

webMethods EntireX

Release Notes

Version 8.0.1

January 2009

This document applies to webMethods EntireX Version 8.0.1 and to all subsequent releases.

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

Copyright © Software AG 1997-2009. All rights reserved.

The name Software AG, webMethods and all Software AG product names are either trademarks or registered trademarks of Software AG and/or Software AG USA, Inc. Other company and product names mentioned herein may be trademarks of their respective owners.

Table of Contents

1 What's New in Service Pack 8.0.1	1
COBOL Wrapper	2
IDL Extractor for COBOL	6
IDL Extractor for PL/I	7
CICS RPC Server	8
IMS RPC Server	8
XML/SOAP Wrapper	8
Other Workbench Enhancements	9
Broker	10
Command Log Trace Analysis	11
Attach Manager	12
Internationalization	12
Installation under z/OS	13
ACI for Natural	14
Compatibility with Software AG PI Adapter for EntireX	14
IMS Connect Support	14
2 What's New in Version 8.0	15
Extended COBOL Support	16
Large Message Sizes for CICS	19
CICS TCP/IP Communication	19
Reliable RPC	19
EntireX Broker	21
Software AG Common Web Services Stack	24
Increased Platform Coverage	24
Eclipse	25
Tomcat	25
System Management Hub	25
Enhanced Logging, Accounting and CIS	25
Command-line Parameters for ETBCMD and ETBINFO	26
IAF Installation	26
Naming Conventions	27
Documentation Enhancements	27
3 EntireX Platform Coverage	29
List of Components per Platform	30
Platform and Version Support	31
Current Version of webMethods EntireX per Operating System	33
Functionality Dropped in this Release	34
Functionality to be Dropped in Future Releases	35
Migration Strategy for Dropped / Modified Functionality	36
4 EntireX Prerequisites	39
z/OS Prerequisites	40
UNIX Prerequisites	42
Windows Prerequisites	45

DCOM Supplementary Table	49
i5/OS Prerequisites	49
OpenVMS Prerequisites	50
z/VM Prerequisites	50
Application Server Prerequisites	51

1 What's New in Service Pack 8.0.1

▪ COBOL Wrapper	2
▪ IDL Extractor for COBOL	6
▪ IDL Extractor for PL/I	7
▪ CICS RPC Server	8
▪ IMS RPC Server	8
▪ XML/SOAP Wrapper	8
▪ Other Workbench Enhancements	9
▪ Broker	10
▪ Command Log Trace Analysis	11
▪ Attach Manager	12
▪ Internationalization	12
▪ Installation under z/OS	13
▪ ACI for Natural	14
▪ Compatibility with Software AG PI Adapter for EntireX	14
▪ IMS Connect Support	14

This chapter covers significant changes in service pack 8.0.1. Some features here were previously released as hot fixes; some features were available in earlier versions but not documented.

COBOL Wrapper

- Support of IDL Unbounded Groups and Arrays
- Support for more IDL Levels (all Operating Systems)
- Support of IDL Type UV (all Operating Systems)
- Support of IDL Type NU and PU for RPC Clients (all Operating Systems)
- Compiler Directives (z/OS)
- Support for CICS RPC Clients (z/OS and z/VSE)
- Support for CICS RPC Server (z/OS)
- Support of RPC Server for IMS BMP with PCB Pointers (z/OS)
- Delivered Examples (z/OS)
- Support for Operating System z/VSE
- Support for Operating System BS2000/OSD
- Support for Operating System i5/OS

Support of IDL Unbounded Groups and Arrays

The support for one-dimensional IDL unbounded groups mapped to COBOL OCCURS DEPENDING ON (ODO) is extended to two and three dimensions. See *Mapping Groups and Periodic Groups*. IDL unbounded arrays are now also supported. See *Mapping Fixed and Unbounded Arrays*. There are no longer any restrictions on the number of unbounded groups/arrays per IDL program. If IDL unbounded groups/arrays are nested, COBOL restricts this to a maximum of 7 indices.

This feature

- is available for RPC clients on all operating systems
- is available for an RPC server on operating system z/OS
- is partly available for an RPC server on operating system z/VSE and requires version 7.3.2 on z/VSE as a prerequisite; the following restrictions apply:
 - only a single one-dimensional IDL unbounded group per IDL program is supported
 - IDL unbounded arrays are not supported
- is *not* available for an RPC server on operating systems BS2000/OSD and i5/OS. IDL unbounded groups/arrays are mapped to fixed COBOL tables here.

Support for more IDL Levels (all Operating Systems)

The COBOL Wrapper supports more IDL levels than ever before, but it is *not* possible to support the maximum of 99 IDL levels in COBOL as for other wrappers. The maximum supported number of IDL levels depends on your IDL, an absolute maximum cannot be given. See the following hints:

- The maximum allowed COBOL level is 49. The send/receive buffer layout starts at COBOL level 3, thus 46 COBOL levels are free for IDL usage.
- IDL types may consume more than one COBOL level, for example:
 - IDL unboundend groups require a COBOL level for every dimension. If they are defined on IDL level 1, an extra COBOL level is required
 - IDL unbounded arrays require a COBOL level for every dimension plus one extra COBOL level
 - some basic (scalar) IDL data types need extra COBOL levels

Support of IDL Type UV (all Operating Systems)

Error 20040002 is forced during generation if an IDL type UV without maximum length is in the IDL in the same way as for IDL type AV and KV. COBOL code generation is prevented. This avoids runtime errors later. Please note these IDL types without maximum length are not supported either. See *Mapping Software AG IDL Data Types to COBOL Data Types*.

Support of IDL Type NU and PU for RPC Clients (all Operating Systems)

Support of IDL types NU and PU has been enhanced.

Compiler Directives (z/OS)

Compiler directives are generated into client interface objects and server skeletons where they are required. This reduces usage errors.

QUOTE or APOST

One of the compiler directives QUOTE or APOST is generated into client interface objects or server skeletons respectively depending on your `String Literal` setting in the *COBOL Wrapper Generation Settings*.

ARITH(EXTEND) (z/OS only)

If one of the IDL types N, NU, P, PU with more than 18 digits is contained in the IDL, the compiler directive ARITH(EXTEND) is generated into client interface objects or server skeletons respectively.

TRUNC(BIN)

The compiler directive TRUNC (BIN) is generated into client interface objects and server skeletons always.

Support for CICS RPC Clients (z/OS and z/VSE)

Note the following for RPC clients in the generated COPYBOOKS:

- The DFHCOMMAREA parameter is no longer generated. It does not make sense to have the DFHCOMMAREA parameter in the generated COPYBOOKS, because they are for use in your client application.
- The level of the IDL layout always starts with 1.

Support for CICS RPC Server (z/OS)

For RPC server the JCL to enable returning application error codes under CICS to a client with the approach RETURN-CODE Special Register has been renamed from "\$COBRCAL" to "\$RCCALL" and is contained in the Developer's kit CICS server example data set DVCO. See *Delivered Client and Server Examples for z/OS CICS*.

To compile the generic RPC service module COBSRVIC for the scenario *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention*, a new job EXPCOBCL is delivered. See *Delivered Generic RPC Services Modules for z/OS*.

Support of RPC Server for IMS BMP with PCB Pointers (z/OS)

Generation of RPC server for IMS BMP with PCB pointers to reference IMS databases in its interface is different to previous versions. There is no server interface object to generate, compile and deploy anymore; instead, a server mapping file (SVM) is generated containing all information about PCB pointers required and has to be deployed. The IMS PSB List copybook used in previous releases is no longer used; instead, a so-called IMS PSB list is used (same as for the IDL Extractor for COBOL). The COBOL Wrapper provides a possibility (browse button) to enter the IM PSB list in the **IDL Properties** and **IDL Preferences**. See *COBOL Wrapper Generation Settings*.

In the Eclipse batch interface, for the target IMS_ZOS, the IMS PSB list is supported as well. See *Using the COBOL Wrapper in Command-line Mode*.

Certain rules apply to the IDL that is used. See *IMS PCB Pointer IDL Rules*.

This new wrapping approach works only in combination with an 8.0.1 IMS RPC server. RPC servers built with the previous approach using a server interface object are still supported for compatibility with the 8.0.1 IMS RPC server. See *Using the COBOL Wrapper for IMS BMP (z/OS)*.

Generation of RPC clients for IMS BMP and MPP mode is unchanged. See *Using the COBOL Wrapper for IMS (z/OS)*.

Delivered Examples (z/OS)

All examples contain more links into the documentation and more information on how to build them in COBOL comment lines. See the delivered examples on z/OS. Note the z/OS examples are also delivered under Windows. See the example folder.

The examples MAILCLT(DCCO), CALC(CVCO), CALC(DVCO) and CONCALC(DVCO) use quotes (") instead of apostrophe ('). All examples and the generic RPC service modules (COBSRVI_x, where *x* is one of "B", "C" or "D") are delivered now with quotes to be consistent.

The reliable RPC client example MAILCLT(DCCO) uses the client interface objects with a EXEC CICS interface. See *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/VSE and z/OS)* as intended and documented in version 8.0.0. The JCL \$COBMAIL(DCCO) has been adapted accordingly.

The example load data sets are delivered as PDS/E instead of PDS. JCL for developers that in previous releases was located in the dataset ERX_{vrs}.SRCE is now located in EXX_{vrs}.JOBS or the source example data sets for CICS (ERX_{vrs}.DVCO, ERX_{vrs}.DCCO) and batch (ERX_{vrs}.CCCO, ERX_{vrs}.CVCO). See *Delivered Examples for the COBOL Wrapper*.

Support for Operating System z/VSE

If you generate an RPC server-side interface object, the EntireX Workbench

- supports the server interface type "CICS with DFHCOMMAREA large buffer interface" for z/VSE as well
- generates and offers deployment of server mapping files (SVM)



Notes:

1. This feature requires version 7.3.2 on z/VSE as a prerequisite.
2. See also the support and restrictions on z/VSE for [IDL Unbounded Groups and Arrays](#).

Support for Operating System BS2000/OSD

The target name for the *Command-Line Mode* and *IDL Compiler Command-Line Mode* has changed from "BATCH_BS2" to "BATCH_BS2000". The previous value "BATCH_BS2" is still supported as an alias for compatibility.

Support for Operating System i5/OS

In the EntireX Workbench user interface and documentation, the name of the operating system has been changed from "OS/400" to "i5/OS". The target name for the *Command-Line Mode* and *IDL Compiler Command-Line Mode* has changed from "BATCH_OS400" to "BATCH_I5OS". The previous value "BATCH_OS400" is still supported as an alias for compatibility.

IDL Extractor for COBOL

- [Extraction from Copybooks](#)
- [Extraction of Interface Type "IMS BMP with Standard Linkage Calling Convention"](#)
- [Extraction of Interface Type CICS with DFHCOMMAREA Large Buffer Interface](#)
- [View of Referenced Copybooks in Wizard and Mapping Editor](#)
- [Overview Page in Mapping Editor](#)
- [Deployment of Server Mapping Files \(SVM\)](#)

Extraction from Copybooks

If the IDL is extracted directly from a COBOL copybook, no COBOL program name can be found. The IDL Extractor for COBOL (wizard) now prompts you to enter the COBOL program name. See *Step 4a: Define the COBOL Program Name* in section *Using the IDL Extractor for COBOL*.

Extraction of Interface Type "IMS BMP with Standard Linkage Calling Convention"

The support of RPC server for IMS BMP with PCB pointers is different to previous versions. There is no longer a server interface object to generate, compile and deploy; instead, all information is contained in the server mapping file (SVM). See [Support of RPC Server for IMS BMP with PCB Pointers](#). The IDL Extractor for COBOL has been adapted to this new approach accordingly:

- The IDL Extractor for COBOL provides a **Browse** button with which you can enter the IMS PSB list in the wizard. See *Step 4: Define the Settings for the Extraction*. If required, the IMS PSB list can also be assigned persistently in the **Extractor Preferences**. See *IDL Extractor for COBOL Preferences*.
- Follow the instructions under *To extract from an IMS BMP program that uses standard linkage calling convention*.
- PCB parameters are visible in the COBOL tree of the COBOL mapping editor and are preceded with "[PCB]". These PCB parameters are always suppressed in the IDL outcome of the IDL Ex-

tractor for COBOL. See the *Mapping page* in the Mapping Editor User Interface in section *IDL Extractor for COBOL Mapping Editor*.

Extraction of Interface Type CICS with DFHCOMMAREA Large Buffer Interface

For this interface type, no parameters are now suggested in *Step 5: Select COBOL Parameters*. Parameters are now selected manually.

View of Referenced Copybooks in Wizard and Mapping Editor

If the COBOL source from which you are extracting references copybooks, the IDL Extractor for COBOL enables you to view all copybooks referenced during the complete extraction process. For the wizard, see *Step 5: Select COBOL Parameters*, and for the Mapping Editor, see *Step 6: Map the COBOL Interface to IDL with the Mapping Editor* in section *Using the IDL Extractor for COBOL*.

The user interfaces are described in more detail in:

- *Mapping Editor User Interface* in section *Mapping Editor*
- *COBOL Parameter Selection User Interface* in section *Parameter Selection*.

Overview Page in Mapping Editor

A new overview page summarizes all settings of your extraction from the COBOL source, the IDL file that is being generated and the COBOL-to-IDL mapping defaults used. See *Mapping Editor User Interface*.

Deployment of Server Mapping Files (SVM)

If an error occurs during deployment of an SVM file, a multi-status error page is now displayed instead of a simple error. The new page gives detailed errors for the individual IDL programs.

IDL Extractor for PL/I

Checking of the PSB list has been improved. If the PSB list does not exist, an error message is forced in the **Extractor Preferences**.

CICS RPC Server

The CICS RPC Server supports new features offered by COBOL Wrapper, for example:

- [Support of IDL Unbounded Groups and Arrays](#)
- [Support for more IDL Levels](#)

The CICS RPC Server forces the error "1005011 Call for CICS DFHCOMMAREA exceeds 32K limit" during runtime if the size of the DFHCOMMAREA exceeds 32 KB for a program called with DFHCOMMAREA calling convention.

IMS RPC Server

The IMS RPC Server supports new features offered by COBOL Wrapper, for example:

- [Support of IDL Unbounded Groups and Arrays](#)
- [Support for more IDL Levels](#)

The IMS RPC Server supports the new approach offered by COBOL Wrapper and described under [Support of RPC Server for IMS BMP with PCB Pointers \(z/OS\)](#). The PCB pointers are set up dynamically as given in the server mapping file (SVM).

The approach with server interface objects from earlier releases is still supported for reasons of compatibility, but this approach is deprecated. Use the new approach instead.

XML/SOAP Wrapper

XML Tester Enhancements

Some changes have been made to XML Tester to comply with the Eclipse GUI standard:

- The functional buttons such as **Send**, **Details** etc. are moved to as View Actions.
- Visibility is guaranteed by means of a slider in the view.

Ease-of-use has been improved in many aspects:

- the most commonly used text fields have been replaced by combo boxes which hold several used values for URI, value fields etc.

- the automatic administration of the HTTP header fields in case of conversation requires fewer user-side actions
- reliable RPC has been introduced in auto-commit mode for both HTTP Test and Quick Test

See XML Tester.

`detail` **Element of SOAP Fault String**

When an error occurs in the XML/SOAP Runtime while processing the body of a SOAP request, the `detail` element of a SOAP fault is now generated to conform with the SOAP 1.1 specification.

RESTful Web Services Support in Web Services Stack and EntireX

RESTful web services are now supported in Web Services Stack and EntireX. See *Support of Representational State Transfer (REST)*.

XML/SOAP Runtime

Previously, XML/SOAP Listener (referred to in earlier versions as "XML Servlet") performed a logon and logoff for every call, which impacted performance. A new attribute `exx-mep` has been introduced for file `xml-init.xml`. The default value for this parameter is "nonConv-with-logoff", which defines that a non-conversational call will finish with an additional logoff call (two calls per message). Set `exx-mep` to "nonConv-without-logoff" to specify that a non-conversational call will finish *without* logoff call (one call per message); Broker will clean up resources by timeout. See *XML/SOAP Listener Initialization Parameters* under UNIX | Windows.

Other Workbench Enhancements

Eclipse Version 3.4

Eclipse version 3.4 is now also supported. The default is Eclipse 3.3.

Visual Studio Plug-ins

The plug-ins of .NET Wrapper and DCOM Wrapper for Microsoft Visual Studio now support Visual Studio version 8.0.

See *Microsoft Visual Studio Wizard for EntireX .NET Wrapper* and *Microsoft Visual Studio Wizard for EntireX DCOM Wrapper*.

Installing EntireX Eclipse Plug-ins in Standalone Mode

The new documentation section *Installing the EntireX Workbench Plug-ins* under UNIX | Windows is applicable if you want to install the Workbench plug-ins in standalone mode, that is, not as part of the full webMethods EntireX installation. Please note the updated Web Services Stack prerequisites.

This section also includes details of how to uninstall the plug-ins. See *Uninstalling the EntireX Workbench Plug-ins*.

Broker

- [New Operator Commands](#)
- [Protecting a Broker against Denial-of-Service Attacks](#)
- [Identifying a Pair of Brokers sharing one Persistent Store in a High Availability Scenario](#)
- [Uniqueness Test for Broker ID](#)
- [New Broker Attributes](#)

New Operator Commands

Under z/OS, transport-specific commands are now available for Adabas/Entire Net-Work communicators, SSL communicators and TCP communicators. See *Transport-specific Commands*. This functionality was provided with EXX800 hot fix 6. General Broker command *DPOOL* is now provided to list all memory pools allocated by EntireX Broker.

The documentation has been enhanced with more examples and sample output.

Protecting a Broker against Denial-of-Service Attacks

An optional feature of EntireX Broker is available to protect a secure Broker against denial-of-service attacks. If `PARTICIPANT-BLACKLIST` is set to "YES", EntireX Broker maintains a blacklist to handle such "attacks". See *Protecting a Broker against Denial-of-Service Attacks* in the platform-specific broker administration documentation.

Identifying a Pair of Brokers sharing one Persistent Store in a High Availability Scenario

The broker-specific attribute `CLUSTER-ID` has been introduced to identify a pair of Brokers sharing one persistent store in a high availability scenario. The `CLUSTER-ID` must be unique per machine and protects the persistent store from accidental access by other Broker instances. See *Achieving High Availability of the Persistent Store*.

Uniqueness Test for Broker ID

To guarantee that a Broker ID is unique on one machine under Windows and UNIX, a named semaphore is created at initialization. If this semaphore already exists for this Broker ID, initialization is terminated with message `ETBE0168`, "This instance of Broker already running". If as a result of an abnormal Broker termination this semaphore cannot be deleted completely, you can force a restart of the Broker with Broker attribute `FORCE=YES`.

New Broker Attributes

The following attributes are new in 8.0.1 or were undocumented features of earlier versions.

- `BLACKLIST-PENALTY-TIME`
- `CLUSTER-ID`
- `NUM-BLACKLIST-ENTRIES`
- `PARTICIPANT-BLACKLIST`
- `TRAP-ERROR`
- `TRBUFNUM`
- `TRMODE`

Command Log Trace Analysis

The EntireX Broker Trace Utility has a new output field `ReplyTime`, which returns the server response time (difference in time between the server receiving a request and sending the reply). New output fields `Library` and `Program` for RPC calls were already available in version 8.0. See *EntireX Broker Trace Utility* in the UNIX and Windows administration documentation.

Attach Manager

You can now configure the number of repeat registration attempts if the Attach Manager cannot register successfully at startup time or if a connection is broken. See description of parameter Sleep and Retries in section *Setting up the Attach Manager* under UNIX | Windows.

Internationalization

ICU Customer Converter

If the standard ICU converters (codepages) provided do not match your requirements, you can now define your own custom converters. See ICU Conversion and *Build and Install ICU Custom Converters* in the platform-specific administration documentation.

CP803 (Old Hebrew) Support

Software AG RPC technology requires that both ends of a communication (client and server) use codepages containing a set of defined characters, for example lowercase Latin characters a-z. See *Codepage Requirements for RPC Data Stream Conversions*. By design, codepages without the Latin lowercase characters such as CP803 (Old Hebrew) cannot be used with Software AG RPC. With this service pack, SAGTRPC allows you to use the CP803 codepage with some restrictions. See *Internationalization for RPC-based Components*.

SAGTRPC User Trace Improved

SAGTRPC may provide detailed conversion errors (user trace) in the Broker log file for IDL type fields A, AV, K and KV. The IDL program, IDL library and IDL fields (with its contents) are written to the Broker log file.

- A detailed conversion error is written if conversion trace is defined in the Broker attribute file according to

```
CONVERSION=(SAGTRPC,OPTION=option,TRACE=trace-level)
```

where *option* is SUBSTITUTE - NONCONV or STOP, and
trace-level is "1" (user trace).

- A more general conversion error message is written if the Broker trace level is set to any value and conversion trace is set to 0.

See service-specific attribute CONVERSION in section *Broker Attribute File*.

SAGTRPC Footprint in RPC Stream

The conversion routine SAGTRPC now writes a footprint in the RPC stream, similar to “Converted by SAGTRPC 8.0.1.0”. In client and server traces it is now easy to find out whether SAGTRPC is involved and what version is being used.

Installation under z/OS

Simplified Installation Method

Data set EXP_{vrs}.JOBS is no longer delivered. All JCL members are now in library EXX_{vrs}.JOBS. This data set has been thoroughly restructured; it contains installation, installation verification and maintenance jobs of all EntireX subproducts.

See *Simplified Installation Method* in the z/OS installation documentation.

A new data set EXX_{vrs}.TAR contains all Java components for z/OS. See *Installing EntireX Java Components under z/OS UNIX*.

Broker Tutorial

The Broker tutorial no longer uses any programs from library SYSEXT. Instead, Natural internal interfaces provided by SYSLIBS are used. This makes the Broker tutorial more stable for future Natural versions. It is no longer possible to execute the Broker tutorial in a user library. Obsolete objects have been removed from the Broker tutorial, and the number of objects is much lower than in previous EntireX versions.

EntireX Java Components under z/OS UNIX

Several Java-based EntireX components can be installed under z/OS UNIX. See *Installing EntireX Java Components under z/OS UNIX*.

Adabas Documentation

If you are using Adabas SVC but do not have Adabas installed at your site, the relevant sections of the Adabas installation documentation are provided. See *Installing Adabas Components for EntireX* and *Installing Adabas with TP Monitors*. This was the latest Adabas documentation when this version of EntireX was released. A more recent version may be available.

Adabas SVC system messages are now also included in the EntireX documentation for your convenience. See *ADAS* (Adabas SVC) System Messages*.

COBOL Wrapper

The example data sets are delivered as PDS/E instead of PDS. If you own JCL refers to the example load data sets, you will have to modify this slightly.

PL/I Wrapper

The example data sets are delivered as PDS/E instead of PDS. If you own JCL refers to the example load data sets, you will have to modify this slightly.

The broker stub CICSETB2 is used instead of CICSETB for CICS examples. The Relay Manager is no longer a prerequisite for TCP/IP with a default installation.

ACI for Natural

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 not use these in your application either.

Compatibility with Software AG PI Adapter for EntireX

Two XSDs (XML Schema Definitions) are created from an IDL file, one for each direction (IN and OUT). This enables design-time compatibility between EntireX 8.0.1 and Software AG PI Adapter for EntireX. See *XML Schema Export* in the XML Mapping Editor documentation.

IMS Connect Support

The EntireX IMS Connect RPC Server allows standard RPC clients to communicate with IMS MPP programs running on IMS version 9 and higher. The IMS Connect RPC Server transforms the RPCs from the clients into messages to IMS Connect v2.2. The IMS Connect RPC Server acts on one side as an RPC server and on the other side as a client for IMS Connect.

See *IMS Connect RPC Server*.

2 What's New in Version 8.0

▪ Extended COBOL Support	16
▪ Large Message Sizes for CICS	19
▪ CICS TCP/IP Communication	19
▪ Reliable RPC	19
▪ EntireX Broker	21
▪ Software AG Common Web Services Stack	24
▪ Increased Platform Coverage	24
▪ Eclipse	25
▪ Tomcat	25
▪ System Management Hub	25
▪ Enhanced Logging, Accounting and CIS	25
▪ Command-line Parameters for ETBCMD and ETBINFO	26
▪ IAF Installation	26
▪ Naming Conventions	27
▪ Documentation Enhancements	27

This chapter lists the major changes to EntireX.

Extended COBOL Support

- [Software AG IDL Extractor for COBOL](#)
- [EntireX COBOL Wrapper](#)
- [Server Mapping File](#)

Software AG IDL Extractor for COBOL

The IDL Extractor for COBOL has been extended with a graphical user interface to complete the extraction process with user decisions. This allows modeling of the COBOL server to an IDL and enables selection of the appropriate (COBOL to IDL) mapping where multiple possibilities exist and where automatic decision taking can lead to incorrect or suboptimal IDL.

With the IDL Extractor for COBOL it will be possible to

- select manually the parameters to support
 - programs copying the input data from the linkage section to the working section before processing them
 - programs making use of the `SET ADDRESS` statement
 - programs with input parameters (request data) different to their output parameters (reply data)
- select REDEFINE paths to be used
- decide how COBOL LEVEL-88 fields have to be mapped. The most important feature here is the Map to Operation feature, which enables the mapping of multiple functions (methods) of the same COBOL program to web service operations or methods of object-oriented clients
- suppress (hide) unneeded COBOL program parameters in the IDL
- define how FILLER fields should be handled
- set defaults to optimize extraction for XML/object-oriented IDL versus legacy-oriented IDL
- extract COBOL tables with the `OCCURS DEPENDING ON` clause
- extract from COBOL programs including `COPYBOOKs` with the `REPLACE` option
- support for `SIGN`, `TRAILING`, `LEADING`, `SEPARATE` clauses
- support for LEVEL-77 fields
- support for COBOL data item of type national
- support for COBOL data item of type DBCS
- support the IDL library. Any RPC client communicating with a COBOL server extracted with this version must send the correct IDL library. In previous versions of EntireX, the IDL library

sent by RPC clients were ignored. COBOL servers extracted with previous versions of EntireX (no server mapping file) work as before; the IDL library is ignored. This means an RPC client can send any IDL library name.

In addition to the Software AG IDL, a so-called *server mapping file* (SVM) is extracted. This file is similar to the XML mapping file (XMM). The SVM file is deployed with the Server Mapping Deployment Wizard. See [Server Mapping File](#) below.

See *Software AG IDL Extractor for COBOL*.

EntireX COBOL Wrapper

The client side of the COBOL Wrapper for all target platforms (z/OS, BS2000/OSD, z/VSE and i5/OS) has been extended to

- correctly support IDL unbounded arrays, which means mapping them to COBOL tables with the `OCCURS DEPENDING ON` clause
- provide TRUE and FALSE constants using COBOL LEVEL-88 fields for IDL data type L (logical).

The server side of the COBOL Wrapper for all target platforms (z/OS, BS2000/OSD, z/VSE and i5/OS) has been extended to

- provide TRUE and FALSE constants using COBOL LEVEL-88 fields for IDL data type L (logical).

The server side of the COBOL Wrapper for target platform z/OS has been extended to

- correctly support IDL unbounded arrays, which means mapping them to COBOL tables with the `OCCURS DEPENDING ON` clause
- support the IDL library. Any RPC client communicating with a COBOL server generated with this version (z/OS only) must send the correct IDL library. In previous versions of EntireX, the IDL library sent by RPC clients were ignored. COBOL servers generated with previous versions of EntireX (no server mapping file) work as before; the IDL library is ignored. This means an RPC client can send any IDL library name.
- generate a so-called *server mapping file* (SVM file), similar to the XML mapping file (XMM file), in addition to the server skeleton. The SVM file is deployed with the Server Mapping Deployment Wizard. See [Server Mapping File](#) above.

See *EntireX COBOL Wrapper*.

Server Mapping File

The RPC server for CICS and Batch is extended with a so-called *server mapping file* (SVM file), similar to the XML mapping file (XMM file). The SVM file is used at runtime to (un)marshal the RPC data stream. 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.

The SVM file is extracted by the IDL Extractor for COBOL in addition to the IDL (interface definition language) or generated by the COBOL Wrapper for a server skeleton. A Server Mapping Deployment Wizard is provided to deploy the server mapping files.

Large Message Sizes for CICS

The CICS RPC Server has been extended to execute programs

- accessing data via CICS containers. CICS containers are IBM's standard approach for CICS to exchange large amounts of data (more than 32 KB) between CICS programs. The COBOL Wrapper generates a server skeleton with a CICS container interface in an easy and comfortable way. See *Using the COBOL Wrapper for CICS with Channel Container Calling Convention*
- using webMethods WMTLSRVR interface. The WMTLSRVR interface is an alternative approach for webMethods customers to support large message sizes for CICS. The IDL Extractor for COBOL supports extraction from those webMethods programs, enabling customers to migrate existing applications to EntireX. See step Define the Settings for the Extraction in section *Using the IDL Extractor for COBOL*. The COBOL Wrapper also allows the generation of server skeletons with the webMethods WMTLSRVR interface, enabling customers to continue using this interface. See *Using the COBOL Wrapper for CICS with the DFHCOMMAREA Large Buffer Interface*.

On the client side of the COBOL Wrapper, EntireX has been offering a CICS with call interfaces approach since version 7.3 for this purpose. See *Using the COBOL Wrapper for CICS with Call Interfaces*.

CICS TCP/IP Communication

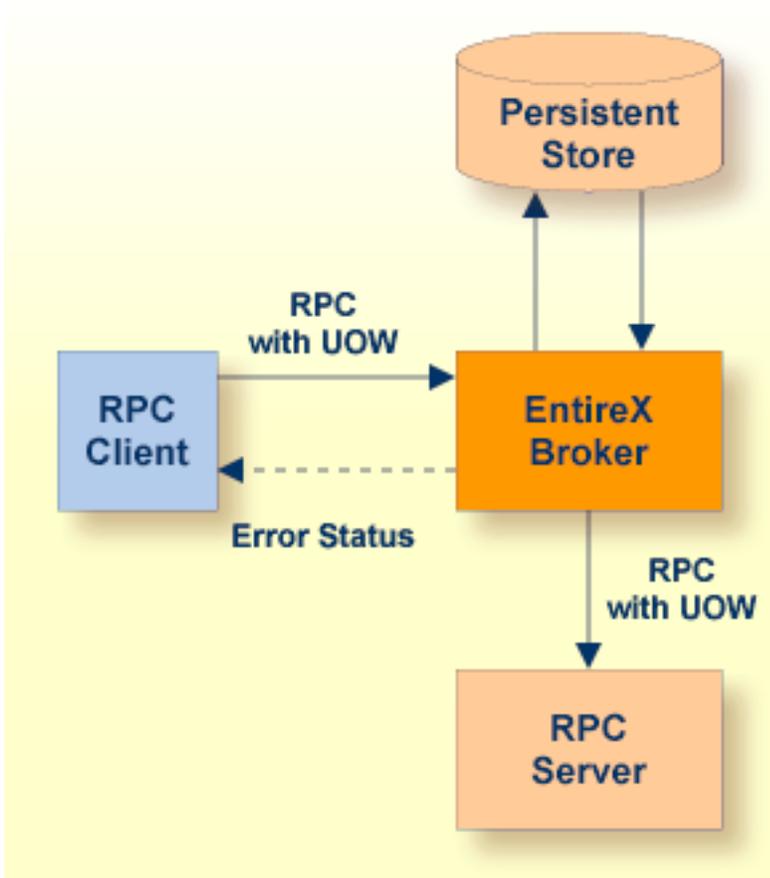
This feature enables webMethods customers to access EntireX using TCP/IP without needing a second started task for the Relay Manager. The stub CICSETB2, available since EntireX 7.3.3, allows only TCP/IP but does not offer SSL or Location Transparency.

Reliable RPC

In the architecture of modern e-business applications (such as SOA), loosely coupled systems are becoming more and more important. Reliable messaging is one important technology for this type of system.

Reliable RPC is the EntireX implementation of a reliable messaging system. It combines EntireX RPC technology and persistence, which is implemented with units of work (UOWs).

- Reliable RPC allows asynchronous calls (“fire and forget”)
- Reliable RPC is supported by all EntireX wrappers
- Reliable RPC messages are stored in the Broker's persistent store until a server is available
- Reliable RPC clients are able to request the status of the messages they have sent



See *Reliable RPC* for more details.

Reliable RPC is available for the following wrappers

- C Wrapper
- COBOL Wrapper
- .NET Wrapper
- DCOM Wrapper
- Java Wrapper
- Web Services Wrapper
- XML/SOAP Wrapper

EntireX Broker

- New Broker Attributes
- Modified Broker Attributes
- Obsolete Broker Attributes
- Dynamic Memory Management
- Simplified Broker Configuration
- Simplified Process Model under UNIX

New Broker Attributes

- DYNAMIC-MEMORY-MANAGEMENT
- MAX-MEMORY
- STORAGE-REPORT

DYNAMIC-MEMORY-MANAGEMENT

New attribute to control memory management of Broker. Possible values are YES and NO. Default is NO.

If this attribute is set to "NO", all memory is allocated at Broker startup based on the calculation from the defined NUM-* attributes. Size of memory cannot be changed. This is the known behavior of EXX 7.3.

If this attribute is set to "YES", an initial portion of memory is allocated at Broker startup based on defined NUM-* attributes or internal default values if no NUM-* attributes have been defined. More memory is allocated without Broker restart if there is a need to use more storage. Unused memory is deallocated. The upper limit of memory consumption can be defined using attribute MAX-MEMORY. If you run your Broker with DYNAMIC-MEMORY-MANAGEMENT=YES, the Broker attributes prefixed with "NUM-" (except NUM-WORKER) are not needed, for example NUM-CLIENT, NUM-UOW. However, if one of these attributes is defined, it determines the allocation size of that particular Broker resource.

See *Dynamic Memory Management*.

MAX-MEMORY

New attribute to define the upper limit of memory allocated by Broker if `DYNAMIC-MEMORY-MANAGEMENT=YES` has been defined. Possible values: UNLIM, 0 n, nK, nM, nG. Default value is 0.

If this attribute is set to "0" or "UNLIM", there is no memory limit.

If this attribute is set to any other value, this defines the maximum limit of allocated memory. If limit is exceeded, error 671 "Requested allocation exceeds MAX-MEMORY" is generated.

STORAGE-REPORT

New attribute to create a storage report about Broker memory usage. Possible values:

YES Create the storage report file.

NO Do not create the storage report file.

See Broker-specific attribute `STORAGE-REPORT` and *Storage Report*.

Modified Broker Attributes

BROKER-ID

Attribute `BROKER-ID` identifies the Broker to which the attribute file applies. The Broker ID must be unique per machine.



Note: The numerical section of the `BROKER-ID` is no longer used to determine the DBID in the Broker kernel with Entire Net-Work transport (NET). To determine the DBID, use attribute `NODE` in the `DEFAULTS=NET` section of the attribute file.

ACCOUNTING-VERSION

New value "3" is available to create accounting records in layout of version 3. New fields available include RPC library and program names.

See Broker-specific attribute `ACCOUNTING-VERSION` and *Conversational Accounting in EntireX Broker* in the platform-specific administration documentation.

Obsolete Broker Attributes

NUM-CCOM

Entire Net-Work communication on UNIX is no longer supported. This attribute will be reported as obsolete.

SSTORE and SSTORE-TYPE

The subscriber store in a secondary store is no longer supported. Attribute will be reported as obsolete.

We recommend you use the PSTORE persistent store to store your subscriber data, by setting the Broker-specific parameter `SUBSCRIBER-STORE=PSTORE`.

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 various number of pools for the several resources.

If more memory is needed than currently available, another memory pool is allocated for the specific type of resource. If a particular memory pool is no longer used, it will be deallocated.

The Broker attributes NUM-* can be omitted if `DYNAMIC-MEMORY-MANAGEMENT=YES` has been defined

If you want statistics on allocation and deallocation operations in Broker, you can configure Broker to create a storage report with the attribute `STORAGE-REPORT`. See *Storage Report*.

Simplified Broker Configuration

All Broker attributes relating to the dimensions of the storage used are no longer required if `DYNAMIC-MEMORY-MANAGEMENT=YES` is set in the Broker attribute file. To further reduce the scope of required definitions, default values have been introduced for the following attributes `CLIENT-NONACT` and `NUM-WORKER`:

- `CLIENT-NONACT = 15M`
- `NUM-WORKER = 1`

Simplified Process Model under UNIX

As of version 8.0, EntireX Broker is no longer a multiprocess application. All threads run in a single task. This simplifies internal communication considerably and also increases stability.

The Broker no longer contains the Entire Net-Work communicator. For this reason, the attribute NUM-CCOM is no longer supported and a corresponding warning is given in the Broker log.

Software AG Common Web Services Stack

The Software AG Common Web Services Stack (WSS) is a framework for web services. It is targeted to be used by Software AG products as a basis for their web services implementations. The core part of the WSS runtime is the SOAP engine. The SOAP engine provides the base functionality to receive and send messages over different transports, and processes the messages through a chain of handlers.

Web Services Stack provides support for secure and reliable web services. It contains implementations of the web services specifications WS-Addressing, WS-Security and WS-ReliableMessaging.

See also the *Web Services Stack User's Guide* and *Writing Advanced Web Services Applications*.

Web Services Stack is used by the following EntireX components:

- EntireX Web Services
- XML/SOAP Wrapper
- XML/SOAP Listener
- XML/SOAP RPC Server

For creating and deploying EntireX web services, see *Writing Web Services Applications*.

See also Migration Considerations for details of how to migrate web services and XML/SOAP applications created with an earlier version of EntireX.

Increased Platform Coverage

The following supported platforms have been added since the last version of EntireX:

- AIX 6.1 (64-bit)
- Red Hat Enterprise Linux 5 for x86 (32-bit)
- Red Hat Enterprise Linux 5 for AMD64 and EM64T (x86-64)
- Red Hat Enterprise Linux 5 for IBM zSeries (64-bit)

- HP-UX 11i v3 (64-bit) for PA-RISC
- HP-UX 11i v3 for Itanium 2 (64-bit)
- Windows Vista (see Windows Vista considerations in the installation documentation)

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

Eclipse

EntireX now comes with Eclipse 3.3. Eclipse is installed on Windows and Linux platforms. See *Eclipse Considerations* in the installation documentation for UNIX | Windows.

Tomcat

EntireX no longer provides an archive with a Tomcat installation. Instead it automatically installs Tomcat 5.5 as part of the Software AG Common Tomcat Package.

System Management Hub

EntireX now comes with a new version of System Management Hub. The GUI representation has changed and is reflected in the various administration sections of the documentation, for example *Broker Administration using System Management Hub*.

Enhanced Logging, Accounting and CIS

Enhancements to logging, accounting, and Broker Command and Information Services include the following:

- Retrieve RPC library and program name. See *Conversational Accounting in EntireX Broker* and CLIENT-SERVER Object in *Broker Command and Information Services Data Structures*
- TCP object and SSL object of Broker Command and Information Services now provide the fields IP-ADDRESS and HOST-NAME.
- Full timestamp is now provided in the EntireX XML/SOAP RPC Server.

Command-line Parameters for ETBCMD and ETBINFO

Both programs support an alternative method of passing on command-line parameters. This method applies to all platforms.

- **ETBCMD under z/OS**

If the DDNAME CMDFILE is allocated and no command-line parameters are specified in the EXEC instruction, the content of the allocated member is evaluated. See example.

- **etbcmd under UNIX**

If the environment variable CMD_ATTR is set, the content is interpreted as a file name. If no command-line parameters are given, the command `etbcmd` evaluates the content of the file. See example.

- **ETBINFO under z/OS**

If the DDNAME INFFILE is allocated and no command-line parameters are specified in the EXEC instruction, the content of the allocated member is evaluated. See example.

- **etbinfo under UNIX and Windows**

If the environment variable INF_ATTR is set, the content is interpreted as a file name. If no command-line parameters are given, the command `etbinfo` evaluates the content of the file. See example under UNIX | Windows.

IAF Installation

IAF is not installed automatically.

- **z/OS**

For z/OS, IAF is delivered in separate data sets.

- **UNIX**

On UNIX, the IAF installation is located under `unix/platform/iaf/v22` and has to be started manually from the DVD root with the following command:

```
setup.ux iaf v22
```

IAF installation can be executed before or after EXX installation since there are no dependencies.

See *Installing Integrated Authentication Framework under UNIX*.

- **Windows**

On Windows, the IAF installation is callable from the DemoShield screen as a separate installation.

See *Installing Integrated Authentication Framework under Windows*.

Naming Conventions

For reasons of consistency within webMethods EntireX and other Software AG products, some components and features have been renamed.

New Term	Old Term	Explanation
Stub	Stub	The term "stub" now refers only to an application-independent communication module delivered with EntireX Broker. See <i>Administration of Broker Stubs under z/OS</i> .
Interface object	Stub	This is a new term to refer to Workbench-generated pieces of code related to IDL (interface definition language). A <i>client</i> interface object issues an RPC; a <i>server</i> interface object receives an RPC. Client and server interface objects are generated for C, COBOL, .NET, Java and PL/I.
EntireX XML/SOAP RPC Server	XML RPC Server	
EntireX WebSphere MQ RPC Server	EntireX WebSphere MQ Bridge	
EntireX WebSphere MQ Listener	EntireX MQ Bridge Listener	
EntireX XML/SOAP Listener	XML Servlet	
Broker TCP Agent	Broker Agent	
Broker SSL Agent	Broker Agent	
Broker HTTP(S) Agent	Tunnel Servlet	

Documentation Enhancements

As an additional navigational aid for the EntireX documentation, two new perspectives are provided:

- Administration Perspective with links to documentation areas of interest to the EntireX administrator
- Developer Perspective with links to documentation areas of interest to the application developer

3 EntireX Platform Coverage

- List of Components per Platform 30
- Platform and Version Support 31
- Current Version of webMethods EntireX per Operating System 33
- Functionality Dropped in this Release 34
- Functionality to be Dropped in Future Releases 35
- Migration Strategy for Dropped / Modified Functionality 36

List of Components per Platform

	z/OS V1.8, 1.9, 1.10	z/SE Version 3.1, 4.1	BS2000/OSD 4.0, 5.0, 6.0, 7.0	z/VM 5.2, 5.3	SUSE Linux Enterprise Server 10 for IBM zSeries (64-bit)	Red Hat Enterprise Linux 5 for IBM zSeries (64-bit)	Solaris SPARC 9 and 10 (64-bit)	HP-UX 11i v2 (64-bit) for PA-RISC HP-UX 11i v3 (64-bit) for PA-RISC	HP-UX 11i v3 for Itanium 2 (64-bit)	AIX 5.3 (64-bit) AIX 6.1 (64-bit)	OpenVMS 8.3-1H1 for Itanium (64-bit)	IS/OS 5.3 - AS/400-RISC IS/OS 5.4 - AS/400-RISC	SUSE Linux Enterprise Server 10 for x86 (32-bit)	SUSE Linux Enterprise Server 10 for AMD64 and EM64T (x86-64)	Red Hat Enterprise Linux AS 4 and 5 for x86 (32-bit)	Red Hat Enterprise Linux AS 4 and 5 for AMD64 and EM64T (x86-64)	Windows Server 2003 Standard and Enterprise edition (32-bit) Windows XP Professional (32-bit) Windows Vista (32-bit)
EntireX Broker	x ⁽⁵⁾	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														
PL/I Server/Client	x																
C RPC Server/Client			x		x	x	x	x	x	x		x	x	x	x	x	x
Java RPC Server/Client ^(4,5)	x				x	x	x	x	x	x			x	x	x	x	x
XML/SOAP RPC Server/Client ^(4,5)	x				x	x	x	x	x	x			x	x	x	x	x
WebSphere MQ RPC Server ^(4,5)	x				x	x	x	x	x	x			x	x	x	x	x
WebSphere MQ Listener ^(4,5)	x				x	x	x	x	x	x			x	x	x	x	x
DCOM RPC Client ⁽¹⁾																	x
.NET RPC Server/Client ⁽¹⁾																	x
RPC-ACI Bridge ⁽⁴⁾	x				x	x	x	x	x	x			x	x	x	x	x
XML/SOAP Listener ⁽⁴⁾	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
EntireX DCOM and DCOM Security							x						x		x		x ⁽³⁾
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
Attach Manager	x ⁽²⁾				x	x	x	x	x	x			x	x	x	x	x

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

Notes:

- ⁽¹⁾ Application wizard for Visual Studio .NET 2005 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⁾ Security component only because DCOM is part of the Windows operating system.
- ⁽⁴⁾ 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*.
- ⁽⁵⁾ Batch only.

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	Windows, Solaris, z/OS, Linux Intel, AIX, HP-UX	June 2003	November 30, 2005
	OS/390	June 2003	September 30, 2004
	z/OS stubs EXAAPSB, EXAAPSC	June 2003	June 30, 2006

Product Release	Platform	Release Date	End-of-Maintenance Date
	Linux S/390	October 2003	April 30, 2006
	i5/OS - AS/400-RISC	September 2004	
	BS2000/OSD	September 2005	
EntireX Communicator 7.2	Windows, Solaris, Linux Intel	November 2004	November 30, 2007
	z/OS	November 2004	May 31, 2008
	AIX, HP-UX	November 2004	December 31, 2007
	Linux IBM zSeries 64	April 2005	November 30, 2007
	z/VSE	February 2006	
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 zSeries 64	February 2007	August 31, 2009
	VM/CMS 5.3 - IBM	March 2007	
webMethods EntireX 8.0	Windows, Solaris, Linux Intel 32-bit	February 2008	
	z/OS	February 2008	
	Linux Intel 64-bit	April 2008	
	AIX, HP-UX	August 2008	
	Linux IBM zSeries 64	August 2008	

If you have access to ServLine24, 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 V1.8, V1.9, V1.10	8.0
z/VSE V3.1, V4.1, V4.2	7.2.3
BS2000/OSD 4.0, 5.0, 6.0, 7.0	7.1
z/VM V5.2, V5.3, 5.4	7.3
OpenVMS Alpha	6.1
OpenVMS 8.3-1H1 for Itanium (64-bit)	8.0
SUSE Linux Enterprise Server 10 for IBM zSeries (64-bit)	8.0
RedHat Enterprise Linux 5 for IBM zSeries (64-bit)	8.0
Solaris SPARC 9 and 10 (64-bit)	8.0
HP-UX 11.23 (64-bit) for PA-RISC HP-UX 11.i v3 (64-bit) for PA-RISC	8.0
HP-UX 11i v3 for Itanium 2	8.0
AIX 5.3 (64-bit) AIX 6.1 (64-bit)	8.0
i5/OS 5.3-AS/400-RISC i5/OS 5.4-AS/400-RISC	7.1
SUSE Linux Enterprise Server 10 for x86 (32-bit)	8.0
SUSE Linux Enterprise Server 10 for AMD64 and EM64T (x86-64)	8.0
Red Hat Enterprise Server Linux AS 4 and 5 for x86 (32-bit)	8.0
Red Hat Enterprise Server Linux AS 4 and 5 for AMD64 and EM64T (x86-64)	8.0
Windows Server 2003 Standard and Enterprise editions (32-bit) Windows XP Professional (32-bit) Windows Vista (32-bit)	8.0

Functionality Dropped in this Release

The following functionality is no longer supported in version 8.0 of webMethods EntireX:

- Java 1.4.
- Entire Net-Work on Windows and UNIX.
- The EntireX CORBA Gateway and the EntireX Broker ACI for CORBA.
- Broker Services:
 - WebSphere MQ is supported with the new EntireX WebSphere MQ RPC Server. See section *EntireX WebSphere MQ RPC Server*
 - The Broker Services APPC Adapter for LU6.2 has been retired. We recommend using the standard EntireX functionality. Possible migration paths can vary and should be determined based on your projects. See *Introduction to EntireX* for an overview of EntireX.
- Generation of web services from EntireX DCOM type libraries and the Apache Axis module that exposes EntireX DCOM objects as web services.
- The TCP/IP-based transport interface using secure sockets based on Sun's Java™ Secure Socket Extension (JSSE) version 1.0.2 and on IBM's Java™ Secure Socket Extension (JSSE) version 1.0.2. SSL support is now part of Java.
- Broker Agent library *BrokerAgent.dll* for native communication to Broker 2.1.
- The Workbench starter *jwiz.exe*. Use the script *workbench.bat* or the EntireX Workbench startup command line instead of *jwiz.exe*. See also *Using EntireX Workbench from a Command Line*.
- XML/SOAP Wrapper: XML Adapters (version 6.x) is no longer supported by XML/SOAP Runtime.
- UDDI version 1 is no longer supported.
- The *Brokervb.dll* is no longer delivered.
- On Windows and UNIX, the persistent store B-tree has been retired. This functionality is provided by a production-safe embedded store, which has been available since version 7.3. See *Migrating the Persistent Store* under UNIX | Windows.
- C Wrapper. The feature to redirect the generated output to standard out or any file has been retired. The AUTOCONV function which offers the mapping functionality is integrated into the C Wrapper of the EntireX Workbench, the *autconv* modules have been retired.
- C Wrapper. As announced in version 7.3.3, *AUTOCONV.C* is no longer delivered on z/OS (in the *EXPvrs.SRCE* data set).
- The enhancement of the PATH variable to include the runtime modules of `... \Common Files \Software AG \` for the RPC and ACI applications.

- For the COBOL Wrapper the deprecated options APOST and QUOTE for enclosing string literal has been retired.
- COBOL RPC clients now support only Natural RPC Servers of Natural 4.1.2 (z/OS) or Natural 6.1 (Windows/UNIX) or above.
- IDL Extractor for Natural now supports only the Natural RPC Servers of Natural 4.1.2 (Main-frame) or Natural 6.1 (Windows/UNIX) or above.
- The secondary subscriber store (SSTORE) is no longer supported. We recommend you use the PSTORE persistent store to store your subscriber data, by setting the Broker-specific parameter SUBSCRIBER-STORE=PSTORE.
- EntireX RPC BMQ Bridge. We recommend you use the new Reliable RPC functionality.
- The Software AG IDL Extractor for COBOL no longer supports extraction in command-line mode. The IDL Extractor for COBOL works only within the EntireX Workbench. This was the only viable means of providing user-driven COBOL-to-IDL mapping.
- All modules of the EXS libraries are not supported with this release. If you use one or more modules from the EXS library for your own applications, we recommend you migrate to Natural Security (NSF).
- The EntireX Security Gateway (SAF Gateway) is included into the Broker Access modules. The security access is handled solely by the Broker.
- COBOL Wrapper for IMP BMP. The approach offered by the COBOL Wrapper in earlier releases (with server interface objects) is now deprecated. Use instead the new approach offered by the COBOL Wrapper and the IMS RPC server. See [Support of RPC Server for IMP BMP with PCB Pointers](#).

Functionality to be Dropped in Future Releases

■ 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.

■ DCOM

DCOM support will be dropped.

■ ACI for Natural

The LDAs NATDEF12 and NATDEF21 are deprecated and will no longer be delivered in the future. See also [ACI for Natural](#) in section *What's New in Service Pack 8.0.1* for more information.

■ 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) will not be delivered in future on z/OS.

■ The IDL Compiler Native Batch Interface

The IDL Compiler native batch interface for the C Wrapper, COBOL Wrapper and .NET Wrapper is deprecated and will be dropped in the future. For the C Wrapper and COBOL Wrapper, use the Eclipse batch interface instead.

The deprecated IDL Compiler native batch interface is described under *IDL Compiler Command-Line Mode* for C | COBOL | .NET.

The Eclipse batch interface to be used instead is described under *Command-Line Mode* for C | COBOL.

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.

■ zLinux

Future versions of EntireX for zLinux will no longer support z890, z900 or z990 hardware.

Migration Strategy for Dropped / Modified Functionality

- [XML/SOAP Runtime](#)
- [Migrating the Persistent Store from Version 7.2 or earlier](#)

XML/SOAP Runtime

The architecture of the EntireX XML/SOAP Listener (formerly known as XML Servlet) and EntireX XML/SOAP RPC Server changed with version 8.0. The previous version worked as a web application running directly in the web server; the current version works as part of Software AG Common Web Services Stack, which is a web application running in a web server. This change has impact on configuration, packaging and deployment of EntireX web services.

- [XML/SOAP Wrapper](#)
- [XML/SOAP Listener](#)

- XML/SOAP RPC Server

XML/SOAP Wrapper

The used XML parser has changed. XML/SOAP Wrapper uses XMLStreamParser, so the classpath must contain the JAR files of XMLStreamParser. The EntireX installation comes with *stax-api.jar* and *wstx-asl.jar*. The two XMLStreamParser JAR files are located in `<EntireX Home>/classes`.

If you are compiling source using the class `XMLRPCService`, you require an additional JAR file *axiom-api-<version>.jar*. This JAR file is located in `<WebservicesStack>/lib`.

XML/SOAP Listener

The XML/SOAP Listener requires a Web Services Stack installation. The Web Services Stack web application is the container of XML/SOAP Listener, in previous versions the XML/SOAP Listener (formerly referred to as XMLServlet) was a web application itself. The file *entirex.jar* containing the XML/SOAP Runtime is placed in directory *lib* of the Web Services Stack web application. EntireX web service is created using the with XML Mapping Editor as in previous versions and with a Packaging Wizard to build an AAR file. The AAR file contains all information for this web service and must be deployed to the web application.

The WAR file *entirex-forward.war* is provided for using the existing URL of an older XML/SOAP Runtime for example "host:8080/entirex/xmlrt".

See *Migration with entirex-forward.war* in *Administration of the EntireX XML/SOAP Listener* in the UNIX and Windows administration documentation.

XML/SOAP RPC Server

The XML/SOAP RPC Server requires the directory of a Software AG Common Web Services Stack installation. The JAR file *wsstack-client.jar* located in `<WS_STACK_HOME>/lib` must be added to `classpath`. (Note: the JAR file *wsstack-client.jar* must remain in this *lib* directory). File *entirex.jar* from EntireX installation must also be present in `classpath`. The configuration file can be used as before. To make use of the latest features, some extensions in configuration file are required. See documentation for more information.

Migrating the Persistent Store from Version 7.2 or earlier



Note: The migration procedure described in here is only needed if you did not perform a persistent store cold start after installing Broker version 8.0. Run the migration only if you want Broker version v80 to process units of work (UOWs) created with Broker version 7.1 or 7.2. We recommend you make a backup copy of the persistent store before running the migration.

Add attribute `RUN-MODE = MIGRATION` to the `DEFAULTS = BROKER` section of your Broker attribute file to instruct Broker to migrate the existing UOWs from version 7.1 or 7.2 format to version 8.0 format. The Broker task will automatically stop when it has finished the migration procedure.

If the PSTORE contains UOWs created with Broker version 7.1 or 7.2 and UOWs created with Broker version 8.0, you need to define the date and time of the change to Broker version 8.0, using Broker attributes `PSTORE-CHANGE-DATE=yyyy.mm.dd` and `PSTORE-CHANGE-TIME=hh:mm:ss` in the `DEFAULTS = BROKER` section of the attribute file.

If `TRACE-LEVEL = 1` is specified in the Broker attribute file, the `SYSOUT` data set of the Broker output files will contain a migration report headed by message `ETBM0171 Migration Processing Report`.

See the following sample attributes for the PSTORE migration:

```
DEFAULTS = BROKER
PSTORE = HOT
PSTORE-CHANGE-DATE = 2008.01.16
PSTORE-CHANGE-TIME = 18:15:00
RUN-MODE = MIGRATION
TRACE-LEVEL = 1
```

After successful migration, remove the line "`RUN-MODE = MIGRATION`" line from the Broker attribute file and restart Broker to consume the units of work as usual.

4 EntireX Prerequisites

▪ z/OS Prerequisites	40
▪ UNIX Prerequisites	42
▪ Windows Prerequisites	45
▪ DCOM Supplementary Table	49
▪ i5/OS Prerequisites	49
▪ OpenVMS Prerequisites	50
▪ z/VM Prerequisites	50
▪ Application Server Prerequisites	51

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 1.8 or higher is required for all components.

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. ■ Optional: Trusted User ID. See section <i>Trusted User ID</i>. With version 7.4.3 or higher of ADASVC module, all prerequisites are delivered with the EntireX installation kit. <p style="margin-left: 20px;">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.</p> ■ Relay Manager <ul style="list-style-type: none"> ■ For CICS applications: CICS TS 2.3 or above. ■ For IMS-based applications: IMS 8 or above.
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. ■ Optional: IBM LE compilers for z/OS. ■ For IMS RPC Server, IMS version 8 or above.
Broker Stubs	<ul style="list-style-type: none"> ■ Transport Options See Broker prerequisites above.

Component	Prerequisites
	<ul style="list-style-type: none"> ■ LoWest Supported Applications Environment Versions <ul style="list-style-type: none"> ■ For CICS applications: CICS TS 2.3 ■ For IMS-based applications: IMS 8 ■ For Com-plete based applications: Com-plete 6.5 ■ For Natural-based applications: NAT 4.2
Workbench	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ For client side, see prerequisites for Broker stubs. ■ For 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: Compiler supported by the COBOL Wrapper: standard COBOL compiler e.g. IBM Enterprise COBOL for z/OS 3.3.1. ■ PL/I Wrapper To compile the applications 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.
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 6.1. 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 EntireX installation documentation for z/OS.

- **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	<ul style="list-style-type: none"> ■ Supported transports: SSL and/or TCP/IP.
EntireX Workbench	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ Java 1.5 or Java 1.6. ■ Eclipse SDK 3.3 or 3.4. ■ Web Services Stack plug-ins 1.2 (to install EntireX Workbench in standalone mode). ■ C Wrapper <ul style="list-style-type: none"> ■ ANSI C Compiler ■ COBOL Wrapper <ul style="list-style-type: none"> ■ See prerequisites for target platform, for example z/OS or i5/OS. ■ EJB Wrapper <ul style="list-style-type: none"> ■ J2EE 1.4 (JBoss, BEA WebLogic, Sun Java System, IBM WebSphere or others) ■ Ant 1.6.1 ■ XDoclet 1.2.1 ■ 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 (SAX).
EntireX RPC	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ Java 1.5 or 1.6. ■ If you are using location transparency, see note below. ■ If you are using SSL, see <i>SSL Support for Java</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. ■ JAXP-capable XML Parser (SAX). ■ XML/SOAP Wrapper Runtime, XML/SOAP RPC Server <ul style="list-style-type: none"> ■ JAXP-capable XML Parser (SAX).

Component	Prerequisites
EntireX ACI	<ul style="list-style-type: none"> ■ Broker Stubs <ul style="list-style-type: none"> ■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See note below and <i>Configuring an LDAP Server</i>. ■ Java ACI <ul style="list-style-type: none"> ■ Java 1.5 or Java 1.6. ■ If you are using SSL, see <i>SSL Support for Java</i> for details. ■ If you are using location transparency, see note below.
System Management Hub Agents	<ul style="list-style-type: none"> ■ Java 1.5 or Java 1.6. ■ Apache web server (optional)
Broker HTTP(S) Agent (formerly Tunnel Servlet) Broker TCP and SSL Agents Broker Trace Utility	<ul style="list-style-type: none"> ■ 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 xIC.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 (xIC.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 z/Linux)

This installation will fail if you choose sudo authentication while there is option `Defaults env_reset` in the sudo configuration file (*/etc/sudoers*). If you insist on sudo option `Defaults env_reset`, then you must either run this installation as user root or you choose su authentication during installation.

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*.

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 zSeries).

We recommend you install the highest update packages available for Linux. On Red Hat Enterprise Linux AS 4 you must have a minimum of U3 (Update 3) installed, otherwise you will have serious problems during installation. On Red Hat Enterprise Linux AS 4 and 5, the package `compat-libstdc++-33-3.2.3-47.3` (or a higher version) must be installed.

CentraSite Considerations

EntireX supports CentraSite version 3.1.7, but no higher. See also *CentraSite Considerations* in the Installation documentation.

Hardware and Storage Requirements

The following list represents the minimum hardware required to run EntireX. EntireX might also run on machines with smaller configurations, but performance issues may arise. Contact Software AG support to determine the exact hardware requirements for your specific installation.

- Single processor machine (recommended 2 or more processors) running at 1 GHz or higher.
- 512 MB of RAM, 1024 recommended. Monitor running at a resolution of 1024 x 768 or higher.
- The full installation of EntireX and all necessary third party products, including backup directories created during a patch installation, requires a minimum of 800 MB (Linux). Under Solaris, where neither Eclipse nor JRE is installed, the minimum is 400 MB.
- 10/100 PCI Ethernet card on a 100 Mbps network.
- A DVD drive to install the software.

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 1.5 or Java 1.6. ■ Eclipse SDK 3.3 or 3.4 (for Eclipse-based components). ■ Web Services Stack plug-ins 1.2 (to install EntireX Workbench in standalone mode). ■ C Wrapper ANSI C Compiler. ■ COBOL Wrapper See prerequisites for target platform, for example z/OS or i5/OS. ■ DCOM Wrapper C++ Compiler from Microsoft Visual Studio .NET 2005 or Microsoft Visual Studio 2005 or 2008. ■ For generated interface objects: Microsoft Visual Studio .NET 2005 C/C++ runtime environment. ■ DCOM Wrapper and .NET Wrapper Plug-ins for Microsoft Visual Studio Microsoft Visual Studio 2005 or 2008 ■ .NET Wrapper <ul style="list-style-type: none"> ■ .NET Framework 2.0. ■ C# Compiler from Microsoft Visual Studio 2005. ■ EJB Wrapper <ul style="list-style-type: none"> ■ J2EE 1.4 (JBoss, BEA WebLogic, Sun Java System, IBM WebSphere or others). ■ Ant 1.6.1. ■ XDoclet 1.2.1. ■ IDL Extractor for Natural <ul style="list-style-type: none"> ■ A Natural RPC server for the respective platform must be available. ■ If you are using a Natural RPC Server under i5/OS, 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</i>. ■ PL/I Wrapper See prerequisites for target platform, for example z/OS.

Component	Prerequisites
	<ul style="list-style-type: none"> ■ XML/SOAP Wrapper, Web Services Wrapper JAXP-capable XML Parser (SAX).
EntireX RPC	<ul style="list-style-type: none"> ■ General Prerequisites <ul style="list-style-type: none"> ■ Java 1.5 or 1.6. ■ If you are using location transparency, see note below. ■ If you are using SSL, see <i>SSL Support for Java</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. ■ JAXP-capable XML Parser (SAX). ■ XML/SOAP Wrapper Runtime, XML/SOAP RPC Server <ul style="list-style-type: none"> ■ JAXP-capable XML Parser (SAX). ■ EntireX XML/SOAP Listener (formerly XML Servlet) <ul style="list-style-type: none"> ■ Servlet Engine supporting Java Servlet API 2.2 or higher. ■ JAXP-capable XML Parser (SAX). ■ XML/SOAP Wrapper Runtime, XML/SOAP RPC Server <ul style="list-style-type: none"> ■ JAXP-capable XML Parser (SAX).
EntireX ACI	<ul style="list-style-type: none"> ■ Broker Stubs <ul style="list-style-type: none"> ■ Supported transport methods: SSL and/or TCP/IP. ■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See note below and <i>Configuring an LDAP Server</i>. ■ Java ACI <ul style="list-style-type: none"> ■ Java 1.5 or Java 1.6. ■ If you are using SSL, see <i>SSL Support for Java</i> for details. ■ If you are using location transparency, see note below. ■ .NET ACI .NET Framework version 2.0. ■ Broker ActiveX Control (to store Tamino or XML files) <ul style="list-style-type: none"> ■ Internet Explorer 5 or higher ■ Tamino 4.2.1 or higher.
System Management Hub Agents	<ul style="list-style-type: none"> ■ Internet Explorer 6 or 7 or above, or Mozilla version 2.

Component	Prerequisites
Broker HTTP(S) Agent (formerly Tunnel Servlet) Broker TCP and SSL Agents Broker Trace Utility	<ul style="list-style-type: none"> ■ Java 1.5 or Java 1.6.
Web Services Examples	<ul style="list-style-type: none"> ■ Microsoft .NET Framework 2.0. ■ C# and Visual Basic Compilers from Microsoft Visual Studio 2005. ■ Java 1.5 or higher.

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.

■ EntireX DCOM

- To interoperate with DCOM under Windows, the prerequisite is Windows 2003 or Windows XP.
- EntireX DCOM currently supports only one remote transport protocol, TCP/IP. Windows supports additional protocols. The order in which Windows initializes RPC transports is specified in the registry under the value HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Rpc\DCOM Protocols.
- In order to prevent Windows wasting time trying to initialize RPC transports not supported by EntireX DCOM, you should specify TCP/IP as the first transport to try. To do this, use `regedt32` to place `ncacn_ip_tcp` at the first position in the string value for DCOM Protocols.

■ 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.

CentraSite Considerations

EntireX supports CentraSite version 3.1.7, but no higher. See also *CentraSite Considerations* in the Installation documentation.

Hardware and Storage Requirements

The following list represents the minimum hardware required to run EntireX. EntireX might also run on machines with smaller configurations, but performance issues may arise. Contact Software AG support to determine the exact hardware requirements for your specific installation.

- Single processor machine running at 500 MHz or higher, 1 GHz recommended.
- 512 MB of RAM, 1024 recommended.
- Monitor running at a resolution of 1024 x 768 or higher.
- The full installation of EntireX and all necessary third party products, including backup directories created during a patch installation, require a minimum of 800 MB. The Eclipse Workbench standalone package requires a minimum of 300 MB.
- A DVD drive to install the software.

DCOM Supplementary Table

Software Requirements

Platform	Runtime	Runtime + SDK
Linux	<ul style="list-style-type: none"> ■ SUSE Linux Enterprise Server 10 for x86 (32-bit) ■ Red Hat Enterprise Linux AS 4 and 5 for x86 (32-bit) 	gcc 3.3, binutils 2.14, glibc 2.3.2 or higher, or gcc 4.1
Solaris	Sun Solaris 9 and 10 for SPARC-V9 (64-bit)	Sun WorkShop C Compiler 5.8, Sun WorkShop C++ Compiler 5.8

The table above lists configurations that have been thoroughly tested and are known to work. In most cases, more recent versions of the various components required should also work. Please check the platform vendors' internet pages for more information on versions and patches available.

i5/OS Prerequisites

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none"> ■ i5/OS with operating system V6R1M0 or above. ■ Controller that supports TCP/IP protocol. ■ Any i5/OS 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.
COBOL Wrapper	<ul style="list-style-type: none"> ■ To compile the applications generated by the EntireX Workbench component COBOL Wrapper: standard COBOL compiler defined by the operating system.

OpenVMS Prerequisites

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none"> ■ HP Integrity Server ■ OpenVMS 8.3-1H1 or above ■ HP TCP/IP Services for OpenVMS

z/VM Prerequisites

Component	Prerequisites
Broker Stubs	<ul style="list-style-type: none"> ■ Supported z/VM Version z/VM version 5.2 or above. ■ Adabas Version Adabas version 7.4.4 or above and Entire Net-Work 5.9.1 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, EJB Wrapper runtime) are J2EE 1.4.2 compliant. They should therefore run on any Java application server that is J2EE 1.4.2 compliant. The EntireX components have been tested and are supported on the following application servers:

Application Server	Platform					
	Windows	Solaris	Linux	AIX	HP-UX	z/Linux
BEA WebLogic 10	x	x	x		x	
IBM WebSphere 6.1	x			x	x	x
JBoss 4.2 or higher	x		x			
Tomcat 5.5	x	x	x	x	x	x

