2005 or 2008<br>■ **.NET Wrapper**<br>■ .NET Framework 2.0.<br>■ C# Compiler from Microsoft Visual Studio 2005 or 2008.<br>■ **EJB Wrapper**<br>■ J2EE 1.5 (JBoss, Oracle WebLogic Server, Sun Java System, IBM WebSphere or others).<br>■ Ant 1.6.1.<br>■ XDoclet 1.2.1.<br>■ **IDL Extractor for Natural**<br>■ 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: :<br>■ Natural 6.3.8 or higher is required for object extractions to make use of the features introduced with EntireX 8.1 SP2 for the IDL Extractor for Natural. |

| Component | Prerequisites |
|---|---|
| | ■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features introduced with EntireX 8.1 SP2 for the IDL Extractor for Natural.<br><br>See ***IDL Extractor for Natural*** under *What's New in Version 8.1 SP2*.<br>■ 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 \| i5/OS.<br>■ **Natural Wrapper**<br>■ To generate and/or deploy into a Windows Natural environment, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version:<br>■ Natural 6.3.8 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.<br>■ Natural 6.3.7 generates Natural client interface objects only.<br>■ 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.<br>■ To generate Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs locally in a Windows NaturalONE environment (8.1.1 or higher), no additional prerequisites apply.<br>■ **PL/I Wrapper**<br>See prerequisites for target platform, for example z/OS.<br>■ **XML/SOAP Wrapper,Web Services Wrapper**<br>JAXP-capable XML Parser (SAX). |
| EntireX RPC | ■ **General Prerequisites**<br>■ Java 1.5 or 1.6.<br>■ If you are using location transparency, see **note** below.<br>■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.<br>■ **EntireX XML/SOAP Listener (formerly XML Servlet)**<br>■ Servlet Engine supporting Java Servlet API 2.2 or higher.<br>■ JAXP-capable XML Parser (SAX).<br>■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**<br>■ JAXP-capable XML Parser (SAX).<br>■ **EntireX XML/SOAP Listener (formerly XML Servlet)**<br>■ Servlet Engine supporting Java Servlet API 2.2 or higher.<br>■ JAXP-capable XML Parser (SAX). |

| Component | Prerequisites |
|---|---|
| | ■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**<br>■ JAXP-capable XML Parser (SAX).<br>■ **Micro Focus RPC Server**<br>■ Micro Focus Server 5.1 or compatible COBOL runtime environment. |
| EntireX ACI | ■ **Broker Stubs**<br>■ For Natural-based applications, all Natural versions supported by Software AG are valid.<br>■ Supported transport methods: SSL and/or TCP/IP.<br>■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See **note** below and *Configuring an LDAP Server* in the UNIX administration documentation.<br>■ **Java ACI**<br>■ Java 1.5 or Java 1.6.<br>■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.<br>■ If you are using location transparency, see **note** below.<br>■ **.NET ACI**<br>.NET Framework version 2.0.<br>■ **Broker ActiveX Control (to store Tamino or XML files)**<br>■ Internet Explorer 6 or higher<br>■ Tamino 4.4.1 or higher. |
| System Management Hub Agents | ■ Internet Explorer 6 or 7, or Mozilla Firefox version 2 or above. |
| Broker HTTP(S) Agent (formerly Tunnel Servlet)<br>Broker TCP and SSL Agents<br>Broker Trace Utility | ■ Java 1.5 or Java 1.6. |

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.
- **Location Transparency with Java Components**
  - Java 1.5 or Java 1.6.
  - LDAP server must be available (this is not provided with EntireX).

  See Configuration of an LDAP Server for Windows.

# BS2000/OSD Prerequisites

| Component | Prerequisites |
|---|---|
| EntireX Broker | ■ BS2000/OSD V6.0, V7.0, V8.0<br>■ WAL813 or above<br>■ Natural 4.2.5 or above |
| Batch RPC Server | ■ BS2000/OSD V6.0, V7.0, V8.0<br>■ WAL813 or above<br>■ If applicable, see prerequisites for **C Wrapper** \| **COBOL Wrapper**. |
| Broker Stubs | ■ BS2000/OSD V6.0, V7.0, V8.0<br>■ WAL813 or above |
| Workbench | ■ **General Prerequisites**<br>  ■ EntireX Workbench version 8.1.0 with hot fix 2 for Eclipse.<br>  ■ For the client side, see prerequisites for Broker stubs.<br>  ■ For the server side, an RPC server. See prerequisites for relevant RPC server above.<br>■ **COBOL Wrapper**<br>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.<br>■ **C Wrapper**<br>To compile the applications generated by the EntireX Workbench component C Wrapper: any ILCS-enabled C/C++ compiler on BS2000/OSD<br>■ **IDL Extractor for Natural**<br>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:<br>  ■ Natural 4.2.6 SP2 or higher is required for object extractions to make use of the features introduced with EntireX 8.1 SP2 for IDL Extractor for Natural.<br>  ■ Natural 4.2.6 SP1 or lower can be used, but if extracted from objects there is no support of the IDL Extractor for Natural features introduced with EntireX 8.1 SP2. See *IDL Extractor for Natural* under *What's New in Version 8.1 SP2*.<br>■ **Natural Wrapper**<br>To generate and/or deploy into a BS2000/OSD Natural environment, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:<br>  ■ Natural 4.2.6 SP2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs. |

| Component | Prerequisites |
|---|---|
| | ■ Natural 4.2.5 SP5 to Natural 4.2.6 SP1 generates Natural client interface objects only. |

### 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.

## i5/OS Prerequisites

| Component | Prerequisites |
|---|---|
| Broker Stubs | ■ i5/OS with operating system V5R4 or above.<br>■ Controller that supports TCP/IP protocol.<br>■ Any i5/OS ILE-enabled programming language.<br>■ TCP/IP connection to an EntireX Broker kernel on a Windows, z/OS or UNIX platform.<br>■ About 16 MB of disk space for the Broker stub installation and about 50 MB for the RPC server installation.<br>■ Each process that includes the Broker stub occupies one additional MB of virtual memory. |
| EntireX Workbench | ■ **COBOL Wrapper**<br>To compile the applications generated by the EntireX Workbench component COBOL Wrapper: standard COBOL compiler defined by the operating system.<br>■ **IDL Extractor for Natural**<br>To extract from i5/OS, the Natural RPC server must be prepared to work together with the IDL Extractor for Natural. See *Natural RPC Server Configuration for the IDL Extractor for Natural under i5/OS* in the i5/OS administration documentation. If extracted from objects, there is no support of the IDL Extractor for Natural features introduced with EntireX 8.1 SP2. See ***IDL Extractor for Natural*** under *What's New in Version 8.1 SP2*. |

## OpenVMS Prerequisites

| Component | Prerequisites |
|---|---|
| Broker Stubs | ■ HP Integrity Server<br>■ OpenVMS 8.3-1H1 or above<br>■ HP TCP/IP Services for OpenVMS |

## z/VM Prerequisites

| Component | Prerequisites |
|---|---|
| Broker Stubs | ■ **Supported z/VM Version**<br>z/VM version 5.3, 5.4, 6.1.<br>■ **Adabas Version**<br>Adabas version 8.1.3 or above and Entire Net-Work 6.1.2 or above.<br>**Note:** Maximum message size with NET transport when using the Broker stub under z/VM is 32 KB.<br>■ **Virtual Storage**<br>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 virtural storage to allow the Language Environment enclave to be created. A storage size of 16 MB is recommended.<br>■ **ESIZE**<br>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, EJB Wrapper runtime) are J2EE 1.5 compliant. They should therefore run on any Java application server that is J2EE 1.5 compliant. 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 9.2 and 10 | x | x | x | | x | |
| IBM WebSphere 6.1 | x | | | x | x | x |
| JBoss 4.2 or higher | x | | x | | | |
| The version of Apache Tomcat that is delivered with the product. | x | x | x | x | x | x |

## 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
- Sun Java System Directory Server Enterprise Edition 6
- Apache Directory Server 1.5