



TIBCO EBX®

Container Edition Guide

Version 6.1.2
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CHAPTER 1

Building the image

This chapter contains the following topics:

1. [Overview](#)
2. [Requirement](#)
3. [Building the image](#)

1.1 Overview

TIBCO EBX® Container Edition image is Linux based and includes the following:

- Application Server Apache Tomcat® 9.0
- Java JDK 17

1.2 Requirement

The image can be built on a POSIX native system or using a compatible layer:

- **Operating system** : Linux, macOS, Windows (10 version 2004, Server 2022 or greater) using WSL2,
- **Processor type** : Intel or AMD 64 bits,
- **Docker Engine** installed and running,
- Access to **Internet** .

1.3 Building the image

Download installers

To build an EBX® image, one needs to download file **TIB_ebx_6.1.2_addon_6.1.X_container_edition.zip** from TIBCO eDelivery.

Running the interactive installer

To start installer on **Linux** or **macOS** :

- Unzip the **TIB_ebx_6.1.2_addon_6.1.X_container_edition.zip** ,
- Open a terminal in folder where file **ebx-ce-installer.sh** file is located,

- Execute command **./ebx-ce-installer.sh** .

To start installer on **Windows** :

- Unzip the **TIB_ebx_6.1.2_addon_6.1.X_container_edition.zip** ,
- Open a Windows PowerShell in folder where file **ebx-ce-installer.bat** file is located,
- Execute command **ebx-ce-installer.bat** .

Follow instructions and select **addons** to be added to the image.

The installer will then build the image and print a summary similar to:

```
*****
The TIBCO EBX Container Edition image was successfully created with following names:
ebx:latest
ebx:6.1.2-dama-dint-dmdv-dpra-mame-tese-6.1.X
This image includes the following addon(s):
Digital Asset Manager (DAMA)
Data Exchange (New) (DINT)
Data Model and Data Visualization (DMDV)
Insight (New) (DPRA)
Match and Merge (MAME)
Information Search (TESE)
To run this image with the default configuration and an embedded database, use command:
docker run -p 8080:8080 -d ebx:latest
You can test EBX by visiting http://localhost:8080 in a browser.
To run this image with other configurations, for example with an external database, see
documentation.
*****
```

Running the batch installer

To start batch installer on **Linux** or **macOS** :

- Unzip the **TIB_ebx_6.1.2_addon_6.1.X_container_edition.zip** ,
- Open a terminal in folder where file **ebx-ce-installer-batch.sh** file is located,
- Execute command **./ebx-ce-installer-batch.sh [OPTION]... [addon]...**

```
Batch script to build image with optionally addon(s).

-a          add all addons
-t <tag_file> create a file named tag_file including the image tag built
--help      display this help and exit

[addon]...  add specific addons (separate by a space)
            for sample: mame tese
```

To start batch installer on **Windows** :

- Unzip the **TIB_ebx_6.1.2_addon_6.1.X_container_edition.zip** ,
- Open a Windows PowerShell in folder where file **ebx-ce-installer-batch.bat** file is located,
- Execute command **ebx-ce-installer-batch.bat [OPTION]... [addon]...**

The batch installer will then build the image and print a summary identical to the interactive installer.

Testing the image

The image can be run locally using command:

```
docker run -p 8080:8080 -d ebx:latest
```

In **production** , it is recommended to **not** use tag **latest** . The installer will always generate another tag depending on selected addons.

If previous sample, the tag is **6.1.2-dama-dint-dmdv-dpra-mame-tese-6.1.X** because the following addons were selected:

- Digital Asset Manager (DAMA),
- Data Exchange (New) (DINT),
- Data Model and Data Visualization (DMDV),
- Insight (New) (DPRA),
- Match and Merge (MAME),
- Information Search (TESE).

The image can then be run using command:

```
docker run -p 8080:8080 -d ebx:6.1.2-dama-dint-dmdv-dpra-mame-tese-6.1.X
```

If no addons are selected, the tag is **6.1.2**

The image can be run using command:

```
docker run -p 8080:8080 -d ebx:6.1.2
```

Sharing the image

The steps to share an image depends on customer's company infrastructure.

In following example, the image is pushed to a Docker private registry named **myregistry** :

```
docker tag ebx:6.1.2 myregistry:5000/ebx:6.1.2
docker push myregistry:5000/ebx:6.1.2
```

Other architectures than Intel or AMD

The installers are tested on Intel or AMD 64 bits systems. On these platforms the generated image's architecture will be **linux/amd64** .

The installers may succeed when running on a system using another processor. In that case the generated image architecture will be linux for that processor type.

For example, if the installer runs on a MacOS M1 workstation, the generated image's architecture will be **linux/arm64** .

Attention

Generating an image on a system that is not Intel or AMD is **experimental** and is **not supported in production** .

CHAPTER 2

Running the image

This chapter contains the following topics:

1. [Support Policy](#)
2. [Starting EBX®](#)
3. [Container access](#)
4. [Environment variables](#)
5. [Configuration files](#)
6. [Volumes](#)
7. [Linux user and group](#)
8. [Host configuration](#)
9. [Logs access](#)

2.1 Support Policy

Docker

TIBCO EBX® Container Edition is tested with the Docker Engine version 20.10.

Kubernetes

Current EBX® Container Edition release was tested with a certified Kubernetes implementation version 1.26 and Red Hat® OpenShift® 4.13.1.

We provides Helm chart samples for EBX® Container Edition that are available on GitHub. See <https://github.com/TIBCOSoftware/ebx-container-edition> for more information.

2.2 Starting EBX®

First-launch assistant

To start EBX® with default configuration that includes an embedded H2 database, execute command:

```
docker run -p 8080:8080 -d ebx:6.1.2
```

Using a browser, you can connect to EBX® with URL <http://localhost:8080> . This will display the **first-launch assistant** that will help you configure EBX®.

For more information on the first launch assistant, see chapter *Initialization and first-launch assistant* .

Automatic initialization

To start EBX® with automatic initialisation on first startup and an embedded H2 database, execute command:

```
docker run -d -p 8080:8080 \
-e "EBX_FLA_DISABLED=true" \
-e "EBX_INSTALL_ADMIN_PASSWORD=<password>" \
ebx:6.1.2
```

The EBX® repository will be automatically created on first startup.

Using a browser, you can connect to EBX® with URL <http://localhost:8080> . This will display the EBX® login screen. The username for administrator is **admin** and the password is the one specified in previous command.

Note

It's possible to specify another username for the administrator. For more information see [Automatic repository installation on first launch](#) [p 9] .

Supported browsers

For details a supported browsers see: *Supported Web Browsers* .

2.3 Container access

The following command will start a bash shell inside the EBX® container using default user:

```
docker exec -it <container-id> bash
```

To connect as root, use command:

```
docker exec -it --user root <container-id> bash
```

2.4 Environment variables

This chapter describes the environment variables supported by **EBX® Container Edition** .

All are optional.

Disabling First-launch assistant

For security reasons, one might want to disable the first-launch assistant in all circumstances.

This is achieved by setting environment variable to **EBX_FLA_DISABLED** to **true** .

Automatic repository installation on first launch

If the repository is not yet initialized and first-launch assistant is disabled, EBX® will automatically trigger its installation if following mandatory variables are provided:

Name	Default	Description
EBX_INSTALL_ADMIN_LOGIN	admin	Sets the EBX® administrator login name. This parameter is ignored if repository variable EBX_FLA_DISABLED value is not true or if repository is already initialized.
EBX_INSTALL_ADMIN_PASSWORD		Sets the EBX® administrator login name. This parameter is mandatory if EBX_FLA_DISABLED value is true and is ignored if repository variable EBX_FLA_DISABLED value is not true or if repository is already initialized.

Note

If mandatory variables are not provided, EBX® will display an error message.

Example

To automatically install repository launch EBX® using following command:

```
docker run -d -p 8080:8080 \
-e "EBX_FLA_DISABLED=true" \
-e "EBX_INSTALL_ADMIN_LOGIN=<login-name>" \
-e "EBX_INSTALL_ADMIN_PASSWORD=<password>" \
ebx:6.1.2
```

URL configuration

Some EBX® features require generating URLs. Specific configuration may be required to achieve this, for example if EBX® is running behind a reverse proxy or on a Kubernetes cluster.

Name	Default	Description
EBX_IS_SECURED	If incoming request is HTTPS, "true" is assumed or else "false" is assumed.	If "true", the protocol "HTTPS" is assumed. If "false", the protocol "HTTP" is assumed.
EBX_HOSTNAME	The host name specified by the incoming HTTP(S) request.	The EBX® server host name.
EBX_PORT	The port number specified by the incoming HTTP(S) request.	The EBX® server port number.
EBX_ROOT_PATH	By default, the context path is empty.	If set, all EBX® urls will be prefixed by this value. The value must have a leading / and must not have a trailing / except if value is / . For example a valid value is /mdm/sales . Setting this variable is useful when running more than one instance of EBX with the same host name.
EBX_URL_DEFAULT		This environment variable is used when a background task needs to calculate a URL to EBX. It should be set to a full URL without the path component (EBX_ROOT_PATH applies for the path component). For example a valid value is: https://host_name . If EBX_URL_DEFAULT is not specified and EBX_HOSTNAME is specified, a default is calculated with following assumptions: - If EBX_IS_SECURED is not specified, 'false' is assumed, - If EBX_PORT is not specified, 443 is assumed if EBX_IS_SECURED is true or else 80 is assumed.

Database connectivity

For information on supported databases see chapter *Supported databases* .

By default, an embedded H2 database is used. Data for this H2 database is persisted at location **/ebx/data/h2** .

An external database may be configured using following variables:

Name	TIBCO EBX® main configuration file equivalent	Description
EBX_DB_FACTORY	ebx.persistence.factory	Specifies the type of database server.
EBX_DB_URL	ebx.persistence.url	The JDBC URL. It has format: jdbc:postgresql://<database_host>:<database_port_number>/<database_name> .
EBX_DB_USER	ebx.persistence.user	The database user id.
EBX_DB_PASSWORD	ebx.persistence.password	The database user password.

For more information on these variables see their TIBCO EBX® main configuration file equivalent in chapter *Configuring the EBX® repository* .

Note

The container includes JDBC drivers only for H2, PostgreSQL and Microsoft SQL Server. Using other databases that are supported by EBX® require adding the driver.

For instructions on how to add a driver, see [Adding a new JDBC driver](#) [p 19] .

Example

To start EBX® that connects to a Postgres database, execute following command:

```
docker run -d -p 8080:8080 \
-e "EBX_DB_FACTORY=postgresql" \
-e "EBX_DB_URL=jdbc:postgresql://<server_name>:5432/<database_name>" \
-e "EBX_DB_USER=<user_name>" \
-e "EBX_DB_PASSWORD=<user_name>" \
ebx:6.1.2
```

Email connectivity

The EBX Mail service can be configured through the following environment variables :

Name	TIBCO EBX® main configuration file equivalent	Default	Description
EBX_SMTP_HOST	ebx.mail.smtp.host		SMTP server host name.
EBX_SMTP_PORT	ebx.mail.smtp.port		SMTP server port number.
EBX_SMTP_CONNECTION_TIMEOUT	ebx.mail.smtp.connectionTimeout	600000	SMTP socket connection timeout value in milliseconds.
EBX_SMTP_TIMEOUT	ebx.mail.smtp.timeout	600000	SMTP socket read timeout value in milliseconds.
EBX_SMTP_WRITE_TIMEOUT	ebx.mail.smtp.writeTimeout	600000	SMTP socket write timeout value in milliseconds.
EBX_SMTP_LOGIN	ebx.mail.smtp.login		SMTP server login id.
EBX_SMTP_PASSWORD	ebx.mail.smtp.password		SMTP server login password.
EBX_SMTP_SSL_ENABLED	ebx.mail.smtp.ssl.activate	true	Enables SSL. Value can be 'true' or 'false'.
EBX_WORKFLOW_MAIL_SENDER	ebx.manager.workflow.mail.sender		The workflow sender email. If not set, Workflows cannot send notifications.

More information on the used properties can be found in chapter *Activating and configuring SMTP and emails* .

Memory configuration

Environment variables **JAVA_MEMORY_PERCENT** may be used to configure the percentage of the container memory that is assigned to the JVM the runs EBX®. It must be an integer value between 0 and 100.

If not set, a default value is used at startup.

Note

This variable is for advanced usage. Setting it too low or too high may cause runtime issues.

Authentication for REST services

Basic authentication for REST services is not enabled by default.

To enable this feature, set environment variable **EBX_REST_AUTHENTICATION_BASIC** to **true** .

Staging

The environment variable **EBX_STAGING_ACTIVATED** activates, if value is **true** , or deactivates, if value is **false** , the staging feature.

By default, staging is activated.

2.5 Configuration files

Two Java property files are currently used to configure EBX®.

On startup EBX® reads property files in the following order:

- **/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties**
- **/my_custom/conf/ebx-container.properties**

File ebx-default.properties

The file **/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties** sets default EBX® configuration properties for the container.

It should **never** be modified at runtime as this may prevent easily updating EBX® to a next version, instead use **/opt/ebx/conf/ebx-container.properties** .

File ebx-container.properties

The file **/opt/ebx/conf/ebx-container.properties** is by default empty. Any property value specified here will override the value set by **ebx-default.properties** .

This file is useful to change a property at runtime. To change a property at run time, create a new file, for example **/my_custom/conf/ebx-container.properties** , containing the new property values and mount de parent folder from the host to the container:

```
docker run -v /my-custom/conf:/opt/ebx/conf -p 8080:8080 -d ebx:6.1.2
```

For the list of properties supported by EBX® see chapter *TIBCO EBX® main configuration file* .

2.6 Volumes

This image defines the following volumes:

Location	Description
/ebx/data	The EBX® root directory is located in this volume. It contains EBX® indexes and, when H2 embedded database is used, persisted data. It is recommended to use a high performance volume, for example an SSD. Using a shared network volume, for example a NFS mount, is not recommended and may cause performance and stability issues.
/ebx/logs	This volume is used for log files.
/ebx/temp	This volume is used for temporary files.

Note

The volume **/ebx/data** should be mapped to a persistent volume even when an external database is used. If not, EBX will have to rebuild its indexes on startup which may considerably increase boot time.

2.7 Linux user and group

The container is started using user **ebx** (uid 1500). User ebx's primary group is **root** (guid 0).

Note

Red Hat® OpenShift® may use another UID than 1500 when starting the container. For details see Red Hat® OpenShift® documentation.

2.8 Host configuration

It may be necessary to configure the Host so that the EBX Container can reserve the resources required by numerous memory-mapped files.

On a Linux OS:

- Command **ulimit -n** should return a value equal or greater than **512000** .
- Command **sysctl vm.max_map_count** should return a value equal or greater than **262144** .

2.9 Logs access

Logs are sent to the stdout and stderr output streams and can be viewed using the following command:

```
docker logs <container-id>
```

Logs for both EBX® and Tomcat will be displayed.

Log files are also available under folder **/ebx/logs** :

- EBX® logs files are in folder **/ebx/logs/ebx**

- Tomcat logs files are in folder **/ebx/logs/tomcat** .

CHAPTER 3

Customizing the image

The EBX® Container Edition image can be used as a parent image to create a customized image.

This chapter contains the following topics:

1. [User specified in Docker file](#)
2. [Setting default configuration](#)
3. [Adding a custom module](#)
4. [Adding a new locale](#)
5. [Adding a new JDBC driver](#)

3.1 User specified in Docker file

The EBX® Container Edition image's docker file specifies user **ebx** .

A Docker file extending the image may need to set current user to root and later switch back to **ebx** as in following sample:

```
FROM ebx:6.1.2
USER root
# Do something requiring being root...
USER ebx
```

3.2 Setting default configuration

Setting default EBX® configuration should not be based on **/opt/ebx/conf/ebx-container.properties** as this file may be overridden at runtime.

Instead, proceed as following in the Docker file:

- Rename file **/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties** , for example to **ebx-default-original.properties** .
- Create a new file **/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties** container new property values. This file must define property **ebx.file.previous** set to the original property file new name, for example **ebx-default-original.properties** .

For the list of properties supported by EBX® see chapter *TIBCO EBX® main configuration file* .

Here is a sample Docker file that set the locale to "en-US"

```
FROM ebx:6.1.2
USER root

RUN mv /opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties \
```

```

/opt/ebx/webapps/ebx/WEB-INF/ebx-default-original.properties
RUN echo "ebx.file.previous=ebx-default-original.properties" >> \
/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties
RUN echo "ebx.locales.available=en-US" >> /opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties
USER ebx

```

3.3 Adding a custom module

One can extend EBX® by developing custom modules. An EBX® module is a standard Java EE web application, packaging various resources such as XML Schema documents, Java classes and static resources.

For more information on EBX® module see chapter *Packaging TIBCO EBX® modules*.

With EBX® Container Edition, it is recommended to deploy modules as "unpacked" (exploded) WARs. This allows a faster startup and avoids unnecessarily increasing container size because Tomcat will not need to unpack WAR files.

The recommended way to add a module to an image is to:

- Copy the WAR to folder **/opt/ebx/webapps**. As stated previously, exploded format is recommended.
- Create an associated **Tomcat context XML file** named **module_war_name.xml** and copy it to folder **/opt/ebx/contexts**.
- Optionally, copy shared JARs to folder **/opt/ebx/lib**.

The **Tomcat context XML file** should have the following content:

```

<?xml version="1.0" encoding="UTF-8"?>
<Context docBase="{ebx.container.base}/webapps/module_war_name"/>

```

Using variable **{ebx.container.base}** is required for correct support of environment variable **EBX_ROOT_PATH**.

For more information on Tomcat contexts see https://tomcat.apache.org/tomcat-9.0-doc/config/context.html#Defining_a_context.

Here is a sample Docker file:

```

FROM ebx:6.1.2
USER root
COPY "/module_name.xml" "/opt/ebx/contexts"
COPY "/module_name" "/opt/ebx/webapps"
USER ebx

```

3.4 Adding a new locale

To add a new local you must have the jar file containing the language pack and add the locale to the ebx configuration.

Here is a sample Docker file

```

FROM ebx:6.1.2
USER root

COPY "<path_to_lib>" "/opt/ebx/lib"

RUN mv "/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties" \
"/opt/ebx/webapps/ebx/WEB-INF/ebx-default-original.properties"

RUN echo "ebx.file.previous=ebx-default-original.properties" >> \
"/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties"
RUN echo "ebx.locales.available=es" >> "/opt/ebx/webapps/ebx/WEB-INF/ebx-default.properties"

```

```
USER ebx
```

In this example, the lib is copied and the locale is set to "es" using the method described in the ["setting default configuration"](#) [p 17] section

3.5 Adding a new JDBC driver

Adding a new JDBC driver is similar to adding a new library. You simply have to copy the jar file in the "/opt/ebx/lib" folder with the correct permission. Here is an example with the Oracle JDBC driver :

```
FROM ebx:6.1.2
USER root

ADD \
  https://repo1.maven.org/maven2/com/oracle/database/jdbc/ojdbc11/21.8.0.0/ojdbc11-21.8.0.0.jar \
  "/opt/ebx/lib/"

RUN chmod +r "/opt/ebx/lib/ojdbc11-21.8.0.0.jar"

USER ebx
```

See *Database drivers* for more information.

CHAPTER 4

Documentation and Support

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

This chapter contains the following topics:

1. [How to Access TIBCO Documentation](#)
2. [Product-Specific Documentation](#)
3. [How to Contact TIBCO Support](#)
4. [How to Join TIBCO Community](#)

4.1 How to Access TIBCO Documentation

Documentation for TIBCO products is available on the [TIBCO Product Documentation](#) website, mainly in HTML and PDF formats.

The [TIBCO Product Documentation](#) website is updated frequently and is more current than any other documentation included with the product.

4.2 Product-Specific Documentation

The documentation for the TIBCO EBX® is available on the [TIBCO EBX® Product Documentation](#) page. This page contains the latest version of each document.

The documentation for the TIBCO EBX® Add-ons is available on the [TIBCO EBX® Add-ons Product Documentation](#) page. This page contains the latest version of each document.

To view the documents for Add-on Bundles that are compatible with other versions of TIBCO EBX®, use the **Bundle version** menu to select the desired release.

4.3 How to Contact TIBCO Support

Get an overview of [TIBCO Support](#). You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the [TIBCO Support](#) website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to [TIBCO Support](#) website. If you do not have a user name, you can request one by clicking **Register** on the website.

4.4 How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the [TIBCO Ideas Portal](#). For a free registration, go to [TIBCO Community](#).

CHAPTER 5

Legal and Third-Party

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