



# **TIBCO EBX®**

## **Installation Guide**

*Version 6.1.0*  
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# Table of contents

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|   |    |
|---|----|
| 1. Supported environments.....  | 6  |
| 2. Java EE deployment.....  | 13 |
| 3. Installation note for JBoss EAP 7.4.x.....                           | 23 |
| 4. Installation note for WebSphere Application Server Liberty 23.x..... | 29 |
| 5. Installation note for Tomcat 9.x.....                                | 35 |
| 6. Installation note for WebLogic 14c.....                              | 41 |
| 7. TIBCO EBX main configuration file.....                               | 47 |
| 8. Initialization and first-launch assistant.....                       | 69 |
| 9. Deploying and registering TIBCO EBX add-ons.....                     | 71 |

## CHAPTER 1

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# Supported environments

This chapter contains the following topics:

1. [Browsing environment](#)
2. [Supported application servers](#)
3. [Supported databases](#)

## 1.1 Browsing environment

### ***Supported web browsers***

The TIBCO EBX web interface supports the following browsers:

|  |   |
|--|---|
| <b>Microsoft Edge Chromium</b>               | As Microsoft Edge Chromium is updated frequently and it is not possible to deactivate automatic updates, Cloud Software Group, Inc. only tests and makes the best effort to support the latest version available. |
| <b>Mozilla Firefox ESR 102 (see details)</b> | As Mozilla Firefox is updated frequently, Cloud Software Group, Inc. only fully supports version ESR 102. See <a href="#">Mozilla Firefox ESR</a> for more details.   |
| <b>Google Chrome</b>                         | As Google Chrome is updated frequently and it is not possible to deactivate automatic updates, Cloud Software Group, Inc. only tests and makes the best effort to support the latest version available.           |

### ***Screen resolution***

The minimum screen resolution for EBX is 1024x768.

### ***Refreshing pages***

Browser page refresh is not supported by EBX. When a page refresh is performed, the last user action is re-executed, and therefore could cause issues. It is thus imperative to use the action buttons and links offered by EBX instead of refreshing the page.

## ***'Previous' and 'Next' buttons***

The 'previous' and 'next' buttons of the browser are not supported by EBX. When navigating through page history, an obsolete user action is re-executed, and therefore could cause issues. It is thus imperative to use the action buttons and links offered by EBX rather than the browser buttons.

## ***Zoom troubleshooting***

Zooming in or out may cause some minor display issues (for example extra scrollbar or misalignment). Those issues can be fixed by refreshing the screen using the provided navigation links.

## ***Browser configuration***

The following features must be activated in the browser configuration, for the user interface to work properly:

- JavaScript
- Ajax
- Pop-ups

### **Attention**

Avoid using any browser extensions or plug-ins, as they could interfere with the proper functioning of EBX.

## ***Limitations***

Some browsers may have a limitation on the number of iframes that can be embedded. If this is the case, it limits to the number of items that can be pushed in the breadcrumb. Please check the browser documentation for more details.

# **1.2 Supported application servers**

EBX supports the following configurations:

- Java Runtime Environment: JRE 11 or 17.

Note: We advise to upgrade the runtime to a recent LTS version, to take advantage of the performance improvements it offers.

- Any Servlet/JSP container that complies with Servlet 3.0 (inclusive) up to 5.0 (exclusive): for example Tomcat 7.0 (inclusive) up to 10.0 (exclusive). Any Java Application Server supporting Java SE 11 and not using Jakarta EE 9 or greater: for example WebSphere Liberty 20 or higher for Java EE 8, WebLogic Application Server 14c or higher, JBoss EAP 7.4 or higher. See [Java EE deployment overview](#) [p 21].
- The application server must support the JSON Processing 1.1 ([JSR 374](#)), or allow the uses of the implementation embedded in the `ebx.jar` library. For example, Tomcat does not provide any library to support this specification (only the embedded one can be used), WebLogic Application Server 14c or higher supports this specification, WebSphere Application Server Liberty and JBoss EAP allow including or excluding the available libraries.

- The application server must use UTF-8 encoding for HTTP query strings from EBX. This can be set at the application server level.

For example, on Tomcat, you can set the server to always use the UTF-8 encoding, by setting `URIEncoding` to 'UTF-8' on the `<Connector>` in the `server.xml` configuration file. Alternatively, you can instruct the server to use the encoding of the request body by setting the parameter `useBodyEncodingForURI` to 'true' in `server.xml`.

#### Attention

- Limitations apply regarding clustering and hot deployment/undeployment:

Clustering: EBX does not include a cache synchronization mechanism, thus it cannot be deployed into a cluster of active instances. See *Technical architecture* for more information.

Hot deployment/undeployment: EBX does not support hot deployment/undeployment of web applications registered as EBX modules, or of EBX built-in web applications.



## 1.3 Supported databases

The EBX repository supports the relational database management systems listed below, with the suitable JDBC drivers. It is important to follow the database vendor recommendations and update policies regarding the database itself, as well as the JDBC driver.

|   |  |
|---|--|
| <b>Oracle Database 19c or higher.</b>   | <p>The distinction of null values bears certain limitations. On simple <code>xs:string</code> elements, Oracle does not support the distinction between empty strings and null values. See <i>Empty string management</i> for more information.</p> <p>The user with which EBX connects to the database requires the following privileges:</p> <ul style="list-style-type: none"> <li>• CREATE SESSION,</li> <li>• CREATE TABLE,</li> <li>• ALTER SESSION,</li> <li>• CREATE SEQUENCE,</li> <li>• A non-null quota on its default tablespace.</li> </ul> |
| <b>PostgreSQL 11 or higher.</b>   | <p>The user with which EBX connects to the database needs the CONNECT privilege on the database hosting the EBX repository. Other than this, the default privileges on the public schema of this database are suitable.</p> <p>Also, see this <i>limitation</i> regarding the evolution of datamodels in mapped modes.</p>   |
| <b>Amazon Aurora PostgreSQL 11.16 (compatible with PostgreSQL 11.16 or higher).</b> | The comments in the above section for PostgreSQL apply.  |
| <b>Google Cloud SQL for PostgreSQL 11 or higher.</b>                                | The comments in the above section for PostgreSQL apply.  |
| <b>SAP HANA Database 2.0 or Higher.</b>   | <p>When using SAP HANA Database as the underlying database, certain schema evolutions are not supported. It is, for example, impossible to reduce the length of a column; this is a limitation of HANA, as mentioned in the SQL reference guide: "For row table, only increasing the size of VARCHAR and NVARCHAR type column is allowed."</p>   |
| <b>Microsoft SQL Server 2014 or higher.</b>   | <p>When used with Microsoft SQL Server, EBX uses the default database collation to compare and sort strings stored in the database. This applies to strings used in the data model definition, as well as data stored in history tables. The default database collation can be specified when the</p>  |

database is created. Otherwise, the collation of the database server is used. To avoid naming conflicts or unexpected behaviors, a case- and accent-sensitive collation must be used as the default database collation (the collation name is suffixed by "CS\_AS" or the collation is binary).

The default setting to enforce transaction isolation on SQL Server follows a pessimistic model. Rows are locked to prevent any read/write concurrent accesses. This may cause liveliness issues for mapped tables (history or relational). To avoid such issues, it is recommended to activate [snapshot isolation](#) on your SQL Server database.

The user with which EBX connects to the database requires the following privileges:

- CONNECT, SELECT and CREATE TABLE on the database hosting the EBX repository,
- ALTER, CONTROL, UPDATE, INSERT, DELETE on its default schema.

---

### **Microsoft Azure SQL Database**

EBX has been qualified on Microsoft Azure SQL Database v12 (12.00.700), and is regularly tested to verify compatibility with the current version of the Azure database service.

When used with Microsoft Azure SQL, EBX uses the default database collation to compare and sort strings stored in the database. This applies to strings used in the data model definition, as well as data stored in history tables. The default database collation can be specified when the database is created. Otherwise, the database engine server collation is used. To avoid naming conflicts or unexpected behaviors, a case- and accent-sensitive collation must be used as the default database collation (the collation name is suffixed by "CS\_AS" or the collation is binary).

The user with which EBX connects to the database requires the following privileges:

- CONNECT, SELECT and CREATE TABLE on the database hosting the EBX repository,
- ALTER, CONTROL, UPDATE, INSERT, DELETE on its default schema.

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### **H2 2.1.212 or higher.**

H2 is not supported for production environments.

The default H2 database settings do not allow consistent reads when records are modified.

---

For other relational databases, please contact the Support team at <https://support.tibco.com>.

**Attention**

In order to guarantee the integrity of the EBX repository, it is strictly forbidden to perform direct modifications to the database (for example, using direct SQL writes).

**See also**

*Repository administration*

[\*Data source of the EBX repository\*](#) [p 19]

[\*Configuring the EBX repository\*](#) [p 49]



## CHAPTER 2

# Java EE deployment

This chapter contains the following topics:

1. [Introduction](#)
2. [Software components](#)
3. [Embedded third-party libraries](#)
4. [Required third-party libraries](#)
5. [Web applications](#)
6. [Deployment details](#)
7. [Installation notes](#)

## 2.1 Introduction

This chapter details deployment specifications for TIBCO EBX on a Java application server. For specific information regarding supported application servers and inherent limitations, see [Supported environments](#). [p 6]

## 2.2 Software components

EBX uses the following components:

- Library `ebx.jar`
- [Embedded](#) [p 14] and [required](#) [p 14] third-party Java libraries
- [EBX built-in web applications](#) [p 17] and optional [custom web applications](#) [p 17]
- [EBX main configuration file](#) [p 47]
- *EBX repository*
- *Default user and roles directory*, integrated within the EBX repository, or a third-party system (LDAP, RDBMS) for the user authentication

See also [Supported environments](#) [p 6]

## 2.3 Embedded third-party libraries

To increase EBX independence and interoperability, it embeds its own third-party libraries. Even if some of them have been modified, preventing conflicts, others must remain unchanged since they are official Java APIs.

The ones that can produce conflicts are:

- Apache Geronimo JSON
- Apache Log4j 2 API
- ArcGIS API for JavaScript
- Javax Activation
- Javax Annotations
- Javax JSON Binding
- Javax SAAJ API
- Javax WS RS
- Javax XML Bind
- LZ4 compression for Java
- MicroProfile OpenAPI
- Simple Logging Facade for Java (SLF4J) API

For more information regarding the versions or the details of the Third-Party Library, please refer to the: `TIB_ebx_6.1.0_license.pdf`.

Since those libraries are already integrated, custom web applications should not include them anew, otherwise linkage errors can occur. Furthermore, they should not be deployed aside from the `ebx.jar` library for the same reasons.

## 2.4 Required third-party libraries

EBX requires several third-party Java libraries. These libraries must be deployed and be accessible from the class-loader of `ebx.jar`. Depending on the application server and the Java runtime environment being used, these libraries may already be present or may need to be added manually.

### ***Data compression library***

The library named `ebx-lz4.jar` must be deployed separately from `ebx.jar`. It contains several compression implementations: JNI dedicated architecture libraries and Java fallbacks. It is possible to ensure optimal compression and decompression performance for EBX repository by following prerequisites. If prerequisites can not be validated, EBX will function in Java fallbacks safe or unsafe, but its performance will be degraded. The default location for `ebx-lz4.jar` library is beside `ebx.jar`.

To verify the compression implementation actually used by the EBX repository, please check the value of 'Compression' in 'Administration > System Information', section 'Repository information'. It should be 'JNI - validated' for optimal performance. Otherwise, it will be 'Java[Safe|Unsafe] - validated' for Java fallbacks.

## Performance prerequisites

The JNI access is allowed to the following operating system architectures: i386, x86, amd64, x86\_64, aarch64 or ppc64le. To verify this value, please check the value of 'Operating system architecture' in 'Administration > System Information', section 'System information'.

To enable JNI access for `ebx-1z4.jar`, the library should be loaded by the **system class loader** (also known as the application class loader). The deployment may be done by following the [specific instructions for your application server](#) [p 21].

## Database drivers

The EBX repository requires a database. Generally, the required driver is configured along with a data source, if one is used. Depending on the database defined in the main configuration file, one of the following drivers is required. Keep in mind that, whichever database you use, the version of the JDBC client driver must be equal to or higher than the version of the database server.

|                        |  |
|------------------------|--|
| <b>H2</b>              | <p>Version 2.1.212 validated. Note that H2 is not supported in production environments.</p> <p><a href="https://www.h2database.com/">https://www.h2database.com/</a></p> <p>If the H2 repository has been built with version 1.0 driver, this <a href="#">migration to v2 process</a> must be applied.</p>   |
| <b>Oracle JDBC</b>     | <p>Oracle database 21c is validated on their latest patch set update.</p> <p>Determine the driver that should be used according to the database server version and the Java runtime environment version. Download the <code>ojdbc8.jar</code> certified library with JDK 8.</p> <p><a href="#">Oracle database JDBC drivers download.</a></p>  |
| <b>SQL Server JDBC</b> | <p>SQL Server 2012 SP4 and greater, with all corrective and maintenance patches applied, are validated.</p> <p>Remember to use an up-to-date JDBC driver, as some difficulties have been encountered with older versions.</p> <p>Include the <code>mssql-jdbc-8.4.1.jre8.jar</code> or <code>mssql-jdbc-8.4.1.jre11.jar</code> library, depending on the Java runtime environment version you use.</p> <p><a href="#">Download Microsoft JDBC Driver 8.4.1 for SQL Server (zip).</a></p> |
| <b>PostgreSQL</b>      | <p>PostgreSQL 10 and above validated</p> <p>Include the latest JDBC driver version 4.2 released for your database server and Java runtime environment.</p> <p><a href="#">PostgreSQL JDBC drivers download.</a></p>  |

See also

[Data source of the EBX repository](#) [p 19]

[Configuring the EBX repository](#) [p 49]

## SMTP and emails

According to the web application server being used, the library JavaMail API for email management may already be provided, or must be added manually.

EBX requires a library that is compatible with version 1.5.6 of this API. See [Activating and configuring SMTP and emails](#) [p 55] for more information on the configuration.

To facilitate manual installation, the `javax.mail-1.5.6.jar` has been provided and placed under the `ebx.software/lib/lib-mail` directory.

See also [JavaMail](#)

## Secure Socket Layer (SSL)

These libraries are required if your web applications use SSL features.

- `jsse.jar`: <https://www.oracle.com/java/technologies/jsse-v103-for-cdc-v102.html>
- `ibmjse.jar`: <https://www.ibm.com/developerworks/java/jdk/security/>

See also [TIBCO EBX main configuration file](#) [p 47]

## Java Message Service (JMS)

When using JMS, version 1.1 or higher is required.

Depending on whether a Java EE application server or a Servlet/Java Server Pages (JSP) implementation is being used, the library required is as follows:

- For an application server based on Java EE (Java Platform Enterprise Edition), the required JMS provider library is available by default. See <https://www.oracle.com/java/technologies/java-ee-glance.html> for more information.
- For a Servlet/Java Server Pages (JSP) implementation using Java SE (Java Platform Standard Edition), for example Apache Tomcat, a JMS provider library such as [Apache ActiveMQ](#) may need to be added. See <https://www.oracle.com/java/technologies/java-se-glance.html> for more information.

### Note

In EBX, the supported JMS model is exclusively Point-to-Point (PTP). PTP systems allow working with queues of messages.

See also [TIBCO EBX main configuration file](#) [p 47]

## 2.5 Web applications

EBX provides pre-packaged EARs that can be deployed directly if your company has no custom EBX module web applications to add. If deploying custom web applications as EBX modules, it is



recommended to rebuild an EAR containing the custom modules packaged at the same level as the built-in web applications.

### Attention

Web application deployment on / path context is no more supported. The path context must not be empty nor equals to /. Moreover, web applications deployment on paths of different depth is deprecated. Every web application path context must be set on the same path depth.

For more information, see the note on [repackaging the EBX EAR](#) [p 22] at the end of this chapter.

## EBX built-in web applications

EBX includes the following built-in web applications.

| Web application name | Description   | Required |
|----------------------|---|----------|
| ebx                  | EBX entry point, which handles the initialization on start up. See <a href="#">Deployment details</a> [p 18] for more information.  | Yes      |
| ebx-root-1.0         | EBX root web application. Any application that uses EBX requires the root web application to be deployed.   | Yes      |
| ebx-ui               | EBX user interface web application.   | Yes      |
| ebx-manager          | EBX user interface web application.   | Yes      |
| ebx-dma              | EBX data model assistant, which helps with the creation of data models through the user interface.<br><b>Note:</b> The data model assistant requires the ebx-manager user interface web application to be deployed.   | Yes      |
| ebx-dataservices     | EBX data services web application. Data services allow external interactions with the EBX repository using the <i>SOAP operations</i> and Web Services Description Language <i>WSDL generation</i> standards or using the <i>Built-in RESTful services</i> .<br><b>Note:</b> The EBX web service generator requires the deployment of the ebx-manager user interface web application. | Yes      |

## Custom web applications

It is possible to extend and customize the behavior of EBX by deploying custom web applications which conform to the EBX module requirements.

### See also

*Packaging TIBCO EBX modules*

[Declaring modules as undeployed](#) [p 64]

## 2.6 Deployment details

### Introduction

This section describes the various options available to deploy the 'ebx' web application. These options are available in its deployment descriptor (`WEB-INF/web.xml`) and are complemented by the properties defined in the main configuration file.

#### Attention

For JBoss application servers, any unused resources must be removed from the `WEB-INF/web.xml` deployment descriptor.

#### See also

[TIBCO EBX main configuration file](#) [p 47]

[Supported application servers](#) [p 7]

### User interface and web access

The web application 'ebx' (packaged as `ebx.war`) contains the servlet `FrontServlet`, which handles the initialization and serves as the sole user interface entry point for the EBX web tools.

### Configuring the deployment descriptor for 'FrontServlet'

In the file `WEB-INF/web.xml` of the web application 'ebx', the following elements must be configured for `FrontServlet`:

|   |   |
|---|---|
| <code>/web-app/servlet/load-on-startup</code>     | To ensure that <code>FrontServlet</code> initializes upon EBX start up, the <code>web.xml</code> deployment descriptor must specify the element <code>&lt;load-on-startup&gt;1&lt;/load-on-startup&gt;</code> . |
| <code>/web-app/servlet-mapping/url-pattern</code> | <code>FrontServlet</code> must be mapped to the path <code>'/'</code> .   |

### Configuring the application server for 'FrontServlet'

- `FrontServlet` must be authorized to access other contexts, such as `ServletContext`.

For example, on Tomcat, this configuration is performed using the attribute `crossContext` in the configuration file `server.xml`, as follows:

```
<Context path="/ebx" docBase="(...)" crossContext="true"/>
```

- When several EBX Web Components are to be displayed on the same HTML page, for instance using iFrames, it may be required to disable the management of cookies due to limitations present in some Internet browsers.

For example, on Tomcat, this configuration is provided by the attribute `cookies` in the configuration file `server.xml`, as follows:

```
<Context path="/ebx" docBase="(...)" cookies="false"/>
```

## Data source of the EBX repository

### Note

If the EBX main configuration specifies the property `ebx.persistence.url`, then the environment entry below will be ignored by EBX runtime. This option is only provided for convenience; it is always recommended to use a fully-configurable datasource. In particular, the size of the connection pool must be set according to the number of concurrent users. See [Configuring the EBX repository](#) [p 49] for more information on this property.

The JDBC datasource for EBX is specified in the deployment descriptor `WEB-INF/web.xml` of the 'ebx' web application as follows:

| Reserved resource name           | Default JNDI name   | Description  |
|----------------------------------|---|--|
| <code>jdbc/EBX_REPOSITORY</code> | Weblogic: <code>EBX_REPOSITORY</code><br>JBoss: <code>java:/EBX_REPOSITORY</code> | JDBC data source for EBX Repository.<br>Java type: <code>javax.sql.DataSource</code> |

### See also

[Configuring the EBX repository](#) [p 49]

*Rules for the database access and user privileges*

## Mail sessions

### Note

If the EBX main configuration does not set `ebx.mail.activate` to 'true', or if it specifies the property `ebx.mail.smtp.host`, then the environment entry below will be ignored by EBX runtime. See [SMTP](#) [p 55] in the EBX main configuration properties for more information on these properties.

SMTP and email is declared in the deployment descriptor `WEB-INF/web.xml` of the 'ebx' web application as follows:

| Reserved resource name             | Default JNDI name   | Description   |
|------------------------------------|---|---|
| <code>mail/EBX_MAIL_SESSION</code> | Weblogic: <code>EBX_MAIL_SESSION</code><br>JBoss: <code>java:/EBX_MAIL_SESSION</code> | Java Mail session used to send emails from EBX.<br>Java type: <code>javax.mail.Session</code> |

## JMS connection factory

### Note

If the EBX main configuration does not activate JMS through the property `ebx.jms.activate`, the environment entry below will be ignored by the EBX runtime. See [JMS](#) [p 56] in the EBX main configuration properties for more information on this property.

The JMS connection factory is declared in the deployment descriptor `WEB-INF/web.xml` of the 'ebx' web application as follows:

| Reserved resource name       | Default JNDI name  | Description  | Required |
|------------------------------|--|--|----------|
| jms/EBX_JMSConnectionFactory | Weblogic:<br>EBX_JMSConnectionFactory<br><br>JBoss: java:/<br>EBX_JMSConnectionFactory | JMS connection factory used by EBX to create connections with the JMS provider configured in the operational environment of the application server.<br><br>Java type:<br>javax.jms.ConnectionFactory | Yes      |

### Note

For deployment on WildFly, JBoss and WebLogic application servers with JNDI capabilities, you must update `EBX.ear` or `EBXForWebLogic.ear` for additional mappings of all required resource names to JNDI names.

## JMS for data services

To configure data services to use JMS instead of the default HTTP, you must configure the [JMS connection factory](#) [p 20] and the following queues, declared in the `WEB-INF/web.xml` deployment descriptor of the 'ebx' web application. This is the only method for configuring JMS for data services.

When a SOAP request is received, the SOAP response is optionally returned if the header field `JMSReplyTo` is defined. If so, the fields `JMSCorrelationID` and `JMSType` are retained.

See [JMS](#) [p 56] for more information on the associated EBX main configuration properties.

#### Note

If the EBX main configuration does not activate JMS through the property `ebx.jms.activate`, then the environment entries below will be ignored by EBX runtime. See [JMS](#) [p 56] in the EBX main configuration properties for more information on this property.

| Reserved resource name            | Default JNDI name   | Description  | Required |
|-----------------------------------|---|--|----------|
| <code>jms/EBX_QueueIn</code>      | Weblogic: <code>EBX_QueueIn</code><br>JBoss: <code>java:/jms/EBX_QueueIn</code>           | JMS queue for incoming SOAP requests sent to EBX by other applications.<br>Java type: <code>javax.jms.Queue</code>   | No       |
| <code>jms/EBX_QueueFailure</code> | Weblogic: <code>EBX_QueueFailure</code><br>JBoss: <code>java:/jms/EBX_QueueFailure</code> | JMS queue for failures. It contains incoming SOAP requests for which an error has occurred. This allows replaying these messages if necessary.<br>Java type: <code>javax.jms.Queue</code><br><b>Note:</b> For this property to be read, the main configuration must also activate the queue for failures through the property <code>ebx.jms.activate.queueFailure</code> . See <a href="#">JMS</a> [p 56] in the EBX main configuration properties for more information on these properties. | No       |

## JAR files scanner

To speed up the web applications server startup, the JAR files scanner configuration should be modified to exclude, at least, the `ebx.jar` and `ebx-addons.jar` libraries.

For example, on Tomcat, this should be performed in the `tomcat.util.scan.DefaultJarScanner.jarsToSkip` property from the `catalina.properties` file.

## 2.7 Installation notes

EBX can be deployed on any Java EE or Jakarta EE 8 application server that supports Servlet 3.0 up to 5.0 except. The following documentation on deployment and installation notes are available:

- [Installation note for JBoss EAP 7.4.x](#) [p 23]
- [Installation note for WebSphere Application Server Liberty 23.x](#) [p 29]
- [Installation note for Tomcat 9.x](#) [p 35]

- [Installation note for WebLogic 14c](#) [p 41]

### Attention

- The EBX installation notes on Java EE or Jakarta EE 8 application servers do not replace the native documentation for each application server.
- These are *not* general installation recommendations, as the installation process is determined by architectural decisions, such as the technical environment, application mutualization, delivery process, and organizational decisions.
- In these examples, no additional EBX modules are deployed. To deploy custom or add-on modules, the best practice is to rebuild an EAR with the module as a web application at the same level as the other EBX modules. The web application must declare its class path dependency as specified by the Java™ 2 Platform Enterprise Edition Specification, v1.4:

#### **J2EE.8.2 Optional Package Support**

(...)

*A JAR format file (such as a JAR file, WAR file, or RAR file) can reference a JAR file by naming the referenced JAR file in a Class-Path header in the Manifest file of the referencing JAR file. The referenced JAR file is named using a URL relative to the URL of the referencing JAR file. The Manifest file is named META-INF/MANIFEST.MF in the JAR file. The Class-Path entry in the Manifest file is of the form:*

*Class-Path: list-of-jar-files-separated-by-spaces*

In an "industrialized" process, it is strongly recommended to develop a script that automatically builds the EAR, with the custom EBX modules, the EBX web applications, as well as all the required shared libraries.

- In order to avoid unpredictable behavior, the guideline to follow is to avoid any duplicates of `ebx.jar` or other libraries in the class-loading system.
- In case of deployment on Oracle WebLogic server, please refer to the *Module structure* section.

## CHAPTER 3

# Installation note for JBoss EAP 7.4.x

This chapter contains the following topics:

1. [Overview](#)
2. [Requirements](#)
3. [JBoss Application Server installation](#)
4. [EBX home directory configuration](#)
5. [JBoss Application Server and Java Virtual Machine configuration](#)
6. [JNDI entries configuration](#)
7. [Data source and JDBC provider configuration](#)
8. [EBX.ear application update](#)
9. [EBX.ear application deployment](#)
10. [EBX application start](#)

## 3.1 Overview

### Attention

- This chapter describes a *quick installation example* of TIBCO EBX on JBoss Application Server.
- It does not replace the [documentation](#) of this application server.
- They are *not* general installation recommendations, as the installation process is determined by architectural decisions, such as the technical environment, application mutualization, delivery process, and organizational decisions.
- The complete description of the components needed by EBX is given in chapter [Java EE deployment](#) [p 13].
- To avoid unpredictable behavior, the guideline to follow is to avoid any duplicates of `ebx.jar`, `ebx-1z4.jar` or other libraries in the class-loading system.

## 3.2 Requirements

- Java SE 11 or 17 ([update 7 and above](#))

- JBoss Application Server EAP 7.4
- Database and JDBC driver
- EBX CD
- No CDI features in EBX's additional modules (since CDI will be automatically disabled)

See also [Supported environments](#) [p 6]

## 3.3 JBoss Application Server installation

*This quick installation example is performed for an unix operating system.*

1. Download JBoss EAP 7.4.0 Installer jar version from:  
<https://developers.redhat.com/products/eap/download/>
2. Run the Installer using `java -jar` command line.  
For further installation details, refer to the [documentation](#).
3. Perform a standard installation:
  1. Select the language and click 'OK',
  2. Accept the License and click 'Next',
  3. Choose the installation path and click 'Next',
  4. Keep the 'Component Selection' as it is and click 'Next',
  5. Enter 'Admin username', 'Admin password' and click 'Next',
  6. On 'Installation Overview' click 'Next',
  7. On 'Component Installation' click 'Next',
  8. On 'Configure Runtime Environment' leave the selection as it is and click 'Next',
  9. When 'Processing finished' appear, click 'Next',
  10. Uncheck 'Create shortcuts in the start menu' and click 'Next',
  11. Generate 'installation script and properties file' in the JBoss EAP 7.4 installation root directory,
  12. Click 'done'.
4. Download and apply the last update for JBoss EAP 7.4.0, this link requires an authentication:  
<https://access.redhat.com/jbossnetwork/restricted/listSoftware.html?downloadType=patches&product=appplatform&version=7.4>

## 3.4 EBX home directory configuration

1. Create the `EBX_HOME` directory, for example `/opt/ebx/home`.
2. Copy from the `EBX CD`, the `ebx.software/files/ebx.properties` file to `EBX_HOME`. In our example, we will have the following file:  
`/opt/ebx/home/ebx.properties`.



3. If needed, edit the `ebx.properties` file to override the default database. By default the standalone H2 database is defined. The property key `ebx.persistence.factory` must be uncommented for other supported databases and the `h2.standalone` one must be commented.

## 3.5 JBoss Application Server and Java Virtual Machine configuration

1. Open the `standalone.conf` configuration file, placed in `<JBOSS_HOME>/bin` (or `jboss-eap.conf` file placed in `<JBOSS_HOME>/bin/init.d` for running the server as a service).
2. Add 'ebx.properties' and 'ebx.home' properties to the 'JAVA\_OPTS' environment variable respectively set with `ebx.properties` file's path and `EBX_HOME` directory's path.
3. Set the 'JBOSS\_MODULES\_SYSTEM\_PKGS' environment variable like the following:

```
JBOSS_MODULES_SYSTEM_PKGS="org.jboss.byteman,net.jpountz"
```

4. Copy from the *EBX CD*, the [ebx.software/lib/ebx-lz4.jar](#) [p 14] Data compression library to a dedicated directory (for example `<JBOSS_HOME>/compress`).
5. Open the `standalone.sh` script file, placed in `<JBOSS_HOME>/bin`.
6. Create a 'CLASSPATH' environment variable like the following:

```
CLASSPATH="<path_to_the_data_compression_library>:{JBOSS_HOME}/jboss-modules.jar:{CLASSPATH}"

# For our example
# CLASSPATH="{JBOSS_HOME}/compress/ebx-lz4.jar:{JBOSS_HOME}/jboss-modules.jar:{CLASSPATH}"
```

7. Replace the launch command options for foreground and background executions like the following:

```
if [ "x$LAUNCH_JBOSS_IN_BACKGROUND" = "x" ]; then
# Execute the JVM in the foreground
eval \"\$JAVA\" -D\"[Standalone]\" $JAVA_OPTS \
-cp \"$CLASSPATH\" \
\"-Dorg.jboss.boot.log.file=\"$JBOSS_LOG_DIR\"/server.log\" \
\"-Dlogging.configuration=file:\"$JBOSS_CONFIG_DIR\"/logging.properties\" \
org.jboss.modules.Main \
$MODULE_OPTS \
-mp \"\"$JBOSS_MODULEPATH\"\" \
org.jboss.as.standalone \
-Djboss.home.dir=\"\"$JBOSS_HOME\"\" \
-Djboss.server.base.dir=\"\"$JBOSS_BASE_DIR\"\" \
\"$SERVER_OPTS\"
JBOSS_STATUS=$?
else
# Execute the JVM in the background
eval \"\$JAVA\" -D\"[Standalone]\" $JAVA_OPTS \
-cp \"$CLASSPATH\" \
\"-Dorg.jboss.boot.log.file=\"$JBOSS_LOG_DIR\"/server.log\" \
\"-Dlogging.configuration=file:\"$JBOSS_CONFIG_DIR\"/logging.properties\" \
org.jboss.modules.Main \
$MODULE_OPTS \
-mp \"\"$JBOSS_MODULEPATH\"\" \
org.jboss.as.standalone \
-Djboss.home.dir=\"\"$JBOSS_HOME\"\" \
-Djboss.server.base.dir=\"\"$JBOSS_BASE_DIR\"\" \
\"$SERVER_OPTS\" "&
...
fi
```

## 3.6 JNDI entries configuration

1. Open the `standalone-full.xml` file placed in `<JBOSS_HOME>/standalone/configuration`.

2. Add, at least, the following lines to the server tag in messaging-activemq subsystem:

```
<connection-factory
  name="jms/EBX_JMSConnectionFactory"
  entries="java:/EBX_JMSConnectionFactory"
  connectors="To Be Defined"/>
<jms-queue
  name="jms/EBX_D3ReplyQueue"
  entries="java:/jms/EBX_D3ReplyQueue"
  durable="true"/>
<jms-queue
  name="jms/EBX_QueueIn"
  entries="java:/jms/EBX_QueueIn"
  durable="true"/>
<jms-queue
  name="jms/EBX_QueueFailure"
  entries="java:/jms/EBX_QueueFailure"
  durable="true"/>
<jms-queue
  name="jms/EBX_D3MasterQueue"
  entries="java:/jms/EBX_D3MasterQueue"
  durable="true"/>
<jms-queue
  name="jms/EBX_D3ArchiveQueue"
  entries="java:/jms/EBX_D3ArchiveQueue"
  durable="true"/>
<jms-queue
  name="jms/EBX_D3CommunicationQueue"
  entries="java:/jms/EBX_D3CommunicationQueue"
  durable="true"/>
```

*Caution:* the connectors attribute value, from the connection-factory element, has to be defined. Since the kind of connectors is strongly reliant on the environment infrastructure, a default configuration can not be provided.

See [configuring messaging](#) for more information.

3. Add, at least, the following line to mail subsystem:

```
<mail-session name="mail" debug="false" jndi-name="java:/EBX_MAIL_SESSION"/>
```

## 3.7 Data source and JDBC provider configuration

1. After the launch of the JBoss Server, run the management CLI without the use of '--connect' or '-c' argument.
2. Use the 'module add' management CLI command to add the new core module. Sample for PostgreSQL configuration:

```
module add \
  --name=org.postgresql \
  --resources=<PATH_TO_JDBC_JAR> \
  --dependencies=javaee.api, sun.jdk, ibm.jdk, javax.api, javax.transaction.api
```

3. Use the 'connect' management CLI command to connect to the running instance.
4. Register the JDBC driver. When running in a managed domain, ensure to precede the command with '/profile=<PROFILE\_NAME>'. Sample for PostgreSQL configuration:

```
/subsystem=\
datasources/jdbc-driver=\
  postgresql:add(\
    driver-name=postgresql,\
    driver-module-name=org.postgresql,\
    driver-xa-datasource-class-name=org.postgresql.xa.PGXADatasource\
  )
```

5. Define the datasource using the 'data-source add' command, specifying the appropriate argument values. Sample for PostgreSQL configuration:

```
data-source add \
  --name=jdbc/EBX_REPOSITORY \
```

```
--jndi-name=java:/EBX_REPOSITORY \
--driver-name=postgresql \
--connection-url=jdbc:postgresql://<SERVER_NAME>:<PORT>/<DATABASE_NAME> \
--user-name=<PERSISTENCE_USER> \
--password=<PERSISTENCE_PASSWORD>
```

## 3.8 EBX.ear application update

1. Copy from the *EBX CD*, the `ebx.software/webapps/ear-packaging/EBX.ear` file to your working directory.
2. Uncompress the ear archive to add the application's specific required third-party libraries and additional web modules.

Mail: see [SMTP and emails](#) [p 16] for more information.

SSL: see [Secure Socket Layer \(SSL\)](#) [p 16] for more information.

JMS: see [Java Message Service \(JMS\)](#) [p 16] for more information.

3. Update the `/META-INF/application.xml` and `/META-INF/jboss-deployment-structure.xml` files according to the added additional web modules.
4. Compress anew the ear archive.

## 3.9 EBX.ear application deployment

1. Copy `EBX.ear` into the `JBOSS_HOME/standalone/deployments` directory.

## 3.10 EBX application start

1. After the launch of the JBoss Application Server, with the `<JBOSS_HOME>/bin/standalone.sh -c standalone-full.xml` command line or through the service command, run the EBX web application by entering the following URL in the browser: <http://localhost:8080/ebx/>.
2. At first launch, [EBX Wizard](#) [p 69] helps to configure the default properties of the initial repository.



## CHAPTER 4

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# Installation note for WebSphere Application Server Liberty 23.x

This chapter contains the following topics:

1. [Overview](#)
2. [Requirements](#)
3. [WebSphere Application Server Liberty installation](#)
4. [EBX home directory configuration](#)
5. [EBX and third-party libraries deployment](#)
6. [JNDI entries configuration](#)
7. [Data source and JDBC provider configuration](#)
8. [Java Virtual Machine configuration](#)
9. [EBX application deployment](#)
10. [EBX application start](#)

## 4.1 Overview

### Attention

- This chapter describes a *quick installation example* of TIBCO EBX on WebSphere Application Server Liberty.
- It does not replace the [documentation](#) of this application server.
- They are *not* general installation recommendations, as the installation process is determined by architectural decisions, such as the technical environment, application mutualization, delivery process, and organizational decisions.
- The complete description of the components needed by EBX is given in the chapter [Java EE deployment](#) [p 13].
- To avoid unpredictable behavior, the guideline to follow is to avoid any duplicates of `ebx.jar`, `ebx-lz4.jar`, or other libraries in the class-loading system.
- The description below uses the variable name `<WLP_HOME>` to refer to the WebSphere Application Server Liberty installation directory, and from which relative paths are resolved.

## 4.2 Requirements

- Java SE 11 or higher. It's recommended to use [IBM Semeru](#) or [Eclipse Adoptium](#) Java distributions.
- WebSphere Application Server Liberty 23.x for Java EE 8
- Database and JDBC driver
- EBX CD
- No CDI features in EBX's additional modules (since CDI will be automatically disabled)

See also [Supported environments](#) [p 6]

## 4.3 WebSphere Application Server Liberty installation

*This quick installation example is performed for a Linux operating system.*

1. Download WebSphere Application Server Liberty 23.x latest version (zip distribution) from: <https://www.ibm.com/support/pages/23001-websphere-application-server-liberty-23001>.

The following example uses *Liberty with Java EE 8 Web Profile* zip distribution.

2. Extract the content of this package to a directory on your local machine.
3. Create a new application server (example: 'ebxServer') by running the command:

```
<WLP_HOME>/wlp/bin/server create ebxServer
```

4. Edit `<WLP_HOME>/usr/servers/<SERVER_NAME>/server.xml` file. In our example, `<SERVER_NAME>` is 'ebxServer'.

- Replace the `<feature>webProfile-8.0</feature>` tag with the following lines:

```
<feature>javaMail-1.5</feature>
```

```
<feature>jdbc-4.2</feature>
<feature>jndi-1.0</feature>
<feature>servlet-4.0</feature>
```

- Add the following line into the `<server>` tag:

```
<webContainer deferServletLoad="false" allowQueryParamWithNoEqual="true"/>
```

#### Note

The `deferServletLoad` attribute must be set to `false` since EBX requires servlets to be initialized on application server startup. By default, WebSphere Application Server Liberty defers servlets loading until a request is received for the associated web application. See [Specifying when servlets are loaded and initialized](#) for more information.

#### Note

The `allowQueryParamWithNoEqual` attribute must be set to `true` since, according to the Servlet API specification, a value of a request parameter must be returned as a `String`, or `null` if the parameter does not exist. Thus, EBX expects a non `null` value for an existing request parameter.

## 4.4 EBX home directory configuration

1. Create the *EBX\_HOME* directory, for example `/opt/ebx/home`.
2. Copy from the *EBX CD*, the `ebx.software/files/ebx.properties` file to *EBX\_HOME*. In our example, we will have the following file:  
`/opt/ebx/home/ebx.properties`.
3. If needed, edit the `ebx.properties` file to override the default database. By default the standalone H2 database is defined. The property key `ebx.persistence.factory` must be uncommented for other supported databases and the `h2.standalone` one must be commented.

## 4.5 EBX and third-party libraries deployment

1. Create the *EBX\_LIB* directory. For example, `/opt/ebx/home/lib`.
2. Copy third-party libraries from the *EBX CD*, or from other sources, to the *EBX\_LIB* directory. In our example and for a PostgreSQL database, we will get:

`postgresql-X.X.X-driver.jar`, coming from another source than the *EBX CD*.

`ebx-lz4.jar`, coming from the `ebx.software/lib/` directory of the *EBX CD*.

The complete description of these components is given in the chapter [Java EE deployment](#) [p 13]. If those components are already deployed on the class-loading system, they do not have to be duplicated (ex: `javax.mail 1.5.x` is already present since `javaMail-1.5` feature has been activated for this server).

## 4.6 JNDI entries configuration

1. For *JMS* configuration on WebSphere Application Server Liberty, see [Configuring JMS connection factories](#).

2. For *JavaMail* configuration on WebSphere Application Server Liberty, see [Administering JavaMail on Liberty](#).

## 4.7 Data source and JDBC provider configuration

1. To create the JDBC driver library, edit the `<WLP_HOME>/usr/servers/<SERVER_NAME>/server.xml` file by adding the following lines into the `<server>` tag:

```
<library id="jdbcDriver">
  <file name="{EBX_LIB}/To be completed"/>
</library>
```

*Caution:* the name attribute value, from the `file` tag, has to be completed. In our example, it should be `{EBX_LIB}/postgresql-X.X.X-driver.jar`.

2. To create the JDBC data source, edit the same file and same XML tag by adding the following lines:

```
<dataSource id="ebxRepository" jndiName="jdbc/EBX_REPOSITORY">
  <jdbcDriver libraryRef="jdbcDriver"/>
  <properties.toBeCompleted/>
</dataSource>
```

*Caution:* the `properties` tag, has to be completed. Since the kind of tag is strongly reliant on the JDBC driver used, a default configuration can not be provided. For a PostgreSQL driver, it may look like:

```
<properties.postgresql databaseName="EBXDB" serverName="localhost" portNumber="5432" user="ebx"
password="ebx"/>
```

### Note

To hide the password for a JDBC connection in the `server.xml` file of WebSphere Application Server Liberty, refer to the documentation [Configuring authentication aliases for Liberty](#).

## 4.8 Java Virtual Machine configuration

1. Set server's environment variables by adding the following lines into `<WLP_HOME>/usr/servers/<SERVER_NAME>/server.env` file:

```
EBX_HOME="<path_to_the_directory_ebx_home>"
EBX_LIB="<path_to_the_directory_ebx_lib>"
JAVA_HOME="<path_to_the_java_home>"
```

2. Set Java options by creating a new `jvm.options` file under the `<WLP_HOME>/usr/servers/<SERVER_NAME>/` directory. This file will hold, at least, the following lines:

```
-Debx.home="{EBX_HOME}"
-Debx.properties="{EBX_HOME}/ebx.properties"
```

## 4.9 EBX application deployment

1. Create the `<EBX_HOME>/ear/` directory.
2. Copy from the *EBX CD*, the `ebx.software/webapps/ear-packaging/EBX.ear` to the `<EBX_HOME>/ear/` directory. In our example, we will get:



/opt/ebx/home/ear/EBX.ear

3. To create the EBX library, edit the <WLP\_HOME>/usr/servers/<SERVER\_NAME>/server.xml file by adding the following lines into the <server> tag:

```
<library id="ebxLibLz4">
  <file name="${EBX_LIB}/ebx-lz4.jar"/>
</library>
```

#### Note

WebSphere Application Server Liberty doesn't support LZ4 JNI implementation.

4. To deploy EBX.ear, edit the <WLP\_HOME>/usr/servers/<SERVER\_NAME>/server.xml file by adding the following lines into the <server> tag:

```
<application id="ebxApp" location="${EBX_HOME}/ear/{ebx.ear.name}.ear" name="ebxApp" type="ear">
  <classloader commonLibraryRef="ebxLibLz4" />
</application>
```

## 4.10 EBX application start

1. After the launch of the WebSphere Application Server Liberty, with the <WLP\_HOME>/wlp/bin/server start ebxServer command line, run the EBX web application by entering the following URL in the browser:

<http://localhost:9080/ebx/>

2. At first launch, [EBX Wizard](#) [p 69] helps to configure the default properties of the initial repository.



## CHAPTER 5

# Installation note for Tomcat 9.x

This chapter contains the following topics:

1. [Overview](#)
2. [Requirements](#)
3. [Tomcat Application Server installation](#)
4. [EBX home directory configuration](#)
5. [Tomcat Application Server and Java Virtual Machine configuration](#)
6. [EBX and third-party libraries deployment](#)
7. [EBX web applications deployment](#)
8. [EBX application start](#)

## 5.1 Overview

### Attention

- This chapter describes a *quick installation example* of TIBCO EBX on Tomcat Application Server.
- It does not replace the [documentation](#) of this application server.
- They are *not* general installation recommendations, as the installation process is determined by architectural decisions, such as the technical environment, application mutualization, delivery process, and organizational decisions.
- Tomcat 10.x is not supported.
- The complete description of the components needed by EBX is given in chapter [Java EE deployment](#) [p 13].
- To avoid unpredictable behavior, the guideline to follow is to avoid any duplicates of `ebx.jar`, `ebx-1z4.jar` or other libraries in the class-loading system.
- The description below uses the variable name `$CATALINA_HOME` to refer to the Tomcat installation directory, and from which most relative paths are resolved. However, if the `$CATALINA_BASE` directory has been set for a multiple instances configuration, it should be used for each of these references.

## 5.2 Requirements

- Java SE 11 or 17
- Apache Tomcat 9.x
- Database and JDBC driver
- EBX CD

See also [Supported environments](#) [p 6]

## 5.3 Tomcat Application Server installation

1. Download Tomcat 9.x core binary distributions from:  
<https://tomcat.apache.org/download-90.cgi>
2. Run the installer or extract the archive and perform a standard installation with default options

## 5.4 EBX home directory configuration

1. Create *EBX\_HOME* directory, for example `C:\EBX\home`, or `/home/ebx`
2. Copy from *EBX CD* the `ebx.software/files/ebx.properties` file to *EBX\_HOME*. In our example, we will have the following file:  
`C:\EBX\home\ebx.properties`, or `/home/ebx/ebx.properties`
3. If needed, edit the `ebx.properties` file to override the default database. By default the standalone H2 database is defined. The property key `ebx.persistence.factory` must be uncommented for other supported databases and the `h2.standalone` one must be commented.

## 5.5 Tomcat Application Server and Java Virtual Machine configuration

1. Modify `$CATALINA_HOME/conf/server.xml` (or `$CATALINA_BASE/conf/server.xml`) file.  
Add the attribute `encodedSolidusHandling="passthrough"` to the Connector element.  
Add the following line to the `<Host>` element:  
`<Context path="/ebx" crossContext="true" docBase="ebx.war"/>`  
In our example, we will have:  
`<Host name=...>`  
`... ..`  
`<Context path="/ebx" crossContext="true" docBase="ebx.war"/>`  
`... ..`  
`</Host>`
2. Modify the `$CATALINA_HOME/conf/catalina.properties` (or `$CATALINA_BASE/conf/catalina.properties`) file by adding the following lines to the `tomcat.util.scan.DefaultJarScanner.jarsToSkip` property:

```
ebx.jar, \
ebx-addons.jar, \
ebx-lz4.jar, \
```

### 3. Configure the Java Virtual Machine properties

- For Windows' Command Prompt launch

Set the environment variables by creating a `setenv.bat` file either into `$CATALINA_HOME\bin` or `$CATALINA_BASE\bin`. This file will hold, at least, the following lines:

```
set EBX_HOME=<path_to_the_directory_ebx_home>
set EBX_OPTS=-Debx.home="%EBX_HOME%" -Debx.properties="%EBX_HOME%\ebx.properties"
set JAVA_OPTS=%EBX_OPTS% -Dorg.apache.catalina.connector.CoyoteAdapter.ALLOW_BACKSLASH=true %JAVA_OPTS%
set CLASSPATH=<$CATALINA_HOME_or_$CATALINA_BASE>\compress\ebx-lz4.jar;%CLASSPATH%
```

Where `<$CATALINA_HOME_or_$CATALINA_BASE>` must be replaced by `%CATALINA_HOME%` or `%CATALINA_BASE%` if they have been configured. Otherwise this piece of text must be replaced by the Tomcat installation directory's path.

- For Windows users that have installed Tomcat as a service

Set Java options through the Tomcat service manager GUI (Java tab).

Be sure to set options on separate lines in the *Java Options* field of the GUI:

```
-Debx.home=<path_to_the_directory_ebx_home>
-Debx.properties=<path_to_the_directory_ebx_home>\ebx.properties"
```

Update the service using the `//US//` parameter to set the proper classpath value.

```
C:\> tomcat9 //US//Tomcat9 --Classpath=<$CATALINA_HOME_or_$CATALINA_BASE>\compress\ebx-lz4.jar;
%CLASSPATH%
```

Where `<$CATALINA_HOME_or_$CATALINA_BASE>` must be replaced by `%CATALINA_HOME%` or `%CATALINA_BASE%` if they have been configured. Otherwise this piece of text must be replaced by the Tomcat installation directory's path.

- For Unix shell launch

Set the environment variables by creating a `setenv.sh` file either into `$CATALINA_HOME/bin` or `$CATALINA_BASE/bin`. This file will hold, at least, the following lines:

```
EBX_HOME=<path_to_the_directory_ebx_home>
EBX_OPTS="-Debx.home=${EBX_HOME} -Debx.properties=${EBX_HOME}/ebx.properties"
export JAVA_OPTS="${EBX_OPTS} -Dorg.apache.catalina.connector.CoyoteAdapter.ALLOW_BACKSLASH=true
${JAVA_OPTS}"
export CLASSPATH=<$CATALINA_HOME_or_$CATALINA_BASE>/compress/ebx-lz4.jar:${CLASSPATH}"
```

Where `<$CATALINA_HOME_or_$CATALINA_BASE>` must be replaced by `${CATALINA_HOME}` or `${CATALINA_BASE}` if they have been configured. Otherwise this piece of text must be replaced by the Tomcat installation directory's path.

#### Note

The Tomcat option `-Dorg.apache.catalina.connector.CoyoteAdapter.ALLOW_BACKSLASH=true` avoid blocking URLs containing encoded backslashes.

**Caution:** Accounts used to launch EBX must have create/update/delete rights on *EBX\_HOME* directory.

**Note**

<path\_to\_the\_directory\_ebx\_home> is the directory where we copied `ebx.properties`. In our example, it is `C:\EBX\home`, or `/home/ebx`.

**Note**

For a [Data compression library](#) [p 14] native installation, ensure to only reference it in the *CLASSPATH* environment variable.

## 5.6 EBX and third-party libraries deployment

1. Copy third-party libraries from the *EBX CD* to `$CATALINA_HOME/lib/` (or `$CATALINA_BASE/lib/`) directory, except for the [Data compression library](#) [p 14]. In our example, we will have:

`$CATALINA_HOME/lib/javax.mail-1.5.6.jar` coming from `ebx.software/lib/lib-mail` directory.

`$CATALINA_HOME/lib/h2-2.1.212.jar` (default persistence factory) coming from `ebx.software/lib/lib-h2` directory.

The exact description of these components is given in chapter [Software components](#) [p 13]. Obviously, if those components are already deployed on the class-loading system, they do not have to be duplicated.

2. Create a directory dedicated to the [Data compression library](#) [p 14] (for example `$CATALINA_HOME/compress` or `$CATALINA_BASE/compress`) and copy it there.

**Note**

Ensure that the library is copied in the directory pointed out by the previously updated *CLASSPATH* environment variable.

3. Copy from *EBX CD* the `ebx.software/lib/ebx.jar` file to `$CATALINA_HOME/lib/` (or `$CATALINA_BASE/lib/`) directory. In our example, we will have:

`$CATALINA_HOME/lib/ebx.jar`

## 5.7 EBX web applications deployment

1. Copy from the *EBX CD* the war files in `ebx.software/webapps/wars-packaging` to the `$CATALINA_HOME/webapps/` (or `$CATALINA_BASE/webapps/`) directory. In our example, we will have:

`$CATALINA_HOME/webapps/ebx.war`: Initialization servlet for EBX applications

`$CATALINA_HOME/webapps/ebx-root-1.0.war`: Provides a common default module for data models

`$CATALINA_HOME/webapps/ebx-manager.war`: Master Data Management web application

`$CATALINA_HOME/webapps/ebx-dataservices.war`: Data Services web application

`$CATALINA_HOME/webapps/ebx-dma.war`: Data Model Assistant web application

\$CATALINA\_HOME/webapps/ebx-ui.war: User Interface web application

## 5.8 EBX application start

1. After Tomcat launch, run EBX web application by entering the following URL in the browser:  
<http://localhost:8080/ebx/>
2. At first launch, [EBX Wizard](#) [p 69] helps to configure the default properties of the initial repository.





## CHAPTER 6

# Installation note for WebLogic 14c

This chapter contains the following topics:

1. [Overview](#)
2. [Requirements](#)
3. [WebLogic Application Server installation](#)
4. [EBX home directory configuration](#)
5. [WebLogic Application Server and Java Virtual Machine configuration](#)
6. [EBX and third-party libraries deployment](#)
7. [Data source and JDBC provider configuration](#)
8. [EBX application deployment](#)
9. [EBX application start](#)

## 6.1 Overview

### Attention

- This chapter describes a *quick installation example* of TIBCO EBX on WebLogic Application Server.
- It does not replace the [documentation](#) of this application server.
- They are *not* general installation recommendations, as the installation process is determined by architectural decisions, such as the technical environment, application mutualization, delivery process, and organizational decisions.
- The complete description of the components needed by EBX is given in chapter [Java EE deployment](#) [p 13].
- To avoid unpredictable behavior, the guideline to follow is to avoid any duplicates of `ebx.jar`, `ebx-1z4.jar` or other libraries in the class-loading system.

## 6.2 Requirements

- Certified Oracle Java SE 11 ([update 6 and above](#))

- WebLogic Server 14c
- Database and JDBC driver
- EBX CD

See also [Supported environments](#) [p 6]

## 6.3 WebLogic Application Server installation

1. Download WebLogic 14c latest version from:  
<https://www.oracle.com/middleware/technologies/fusionmiddleware-downloads.html>
2. Run the Oracle Fusion Middleware Weblogic installation wizard using a certified Oracle JDK and the `java -jar` command line
3. Perform a standard installation with default options and choose the appropriate installation directory
4. Leave the 'Automatically launch the Configuration Wizard' option activated to perform the next steps:
  1. Create Domain: choose 'Create a new domain' and specify the domain home directory, then click 'Next'
  2. Templates: keep as default and click 'Next'
  3. Administrator Account: enter a domain administrator username and password and click 'Next'
  4. Domain Mode and JDK: choose the production mode and your JDK installation home and click 'Next'
  5. Advanced configuration: check 'Administration server' and 'Topology'. That way, we create two independent domain nodes: an administration one and an application one.  
Click 'Next'
  6. Administration Server: enter your administration node name (for example 'AdminServer') and listen port (by default 7001), then click 'Next'
  7. Managed Servers: add the application node name (for example 'EbxServer') and listen port (for example 7003), then click 'Next'
  8. Clusters: keep as default and click 'Next'
  9. Server Templates: keep as default and click 'Next'
  10. Machines: keep as default and click 'Next'
  11. Configuration Summary: click 'Create'
  12. Configuration Process: click 'Next'
  13. End Of Configuration: click 'Finish'

## 6.4 EBX home directory configuration

1. Create `EBX_HOME` directory, for example `C:\EBX\home`, or `/home/ebx`
2. Copy from *EBX CD* the `ebx.software/files/ebx.properties` file to `EBX_HOME`. In our example, we will have the following file:

C:\EBX\home\ebx.properties, or /home/ebx/ebx.properties

3. If needed, edit the `ebx.properties` file to override the default database. By default the standalone H2 database is defined. The property key `ebx.persistence.factory` must be uncommented for other supported databases and the `h2.standalone` one must be commented.

## 6.5 WebLogic Application Server and Java Virtual Machine configuration

1. Configure the launch properties for the *Managed Server* (for example 'EbxServer')

Edit the `<DOMAIN_HOME>/bin/startManagedWebLogic.sh` script file by adding the following lines:

```
EBX_HOME="<path_to_the_directory_ebx_home>"
EBX_OPTIONS="-Debx.home=${EBX_HOME} -Debx.properties=${EBX_HOME}/ebx.properties"
export JAVA_OPTIONS="${EBX_OPTIONS} ${JAVA_OPTIONS}"
```

2. Edit the `<DOMAIN_HOME>/bin/setDomainEnv.sh` script file by adding the following line:

```
PRE_CLASSPATH="<path_to_the_data_compression_library>"

# For our example
# PRE_CLASSPATH="${DOMAIN_HOME}/compress/ebx-lz4.jar"
```

## 6.6 EBX and third-party libraries deployment

1. Copy third-party libraries from the *EBX CD* to the `<DOMAIN_HOME>/lib` directory except for the [Data compression library](#) [p 14]. In our example, for an H2 standalone data base, we will have:

`<DOMAIN_HOME>/lib/h2-2.1.212.jar` (default persistence factory) coming from `ebx.software/lib/lib-h2` directory.

The complete description of the components needed by EBX is given in chapter [Java EE deployment](#) [p 13]. Obviously, if those components are already deployed on the class-loading system, they do not have to be duplicated (ex: `javax.mail-1.5.6.jar` is already present in the WebLogic Server).

2. Create a directory dedicated to the [Data compression library](#) [p 14] (for example `<DOMAIN_HOME>/compress`) and copy it there.

### Note

Ensure that the library is copied in the directory pointed out by the previously updated `PRE_CLASSPATH` environment variable.

## 6.7 Data source and JDBC provider configuration

1. Start the 'Administration server' (for example 'AdminServer'), using:

```
<DOMAIN_HOME>/bin/startWebLogic.sh
```

2. Launch the 'WebLogic Server Administration Console' by entering the following URL in the browser:

<http://localhost:7001/console>.

Log in with the domain administrator username and password

3. Click on 'Services > Data sources' in the 'Domain Structure' panel, then click on 'New > Generic Data Source':
  1. Set: Type Name: EBX\_REPOSITORY, JNDI Name: EBX\_REPOSITORY, Database Type: *Your database type*  
Click 'Next'
  2. Choose your database driver type, and click 'Next'
  3. Uncheck 'Supports Global Transactions', and click 'Next'
  4. Setup your database 'Connection Properties' and click 'Next'
  5. Click 'Test Configuration' and then 'Finish'
  6. Switch on the 'Targets' tab and select all Servers, then click 'Save'
  7. Restart the Administration server (for example 'AdminServer'), using:
 

```
<DOMAIN_HOME>/bin/stopWebLogic.sh
```

```
<DOMAIN_HOME>/bin/startWebLogic.sh
```

## 6.8 EBX application deployment

1. Copy from the *EBX CD* the `ebx.software/webapps/ear-packaging/EBXForWebLogic.ear` to the *EBX\_HOME* directory. In our example, we will have:
 

```
C:\EBX\home\EBXForWebLogic.ear, or /home/ebx/EBXForWebLogic.ear
```
2. Launch the 'WebLogic Server Administration Console' by entering the following URL in the browser:
 

```
http://localhost:7001/console
```
3. Click on 'Lock and Edit' in the 'Change Center' panel
4. Click on 'Deployments' in the 'Domain Structure' panel, and click 'Install':
  1. Install Application Assistant: Enter in 'Path' the application full path to `EBXForWebLogic.ear` file, located in `C:\EBX\home\`, or `/home/ebx/` directory and click 'Next'
  2. Choose the installation type and scope: Click on 'Install this deployment as an application', 'Global' default scope and click 'Next'
  3. Select the deployment targets: Select a node (for example 'EbxServer') from the 'Servers' list and click 'Next'
  4. Optional Settings: keep as default and click 'Finish'
5. Click on 'Activate Changes', on the top left corner. The deployment status will change to 'prepared'
6. Switch to 'Control' tab, select the 'EBXForWebLogic' enterprise application, then click 'Start' > 'Servicing all requests'
7. Start the application node (for example 'EbxServer'), using:
 

```
<DOMAIN_HOME>/bin/startManagedWebLogic.sh EbxServer http://localhost:7001
```

## 6.9 EBX application start

1. After WebLogic Application Server launch, run the EBX web application by entering the following URL in the browser:  
<http://localhost:7003/ebx/>
2. At first launch, [\\_EBX Wizard](#) [p 69] helps to configure the default properties of the initial repository.



## CHAPTER 7

---

# TIBCO EBX main configuration file

This chapter contains the following topics:

1. [Overview](#)
2. [Setting automatic installation on first launch](#)
3. [Setting the EBX root directory](#)
4. [Configuring the EBX repository](#)
5. [Configuring the user and roles directory](#)
6. [Configuring EBX localization](#)
7. [Setting temporary files directories](#)
8. [Activating the audit trail](#)
9. [Activating the legacy XML audit trail \(deprecated\)](#)
10. [Configuring the EBX logs](#)
11. [Activating and configuring SMTP and emails](#)
12. [Configuring data services](#)
13. [Activating and configuring JMS](#)
14. [Configuring distributed data delivery \(D3\)](#)
15. [Configuring REST toolkit services](#)
16. [Activating and configuring staging](#)
17. [Configuring Web access from end-user browsers](#)
18. [Configuring failover](#)
19. [Tuning the EBX repository](#)
20. [Miscellaneous](#)

## 7.1 Overview

The EBX main configuration file, by default named `ebx.properties`, contains most of the basic parameters for running EBX. It is a Java properties file that uses the [standard simple line-oriented format](#).

The main configuration file complements the [Java EE deployment descriptor](#) [p 18]. Administrators can also perform further configuration through the user interface, which is then stored in the EBX repository.

See also

[Deployment details](#) [p 18]

*UI administration*

## Location of the file

The access path to the main configuration file can be specified in several ways. In order of descending priority:

1. By defining the Java system property 'ebx.properties'. For example, this property can be set by adding the option `-Debx.properties=<filePath>` to the java command-line command. See [Java documentation](#).

2. By defining the servlet initialization parameter 'ebx.properties'.

This standard Java EE setting must be specified in the `web.xml` file of the web application 'ebx'. EBX accesses this parameter by calling the method `ServletConfig.getInitParameter("ebx.properties")` in the servlet `FrontServlet`.

See [getInitParameter](#) in the Oracle `ServletConfig` documentation.

3. By default, if nothing is specified, the main configuration file is located at `WEB-INF/ebx.properties` of the web application 'ebx'.

### Note

In addition to specifying properties in the main configuration file, it is also possible to set the values of properties directly in the system properties. For example, using the `-D` argument of the java command-line command.

## Custom properties and variable substitution

The value of any property can include one or more variables that use the syntax `${propertyKey}`, where `propertyKey` is either a system property, or a property defined in the main configuration file.

For example, the default configuration file provided with EBX uses the custom property `ebx.home` to set a default common directory, which is then included in other properties.

## 7.2 Setting automatic installation on first launch

Repository can be automatically installed on first startup.

```
#####
## Installation on first launch.
## All values are ignored if the repository is already installed.
#####
## Enables repository installation on first startup (default is false).
ebx.install.enabled=true

## Following properties configure the repository. Values are optional and defaults are
## automatically generated.
ebx.install.repository.id=00275930BB88
ebx.install.repository.label=A Test

## Following properties specify the administrator. These are ignored if a custom
## directory is defined.
ebx.install.admin.login=admin
ebx.install.admin.firstName=admin
```



```

ebx.install.admin.lastName=admin
ebx.install.admin.email=adamin@example.com

## Following property specifies the non-encrypted password used for the administrator.
## It is ignored if a custom directory is defined. It cannot be set if
## property ebx.install.admin.password.encrypted is set.
#ebx.install.admin.password=admin

## Following property specifies the encrypted password used for the administrator.
## It is ignored if a custom directory is defined. It cannot be set if
## property ebx.install.admin.password is set.
## Password can be encrypted by using command:
## java -cp ebx.jar com.orchestranetworks.service.directory.EncryptPassword <login> <password_to_encrypt>
ebx.install.admin.password.encrypted=ff297ae08f7eeb63230b55f7c45a720a017bc71d22eaaec...

```

## 7.3 Setting the EBX root directory

The EBX root directory contains the Lucene indexes directory, the archives and, when the repository is persisted on H2 standalone mode, the H2 database files. It also contains the legacy XML audit trail (deprecated).

```

#####
## Path for EBX® XML repository
#####
ebx.repository.directory=${ebx.home}/ebxRepository

```

*See also* [Monitoring and clean up of the file system](#)

## 7.4 Configuring the EBX repository

Before configuring the persistence properties of the EBX repository, carefully read the section *Technical architecture* in the chapter 'Repository administration'.

The required library (driver) for each supported database is described in the chapter [Database drivers](#) [p 15].

*See also*

[Repository administration](#)

[Rules for the database access and user privileges](#)

[Supported databases](#) [p 9]

[Data source of the EBX repository](#) [p 19]

[Database drivers](#) [p 15]

```

#####
## The maximum time to set up the database connection,
## in milliseconds.
#####
ebx.persistence.timeout=10000
#####
## The prefix to add to all table names of persistence system.
## This may be useful for supporting multiple repositories in the relational database.
## Default value is 'EBX_'.
#####
ebx.persistence.table.prefix=

#####
## Case EBX® persistence system is H2 'standalone'.
#####
ebx.persistence.factory=h2.standalone
ebx.persistence.user=sa
ebx.persistence.password=

#####
## Case EBX® persistence system is H2 'server mode',
#####
#ebx.persistence.factory=h2.server

```

```

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url=jdbc:h2:tcp://127.0.0.1/ebxdb
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

#####
## Case EBX® persistence system is Oracle database.
#####
#ebx.persistence.factory=oracle

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url=jdbc:oracle:thin:@127.0.0.1:1521:ebxDatabase
#ebx.persistence.driver=oracle.jdbc.OracleDriver
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

## Activate to use VARCHAR2 instead of NVARCHAR2 on Oracle; never modify on an existing
## repository.
#ebx.persistence.oracle.useVARCHAR2=false

#####
## Case EBX® persistence system is SAP Hana
#####
#ebx.persistence.factory=hana

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url=jdbc:sap://127.0.0.1:39041
#ebx.persistence.driver=com.sap.db.jdbc.Driver
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

#####
## Case EBX® persistence system is Microsoft SQL Server.
#####
#ebx.persistence.factory=sqlserver

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url= \
#jdbc:sqlserver://127.0.0.1:1036;datasenname=ebxDatabase
#ebx.persistence.driver=com.microsoft.sqlserver.jdbc.SQLServerDriver
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

#####
## Case EBX® persistence system is Microsoft Azure SQL database.
#####
#ebx.persistence.factory=azure.sql

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url= \
#jdbc:sqlserver://myhost.database.windows.net:1433;database=ebxDatabase;encrypt=true;\
#trustServerCertificate=false;hostNameInCertificate=".database.windows.net";
#ebx.persistence.driver=com.microsoft.sqlserver.jdbc.SQLServerDriver
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

#####
## Case EBX® persistence system is PostgreSQL.
#####
#ebx.persistence.factory=postgresql

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.persistence.url=jdbc:postgresql://127.0.0.1:5432/ebxDatabase
#ebx.persistence.driver=org.postgresql.Driver
#ebx.persistence.user=xxxxxxxxx
#ebx.persistence.password=yyyyyyyy

```

## 7.5 Configuring the user and roles directory

This parameter specifies the Java directory factory class name. It must only be defined if not using the default EBX directory.

See also

*Users and roles directory*

*DirectoryFactory<sup>API</sup>*

```
#####
## Specifies the Java directory factory class name.
## Value must be the fully qualified name of the Java class.
## The class must extend com.orchestranetworks.service.directory.DirectoryFactory.
#####
#ebx.directory.factory=xxx.yyy.DirectoryFactoryImpl
```

It is also possible to disable the built-in role "ADMINISTRATOR".

```
#####
## Specifies whether the built-in role ADMINISTRATOR is disabled.
## Default value is false.
#####
#ebx.directory.disableBuiltInAdministrator=true
```

## 7.6 Configuring EBX localization

This parameter is used to configure the locales used at runtime. This list must contain all the locales that are exposed to the end-user. EBX will not be able to display labels and messages in a language that is not declared in this list.

The default locale must be the first one in the list.

```
#####
## Available locales, separated by a comma.
## The first element in the list is considered as the default locale.
## If not set, available locales are 'en-US, fr-FR'.
##
#####
#ebx.locales.available=en-US, fr-FR
```

See also *Extending TIBCO EBX internationalization*

## 7.7 Setting temporary files directories

Temporary files are stored as follows:

```
#####
## Directories for temporary resources.
#####
## The property ebx.temp.directory allows to specify a directory for temporary files.
## Default value is java.io.tmpdir
#ebx.temp.directory = /tmp/java
ebx.temp.directory = \\${java.io.tmpdir}

## The property ebx.temp.cache.directory allows to specify the directory containing
## temporary files for cache.
## Default value is ${ebx.temp.directory}/ebx.platform.
#ebx.temp.cache.directory = ${ebx.temp.directory}/ebx.platform

## The property ebx.temp.import.directory allows to specify the directory containing
## temporary files for import.
## Default value is ${ebx.temp.directory}/ebx.platform.
#ebx.temp.import.directory = ${ebx.temp.directory}/ebx.platform
```

## 7.8 Activating the audit trail

By default, the audit trail logging is deactivated. It can be activated by configuring the "audit" log category to log INFO level messages. For instance the following will log audit trail messages using a specific ['ebxFile' appender](#) [p 54]:

```
ebx.log4j.category.log.audit = INFO, ebxFile:audit
```

See also

[Configuring the EBX logs](#) [p 53]

*Audit trail*

## 7.9 Activating the legacy XML audit trail (deprecated)

By default, the XML audit trail is deactivated. It can be activated using the following variable:

```
#####
## The XML history has been replaced by an SQL history.
## This old XML history can be activated using the following variable.
## Default is false.
#####
ebx.history.xmlaudittrail.activated = false
```

See also *Legacy XML Audit trail*

## 7.10 Configuring the EBX logs

The most important logging categories are:

|  |  |
|--|--|
| <b>ebx.log4j.category.log.kernel</b>       | Logs for EBX main features, processes, exceptions and compilation results of modules and data models.  |
| <b>ebx.log4j.category.log.workflow</b>     | Logs for main features, warnings and exceptions about workflow.  |
| <b>ebx.log4j.category.log.persistence</b>  | Logs related to communication with the underlying database.  |
| <b>ebx.log4j.category.log.setup</b>        | Logs for the compilation results of all EBX objects, except for modules and data models.   |
| <b>ebx.log4j.category.log.validation</b>   | Logs for datasets validation results.  |
| <b>ebx.log4j.category.log.mail</b>         | <p>Logs for the activity related to the emails sent by the server (see <a href="#">Activating and configuring SMTP and emails</a> [p 55]).</p> <p><b>Note:</b> This category must not use the <a href="#">Custom SMTP appender</a> [p 55] in order to prevent infinite loops.</p>  |
| <b>ebx.log4j.category.log.d3</b>           | Logs for D3 events on EBX.   |
| <b>ebx.log4j.category.log.dataservices</b> | Logs for data service events in EBX.   |
| <b>ebx.log4j.category.log.monitoring</b>   | Raw logs for <i>memory monitoring</i> .  |
| <b>ebx.log4j.category.log.request</b>      | <p>Logs for Request<sup>API</sup> and Query<sup>API</sup> events in EBX: executions having a duration exceeding <a href="#">ebx.logs.request.durationThreshold</a> milliseconds, requests / queries where the optimization phase exceeds <a href="#">ebx.logs.request.optimizationThreshold</a> milliseconds and executions that internally throw an exception while iterating the results. All requests / queries are logged regardless of their duration, if log level is set to <code>DEBUG</code>.</p> |
| <b>ebx.log4j.category.log.restServices</b> | Logs for REST services events in EBX, including those from the <i>REST Toolkit</i> .   |

**ebx.log4j.category.log.audit**Logs for the *audit trail* feature.

Some of these categories can also be written to through custom code using the `LoggingCategory`<sup>API</sup> interface.

```
#####
## Log4J properties:
##
## We have some specific syntax extensions:
## - Appender ebxFile:<aFileName>
## Defines a file appender with default settings (threshold=DEBUG)
##
## - property log.defaultConversionPattern is set by Java
#####
#ebx.log4j.debug=true
#ebx.log4j.disable=
ebx.log4j.rootCategory= INFO
ebx.log4j.category.log.kernel= INFO, Console, ebxFile:kernel, kernelMail
ebx.log4j.category.log.workflow= INFO, ebxFile:workflow
ebx.log4j.category.log.persistence= INFO, ebxFile:persistence
ebx.log4j.category.log.setup= INFO, Console, ebxFile:kernel
ebx.log4j.category.log.mail= INFO, Console, ebxFile:mail
ebx.log4j.category.log.frontEnd= INFO, Console, ebxFile:kernel
ebx.log4j.category.log.frontEnd.incomingRequest= INFO
ebx.log4j.category.log.frontEnd.requestHistory= INFO
ebx.log4j.category.log.frontEnd.UIComponentInput= INFO
ebx.log4j.category.log.fsm= INFO, Console, ebxFile:fsm
ebx.log4j.category.log.fsm.dispatch= INFO
ebx.log4j.category.log.fsm.pageHistory= INFO
ebx.log4j.category.log.wbp= FATAL, Console
#-----
ebx.log4j.appender.Console.Threshold = INFO
ebx.log4j.appender.Console=com.onwbp.org.apache.log4j.ConsoleAppender
ebx.log4j.appender.Console.layout=com.onwbp.org.apache.log4j.PatternLayout
ebx.log4j.appender.Console.layout.ConversionPattern=${log.defaultConversionPattern}
#-----
ebx.log4j.appender.kernelMail.Threshold = ERROR
ebx.log4j.appender.kernelMail = com.onwbp.org.apache.log4j.net.SMTPAppender
ebx.log4j.appender.kernelMail.To = admin@domain.com
ebx.log4j.appender.kernelMail.From=admin${ebx.site.name}
ebx.log4j.appender.kernelMail.Subject=EBX@ Error on Site ${ebx.site.name} (VM ${ebx.vm.id})
ebx.log4j.appender.kernelMail.layout.ConversionPattern=**Site ${ebx.site.name} (VM${ebx.vm.id})**%n
${log.defaultConversionPattern}
ebx.log4j.appender.kernelMail.layout=com.onwbp.org.apache.log4j.PatternLayout
#-----
ebx.log4j.category.log.monitoring=INFO, ebxFile:monitoring
ebx.log4j.category.log.dataServices=INFO, ebxFile:dataServices
ebx.log4j.category.log.d3=INFO, ebxFile:d3
ebx.log4j.category.log.request=INFO, ebxFile:request
ebx.log4j.category.log.restServices=INFO, ebxFile:dataServices
ebx.log4j.category.log.audit=INFO, ebxFile:audit
```

**Custom 'ebxFile' appender**

The token `ebxFile:` can be used as a shortcut to define a daily rolling file appender with default settings. It must be followed by a file name. It then activates an appender that writes to a file located in the directory `ebx.logs.directory`, with a threshold set to `DEBUG`.

The property `ebx.log4j.appender.ebxFile.backup.Threshold` allows defining the maximum size (in megabytes) of backup files for daily rollover.

```
#####
## Directory of log files 'ebxFile:'
## This property is used by special appender prefixed
## by 'ebxFile:' (see log section below)
#####
ebx.logs.directory=${ebx.home}/ebxLog

#####
## Daily rollover threshold of log files 'ebxFile:'
## Specifies the maximum size (in megabytes) of backup files for daily rollover
## of 'ebxFile:' appenders.
## When set to a negative value, backup log files are never purged.
## Default value is -1.
#####
ebx.log4j.appender.ebxFile.backup.Threshold=-1
```

## Custom SMTP appender

The appender `com.onwbp.org.apache.log4j.net.SMTPAppender` provides an asynchronous email sender.

See also [Activating and configuring SMTP and emails](#) [p 55]

## Custom module log threshold

By default, the log level threshold of the logging category associated with a custom module is set to INFO.

This threshold can be customized by setting the property `ebx.log4j.category.log.wbp.xxxxxx` for the custom module `xxxxxx`.

Example: `ebx.log4j.category.log.wbp.mycompany-module=DEBUG`.

See also `ModuleContextOnRepositoryStartup.getLoggingCategory`<sup>API</sup>

## Add-on module log threshold

By default, the log level threshold of any add-on module is set to INFO.

The log level threshold can be customized by setting the property `ebx.log4j.category.log.addon.xxxxxx` for the add-on module `ebx-addon-xxxxxx`.

Example: `ebx.log4j.category.log.addon.daqa=DEBUG`

# 7.11 Activating and configuring SMTP and emails

The internal mail manager sends emails asynchronously. It is used by the workflow engine and the custom SMTP appender `com.onwbp.org.apache.log4j.net.SMTPAppender`.

See also [Mail sessions](#) [p 19]

```
#####
## SMTP and emails
#####

## Activate emails (true or false, default is false).
## If activated, the deployer must ensure that the entry 'mail/EBX_MAIL_SESSION' is bound
## in the operational environment of the application server (except if a specific email
## configuration is used by setting the property ebx.mail.smtp.host below).
#ebx.mail.activate=false

## Polling interval is in seconds (default is 10).
#ebx.mail.polling.interval=10

## Specific properties to be set only if you want to ignore the standard
## deployment process of 'ebx' web application in the target operational environment
## (see the deployment descriptor 'web.xml' of 'ebx' web application).
#ebx.mail.smtp.host = smtp.domain.com
## SMTP port default is 25.
#ebx.mail.smtp.port= 25
#ebx.mail.smtp.login=
#ebx.mail.smtp.password=
## SMTP socket connection timeout value in milliseconds (default is 600000).
#ebx.mail.smtp.connectionTimeout=600000
## SMTP socket read timeout value in milliseconds (default is 600000).
#ebx.mail.smtp.timeout=600000
## SMTP socket write timeout value in milliseconds (default is 600000).
#ebx.mail.smtp.writeTimeout=600000

## Activate SSL (true or false, default is false).
## If SSL is activated, a SSL factory and a SSL provider are required.
#ebx.mail.smtp.ssl.activate=true
#ebx.mail.smtp.ssl.provider=com.sun.net.ssl.internal.ssl.Provider
```

```
#ebx.mail.smtp.ssl.factory=javax.net.ssl.SSLSocketFactory
```

## 7.12 Configuring data services

```
#####
## Data services
#####

## Specifies the default value of the data services parameter
## 'disableRedirectionToLastBroadcast'.
## Default is false.
#ebx.dataservices.disableRedirectionToLastBroadcast.default=false

## Specifies the default value for deletion at the end of close and
## merge operations.
## If the parameter is set in the request operation, it overrides
## this default setting.
## If unspecified, default is false.
#ebx.dataservices.dataDeletionOnCloseOrMerge.default=false
#ebx.dataservices.historyDeletionOnCloseOrMerge.default=false

## Specifies the default maximum pagination size value for the select
## operations. This configuration is used by SOAP and REST connectors.
## Default value is 10000, maximum recommended value is 100000
#ebx.dataservices.pagination.maxSize.default= 10000

## Specifies the default pagination size value for the select
## operations. This configuration is used by the SOAP connector.
## Default value is 10.
#ebx.dataservices.pagination.pageSize.default=10

## Upon WSDL generation, specifies if the target namespace value
## corresponds to the content before 5.5.0 'ebx-services'
## or 'urn:ebx:ebx-services' in conformity with the URI syntax.
## If the parameter is set to true, there is no check of the target
## namespace as URI at the WSDL generation.
## If unspecified, default is false.
#ebx.dataservices.wsdlTargetNamespace.disabledCheck=false

#####
## REST configuration
#####

## If activated, the HTTP request header 'Accept' is used to specify
## the accepted content type. If none is supported, an error is
## returned to the client with the HTTP code 406 'Not acceptable'.
## If deactivated, the header is ignored therefore the best content
## type is used.
## Default is false.
#ebx.dataservices.rest.request.checkAccept=false

## If activated, when a REST data service authentication negotiate fails,
## EBX response includes fallback to 'Basic' authentication method by setting
## the HTTP header 'WWW-Authenticate' to 'Basic'.
## Note: This property only activate/deactivate
## the authentication fallback.
## Default is false.
#ebx.dataservices.rest.auth.tryBasicAuthentication=false

## Authorization token timeout is seconds.
## Default value is 1800 seconds (30 minutes)
## This value is ignored if 'Token Authentication Scheme' is not activated.
#ebx.dataservices.rest.auth.token.timeout=1800
```

## 7.13 Activating and configuring JMS

See also [JMS for data services](#) [p 20]

```
#####
## JMS configuration for Data Services
#####

## Activates JMS (true or false, default is false).
## If activated, the deployer must ensure that the entry 'jms/EBX_JMSConnectionFactory'
## are bound in the operational environment of the application server.
## The entry 'jms/EBX_QueueIn' should also be bound to enable handling Data Services
```



```
## request using JMS.
#ebx.jms.activate=false

## Activates JMS queue for failures (true or false, default is false).
## If activated, the deployer must ensure that the entry 'jms/EBX_QueueFailure' is bound
## in the operational environment of the application server.
#ebx.jms.activate.queueFailure=false

## Number of concurrent listener(s)
## Default is 3.
## Property is used if ebx.jms.activate is set to true.
#ebx.jms.listeners.count=3
```

## 7.14 Configuring distributed data delivery (D3)

See *Configuring D3 nodes* for the main configuration file properties pertaining to D3.

See also

*JMS for distributed data delivery (D3)*

*Introduction to D3*

## 7.15 Configuring REST toolkit services

```
#####
## REST configuration
#####

## Defines the maximum number of bytes that will be extracted
## from the REST request body to build some DEBUG log messages.
## Default value is 8192 bytes.
## This value is ignored if DEBUG level is not activated on the restServices logger.
#ebx.restservices.log.body.content.extract.size=8192
```

## 7.16 Activating and configuring staging

Staging is enabled/disabled via configuration. Some options can be set so as to optimize memory and disk usage. The properties are configured as follows:

```
#####
## Staging configuration
#####

## Activates staging (true or false, default is true).
#ebx.staging.activated=true

## Defines the max size on disc
## dedicated to staging temporary folders.
## 0 defines an infinite size.
## If unset, the default value is 0.
#ebx.staging.maxTemporaryFolderSizeInBytes=0

## Max size for canonicalization of attachments in bytes.
## Canonicalization consumes memory and CPU on large xml and json for attachments.
## If not set, default value is 10 Mo (10485760).
#ebx.staging.maxCanonicalizationSizeInBytes=10485760

## Defines the maximum number of staging element per list when browsing a repository
## If not defined, the default value is 1000.
#ebx.staging.maxElementPerList=1000
```

See also *Staging*

## 7.17 Configuring Web access from end-user browsers

### *HTTP Authorization header policy*

EBX natively offers three policies to send and receive credentials using HTTP headers:

|                 |  |
|-----------------|--|
| <b>standard</b> | It corresponds to the authentication scheme, using the HTTP Authorization header, described in the <a href="#">RFC 2617</a> .                                  |
| <b>ebx</b>      | To prevent HTTP Authorization header override issues, this policy acts the same as the standard but the credentials are stored in an EBX specific HTTP header. |
| <b>both</b>     | It is the combination of the two previously described policies.  |

```
#####
## EBX® authorization header policy for HTTP requests
##
## Possible values are: standard, ebx, both.
## standard:
##   the standard HTTP Authorization header holds the credentials
## ebx:
##   an EBX® specific HTTP header holds the credentials
## both:
##   both (standard and specific) HTTP headers hold the credentials
##
## Default value is: both.
#####
#ebx.http.authorization.header.policy=both
```

### *URLs computing*

By default, EBX runs in "standalone" mode, where external resources (images, JavaScript, etc.) are provided by the application server.

Also by default, URL-related parameters in the main configuration file do not have to be set.

In this case, the server name and the port are obtained from the initial request sent to EBX.

*See also* [URL policy \(deprecated\)](#)

```
#####
## EBX® FrontServlet: default properties for computing servlet address
##
## {useLocalUrl}:
## If set to true, servlet address is a "local absolute" URL.
## (that is, a relative URL consisting of an absolute path: "/path")
## See RFC 2396, http://www.ietf.org/rfc/rfc2396.txt).
## This property is defined once for HTTP and HTTPS.
## Default value is false.
##
## {host}:
## If neither defined nor adapted, retrieves initial request host
## {port}:
## If neither defined nor adapted, retrieves initial request host
## {path}:
## Mandatory, may be empty
## {ui.path}:
## If not defined, defaults to ebx-ui/
## {http.useHttpsSettings}:
## If true, force the use of SSL security even if the incoming requests do not
##
## Resulting address will be:
```

```

## EBX@: protocol://{host}:{port}/{path}
## UI: protocol://{host}:{port}/{ui.path}
##
## Each property for HTTP (except {port}) may be inherited from HTTPS property,
## and reciprocally.
#####

ebx.servlet.useLocalUrl=true

#ebx.servlet.http.host=
#ebx.servlet.http.port=
ebx.servlet.http.path=ebx/
#ebx.servlet.http.ui.path=ebx-ui/
#ebx.servlet.http.useHttpsSettings=false

#ebx.servlet.https.host=
#ebx.servlet.https.port=
ebx.servlet.https.path=ebx/
#ebx.servlet.https.ui.path=ebx-ui/

#####
## External resources: default properties for computing external resources address
##
## The same rules apply as EBX@ FrontServlet properties (see comments).
##
## Each property may be inherited from EBX@ FrontServlet.
#####

ebx.externalResources.useLocalUrl=true

#ebx.externalResources.http.host=
#ebx.externalResources.http.port=
#ebx.externalResources.http.path=
#ebx.externalResources.http.useHttpsSettings=false

#ebx.externalResources.https.host=
#ebx.externalResources.https.port=
#ebx.externalResources.https.path=

```

## Proxy mode

Proxy mode allows using a front-end HTTP server to provide static resources (images, CSS, JavaScript, etc.). This architecture reduces the load on the application server for static HTTP requests. This configuration also allows using SSL security on the front-end server.

The web server sends requests to the application server according to a path in the URL. The `servletAlias` and `uiServletAlias` paths are specified in the main configuration file.

The web server provides all external resources. These resources are stored in a dedicated directory, accessible using the `resourcesAlias` path.

EBX must also be able to access external resources from the file system. To do so, the property `ebx.webapps.directory.externalResources` must be specified.

To force the use of SSL security even if the incoming requests do not, `ebx.servlet.http.useHttpsSettings` and / or `ebx.externalResources.http.useHttpsSettings` properties must be set to true. Their default values are false.

The main configuration file may be configured as follows:

```

#####
## Path for external resources if they are not
## delivered within web applications
## This field is mandatory if in proxy mode.
#####
ebx.webapps.directory.externalResources=D:/http/resourcesFolder

#####

ebx.servlet.useLocalUrl=true

#ebx.servlet.http.host=
#ebx.servlet.http.port=
ebx.servlet.http.path=servletAlias
ebx.servlet.http.ui.path=uiServletAlias
#ebx.servlet.http.useHttpsSettings=false

```

```
#ebx.servlet.https.host=
#ebx.servlet.https.port=
ebx.servlet.https.path=servletAlias
ebx.servlet.https.ui.path=uiServletAlias

#####

ebx.externalResources.useLocalUrl=true

#ebx.externalResources.http.host=
#ebx.externalResources.http.port=
ebx.externalResources.http.path=resourcesAlias
#ebx.externalResources.http.useHttpsSettings=false

#ebx.externalResources.https.host=
#ebx.externalResources.https.port=
ebx.externalResources.https.path=resourcesAlias
```

**Attention**

When proxy mode is used, the URL to the ebx-dataservices module must be configured through the lineage administration panel. Note that the provided URL must end its path with /ebx-dataservices.

**Reverse-proxy mode**

If URLs generated by EBX, for requests and external resources, must contain a different protocol than the one from the incoming request, a specific server name, a specific port number or a specific path prefix, properties may be configured as follows:

```
#####
#ebx.servlet.useLocalUrl=false

ebx.servlet.http.host=reverseDomain
#ebx.servlet.http.port=
ebx.servlet.http.path=ebx/
#ebx.servlet.http.ui.path=ebx-ui/
#ebx.servlet.http.useHttpsSettings=false

ebx.servlet.https.host=reverseDomain
#ebx.servlet.https.port=
ebx.servlet.https.path=ebx/
#ebx.servlet.https.ui.path=ebx-ui/

#####
## Web parameters (for external resources)
## if nothing is set, values are taken from servlet.
#####
#ebx.externalResources.useLocalUrl=false

#ebx.externalResources.http.host=
#ebx.externalResources.http.port=
#ebx.externalResources.http.path=
ebx.externalResources.http.useHttpsSettings=true

ebx.externalResources.https.host=reverseDomain
#ebx.externalResources.https.port=
ebx.externalResources.https.path=
```

**Attention**

When reverse-proxy mode is used, the URL to the ebx-dataservices module must be configured through the lineage administration panel. Note that the provided URL must end its path with /ebx-dataservices.

## 7.18 Configuring failover

These parameters are used to configure the failover mode and activation key, as well as heartbeat logging in DEBUG mode.

See also *Failover with hot-standby*

```
#####
## Mode used to qualify the way in which a server accesses the repository.
## Possible values are: unique, failovermain, failoverstandby.
## Default value is: unique.
#####
#ebx.repository.ownership.mode=unique

## Activation key used in case of failover. The backup server must include this
## key in the HTTP request used to transfer exclusive ownership of the repository.
## The activation key must be an alphanumeric ASCII string longer than 8 characters.
#ebx.repository.ownership.activationkey=

## Specifies whether to hide heartbeat logging in DEBUG mode.
## Default value is true.
#ebx.repository.ownership.hideHeartBeatLogForDebug=true
```

## 7.19 Tuning the EBX repository

Some options can be set so as to optimize memory usage.

The properties are configured as follows:

```
#####
## Technical parameters for memory and performance tuning
#####
## Import commit threshold allows to specify the commit threshold
## exclusively for the archive import launched directly from Manager.
##
## For more details about the commit threshold,
## see the JavaDoc ProcedureContext.setCommitThreshold().
## Default value is 0.
ebx.manager.import.commit.threshold=100
```

See also [Validation report page](#) [p 67]

## 7.20 Miscellaneous

### **Activating data workflows**

This parameter specifies whether data workflows are activated. This parameter is not taken into account on the fly. The server must be restarted whenever the value changes.

```
#####
## Workflow activation.
## Default is true.
#####
ebx.workflow.activation = true
```

### **Disabling user task legacy mode**

This parameter specifies whether the creation service of a user task in legacy mode should be offered in the workflow modeling. The default value is false.

See `UserTask.UserTaskMode.LEGACY_MODEAPT` for more information.

```
#####
## Disables legacy work item mode (default is false)
## Specify if the creation service of user task in legacy mode must be offered
## in workflow modeling.
#####
#ebx.manager.workflow.legacy.userTaskMode=true
```

## ***Disabling hierarchy plan view***

This parameter specifies whether the hierarchy plan view is hidden. The default value is true.

```
#####
## Activate or deactivate Workflow hierarchy plan view
#####
ebx.manager.workflow.hierarchyPlanView.hidden=false
```

## ***Activating delegation to launch a workflow by API***

This parameter activates delegation to launch a workflow by API. The default value is false which means that permissions will be always checked unless this parameter is activated.

```
#####
## Activate delegation to launch workflows by API
#####
ebx.workflow.api.processLauncher.permissionCheckDelegated=true
```

## ***Log procedure starts***

This parameter specifies whether starts of the procedure execution are logged.

```
#####
## Specifies whether transaction starts are logged. Default is false.
#####
ebx.logs.logTransactionStart = true
```

## ***Log validation starts***

This parameter specifies whether starts of datasets validation are logged.

```
#####
## Specifies whether validation starts are logged. Default is false.
#####
ebx.logs.logValidationStart = true
```

## ***Request cache activation***

This parameter specifies whether or not to activate the cache for the internal request-to-query conversions that are required by the query engine when a Request<sup>API</sup> is executed. The activation of this cache will improve the performance on certain types of requests, especially if they are executed multiple times.

```
# Activates the request cache, which can improve the performance of certain requests. Possible values are
  DISABLED,
# WITH_CHECK (ensures that a cached request executes the same query plan as its non-cached version, recommended),
# EXCEPTION (throws an exception if the query plan for a request differs from its non-cached version), and
  ENABLED.
# The default value is WITH_CHECK.
#ebx.cache.request.mode=WITH_CHECK
```

## ***Request duration threshold for logs***

This parameter specifies in milliseconds the threshold of duration of Request<sup>API</sup> and Query<sup>API</sup> to be logged. Logs are generated if logging category ebx.log4j.category.log.request level is not higher than INFO. If the level is DEBUG, all Request<sup>API</sup> and Query<sup>API</sup> are logged.

```
#####
## Specifies in milliseconds the threshold of duration of Requests and Queries
## to be logged
## Default value is 1000 ms.
## If unset, the default value is used.
#####
```

```
#ebx.logs.request.durationThreshold=1000
```

## ***Request repetition threshold for logs***

This parameter specifies in milliseconds the delay between 2 logs for Request<sup>API</sup> and Query<sup>API</sup> that goes beyond the threshold of duration. If this value is greater than 0, and the query duration goes beyond the threshold of duration, it will be logged again repeatedly with at least this delay between each log. As log messages include duration, this is useful to track long queries duration.

```
#####
## Specifies in milliseconds the delay between two log entries for Requests and
## Queries that goes beyond the threshold of duration. If this value is greater
## than 0, and the query duration goes beyond the threshold of duration, it will
## be logged again repeatedly with at least this delay between each log.
## Default value is 30000 ms.
#####
#ebx.logs.request.logAgainEvery=30000
```

## ***Request optimization threshold for logs***

This parameter specifies in milliseconds the threshold of the optimization phase of Request<sup>API</sup> and Query<sup>API</sup> to be logged. Logs are generated if logging category ebx.log4j.category.log.request level is not higher than INFO.

```
#####
## Specifies in milliseconds the threshold of optimization of Requests and Queries
## to be logged. Default value is 1000 ms.
#####
#ebx.logs.request.optimizationThreshold=1000
```

## ***Request SQL representation for logs***

This parameter specifies if the logs for a certain Request<sup>API</sup> shall include the corresponding SQL representation of the request. Notice that this conversion takes a toll in terms of performance, and not all requests can be converted into SQL. The default value is false.

```
#####
## Specifies if the logs of requests shall include the SQL representation.
## Default is false.
#####
#ebx.log4j.category.log.request.enableSQLConversion=false
```

## ***Request optimization for sorting a table by foreign key labels***

This parameter specifies whether the query optimizer rewrites certain combinations of sort and join operations to a specialized operator that carries out the join(s) in a sorted manner.

```
#####
## Properties to activate/deactivate EnumerableSortedNestedLoopLeft/Right operators,
## which can improve the performance of requests sorted by foreign key labels.
## Default value is true.
#####
#ebx.query.sortedNestedLoopLeft.enabled=true
#ebx.query.sortedNestedLoopRight.enabled=true
```

## ***Deployment site identification***

This parameter allows specifying the email address to which technical log emails are sent.

```
#####
## Unique Site Name
## --> used by monitoring emails and by the repository
#####
#ebx.site.name= name@domain.com
```

## ***Dynamically reloading the main configuration***

Some parameters can be dynamically reloaded, without restarting EBX. The parameter `thisfile.checks.intervalInSeconds` indicates how frequently the main configuration file is checked.

```
#####
### Checks if this file has been updated
### If value <= 0, no more checks will be done
#####
thisfile.checks.intervalInSeconds=1
```

In development mode, this parameter can be set to as low as one second. On production systems, where changes are expected to be less frequent, the value can be greater, or set to '0' to disable hot reloading entirely.

This property is not always supported when the module is deployed as a WAR, as it would then depend on the application server.

## ***Declaring modules as undeployed***

On application server startup, the initialization of deployed web applications / EBX modules and the initialization of the EBX repository are performed asynchronously. In order to properly initialize the EBX repository, it is necessary to compile all the data models used by at least a dataset, hence EBX will wait endlessly for referenced modules to be registered.

If a module is referenced by a data model but is not deployed (or no longer deployed), it is necessary to declare this module as undeployed to unlock the wait and continue the startup process.

### **Note**

The `kernel` logging category indicates which modules are awaited.

### **Note**

A module declared as undeployed cannot be registered into EBX until it is removed from the property `ebx.module.undeployedModules`.

### **Note**

Any data model based on an unregistered module will have an "undeployed module" compilation error.

### **See also**

*Module registration*

*[Dynamically reloading the main configuration](#) [p 64]*

```
#####
## Comma-separated list of EBX® modules declared
## as undeployed.
## If a module is expected by the EBX® repository but is
## not deployed, it must be declared in this property.
## Caution:
## if the "thisfile.checks.intervalInSeconds" property is deactivated,
## a restart is mandatory, otherwise it will be hot-reloaded.
#####
ebx.module.undeployedModules=
```



## Module public path prefix

EBX modules' public paths are declared in the 'module.xml' file of each module. A context prefix can be declared for all modules, without having to modify the 'module.xml' content, by specifying the property that follows.

This prefix will apply to any EBX module, including core, add-on and specific modules.

When proxy and / or reverse-proxy mode are used, the `ebx.servlet.http[s].path` and `ebx.servlet.http[s].ui.path` properties must take into account this module public path prefix setting. Conversely, the `ebx.externalResources.http[s].path` property must end its path just before a potential prefix.

```
#####
ebx.servlet.useLocalUrl=true

#ebx.servlet.http.host=
#ebx.servlet.http.port=
ebx.servlet.http.path=reverse-proxy/prefix/ebx/
ebx.servlet.http.ui.path=reverse-proxy/prefix/ebx-ui/
#ebx.servlet.http.useHttpsSettings=false

#ebx.servlet.https.host=
#ebx.servlet.https.port=
ebx.servlet.https.path=reverse-proxy/prefix/ebx/
ebx.servlet.https.ui.path=reverse-proxy/prefix/ebx-ui/

#####
## Web parameters (for external resources)
## if nothing is set, values are taken from servlet.
#####
ebx.externalResources.useLocalUrl=true

#ebx.externalResources.http.host=
#ebx.externalResources.http.port=
ebx.externalResources.http.path=reverse-proxy/
#ebx.externalResources.http.useHttpsSettings=false

#ebx.externalResources.https.host=
#ebx.externalResources.https.port=
ebx.externalResources.https.path=reverse-proxy/

#####
## EBX® Module context path prefix
##
## If defined, applies to all EBX® modules public paths declared in
## any module.xml file (core, add-on and specific).
#####
ebx.module.publicPath.prefix=prefix/
```

See [URLs computing](#) [p 58] for more information.

## EBX run mode

This property defines how EBX runs. Three run modes are available: *development*, *integration* and *production*.

When running in *development* mode, the *development tools* are activated in EBX, some features thus become fully accessible and more technical information is displayed.

### Note

The administrator can always access this information regardless of the mode used.

The additional features accessible when running in *development* mode include the following (non-exhaustive list):

|                                     |  |
|-------------------------------------|--|
| <b>Documentation pane</b>           | In the case of a computed value, the Java class name is displayed. A button is displayed giving access to the path to a node.  |
| <b>Compilation information</b>      | Module and schema compilation information is displayed in the dataset validation report.   |
| <b>Java bindings</b>                | The generation of Java bindings is available if the schema of the dataset mentions at least one binding.   |
| <b>Web component link generator</b> | The Web component link generator is available on datasets and dataspace.   |
| <b>Data model assistant</b>         | Data model configuration and additional options, such as Services, Business Objects and Rules, Java Bindings, Toolbars and some advanced properties.   |
| <b>Workflow modeling</b>            | Declare specific script tasks.   |
| <b>Log</b>                          | The logs include additional technical information intended for the developer. For example, a warning is written to logs if a drop-down list is defined on a node which is not an enumeration in a UI Bean. |
| <b>Product documentation</b>        | The product documentation is always the most complete one (i.e "advanced"), including administration and development chapters.   |

```
#####
## Server Mode
## Value must be one of: development, integration, production
## Default is production.
#####
backend.mode=integration
```

#### Note

There is no difference between the *integration* and *production* modes.

## Resource filtering

This property allows the filtering of certain files and directories in the resource directory contents (resource type node, with an associated facet that indicates the directory that contains usable resources).

```
#####
## list (separated by comma) of regexps excluding resource
## the regexp can be of type [pattern] or "m:[pattern]:".
## the list can be void
#####
```

```
ebx.resource.exclude=CVS/*
```

## Validation report page

The validation report page can display a finite number of items for each severity. This number can be tuned with this property.

```
#####
## Defines the maximum item displayed for each severity in the validation report page.
## Default value is 100.
#####
ebx.validation.report.maxItemDisplayed=200
```

See also [Tuning the EBX repository](#) [p 61]

## Validation report logs

This property allows to specify the number of validation messages to display in the logs when validating a dataset or a table.

```
#####
## Defines the maximum number of messages displayed in the logs.
## Default value is 100.
## When set to 0 or a negative value, the limit is not considered.
#####
ebx.validation.report.maxItemDisplayedInLogs=500
```

By default, the content of the validation of a dataset or a table is logged. Logging the content of the validation reports can be deactivated using the following property:

```
#####
## Specifies whether the content of validation reports is logged when validating
## a dataset or a table.
## Default is true.
#####
ebx.validation.report.logContent=true
```

See also [Tuning the EBX repository](#) [p 61]



## CHAPTER 8

# Initialization and first-launch assistant

Deliverables can be found on [TIBCO eDelivery](#) (an account is mandatory in order to access eDelivery, please contact [the support team](#) to request one).

The TIBCO EBX Configuration Assistant helps with the initial configuration of the EBX repository. If EBX does not have a repository installed upon startup and if the [automatic installation](#) [p 48] is not enabled, the configuration assistant is launched automatically.

Before starting the configuration of the repository, make sure that EBX is correctly deployed on the application server. See [Java EE deployment](#) [p 13].

**Note**

The EBX main configuration file must also be properly configured. See [TIBCO EBX main configuration file](#) [p 47].

This chapter contains the following topics:

1. [Configuration steps](#)

## 8.1 Configuration steps

The EBX configuration assistant guides you through the following steps:

1. Validating the license agreement.
2. Configuring the repository.
3. Defining users in the default user and roles directory (if a custom directory is not defined).
4. Validating the information entered.
5. Installing the EBX repository.

### ***Validating the license agreement***

In order to proceed with the configuration, you must read and accept the product license agreement.

## Configuring the repository

This page displays some of the properties defined in the EBX main configuration file. You also define several basic properties of the repository in this step.

|  |  |
|--|--|
| <b>Id of the repository</b><br>( <b>repositoryId</b> ) | Must uniquely identify the repository (in the scope of the enterprise). The identifier is 48 bits (6 bytes) long and is usually represented as 12 hexadecimal digits. This information is used for generating the Universally Unique Identifiers (UUIDs) of entities created in the repository, and also of transactions logged in the history. This identifier acts as the "UUID node", as specified by RFC 4122. |
| <b>Repository label</b>                                | Defines a user-friendly label that indicates the purpose and context of the repository.  |

See also [TIBCO EBX main configuration file](#) [p 47]

## Defining users in the default directory

If a custom user and roles directory is not defined in the EBX main configuration file, the configuration assistant allows to define default users for the default user and roles directory.

An administrator user must be defined. You may optionally create a second user.

See also [Users and roles directory](#)

## Validating the information entered

Before proceeding with the installation of the repository, you can review the configuration of the repository and the information entered on the 'Configuration Summary' page. If you need to modify information, you can return to the previous pages using the configuration assistant < **Back** button.

Once you have verified the configuration, click the button **Install the repository** > to proceed with the installation.

## Installing the EBX repository

The repository installation is performed using the provided information. When the installation is complete, you are redirected to the repository login page.

## CHAPTER 9

# Deploying and registering TIBCO EBX add-ons

**Note**

Refer to the documentation of each add-on for additional installation and configuration information in conjunction with this documentation.

This chapter contains the following topics:

1. [Deploying an add-on module](#)
2. [Registering an add-on module](#)
3. [Activating an add-on module](#)
4. [Deleting an add-on module](#)

## 9.1 Deploying an add-on module

**Note**

**Each add-on bundle version is intended to run with a specific EBX version and all its fix releases. Make sure that the EBX and add-on bundle versions are compatible, otherwise the add-on registration will abort.**

Copy the add-on common JAR file (named `lib/ebx-addons.jar`) in the EBX class-path; it must be accessible from the `ebx.jar` class-loader.

Copy the add-on common WAR file (named `wars/ebx-addons-common.war`) in the same folder or EAR as EBX built-in web applications.

If an add-on is used, copy the EBX add-on WAR file (named `wars/ebx-addons-<name>.war`) in the same folder or EAR as EBX built-in web applications.

See [Web applications](#) [p 16], [Deployment details](#) [p 18] and [Installation notes](#) [p 21] for more information.

**Note**

The add-on log level can be managed in the [main configuration file](#) [p 55].

## 9.2 Registering an add-on module

Registering an add-on makes its configuration available in the admin section. Add-on features are only available to end-users when the add-on is also [activated](#) [p 72].

To register a new EBX add-on in the repository:

1. Navigate to the 'Administration' area.
2. Click the down-arrow in the navigation pane and select **Technical configuration > Add-ons registration**.
3. On the **Registered add-ons** page, click the + button to create a new entry.
4. Select the add-on you are registering.
5. Click on **Save**.

### Note

Unregistering an add-on will not delete any existing configuration, but will make it available in the UI until the add-on is registered again.

## 9.3 Activating an add-on module

Activating an add-on makes its features available to the end-users. Only registered add-ons can be activated.

To activate an EBX add-on in the repository:

1. Navigate to the 'Administration' area.
2. Click the down-arrow in the navigation pane and select **Technical configuration > Add-ons registration**.
3. Select the registered add-on you are activating and enable the 'Activation' field.
4. Click on **Save**.

## 9.4 Deleting an add-on module

To delete an add-on module from the EBX repository:

1. Navigate to the 'Administration' area.
2. Click the down-arrow in the navigation pane and select **Technical configuration > Add-ons registration**.
3. On the **Registered add-ons** page, tick the box corresponding to the add-on to be deleted.
4. In the 'Actions' menu, select 'Delete'.
5. Close and purge the Administration datasets related to the previously used add-on, as well as the including dataspace.

When an add-on is no longer deployed, a dataspace corresponding to the Administration dataset will then appear in the list of Reference children under the dataspace. When an add-on module is no longer deployed, it is thus necessary to close/delete and purge manually all data/dataspace related to the add-on.