

webMethods EntireX

Post-installation Steps under Linux

Version 10.9

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This document applies to webMethods EntireX Version 10.9 and all subsequent releases.

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 About this Documentation

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Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <code>folder.subfolder.service</code> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol.
[]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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- Open and update support incidents.
- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Post-installation Steps under Linux

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Under Linux and Windows, EntireX is now installed using the Software AG Installer, which you download from the Software AG Empower website at [Empower](#). You can view the documentation for the Software AG Installer under *Software AG Installer* under Software AG Suite & Cross-Product Guides. Alternatively, you can install and configure EntireX using Command Central; see *Installing EntireX using Command Central*.

This chapter assumes you have already installed EntireX using the Software AG Installer. It covers installation instructions for components not included in the Software AG Installer; instruction on how to verify the installation and set up EntireX Security.

See also *General Installation Information* for topics that apply to multiple operating systems.

Shell Environment Settings

EntireX requires some shell environment variables to be set for proper operation. The installation provides the shell script *exxenv* in the *EntireX/INSTALL* directory. Source this script from within the *.profile* of the EntireX users.

Sourcing this script, which includes additional environment scripts, defines the following variables:

Variable	Description
EXXDIR	Identifies the base installation directory for EntireX (typically <i>/opt/softwareag/EntireX</i>)
EXXVERS	Identifies the product version. This variable is deprecated and is set to "." for reasons of backward compatibility.
ETBLNK	Identifies the absolute path to the broker stubs library if EntireX Broker has been installed: <i>\$EXXDIR/lib/broker.so</i> .
JAVA_HOME	Identifies the Java directory in the installation.

In addition, the script modifies the environment variables *PATH*, *LD_LIBRARY_PATH*.

- directory */<Install_Dir>/EntireX/bin* is added to the list of directories in the *PATH* environment variable
- the directory */<Install_Dir>/EntireX/lib* is added to *LD_LIBRARY_PATH*.

Broker Instance Created Automatically during Installation

If check box **Turn on Autostart for default EntireX Broker** is checked, the installation starts the default broker ETB001. This broker instance listens on the TCP/IP port defined in the custom panel during installation. Default port numbers are 1971 (TCP/IP) and 1958 (SSL), but only the TCP/IP port is enabled by default.

» To change the default port of the default broker

- 1 Stop the broker, using one of the following methods:
 - Use Command Central to stop the broker. See *Administering EntireX Components with Command Central* in the EntireX documentation or the separate Command Central documentation and online help for details.

- Enter command:

```
<Installation_Dir>/EntireX/bin/defaultbroker stop
```

- 2 Edit the configuration file, using one of the following methods:
 - Use Command Central to change. See *Configuring a Broker Instance > Ports* using the Command Central GUI | Command Line.
 - Edit the broker attribute file *config/etb/ETB001/ETB001.atr* and change the TCP/IP and SSL port numbers to a different value.

- 3 Start the broker, using one of the following methods:
 - Use Command Central to start the broker. See *Administering EntireX Components with Command Central* in the EntireX documentation or the separate Command Central documentation and online help for details.

- Enter command:

```
<Installation_Dir>/EntireX/bin/defaultbroker start
```

Startup Daemon for Broker Administration

When installation is complete, the daemon is running and ready to be used by `etbsrv` script located in directory `<Installation_Dir>/EntireX/bin`. This script can be used, for example, to start or stop the broker.

> To start the daemon

- Enter the following command:

```
- <Installation_Dir>/EntireX/bin/sagexx109 start
```

> To stop the daemon

- Enter the following command:

```
- <Installation_Dir>/EntireX/bin/sagexx109 stop
```

It is also registered to startup at boot time, therefore the installation generates additional scripts in a location that depends on the operating system:

Operating System	Location	Note
Linux	/etc/init.d	Recent Linux versions use systemd instead of init scripts.

Considerations if you did not Install EntireX Broker using sudo

If you installed EntireX Broker on a Linux system and did not use `sudo`, perform the following:

1. Restart the Broker Administration Service with the following command:

```
/etc/init.d/sagnumberexxrelease_number restart
```

where `<number>` matches the number in the `sagexx109` script in your `<Software AG_directory>/EntireX/bin` directory.

2. If you want to enable autostart, see for example *Configuring a Broker Instance > Autostart* using the Command Central GUI | Command Line.

Verifying the EntireX Broker Installation

This section describes how to verify the installation of the following EntireX components:

- [EntireX Broker](#)
- [Broker Stubs](#)
- [Sample Programs for Client \(bcoc\) and Server \(bcos\)](#)
- [Environment Variables](#)

EntireX Broker

The following methods are available to verify successful broker installation:

- `etbinfo` under *Broker Command-line Utilities* in the platform-specific Administration documentation
- `etbcmd` under *Broker Command-line Utilities* in the platform-specific Administration documentation
- [Sample Programs for Client \(bcoc\) and Server \(bcos\)](#)

» To verify the broker installation

- 1 If you have not already created a default broker, create one using Command Central. See *Creating a Broker Instance* under *Administering EntireX Broker using the Command Central GUI*.
- 2 Start the broker using Command Central. See *Starting a Broker Instance* under *Administering EntireX Broker using the Command Central GUI*.
- 3 Use one of the following methods to check if the broker is running:
 - Run `etbinfo` to query the broker for information. Start a Command Prompt session, change your directory to the EntireX *bin* directory and use the following command:

```
etbinfo -blocalhost -dBROKER -pbroker.pro
```

This assumes that you use the default port 1971. Otherwise use the command:

```
etbinfo -blocalhost:port -dBROKER -pbroker.pro
```

where *port* is the port number of your broker.

This should display a formatted report with information about the broker. If the broker is not active, you get response 02150148 “EntireX Broker not active”.

- Run the `etbcmd` utility.

```
etbcmd -bETB048 -cPING -dBROKER
```

The broker ID is ETB0248. If successful, the message PING broker ETB048 successfully performed is returned. If the broker is not active, you get response 02150148 “EntireX Broker not active”.

- Use the verification of [Broker Stubs](#). This also verifies EntireX Broker installation.

Broker Stubs

» To verify broker stubs installation

- 1 Ensure that you have installed the EntireX Broker on the target node and that it is up and running.
- 2 Ensure that the variable `ETBLNK` is set to `/<Install_Dir>/EntireX/lib/broker.s[o|l]` and that the `ETB_TRANSPORT` variable is set correctly, by entering the command:

```
env | grep ET
```

- 3 Enter the commands to run the test programs. The Broker ID is ETB048 and the `REPEATS` value is 100. The parameters are described under [Sample Programs for Client \(bcoc\) and Server \(bcos\)](#).

```
cd /<Install_Dir>EntireX/installation_verification/conversational/C
bcos -i100 -bETB048 -2&
bcoc -i100 -bETB048 -2
```

If you receive error 02150148 “EntireX Broker not active”, verify that the broker is running on the target machine.

Sample Programs for Client (bcoc) and Server (bcos)

The programs `bcoc` and `bcos` are client and server programs provided for test purposes. They are delivered as executables in the `<Install_Dir>/Entirex/bin/` directory.

If you have problems, check that environment variable `ETBLNK` refers to the broker shared library in directory `/<Install_Dir>/EntireX/lib`. If the broker is not active, you get 02150148 “EntireX Broker not active”.

bcoc Parameters

Parameter	Description	ACI Field
-a locale	locale_string,environment	LOCALE-STRING, ENVIRONMENT
-bbroker_id	Broker ID (same as the database ID). This is an EntireX Broker configuration parameter. Example: bcoc -bETB045	BROKER-ID
-cclass	Server class (part of the server definition). Default is ACLASS. Value must be configured in the <i>Broker Attributes</i> . Together with server and service it forms the fully qualified server name.	SERVER-CLASS
-ginput_file_name	Use a file as send buffer.	
-h	Display usage information.	
-inum_messages[,num_uows]	If num_uows is not specified, the number of messages sent. If num_uows is specified, the number of UOWs and messages therein sent. Example: bcoc -i10	
-jreply_error	Test REPLY-ERROR.	
-kconversation_flag	Using conversational mode.	
-l	Silent mode. Suppress output.	
-ntoken	Specify the security token, if desired.	TOKEN
-pmessage_size	The size, in bytes, of the packets that will be transmitted. Used to specify send and receive length in the broker API. Example: bcoc -p10000	
-rcompress	Compression level. Values: N Y 0-9.	COMPRESSLEVEL
-sserver	Name of server. Default is ASERVER. Value must be configured in <i>Broker Attributes</i> . Together with class and service it forms the fully qualified server name.	SERVER-NAME
-twait_time	Set the wait time.	WAIT
-uuser_id	User ID. With a secure broker, this will be used to perform authentication.	USER-ID
-vservice	Name of service (part of the server definition). The default is ASERVICE. Value must be configured in <i>Broker Attributes</i> . Together with class and server it forms the fully qualified server name.	SERVER-NAME
-wpassword	Password. With a secure broker, this will be used to perform authentication.	PASSWORD
-xssl_parms	SSL parameters. For example: -x"TRUST_STORE=../ExxCACert.pem&VERIFY_SERVER=NO" See also <i>SSL/TLS Parameters for SSL Clients</i> .	
-ysleep_time	Delay between messages in seconds.	
-zstore[uwstatp[,uowtime]]	Test unit of work.	

Parameter	Description	ACI Field
-1..12	By default, if omitted, the highest possible API version is used. Note that if you specify the API version, certain features might depend on a minimum API version.	API-VERSION

bcos Parameters

Most `bcoc` parameters apply to `bcos`, too. The following table lists additional parameters or parameters that have a different meaning.

Parameter	Description	ACI Field
<code>-goutput-file-name</code>	Name of output file for receive buffer (if not running in silent mode).	
<code>-inum_messages[, num_uows]</code>	If <code>num_uows</code> is not specified, the number of messages accepted. If <code>num_uows</code> is specified, the number of UOWs and messages therein that are accepted before deregistration. Example: <code>bcos -i10</code>	
<code>-iunit_of_work_flag</code>	Test unit of work.	

Environment Variables

This section describes the environment variables required for EntireX.

➤ To check the definitions of the environment variables

- Enter the command `printenv`.

If the definitions are not correct, set them as described.

Environment Variable	Description
<code>EXXDIR</code>	This is the top level directory. It is set during the installation procedure.
<code>PATH</code>	This points to the directories <code>/<Install_Dir>/EntireX/examples/bin</code> and <code>/<Install_Dir>/EntireX/bin</code> .
<code>CLASSPATH</code>	This points to the current directory and to <code>/<Install_Dir>/EntireX/classes/entirex.jar</code> , which contains the class libraries and package for EntireX Java ACI, Java Wrapper, XML/SOAP Wrapper and EntireX Broker Agents.
<code>LD_LIBRARY_PATH (Linux)</code>	This points to the directory <code>/<Install_Dir>/EntireX/lib</code> and <code>/<Install_Dir>/EntireX/examples/lib</code> to load the shared library at runtime.

Setting up EntireX Security under Linux

- [Setting up EntireX Security for Broker Kernel](#)
- [Setting up EntireX Security for Broker Stubs](#)



Note: You must set up EntireX Security for broker kernel and - if your application(s) use API version 7 or below - also for broker stubs.

Setting up EntireX Security for Broker Kernel

➤ To set up EntireX Security for broker kernel under Linux

- 1 Determine that all prerequisites for EntireX components have been met before setting up EntireX Security. See *Linux Prerequisites*.
- 2 Insert the following statement into the broker-specific section of the attribute file. See *Broker-specific Attributes*.

```
SECURITY=YES
```

- 3 Modify the security-specific section of the broker attribute file according to your requirements. See *Security-specific Attributes*. These parameters are used to determine whether you will use Linux local security or LDAP-based authentication.




Note: If you are using LDAP-based authentication, define your authorization rules in LDAP and reference these with Security-specific attribute `LDAP-AUTHORIZATION-RULE`.



Note: Linux authentication utilizes the `/etc/passwd` and `/etc/shadow` files. Functions used are: `getspnam()` and/or `getpwnam()`. These functions usually do not return the encrypted password to ordinary processes; therefore, USRSEC employs a daemon process to perform these functions.

The daemon process (`sagssxauthd2`) must be owned by the “root” user (usually `uid = 0`) and have the `setuid` flag enabled. This process will automatically be started at the first authentication request and terminated when the kernel is shut down. In addition if `sagssxauthd2` is terminated while the Broker kernel is running, a new `sagssxauthd2` will be started automatically, if required.

Setting up EntireX Security for Broker Stubs

-  **Note:** If you are running your application(s) at ACI version 7 or below, the following steps are required to install EntireX Security for the Broker stubs in all environments where applications execute either as clients or servers. See *Platform Coverage* for where EntireX Security for broker stubs is supported.
- These steps are not required if you are running your application(s) at ACI version 8 or above.

> To install EntireX Security for broker stubs on Linux

- Copy the module `secuexit.s[o|l]` (depending on platform) from the directory `/<Install_Dir>/EntireX/examples/lib` to the directory `/<Install_Dir>/EntireX/lib`.

 **Notes:**

1. *Secuexit.dll* is needed for backward compatibility if your applications issue any commands using ACI version 7 or below. Applications using ACI version 8 do not require this additional component in the stub.
2. For encrypted transport we strongly recommend using the Secure Sockets Layer/Transport Layer Security protocol. See *SSL/TLS, HTTP(S), and Certificates with EntireX* in the platform-independent Administration documentation.

-  **Caution:** If stub tracing level is > 1 , unencrypted contents of the send/receive buffers are exposed in the trace.

Installation of EntireX Security for Broker stubs is now complete. Now you can install the security components for the Broker stubs on the remaining operating systems where your application components are located.

EntireX Mini Runtime Considerations

The EntireX Mini Runtime is a set of components that can be used for the deployment of applications using the Broker ACI, the Broker RPC, and - under Windows only - DCOM Wrapper objects and the Broker ActiveX Control. Unlike the full EntireX Runtime, the Mini Runtime does not include Java capabilities. The EntireX Mini Runtime is provided as a separate package in the Software AG Installer.

If you need the EntireX Mini Runtime with your application, you may have to extend the path variable `LD_LIBRARY_PATH` to `<inst_root>/EntireX/lib` before starting your application.

Enabling SSL and Authentication for JMX

To enable SSL and Authentication for JMX, see *Enabling SSL and Authentication for JMX* under *Setting up Broker Instances* in the Linux Administration documentation.

