



# **FUJITSU Software Systemwalker Service Catalog Manager V15.3.0**

## **Installation Guide (GlassFish)**

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## About this Manual

This manual describes how to install and uninstall FUJITSU Software Systemwalker Service Catalog Manager - hereafter referred to as Catalog Manager (CT-MG).

The manual is structured as follows:

Chapter	Description
<i>Introduction</i> on page 8	Provides an overview of CT-MG, its architecture, and the distribution media.
<i>Prerequisites and Preparation</i> on page 11	Describes the prerequisites that must be fulfilled and the preparations you need to take before installing and deploying CT-MG.
<i>Installation</i> on page 15	Describes how to install CT-MG with the help of the utilities which are shipped with the software.
<i>Update Installation</i> on page 24	Describes how to update CT-MG.
<i>Uninstallation</i> on page 26	Describes how to uninstall CT-MG.
<i>Application Server Resources</i> on page 27	Describes the resources required for CT-MG on the application server.
<i>Configuration Settings</i> on page 30	Describes the CT-MG configuration settings.

## Readers of this Manual

This manual is directed to operators who install and maintain CT-MG in their environment.

It assumes that you are familiar with the following:

- Administration of the operating systems in use, including the adaption and execution of batch files or shell scripts.
- Java EE technology, particularly as to the deployment on application servers.
- Relational databases and their administration, in particular, the PostgreSQL database.
- CT-MG concepts as explained in the *Overview* manual.
- Installation and administration of Web servers.
- Installation and administration of the GlassFish application server.

## Notational Conventions

This manual uses the following notational conventions:

<b>Add</b>	The names of graphical user interface elements like menu options are shown in boldface.
<code>init</code>	System names, for example, command names, and text that is entered from the keyboard are shown in Courier font.
<code>&lt;variable&gt;</code>	Variables for which values must be entered are enclosed in angle brackets.

---

[option]	Optional items, for example, optional command parameters, are enclosed in square brackets.
one   two	Alternative entries are separated by a vertical bar.
{one   two}	Mandatory entries with alternatives are enclosed in curly brackets.

## Abbreviations

This manual uses the following abbreviations:

<b>API</b>	Application Programming Interface
<b>CT-MG</b>	Catalog Manager
<b>DBMS</b>	Database Management System
<b>EJB</b>	Enterprise JavaBeans
<b>IdP</b>	SAML Identity Provider
<b>JMS</b>	Java Message Service
<b>LDAP</b>	Lightweight Directory Access Protocol
<b>PaaS</b>	Platform as a Service
<b>PSP</b>	Payment Service Provider
<b>SaaS</b>	Software as a Service
<b>SAML</b>	Security Assertion Markup Language
<b>SOAP</b>	Simple Object Access Protocol
<b>STS</b>	Security Token Service

The term "Windows" is used to denote the different Microsoft Windows operating systems supported by CT-MG. "UNIX" stands for the supported UNIX operating systems, "Linux" for the supported Linux systems.

## Available Documentation

The following documentation on CT-MG is available:

- *Overview*: A PDF manual introducing CT-MG. It is written for everybody interested in CT-MG and does not require any special knowledge.
- *Online Help*: Online help pages describing how to work with the administration portal of CT-MG. The online help is directed and available to everybody working with the administration portal.
- *Installation Guide*: A PDF manual describing how to install and uninstall CT-MG. It is directed to operators who set up and maintain CT-MG in their environment.
- *Operator's Guide*: A PDF manual for operators describing how to administrate and maintain CT-MG.
- *Technology Provider's Guide*: A PDF manual for technology providers describing how to prepare applications for usage in a SaaS model and how to integrate them with CT-MG.

- *Supplier's Guide*: A PDF manual for suppliers describing how to define and manage service offerings for applications that have been integrated with CT-MG.
- *Reseller's Guide*: A PDF manual for resellers describing how to prepare, offer, and sell services defined by suppliers.
- *Broker's Guide*: A PDF manual for brokers describing how to support suppliers in establishing relationships to customers by offering their services on a marketplace.
- *Marketplace Owner's Guide*: A PDF manual for marketplace owners describing how to administrate and customize marketplaces in CT-MG.
- *Developer's Guide*: A PDF manual for application developers describing the public Web service interface of CT-MG and how to use it to integrate applications and external systems with CT-MG.
- Javadoc documentation for the public Web service interface of CT-MG and additional resources and utilities for application developers.

# 1 Introduction

Catalog Manager (CT-MG) is a set of services which provide all business-related functions and features required for turning on-premise software applications into Software as a Service (SaaS) offerings and using them in the Cloud. This includes ready-to-use account and subscription management, online service provisioning, billing and payment services, and reporting facilities.

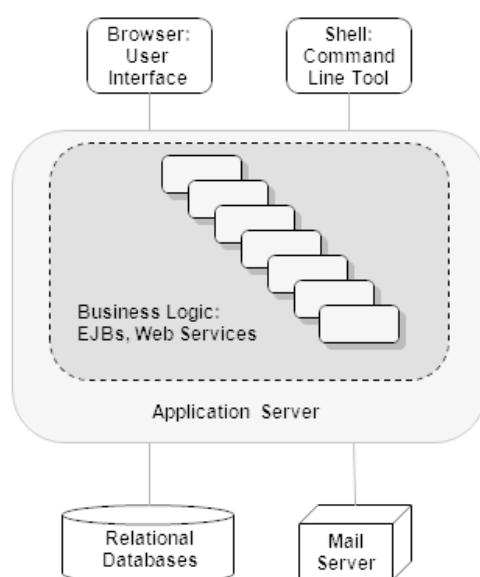
With its components, CT-MG covers all the business-related aspects of a Platform as a Service (PaaS) or Cloud platform. It supports software vendors as well as their customers in leveraging the advantages of Cloud Computing.

CT-MG is typically operated in data centers on servers providing for optimum performance, scalability, and non-stop operation. The applications integrated with CT-MG and their data may be hosted in the same data centers as CT-MG or in different locations.

## 1.1 CT-MG Architecture

CT-MG is implemented in Java, using Java Platform, Enterprise Edition (Java EE ) technology. It is deployed on an application server supporting this technology.

The following figure provides an overview of the architecture:



CT-MG has a three-tier architecture:

- The **presentation layer** in the application server's Web container includes the **user interface** (administration portal and marketplaces), realized as JavaServer Faces. Users access the user interface in Web browsers. In addition, CT-MG provides a **command line tool**, which operators can install to carry out their tasks from a command shell instead of the administration portal.



- The **business logic** is implemented in Enterprise JavaBeans (EJB). Both the Enterprise JavaBeans and the **public Web service interface** are available in the application server's EJB container. The public Web service interface is mainly used for integrating applications and external systems with CT-MG. However, it can also be employed for accessing CT-MG functionality from a Web service client. HTTPS must be used for communication with the public Web service interface.
- CT-MG **persists** its data through the Java Persistence API in **relational databases**.

For informing users about relevant issues (e.g. their registration or assignment to a subscription), CT-MG must have access to a mail server.

## 1.2 Distribution Media

CT-MG is distributed in the following packages:

- **Installation Package, `fujitsu-bss-install-pack.zip`:**  
Contains the CT-MG software and documentation for installation and deployment in a data center. The package includes:
  - The archive files that will be deployed on the application server:
    - `fujitsu-bss.ear`: The CT-MG platform.
    - `fujitsu-bss-portal.war`: The CT-MG administration portal and marketplace.
    - `eclipse-birt-runtime.war`: The report engine.
    - `fujitsu-bss-search.ear`: The search indexer application.
  - Optional: `fujitsu-branding.war`. A branding package for marketplaces with FUJITSU styles and layout. If you do not deploy this archive, a marketplace with neutral layout will be installed. You can customize this marketplace to your own needs.
- `fujitsu-bss-setup.zip`: The configuration files and XML files that support you in setting up the databases and application server resources for CT-MG.
- `fujitsu-bss-operatorclient.zip`: The command line tool.

The subsequent chapters of this manual describe the installation and deployment in detail.

- **Integration Package, `fujitsu-bss-integration-pack.zip`:**  
Contains the public Web service interface of CT-MG, its documentation as well as additional resources, templates, samples, and utilities. Developers and technology providers can use this package for integrating applications and external systems with CT-MG. This is described in detail in the *Technology Provider's Guide* and the *Developer's Guide*.
- **Payment Service Provider Integration Package, `fujitsu-bss-integration-psp-pack.zip`:**  
Contains the public Web service interface as well as additional resources and documentation for integrating a payment service provider (PSP) with CT-MG. A sample implementation of a PSP integration adapter is also included. Operators can use the sample for integrating the Heidelpay PSP on their platform.
- **Integration Package for Asynchronous Provisioning, `fujitsu-bss-integration-app-pack.zip`:**  
Contains the asynchronous provisioning platform (APP) as well as samples and documentation. APP is a framework which provides a provisioning service as well as functions, data persistence, and notification features which are always required for integrating applications with CT-MG in asynchronous mode.



## 2 Prerequisites and Preparation

The following sections describe the prerequisites that must be fulfilled and the preparations you need to take before installing and deploying CT-MG.

### 2.1 Hardware and Operating Systems

CT-MG as a Java application does not rely on specific hardware or operating systems. It can be deployed on any platform supported by the application server and the database management system (see below).

CT-MG without any data requires about 150 MB of disk space.

Apart from this, CT-MG does not have specific requirements as to the power, performance, capacity, or configuration of CPUs, memory, and disks. CT-MG is usually deployed as part of a Cloud platform for which the most powerful and efficient hardware is used anyway.

### 2.2 Java and Ant

CT-MG requires a Java Development Kit (JDK), version 7, 64 bit.

For being able to execute the installation scripts, you need to install the Apache Ant 1.8 (or higher) open source software. In the subsequent sections, `<ANT_HOME>` is the installation directory of Apache Ant.

### 2.3 Application Server

CT-MG must be deployed on an application server compatible with Java EE version 6. The following application server is supported:

Oracle GlassFish Server, version 3.1.2.2.

**Note:** Before installing GlassFish, make sure that the `JAVA_HOME` environment variable points to a Java Development Kit (JDK), version 7, 64 bit..

Proceed as follows:

1. Install the application server as described in its documentation, and configure it as required by your environment.

**Note:** Make sure that the path of the GlassFish installation directory does not contain blanks.

2. After having configured GlassFish, make a backup copy of the GlassFish installation.
3. Make sure that GlassFish is running in a JDK 7 environment. Also, make sure that no other applications (e.g. Tomcat) are running on your GlassFish ports.

CT-MG always requires two domains in your application server:

- One for the actual CT-MG application (`bes-domain`).
- One for the search indexer application (`master-indexer-domain`). CT-MG applies a master/slave search architecture: Every slave node delegates its index-related work to the master node. The slave node is where the CT-MG application runs; the master node is where the search indexer application runs.

Both domains can be created by running the CT-MG installation scripts.

---

In the subsequent sections, `<GLASSFISH_HOME>` is the installation directory of GlassFish.

**Note:** CT-MG can be operated in a multi-node environment: You can install several CT-MG domains communicating with one master indexer domain. In this case, a load balancer must be configured for handling and distributing the load on the various nodes. In case you want to set up a multi-node environment, refer to the relevant documentation (application server, load balancer), or contact your Fujitsu support organization.

## 2.4 Relational Databases

CT-MG stores its data in relational databases. The following database management system (DBMS) is supported:

PostgreSQL, version 9.1.6.

Install the DBMS as described in its documentation.

It is recommended that you use a separate machine for the CT-MG databases.

### Setup and Configuration

Edit the file

`<postgres_dir>/data/postgresql.conf`

as follows (`<postgres_dir>` is the PostgreSQL installation directory):

1. Set the `max_prepared_transactions` property value to 50.
2. Set the `max_connections` property value to 210.

This property determines the maximum number of concurrent connections to the database server.

Be aware of the following: This setting is used in combination with the JDBC pool size settings for the domains on your application server. If you change the JDBC pool size, you might need to adapt the `max_connections` setting. Refer to the *Operator's Guide*, section *Tuning Performance*, for details.

3. Set the `listen_addresses` property value:

Specify the IP addresses of all application servers on which the database server is to listen for connections from client applications. If you use the entry `'*'`, which corresponds to all available IP addresses, you must be aware of possible security holes.

4. Save the file.

If you use a server name in all configuration files instead of `localhost` during installation, edit the file

`<postgres_dir>/data/pg_hba.conf`

as follows (`<postgres_dir>` is the PostgreSQL installation directory):

1. Add the IP address of the application server that is to host the CT-MG application.

For example:

```
host all all 123.123.12.1/32 md5
```

There are authentication methods other than `md5`. For details, refer to the PostgreSQL documentation.

2. Save the file.

---

Restart your PostgreSQL server for the changes to take effect.

## 2.5 Mail Server

For informing users about relevant issues (e.g. their registration or assignment to a subscription), CT-MG requires a mail server in its environment. You can use any mail server that supports SMTP.

The settings for addressing the mail server are defined in the `glassfish.properties` file. Refer to *GlassFish Configuration Settings* on page 31 for details.

## 2.6 Web Browsers

The CT-MG user interface supports the following Web browsers:

- Google Chrome 23.0 - 31.0
- Microsoft Internet Explorer 8.0, or Microsoft Internet Explorer 9.0 or 10.0 running in 8.0 compatibility mode, or Microsoft Internet Explorer 11.0
- Mozilla Firefox 16.0 - 24.0

**Note:** Using the administration portal of CT-MG as well as marketplaces requires to have cookies enabled.

## 2.7 User Authentication

Before starting to install CT-MG, you must decide on how users and Web services are to be authenticated. The following scenarios are supported:

- CT-MG is installed as a platform for public access from anywhere in the Internet. Users are authenticated with CT-MG and can be managed in CT-MG or an existing LDAP system of an organization. Web service calls are formatted as SOAP messages and are authenticated in CT-MG either by providing user ID and password in their header, or by certificates.

This authentication mode is referred to as **INTERNAL**.

It is recommended to use the INTERNAL authentication mode if Web browser single sign-on is not required, and if your customers are to be able to register themselves.

- CT-MG is installed as a SAML 2.0 service provider.

SAML (Security Assertion Markup Language) is an XML-based protocol that uses SAML assertions to pass information about a user between a SAML identity provider (IdP) and a SAML service provider (CT-MG). With SAML 2.0, Web browser single sign-on within a company is provided.

All users are authenticated with the IdP; Web service calls are authenticated by means of a Security Token Service (STS). This is a Web service that issues security tokens as defined in the WS-Security/WS-Trust specification. CT-MG as a service provider connects to the IdP or STS and sends a request for a SAML assertion. The IdP or STS returns an assertion authenticating the calling user or Web service.

The user data is managed in the IdP system. Additionally, all users that are to work with CT-MG must be registered explicitly in CT-MG.

This authentication mode is referred to as **SAML\_SP**.

It is recommended to use the SAML\_SP authentication mode if you want to operate CT-MG in a company network and use existing authentication mechanisms that support the SAML 2.0 standard. Customer self-registration is not supported in this case, and can thus be disabled.

---

## 3 Installation

The installation of CT-MG consists of the following main steps:

1. Preparing the CT-MG software and setup utilities. Refer to *Preparing the Software and Setup Utilities* on page 15.
2. Adapting configuration files. Refer to *Configuring CT-MG* on page 15.
3. Setting up the databases. Refer to *Setting up the Databases* on page 17.
4. Setting up the resources in the application server and deploying the CT-MG archives. Refer to *Setting up the Application Server Resources* on page 18.
5. When installing CT-MG in SAML\_SP authentication mode, additional steps are required. Refer to *Establishing an SSO Federation with the IDP and STS* on page 21.
6. Logging in to CT-MG, creating users, and checking the configuration of CT-MG. Refer to *Next Steps* on page 22.

The descriptions in the subsequent sections assume that you are using the CT-MG setup utilities for setting up the databases and the application server resources. This is the easiest way and suitable for most environments, particularly when you are using a database management system and application server installation solely for CT-MG.

In specific situations, however, you may have to set up some or all of the resources manually. This is the case, for example, if you want to integrate the CT-MG resources in an existing environment on an application server.

The resources required by CT-MG on the application server are described in detail in *Application Server Resources* on page 27. Details of how to set up the resources properly can best be obtained from the XML files which are provided for the automated installation and described in the sections below.

### 3.1 Preparing the Software and Setup Utilities

The CT-MG software and setup utilities are provided in the CT-MG installation package, `fujitsu-bss-install-pack.zip`. The contents of the installation package need to be made available in your environment as follows:

1. Extract the contents of the CT-MG installation package, `fujitsu-bss-install-pack.zip`, to a separate temporary directory on the system from where you want to install and deploy CT-MG. In the following sections, this directory will be referred to as `<install_pack_dir>`.

2. Extract the contents of the file

`<install_pack_dir>/fujitsu-bss-setup.zip`

to `<install_pack_dir>/fujitsu-bss-setup`. The directory contains the configuration files and XML files that support you in setting up the databases and application server resources for CT-MG.

### 3.2 Configuring CT-MG

The CT-MG software and setup utilities require a number of settings. These settings are provided in the following files in `<install_pack_dir>/fujitsu-bss-setup`:

- `db.properties`: Settings for the database setup and access.
- `glassfish.properties`: Configuration settings for the application server.

- `glassfishJMSBroker.properties`: Configuration settings for the Java Message Service (JMS) in the application server.
- `configsettings.properties`: Configuration settings for the CT-MG services.  
The initial installation stores these settings in the `bss` database, where you can change them later, if required. An update installation only adds new settings to the database but does not overwrite existing ones.
- `sso.properties`: Configuration setting for creating the first platform operator in CT-MG (`ADMIN_USER_ID`). Only required when installing CT-MG in SAML\_SP authentication mode.

For details, refer to *Configuration Settings* on page 30.

You need to adapt the settings to your environment. In particular, server names, ports, paths, user IDs, and passwords require adaptation. Proceed as follows:

1. Open each of the files listed above with an editor.
2. Check the settings in each file and adapt them to your environment.
3. Save the files to their original location in `<install_pack_dir>/fujitsu-bss-setup`. For future reference, it is a good idea to create a backup of the files.

**Observe the following configuration issues:**

- The specified ports are suggestions and work with the default settings used in the files.
- If you install everything on the local system, use either the server name or `localhost` in all configuration files for all URLs that need to be resolved by CT-MG.

**Do not mix the specification of server names and `localhost`.**

The `BASE_URL` and `BASE_URL_HTTPS` settings in the `configsettings.properties` file must be resolved by clients. They always require the specification of the server name.

Specify the settings as follows:

```
BASE_URL=http://<host>:<port>/fujitsu-bss-portal
BASE_URL_HTTPS=https://<host>:<port>/fujitsu-bss-portal
```

- On Windows, in the `glassfish.properties` file, double-escape the colon in the drive specification of the path to the search indexer application (`master.slave.shared.hibernate.search.sourceBase`). Otherwise the search indexer application may not work properly. The directory you specify for the search indexer application is created automatically.

Example:

```
master.slave.shared.hibernate.search.sourceBase=
C\\:/glassfish/masterSourceBase
```

The `<install_pack_dir>/fujitsu-bss-setup` directory contains the following additional configuration files that are used internally and must not be changed:

- `masterIndexerBroker.accesscontrol.properties`
- `besBroker.accesscontrol.properties`
- `masterIndexerBroker.passwd`
- `besBroker.passwd`

**The following settings are mandatory for using CT-MG in SAML\_SP authentication mode:**



In the `configsettings.properties` file:

1. Set the `AUTH_MODE` configuration key to `SAML_SP`. This setting defines that CT-MG acts as a SAML 2.0 service provider and ensures that Web browser single sign-on can be used.  
This setting can no longer be changed after CT-MG has been started for the first time. It cannot be changed by an upgrade installation either.
2. Set the `SSO_IDP_URL` configuration key to the SAML Redirect URL for the IdP service endpoint. For security and confidentiality reasons, it is recommended to use the HTTPS protocol.
3. Set the `SSO_STS_URL` configuration key to the location of the STS endpoint. For security and confidentiality reasons, it is recommended to use the HTTPS protocol.
4. In order to build up relying parties, you need the following certificates: A public key certificate from the IdP and the STS, which is used for validating the digital signature of the SAML assertion. Request these certificates from the IdP and STS operators. In turn, the STS operator needs the CT-MG domain certificate. Refer to the *Operator's Guide* for details on certificate handling.

Proceed as follows:

1. Import the IdP certificate into a separate truststore file.
2. Specify the path and file name of this truststore file in the `SSO_IDP_TRUSTSTORE` configuration key.
3. Set the `SSO_IDP_TRUSTSTORE_PASSWORD` configuration key to the correct truststore password (default: `changeit`).
4. Import the STS certificate into the application server truststore where CT-MG is deployed.
5. In the `SSO_ISSUER_ID` configuration key, specify a unique identifier for CT-MG. The IdP uses this ID for identifying incoming SAML authentication requests from CT-MG.
6. Set the `SSO_STS_METADATA_URL` configuration key to the MEX address (Issuer Metadata Exchange) of the STS. This is required for the authentication of Web service calls.

In the `sso.properties` file:

Specify the ID of the user who is to become the first CT-MG operator. Each user in CT-MG must relate to an existing user in the IdP system.

### 3.3 Setting up the Databases

CT-MG requires and stores its data in the following PostgreSQL databases:

- The CT-MG database (`bss`). This database is used for the actual business data, as well as for resources and configuration settings, for example, timer data.
- The JMS database (`bssjms`). This database is used for storing JMS data.

The databases are created by the CT-MG installation scripts. They need to be initialized with the appropriate schema and settings.

Proceed as follows:

1. Make sure that the database server is running.
2. Open the command prompt (Windows) or a terminal session (UNIX/Linux).
3. Set the following environment variable for your current session:

`DB_INTERPRETER`: The absolute path and name of the `psql` executable of PostgreSQL. The executable is usually located in the `bin` subdirectory of the PostgreSQL installation directory.

Example:

```
export DB_INTERPRETER="/opt/PostgreSQL/9.1/bin/psql"
```

4. Create the CT-MG databases by executing the `build-db.xml` file in

`<install_pack_dir>/fujitsu-bss-setup` as follows:

```
<ANT_HOME>/bin/ant -f build-db.xml
  createAndUpdateDatabases
```

If you set a password other than `postgres` for the PostgreSQL user account (`postgres`) when installing the database management system, you have to specify the password with the call to the `build-db.xml` file as follows:

```
<ANT_HOME>/bin/ant -f build-db.xml
  createAndUpdateDatabases -Ddb.admin.pwd=<password>
```

**Note:** It may be required to enclose `-Ddb.admin.pwd=<password>` in double or single quotes depending on the operating system.

If the setup of the databases fails with errors, proceed as follows:

1. Check and correct the configuration files.
2. Execute the `build-db.xml` file as follows:

```
<ANT_HOME>/bin/ant -f build-db.xml dropDatabases
<ANT_HOME>/bin/ant -f build-db.xml dropUsers
```

3. Repeat the setup.

## 3.4 Setting up the Application Server Resources

CT-MG requires specific settings and resources in the application server, such as a data source and JMS queues. For details on the resources, refer to *Application Server Resources* on page 27.

Before starting to install CT-MG, make sure that the application server ports you want to use are available. The GlassFish domain creation reserves some ports using the following rules based on the port base principle. For example, when using port base 8000:

Portbase + 48: admin port: 8048

Portbase + 80: HTTP listener: 8080

Portbase + 81: HTTP listener: 8081

Portbase + 86: JMX port: 8086

Portbase + 76: JMS broker port: 8076

Portbase + 37: IIOP listener: 8037

Portbase + 38: IIOP listener: 8038

Portbase + 39: IIOP listener: 8039

By default, the CT-MG installation assumes the following ports:

8048: admin port of the CT-MG domain.

8448: admin port of the search indexer domain.

You can specify the port numbers in the `glassfish.properties` configuration file.

Proceed as follows to create the resources and make the required settings in the application server:

1. Open the command prompt (Windows) or a terminal session (UNIX/Linux).
2. Execute the `build-glassfish-setup.xml` file in `<install_pack_dir>/fujitsu-bss-setup` as follows:

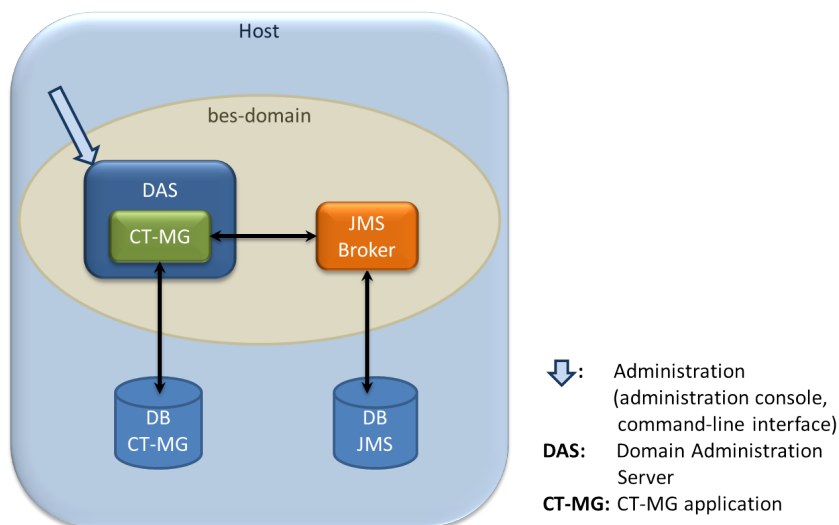
```
<ANT_HOME>/bin/ant -f build-glassfish-setup.xml
STANDALONE.setup
```

This command has the following results:

- The `master-indexer-domain` is created and started.
- The search indexer application (`fujitsu-bss-search.ear`) is deployed to the `master-indexer-domain` domain.
- The `bes-domain` domain is created and started.
- The `fujitsu-bss-security.jar` file is copied from the directory to which you extracted the CT-MG installation package (`<install_pack_dir>`) to the `lib/applibs` subdirectory of the `bes-domain`.
- The settings and resources for CT-MG are created in the application server.
- CT-MG is deployed to the `bes-domain` domain.

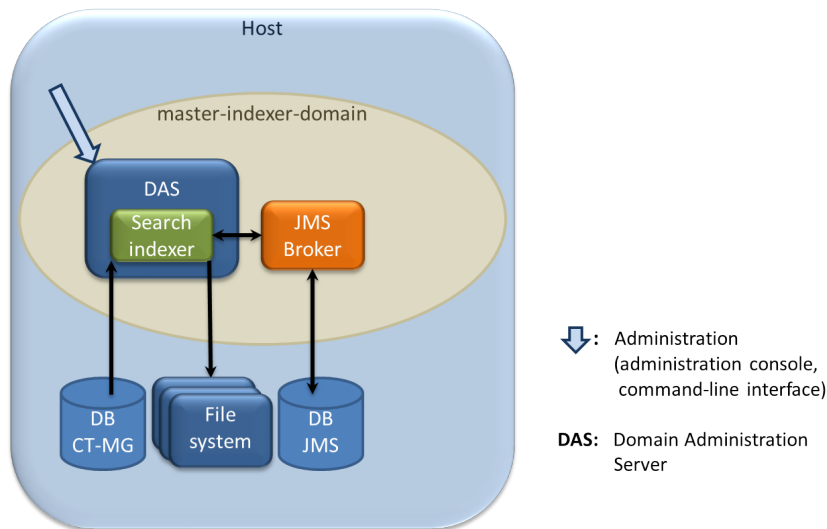
After a successful deployment, you have two domains with the following setup:

#### 1. CT-MG domain (`bes-domain`)



Host is the machine where your application server is installed. The `bes-domain` domain has a Domain Administration Server (DAS) which is used for domain administration and the hosting of the CT-MG application. Configuration information and actual business data is stored in the CT-MG database (`bss`). The JMS broker administers the JMS queues used for processing asynchronous tasks, such as the sending of emails, synchronization of indexing data, or execution of process triggers. The JMS messages are stored in the JMS database. The domain is administered using the standard administration facilities of the application server.

## 2. Search indexer application domain (`master-indexer-domain`)



Host is the machine where your application server is installed. The `master-indexer-domain` domain has a Domain Administration Server (DAS) which is used for domain administration and the hosting of the search indexer application. Data for indexing is read from the CT-MG database (`bss`) and written to a shared directory on the file system. This directory hosts the search index for the master indexer node. It is specified by the `master.slave.shared.hibernate.searchsourceBase` configuration setting in the `glassfish.properties` file. The JMS broker administers the JMS queue used for processing indexing jobs. The JMS messages are stored in the JMS database. The domain is administered using the standard administration facilities of the application server.

### If the setup of the application server fails with errors, proceed as follows:

1. Stop the application server domains related to CT-MG.
2. Delete the `bes-domain` domain.
3. Delete the `master-indexer-domain` domain.
4. Delete the shared directory for the master search index.
5. Repeat the setup.

### If you want to manually deploy CT-MG, proceed as follows:

1. Create the `master-indexer-domain` domain and start it.
2. Create the settings and resources for the search indexer application in the application server by executing the following command:

```
<ANT_HOME>/bin/ant -f build-glassfish-setup.xml
  configureMasterIndexer
```

3. Deploy the search indexer application, `fujitsu-bss-search.ear`, to the `master-indexer-domain` domain.

The archive is available in the directory to which you extracted the CT-MG installation package (`<install_pack_dir>`).

---

**Note:** You must activate the **Compatibility** checkbox for the `fujitsu-bss-search.ear` file. This is required to support backward compatibility of JAR visibility in GlassFish V2.

4. Create the `bes-domain` domain and start it.
5. Create the settings and resources for CT-MG in the application server by executing the following command:

```
<ANT_HOME>/bin/ant -f build-glassfish-setup.xml
  STANDALONE.configureWithoutIndexer
```

6. Deploy the `fujitsu-bss-portal.war` Web archive, the CT-MG archive, `fujitsu-bss.ear`, as well as the archive for the report engine, `eclipse-birt-runtime.war`, to the `bes-domain` domain.

The archives are available in the directory to which you extracted the CT-MG installation package (`<install_pack_dir>`).

**Note:** You must activate the **Compatibility** checkbox for the `fujitsu-bss.ear` file. This is required to support backward compatibility of JAR visibility in GlassFish V2.

7. Disable directory traversal for both domains, `bes-domain` and `master-indexer-domain`, by setting the directory listing parameter to `false`. To do this, edit the file `default-web.xml` in the domain directories you are using for CT-MG as follows:

```
<init-param>
  <param-name>listings</param-name>
  <param-value>>false</param-value>
</init-param>
```

Redeploy CT-MG to the `bes-domain` and the search indexer application to the `master-indexer-domain`, respectively, following the procedures described above. This is required for the setting to become effective.

### 3.5 Establishing an SSO Federation with the IDP and STS

If SAML\_SP authentication is used, and after having successfully deployed CT-MG, you need to perform the following steps to establish a federation between CT-MG and the IdP and STS:

1. You need a contractual relationship both with the IdP operator and the STS operator and agree on the following:

The assertions returned to CT-MG must contain user IDs. This is required for CT-MG to map the users to the CT-MG user roles (such as administrator, service manager, marketplace manager).

The IdP and the STS must be configured such that its assertions contain an `<AttributeStatement>` element. Its `<Attribute>` subelement must contain a `Name="userid"` property, and the `<AttributeValue>` subelement must specify the user ID that matches the ID of the calling user in CT-MG .

Example:

```
<saml:Assertion ...>
  ...
  <saml:AttributeStatement>
```

```

    <saml:Attribute Name="userid">
      <saml:AttributeValue>administrator</saml:AttributeValue>
    </saml:Attribute>
  </saml:AttributeStatement>
</saml:Assertion>

```

2. CT-MG must be registered with the IdP. One way to achieve this is to use CT-MG metadata. The minimum data required for registering CT-MG with the IdP are a name or ID of the service provider and the URL to which the IdP is to send its responses.

Provide a URL in the following format to the IdP operator:

```
http://<host>:<port>/<context-root>/metadata.jsp
```

where <host>, <port>, and <context-root> point to your CT-MG installation.

## 3.6 Next Steps

After you have successfully completed the installation of CT-MG, you can optionally change the URL to be used for accessing the CT-MG administration portal and the marketplaces. You can then start to set up the CT-MG organizations using the CT-MG administration portal.

### Setting the Context Root

By default, i.e. if you used the CT-MG installation scripts, the context root of the URL used for accessing the CT-MG administration portal and the marketplaces is `fujitsu-bss-portal`. You can change this setting in the application server administration console and by adapting the `BASE_URL` configuration setting in CT-MG.

1. In the application server administration console, go to **Applications -> fujitsu-bss-portal -> Edit** and set the **Context Root** as required.
2. In the CT-MG administration portal, go to **Operation -> Update Configuration Settings** and change the `BASE_URL` configuration key accordingly. See below for details on accessing CT-MG.

### Accessing CT-MG

You can access the CT-MG administration portal in a Web browser using an URL in the following format:

```
http://<server>:<port>/<context-root>
```

<server> is the host of the application server where CT-MG has been deployed. <port> is the port to address the application server (default: 8080 for HTTP, 8081 for HTTPS). <context-root> is the context root of CT-MG (default: `fujitsu-bss-portal`).

You are prompted for a user ID and password.

Depending on the authentication mode, the initial credentials are the following:

- INTERNAL:

User ID: `administrator`

Password: `admin123`

It is recommended that you change the initial password in the CT-MG administration portal (**Change Password** page in the **Account** menu).

- SAML\_SP:

**User ID:** The ID you specified in the `ADMIN_USER_ID` configuration key in the `sso.properties` configuration file.

**Password:** Password as known in the IdP system for the above user.

You can change your password in the CT-MG administration portal (**Change Password** page in the **Account** menu). All other users including additional operators can change their password in the external authentication system only.

### **Creating an Additional Operator Account**

The creation of an additional operator account for your organization is useful, for example, to be able to delegate operational tasks or to unlock other operator accounts in case the password has been forgotten. Proceed as follows:

In the CT-MG administration portal, choose **Register new users** in the **Account** menu. Enter the relevant user data and assign at least the **Operator** role.

### **Changing the CT-MG Configuration**

Refer to the *Operator's Guide* in case you need to change the configuration of your CT-MG installation.

## 4 Update Installation

Before updating your installation of CT-MG, read the *Release Notes* shipped with this release. They contain information on compatibility issues, changes and enhancements, and known restrictions.

This chapter describes how to update a CT-MG 15.2.1 installation to this release.

**Note:** In releases previous to 15.3, CT-MG can be installed in the INTERNAL authentication mode only. If you want to switch to SAML\_SP mode, you need to uninstall CT-MG and perform a new installation. An update installation does not change the authentication mode.

### Preparing the Update

Before you start with the update installation, carry out the following steps:

1. In the `bes-domain` and the `master-indexer-domain` domains, check whether all JMS messages have been processed. They are stored in the `bssjms` database. For example, check the JMS broker as follows:

```
<GLASSFISH_HOME>/mq/bin/imqcmd.exe -b localhost:8076
-u admin query bkr
```

where `8076` is the port where the JMS broker is running.

2. In the `bes-domain` domain, disable or undeploy the following applications:

- `eclipse-birt-runtime`
- `fujitsu-bss`
- `fujitsu-bss-portal`
- `fujitsu-branding` (if installed).

In the `master-indexer-domain` domain, disable or undeploy the search indexer application (`fujitsu-bss-search`).

3. Set the following environment variable for your current session:

`DB_INTERPRETER`: The absolute path and name of the `psql` executable of PostgreSQL. The executable is usually located in the `bin` subdirectory of the PostgreSQL installation directory.

Example:

```
export DB_INTERPRETER="/opt/PostgreSQL/9.1/bin/psql"
```

### Updating the CT-MG Installation

After having executed the preparation steps, proceed with updating the databases and the application server as follows:

#### Databases:

1. Create a backup of the `bss` database using the standard PostgreSQL commands. The database backup must be compatible with PostgreSQL 9.1.6. Make sure to also have a backup of any customizations to marketplaces.



---

**Note:** Creating a backup of search index data is not required. The index will be automatically rebuilt when CT-MG is operational again.

2. Update the files `configsettings.properties` and `db.properties` so that the settings match your current installation.
3. Update the schema and configuration settings of the `bss` database by executing the `build-db.xml` file in `<install_pack_dir>/fujitsu-bss-setup` as follows:

```
<ANT_HOME>/bin/ant -f
  <install_pack_dir>/fujitsu-bss-setup/build-db.xml updateDatabase
```

If you set a password other than `postgres` for the PostgreSQL user account (`postgres`) when installing the database management system, you have to specify the password with the call to the `build-db.xml` file as follows:

```
<ANT_HOME>/bin/ant -f
  <install_pack_dir>/fujitsu-bss-setup/build-db.xml updateDatabase
  -Ddb.admin.pwd=<password>
```

**Note:** Make sure that Ant runs in a Java 7 runtime environment when calling the `build-db.xml` file. It may be required to enclose `-Ddb.admin.pwd=<password>` in double or single quotes depending on the operating system.

#### Application server:

1. In the `bes-domain` domain, redeploy or deploy the CT-MG applications:

- `eclipse-birt-runtime`
- `fujitsu-bss`
- `fujitsu-bss-portal`
- `fujitsu-bss-branding` (if you use a marketplace with Fujitsu branding).

In the `master-indexer-domain` domain, redeploy or deploy the search indexer application (`fujitsu-bss-search`).

**Note:** If you choose to undeploy and then deploy the applications, do not forget to activate the **Compatibility** checkbox for the `fujitsu-bss.ear` and `fujitsu-bss-search.ear` files again. This is required to support backward compatibility of JAR visibility in GlassFish V2.

2. Restart the `master-indexer-domain` domain.
3. Restart the `bes-domain` domain.

#### Command line tool:

The current version of the command line tool is provided in the CT-MG installation package, `fujitsu-bss-install-pack.zip`, as `fujitsu-bss-operatorclient.zip`. If you want to use the command line tool with your updated installation, delete and install it again when finished with the update. For details on how to set up the tool, refer to the *Operator's Guide*.

## 5 Uninstallation

The uninstallation of CT-MG consists of the following steps:

1. Stop the application server domains related to CT-MG.
2. Delete the `bes-domain` domain.
3. Delete the `master-indexer-domain` domain.
4. Delete the shared directory for the master search index.
5. Delete the databases, `bss` and `bssjms`, and uninstall the database management system and the application server, if you no longer need them for other purposes.

For details on how to proceed, refer to the documentation of the database management system and the application server.

## Appendix A: Application Server Resources

The following sections provide an overview of the resources which must be provided to CT-MG on the application server.

For details and hints on how to create these resources, refer to the `build-glassfish-setup.xml` file, which is part of the setup utilities provided by CT-MG.

### A.1 CT-MG Domain

The following sections give an overview of the resources which must be provided for the CT-MG domain (`bes-domain`) on the application server.

#### Data Source

A JDBC data source with a corresponding connection pool is required for the relational databases where CT-MG stores its data.

<b>Name</b>	BSSDS
<b>Class name</b>	<code>org.postgresql.xa.PGXADatasource</code>
<b>Resource type</b>	<code>javax.sql.XADatasource</code>
<b>Database schema</b>	As distributed with CT-MG.

#### JMS Queues

The following JMS queues and corresponding connection factories are required for asynchronous processing:

1. **Trigger queue:**

Queue name: `jms/bss/triggerQueue`

Connection factory name: `jms/bss/triggerQueueFactory`

2. **Task queue:**

Queue name: `jms/bss/taskQueue`

Connection factory name: `jms/bss/taskQueueFactory`

3. **Indexer queue:**

Queue name: `jms/bss/indexerQueue`

Connection factory name: `jms/bss/indexerQueueFactory`

4. **Master indexer queue:**

Queue name: `jms/bss/masterIndexerQueue`

Connection factory name: `jms/bss/masterIndexerQueueFactory`

All queues and connection factories mentioned above use the following settings:

<b>Initial and minimum pool size</b>	1 connection
<b>Maximum pool size</b>	250 connections
<b>Pool resize quantity</b>	2 connections

<b>Idle timeout</b>	600 seconds
<b>Max wait time</b>	60000 milliseconds
<b>On any failure</b>	Close all connections
<b>Transaction support</b>	XATransaction
<b>Connection validation</b>	Required
<b>UserName</b>	jmsuser
<b>Password</b>	jmsuser

The master indexer queue / connection factory requires the following additional setting:

<b>AddressList</b>	<master-indexer-host-name>:<port>, where <code>port</code> is the port number of the search indexer application domain. Default: 8476
--------------------	--

## Java Mail Session

A Java Mail Session is required for the application server to automatically send emails in case of specific user actions.

<b>JNDI Name</b>	mail/BSSMail
<b>Store Protocol</b>	imap
<b>Transport Protocol</b>	smtp
<b>mail-smtp-auth</b>	false
<b>mail-user</b>	saas
<b>mail-smtp-port</b>	25
<b>mail-smtp-password</b>	password

The settings are retrieved from the `glassfish.properties` file when running the installation scripts. The **JNDI Name**, **Store Protocol**, and **Transport Protocol** are mandatory and must not be changed.

## Realm

CT-MG comes with a custom realm implementation in the `fujitsu-bss-security.jar` archive, which is included in the installation package. The realm must be configured as follows:

<b>Name</b>	bss-realm
<b>JAAS context</b>	bssRealm
<b>Implementation class</b>	com.fujitsu.adm.um.security.ADMRealm

## Certificate Realm

The certificate realm of the application server must be assigned the role `CLIENTCERT`.

### Default File Encoding

Ensure that the default file encoding of the application server's Java virtual machine is UTF-8. This can be achieved by setting the `file.encoding` system property to `UTF8`.

## A.2 Master Indexer Domain

The following sections provide an overview of the resources which must be provided for the `master-indexer-domain` on the application server.

### Data Source

A JDBC data source with a corresponding connection pool is required for the relational databases where CT-MG stores its data.

<b>Name</b>	BSSDS
<b>Class name</b>	<code>org.postgresql.xa.PGXADatasource</code>
<b>Resource type</b>	<code>javax.sql.XADatasource</code>
<b>Database schema</b>	As distributed with CT-MG.

### JMS Queue

A JMS queue and a corresponding connection factory are required for asynchronous processing.

<b>Queue name</b>	<code>jms/bss/masterIndexerQueue</code>
<b>Connection factory name</b>	<code>jms/bss/masterIndexerQueueFactory</code>
<b>Initial and minimum pool size</b>	1 connection
<b>Maximum pool size</b>	250 connections
<b>Pool resize quantity</b>	2 connections
<b>Idle timeout</b>	600 seconds
<b>Max wait time</b>	60000 milliseconds
<b>On any failure</b>	Close all connections
<b>Transaction support</b>	XATransaction
<b>Connection validation</b>	Required
<b>UserName</b>	<code>jmsuser</code>
<b>Password</b>	<code>jmsuser</code>

### Default File Encoding

Ensure that the default file encoding of the application server's Java virtual machine is UTF-8. This can be achieved by setting the `file.encoding` system property to `UTF8`.

## Appendix B: Configuration Settings

The configuration settings for CT-MG are provided in the following files in the directory to which you extracted the `fujitsu-bss-setup.zip` file (`<install_dir>/fujitsu-bss-setup`):

- `db.properties`
- `glassfish.properties`
- `glassfishJMSBroker.properties`
- `configsettings.properties`
- `sso.properties`

This appendix describes the settings in detail.

### B.1 Database Configuration Settings

The `db.properties` file contains the configuration settings for database access. This configuration is used for the initial setup and schema updates.

#### **db.driver.class**

The Java class of the JDBC driver.

Default: `org.postgresql.Driver`

#### **db.url**

The connection URL of the database.

Default: `jdbc:postgresql://localhost:5432/bss`

#### **db.host**

The database host.

Default: `localhost`

#### **db.port**

The database port.

Default: `5432`

#### **db.name**

The name of the database.

Default: `bss`

#### **db.user**

The name of the user to connect to the database.

Default: `bssuser`

#### **db.pwd**

The password of the user to connect to the database.

Default: `bssuser`

**db.type**

The type of the database.

Default: `postgresql`

## B.2 GlassFish Configuration Settings

The `glassfish.properties` file contains the configuration settings for the GlassFish application server. The settings are required for configuring your GlassFish domains for CT-MG.

Below you find a detailed description of the settings.

**GLASSFISH\_HOME**

The absolute path and name of the GlassFish installation directory.

**JDBC\_DRIVER\_JAR\_NAME**

The name of the PostgreSQL JDBC driver jar file as available after installation.

Example: `postgresql-9.1-903.jdbc4.jar`

**MAIL\_HOST**

The host name or IP address of your mail server. This setting is required for the application server mail resource.

**MAIL\_RESPONSE\_ADDRESS**

The email address used by the server as the sender of emails.

Example: `saas@yourcompany.com`

**MAIL\_PORT**

The port of your mail server.

Default: `25`

**MAIL\_USE\_AUTHENTICATION**

Optional. Defines whether mails can only be sent to users authenticated against the SMTP mail system.

Allowed values: `true`, `false`

Default: `false`

**MAIL\_USER**

Mandatory if `MAIL_USE_AUTHENTICATION=true`. Specifies the name of the user to be used for authentication against the SMTP mail system.

**MAIL\_PWD**

Mandatory if `MAIL_USE_AUTHENTICATION=true`. Specifies the password of the user to be used for authentication against the SMTP mail system.

**MAIL\_TIMEOUT**

Optional. The time interval in milliseconds for sending email messages, i.e. until a socket I/O timeout occurs.

Allowed values: Any value between 0 and 4924967296

Default: 30000

**MAIL\_CONNECTIONTIMEOUT**

Optional. The time interval in milliseconds for establishing the SMTP connection, i.e. until a socket connection timeout occurs.

Allowed values: Any value between 0 and 4924967296

Default: 30000

**glassfish.master.domain.host**

Mandatory. The host name or IP address of the server where the domain for the search indexer application is deployed.

Example: `MyHibernateMasterIndexerHostName`

**glassfish.master.domain.portbase**

Mandatory. The base number for all ports used by the domain of the search indexer application. Make sure that the port base setting differs from the `glassfish.bes.domain.portbase` setting by at least 200.

Example: 8400

**glassfish.master.domain.jms.port**

Mandatory. The port of the JMS broker used by the domain of the search indexer application.

Example: 8476

**glassfish.master.domain.port**

Mandatory. The administration port of the search indexer domain.

Example: 8448

**glassfish.master.domain.name**

Mandatory. The name of the domain for the search indexer application.

Default: `master-indexer-domain`

**glassfish.master.domain.admin.user.name**

Mandatory. The user name of the search indexer application domain administrator.

Default: `admin`

**glassfish.master.domain.admin.user.pwd**

Mandatory. The password of the search indexer application domain administrator.

Default: `adminadmin`



**glassfish.master.domain.admin.master.pwd**

Mandatory. The master password of the search indexer application domain administrator.

Default: `changeit`

**master.slave.shared.hibernate.search.sourceBase**

Mandatory. The shared directory hosting the search index for the master indexer node and the slave nodes, if any. From this directory, the master search index is replicated to the slave nodes, if any.

On Windows, double-escape the colon in the drive specification of the path to the shared directory.

Example: `C\\:/glassfish/masterSourceBase`

**master.hibernate.search.default.refresh**

Mandatory. The interval in seconds between refresh operations. At this interval, the search index is replicated and copied to the shared directory hosting the search index for the master indexer node.

Default: `300`

**glassfish.bes.domain.portbase**

Mandatory. The base number for all ports used by the domain of the CT-MG application. Make sure that the port base setting differs from the `glassfish.master.domain.portbase` setting by at least 200.

Example: `8000`

**glassfish.bes.admin.domain.port**

The administration port of the domain used for CT-MG.

Example: `8048`

**glassfish.bes.domain.name**

The name of the domain where you deployed CT-MG.

Example: `bes-domain`

**glassfish.bes.domain.admin.user**

The user name of the CT-MG domain administrator.

Default: `admin`

**glassfish.bes.domain.admin.pwd**

The password of the CT-MG domain administrator.

Default: `adminadmin`

**glassfish.bes.domain.admin.master.pwd**

The master password of the CT-MG domain administrator.

Default: `changeit`

### **glassfish.WS\_PORT**

The port used for an HTTP listener for Web service connections of the application server.

Example: 8082

### **glassfish.HIBERNATE\_SLAVE\_REFRESH\_SEC**

Mandatory. The interval in seconds between index data refresh operations. At this interval, the search index is read from the shared directory hosting the search index for the master indexer node and written to the index directory on the slave node.

Example: 300

### **glassfish.domain.stop.waitSeconds**

Mandatory. The time in seconds the application server waits until a stop domain operation is executed.

Default: 60

### **glassfish.domain.start.maxWaitSeconds**

Mandatory. The maximum time in seconds the application server waits until it checks whether a domain is started.

Default: 600

## **B.3 GlassFish JMS Configuration Settings**

The `glassfishJMSBroker.properties` file contains the configuration settings for the Java Message Service (JMS) in the application server.

**Note:** If you are using CT-MG in a multi-node installation, make sure to change the default setting `imq.brokerid=broker1` to a value that is unique for every node.

For details, refer to the *Sun GlassFish Message Queue 4.4 Administration Guide*.

## **B.4 CT-MG Configuration Settings**

The `configsettings.properties` file contains the configuration settings for the CT-MG services.

### **AUDIT\_LOG\_ENABLED**

Optional. Specifies whether user operations related to subscriptions, marketable services, and price models are logged and stored in the database. If set to `true`, the operator can export audit log data to retrieve information on the user operations.

Allowed values: `true`, `false`

Default: `false`

### **AUDIT\_LOG\_MAX\_ENTRIES\_RETRIEVED**

Optional. Specifies how many log entries are retrieved in one export of audit log data. If this number is exceeded, a warning is displayed asking the operator to change his filter criteria and start the export again. This setting is required to keep the number of SQL requests to the database low when audit log data is exported. Too many requests may lead to a decrease in system performance.

Allowed values: Any value between 1 and 1000

Default: 100

## AUTH\_MODE

Mandatory. Specifies whether CT-MG is used for user authentication or whether it acts as a SAML service provider. This configuration setting is evaluated at the first startup of CT-MG and must be defined in the `configsettings.properties` file BEFORE starting CT-MG for the first time. It cannot be changed.

Allowed values: `INTERNAL` (CT-MG user authentication is used) or `SAML_SP` (CT-MG shall act as SAML service provider and allow for Web browser single sign-on).

Default: `INTERNAL`

## BASE\_URL

Mandatory. The base URL is used to access the CT-MG home page. It is particularly required to create the URL for accessing the confirmation page for customers to confirm their registration.

Syntax: `http://<host>:<port>/<context-root>`

The default for `<context-root>` is `fujitsu-bss-portal`.

## BASE\_URL\_HTTPS

Mandatory for PSP integration. The base URL is required to create the URL for accessing services via HTTPS.

Syntax: `https://<host>:<port>/<context-root>`

The default for `<context-root>` is `fujitsu-bss-portal`.

## CUSTOMER\_SELF\_REGISTRATION\_ENABLED

Optional. Specifies whether customer organizations can register on a marketplace. If set to `false`, the operator needs to create an organization for the customer who wants to register, or a seller (supplier, broker, reseller) needs to register the customer.

Allowed values: `true`, `false`

Default: `true`

## DECIMAL\_PLACES

Optional. Specifies the number of decimal places in which usage charges are calculated. This setting is needed only when migrating from CT-MG V14.1 to a higher version.

Allowed values: 2, 3, 4, 5, 6

Default: 2

## HIDDEN\_UI\_ELEMENTS

Optional. Specifies user interface elements to be hidden from the CT-MG administration portal and the marketplaces operated on your platform. You can use this setting to hide user interface elements both from the administration portal and the marketplaces.

### Marketplaces

If you want to hide a menu option from the **Account** menu of the marketplaces operated on your platform, enter one of the following values:

- `marketplace.navigation.Profile`: **Profile** menu

- marketplace.navigation.Payment: **Payment** menu
- marketplace.navigation.Subscriptions: **Subscriptions** menu
- marketplace.navigation.Users: **Users** menu
- marketplace.navigation.Reports: **Reports** menu
- marketplace.navigation.Processes: **Processes** menu

To hide several options from the **Account** menu, separate the options by a comma.

### Administration Portal

If you want to hide a specific page from the CT-MG administration portal, you can find out which value needs to be specified here as follows:

1. Open the respective page at the administration portal.
2. Display the online help for this page.
3. Have a look at the name of the online help HTML page.
4. Omit the file extension `.htm` and replace the underscore by a dot.

Example:

You want to hide the **Manage VAT rates** page. The online help HTML page name is `organization_manageVats.htm`. Thus, the respective administration portal page is `organization.manageVats`. You need to set the configuration key as follows:

```
HIDDEN_UI_ELEMENTS=organization.manageVats
```

To hide several pages from the administration portal, separate the entries by a comma.

Below, you find some more examples of values that can be used to hide a specific page or group of fields. The list is not complete.

- organization.edit: **Edit profile** page
- shop.editSkin: **Customize layout** page
- techService.edit: **Update service definition** page

To hide a complete menu from the administration portal, enter one of the following values:

- navigation.myAccount: **Account** menu
- navigation.customer: **Customer** menu
- navigation.operator: **Operation** menu
- navigation.techService: **Technical service** menu
- navigation.service: **Marketable service** menu
- navigation.priceModel: **Price model** menu
- navigation.marketplace: **Marketplace** menu

**Note:** The **Update configuration settings** page in the **Operation** menu is the default page the operator is directed to when logging in. If you hide the page from the menu or hide the complete menu, you are still directed to the **Update configuration settings** page where you can make changes, if required.

### HTTP\_PROXY

Optional. The proxy to be used for PSP-related HTTP connections, if any.

Example: `proxy.domain` or the proxy server IP address.

## HTTP\_PROXY\_PORT

Optional. The proxy port to be used for PSP-related HTTP connections, if any.

Allowed values: Any value between 1 and 65535

Default: 1080

## IDP\_ASSERTION\_EXPIRATION

Mandatory. In case a technical service is defined with the user access type and uses CT-MG as a SAML Identity Provider, this key must be set. For details on access types, refer to the *Technology Provider's Guide*.

This setting represents the number of milliseconds an assertion generated by the SAML Identity Provider is valid. It is the difference between the `NotAfterOrOn` and `IssueInstant` attributes of the assertion.

Allowed values: Any value between 1 and 9223372036854775807

Default: 1800000 milliseconds (30 minutes)

## IDP\_ASSERTION\_VALIDITY\_TOLERANCE

Mandatory. In case a technical service is defined with the user access type and uses CT-MG as a SAML Identity Provider, this key must be set. For details on access types, refer to the *Technology Provider's Guide*.

This setting represents the number of milliseconds an assertion generated by the SAML Identity Provider was valid in the past. It is used to avoid synchronization problems between servers. The number is the difference between the `IssueInstant` and `NotBefore` attributes of the assertion.

Allowed values: Any value between 1 and 9223372036854775807

Default: 600000 milliseconds (10 minutes)

## IDP\_PRIVATE\_KEY\_FILE\_PATH

Mandatory. In case a technical service is defined with the user access type and uses CT-MG as a SAML Identity Provider, this key must be set. For details on access types, refer to the *Technology Provider's Guide*.

This setting represents the URL to the private key in Distinguished Encoding Rules (DER) format (`.der` file). This URL is used by the Identity Provider to sign SAML messages.

Example: `/opt/glassfish-3.1.2.2/glassfish/domains/bes-domain/config/cakey.der`

## IDP\_PUBLIC\_CERTIFICATE\_FILE\_PATH

Mandatory. In case a technical service is defined with the user access type and uses CT-MG as a SAML Identity Provider, this key must be set. For details on access types, refer to the *Technology Provider's Guide*.

This setting represents the URL to the public certificate in Distinguished Encoding Rules (DER) format (`.der` file). This URL is added to the signature of SAML messages by the Identity Provider, so that the application can validate the signature.

Example: `/opt/glassfish-3.1.2.2/glassfish/domains/bes-domain/config/cacert.der`

## LDAP\_SEARCH\_LIMIT

Optional. The maximum number of entries that will be returned by an LDAP query in case an organization uses an external LDAP system for user management.

Allowed values: Any value between 1 and 9223372036854775807

Default: 100

## LOG\_CONFIG\_FILE

Optional. The path to the `log4j` configuration file of CT-MG.

Default:

`./log4j.properties` in the `<GLASSFISH_HOME>/glassfish/domains/bes-domain/config` directory

## LOG\_FILE\_PATH

Mandatory. The path to the CT-MG log files.

Default:

`../logs`, which is the `<GLASSFISH_HOME>/glassfish/domains/bes-domain/logs` directory

## LOG\_LEVEL

Optional. The log level for CT-MG. This setting applies to all logging classes if it is not overridden by the content of the `log4j.properties` file.

Allowed values: ERROR, WARN, INFO, DEBUG

Default: INFO

## MAIL\_JA\_CHARSET

Optional. Special character encoding for emails sent in Japanese.

Default: UTF-8

## MAX\_NUMBER\_LOGIN\_ATTEMPTS

Optional. The maximum number of allowed login attempts to CT-MG. If a user does not log in successfully with this number of attempts, his account is locked.

Allowed values: Any value between 1 and 9223372036854775807

Default: 3

## MP\_ERROR\_REDIRECT\_HTTP

Optional. The URL of a Web page that is to be displayed in case a visitor tries to access a marketplace without a valid marketplace ID by HTTP. This Web page will be shown instead of the default error message.

Syntax: `http://<your Web page>`

Be aware that internet domain names must follow the following rules:

- They must start with a letter and end with a letter or number.
- They may contain letters, numbers, or hyphens only. Special characters are not allowed.
- They may consist of a maximum of 63 characters.

## MP\_ERROR\_REDIRECT\_HTTPS

Optional. The URL of a Web page that is to be displayed in case a visitor tries to access a marketplace without a valid marketplace ID by HTTPS. This Web page will be shown instead of the default error message.

Syntax: `https://<your Web page>`

Be aware that internet domain names must follow the following rules:

- They must start with a letter and end with a letter or number.
- They may contain letters, numbers, or hyphens only. Special characters are not allowed.
- They may consist of a maximum of 63 characters.

## PERMITTED\_PERIOD\_INACTIVE\_ON\_BEHALF\_USERS

Optional. The time in milliseconds after which a user who logged in on behalf of a customer and was inactive will be removed from the system.

Allowed values: Any value between 1 and 9223372036854775807

Default: 604800000, i.e. 7 days

## PERMITTED\_PERIOD\_UNCONFIRMED\_ORGANIZATIONS

Optional. The maximum time in milliseconds until an organization's initial administrative account must be confirmed. When this time has passed, the account is removed.

Allowed values: Any value between 1 and 9223372036854775807

Default: 604800000, i.e. 7 days

## PSP\_USAGE\_ENABLED

Mandatory. Specifies whether PSP integration is used for the current environment.

Allowed values: `true`, `false`

Default: `false`

## REPORT\_ENGINEURL

Mandatory if you want to use the CT-MG reports. The URL template of the report engine. If you do not specify a correct URL template, CT-MG will not be able to generate any reports, since the Report Web service cannot be called correctly.

The required value is:

```
http://<host IP address>:<port>/eclipse-birt-runtime/frameset?__report=${reportname}.rptdesign&SessionId=${sessionid}&_locale=${locale}&WSDLURL=${wsdlurl}&SOAPEndPoint=${soapendpoint}
```

**Note:** The above value must be used as indicated. Do not change this value.

## REPORT\_SOAP\_ENDPOINT

Mandatory if you want to use the CT-MG reports. The SOAP end point of the Report Web service. All report data is retrieved via a call to the Report Web service. If you do not specify a correct

value, CT-MG will not be able to generate any reports, since the Report Web service cannot be called correctly.

Required value: `http://<host>:<port>/Report/ReportingServiceBean`

**Note:** The above value must be used as indicated. Do not change this value.

## REPORT\_WSDLURL

Mandatory if you want to use the CT-MG reports. The URL of the WSDL file of the Report Web service. All report data is retrieved via a call to the Report Web service. If you do not specify a correct value, CT-MG will not be able to generate any reports, since the Report Web service cannot be called correctly.

Required value: `http://<host>:<port>/Report/ReportingServiceBean?wsdl`

**Note:** The above value must be used as indicated. Do not change this value.

## SEARCH\_INDEX\_MASTER\_FACTORY\_NAME

Mandatory. The name of the search indexer application's JMS connection factory. Stay with the entry `jms/bss/masterIndexerQueueFactory` and do not change it.

## SEARCH\_INDEX\_MASTER\_QUEUE\_NAME

Mandatory. The name of the search indexer application's JMS queue. Stay with the entry `jms/bss/masterIndexerQueue` and do not change it.

## SSO\_IDP\_TRUSTSTORE

Mandatory if you install CT-MG in SAML\_SP authentication mode. The path to the truststore file holding the public key certificate of the IdP (Identity Provider).

Default: `<path>/keystore.jks`

This setting is a runtime property. If you change it in the administration portal, you need to restart CT-MG.

## SSO\_IDP\_TRUSTSTORE\_PASSWORD

Mandatory if you install CT-MG in SAML\_SP authentication mode. The password of the IdP truststore.

Default: `changeit`

This setting is a runtime property. If you change it in the administration portal, you need to restart CT-MG.

## SSO\_IDP\_URL

Mandatory if you install CT-MG in SAML\_SP authentication mode. The SAML **Redirect** URL (location of the IdP service endpoint to be used).

This setting must be defined in the `configsettings.properties` file BEFORE starting CT-MG for the first time.

For security reasons, it is recommended to use the HTTPS protocol.

Syntax: `https://<RedirectServiceEndpoint>`

This setting is a runtime property. If you change it in the administration portal, you need to restart CT-MG.



## SSO\_ISSUER\_ID

Mandatory if you install CT-MG in SAML\_SP authentication mode. A unique ID for the CT-MG installation. The IdP or STS uses this ID for identifying incoming requests for SAML assertions.

This configuration setting cannot be changed after the first exchange of data between CT-MG and the IdP or STS.

Default: CT-MG

## SSO\_STS\_METADATA\_URL

Mandatory if you install CT-MG in SAML\_SP authentication mode. The URL of the MEX address (Issuer Metadata Exchange) of the STS.

For security reasons, it is recommended to use the HTTPS protocol.

Syntax: `https://<MEXAddress>`

This setting is an installation property and cannot be changed in the administration portal. If you need to change the URL, proceed as follows:

1. On the machine where CT-MG is deployed, go to the directory  
`<GLASSFISH_HOME>/glassfish/domains/bes-domain/applications/fujitsu-bss`
2. Copy the `fujitsu-adm-um-webservices.jar` file to a different location.
3. Extract the contents of the copied `fujitsu-adm-um-webservices.jar` file and change the value for `SSO_STS_METADATA_URL` in all Web services configuration files (`wsit-com.fujitsu.bss*.xml`).
4. Repackage the `fujitsu-adm-um-webservices.jar` file and copy it back to the directory  
`<GLASSFISH_HOME>/glassfish/domains/bes-domain/applications/fujitsu-bss`
5. Restart the `bes-domain`.

## SSO\_STS\_URL

Mandatory if you install CT-MG in SAML\_SP authentication mode. The URL of the security token system service endpoint to be used.

This setting must be defined in the `configsettings.properties` file BEFORE starting CT-MG for the first time.

Be aware that if you provide an invalid URL or if the URL to the STS service endpoint changes, you can change this setting in the `bss` database only.

For security reasons, it is recommended to use the HTTPS protocol.

Syntax: `https://<ServiceEndpoint>`

This setting is an installation property and cannot be changed in the administration portal. If you need to change the URL, proceed as follows:

1. On the machine where CT-MG is deployed, go to the directory  
`<GLASSFISH_HOME>/glassfish/domains/bes-domain/applications/fujitsu-bss`
  2. Copy the `fujitsu-adm-um-webservices.jar` file to a different location.
  3. Extract the contents of the copied `fujitsu-adm-um-webservices.jar` file and change the value for `SSO_STS_URL` in all Web services configuration files (`wsit-com.fujitsu.bss*.xml`).
  4. Repackage the `fujitsu-adm-um-webservices.jar` file and copy it back to the directory  
`<GLASSFISH_HOME>/glassfish/domains/bes-domain/applications/fujitsu-bss`
  5. Restart the `bes-domain`.
-

## SUPPLIER\_SETS\_INVOICE\_AS\_DEFAULT

Optional. Specifies whether invoice is to be used as the default payment type for all customers.

Allowed values: `true`, `false`

Default: `false`

## TAGGING\_MAX\_TAGS

Mandatory. The maximum number of tags composing the tag cloud.

The tag cloud is the area of a marketplace containing defined search terms (tags). The more often a tag is used in services, the bigger the characters of the tag are displayed. Customers can use the tags to search for services, provided that the tag cloud is enabled for the marketplace by the marketplace owner.

Allowed values: Any value between 0 and 2147483647

Default: 20

## TAGGING\_MIN\_SCORE

Mandatory. The minimum number of times a tag must be used in services to be shown in the tag cloud.

The tag cloud is the area of a marketplace containing defined search terms (tags). The more often a tag is used in services, the bigger the characters of the tag are displayed. Customers can use the tags to search for services, provided that the tag cloud is enabled for the marketplace by the marketplace owner.

Allowed values: Any value between 1 and 2147483647

Default: 1, i.e. a tag must have been used at least once so that it is shown in the tag cloud.

## TIME\_ZONE\_ID

Optional. The time zone to be used for display.

Allowed values: All time zones supported by Java. This can be an abbreviation such as `PST`, a full name such as `America/Los_Angeles`, or a custom ID such as `GMT-8:00`. For a list of IDs, refer to `java.util.TimeZone`.

Default: `GMT`

## TIMER\_INTERVAL\_BILLING\_OFFSET

Optional. The offset in milliseconds for the timer for billing runs calculating subscription usage costs (customer billing data) or revenue share data. The interval for this timer is one day and cannot be changed. If no offset is defined, the default offset of 4 days is applied.

Customer billing data is calculated for a period of one month (billing period). Suppliers and resellers can define individual start days for their billing periods. Revenue share data is always calculated for the past month on the first day of a month.

The offset for the billing run timer defines the following:

- Number of days after which the billing run calculating the customer billing data or the revenue share data is executed.
- Time the timer for the daily billing runs expires on the current day.

Example:

A supplier defines the 10th of a month as the billing period start date. The offset is set to 4 days and 4 hours. The billing run that calculates the customer billing data for the past billing period of

this supplier is started on the 14th of the following month at 04:00:00.000. The revenue share data is calculated on the 5th of the following month at 04:00:00.000. The daily check whether a billing period of any supplier has ended is started at 04:00:00.000 every day.

Allowed values: Any value between 0 and 2419200000 (28 days)

Default: 345600000, i.e. 4 days.

### **TIMER\_INTERVAL\_DISCOUNT\_END\_NOTIFICATION\_OFFSET**

Optional. The offset in milliseconds for the timer for terminating the discounts for all organizations. The timer interval is one day and cannot be changed.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### **TIMER\_INTERVAL\_INACTIVE\_ON\_BEHALF\_USERS**

Optional. The time interval in milliseconds at which a check for non-existing users acting on behalf of another organization is executed. A value of 0 indicates that this timer is disabled.

A technical service definition may contain a flag (`allowingOnBehalfActing`) to indicate that an organization can act in the name of another organization. The organization must be a customer of the other organization, which must have both the technology provider and supplier role. Additionally, the customer organization must have allowed the other organization to log in on its behalf. This is achieved via a subscription whose underlying technical service has the `allowingOnBehalfActing` flag set to `true`.

When an organization acts in the name of another organization, an artificial user ID is generated.

Cleaning up the CT-MG database from time to time to remove such users who no longer exist might be required since it cannot be ensured that a technical service always removes such users itself.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### **TIMER\_INTERVAL\_INACTIVE\_ON\_BEHALF\_USERS\_OFFSET**

Optional. The offset in milliseconds for the timer for removing inactive "on behalf" users.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### **TIMER\_INTERVAL\_ORGANIZATION**

Optional. The time interval in milliseconds at which tasks related to organizations are executed. A value of 0 indicates that this timer is disabled.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### **TIMER\_INTERVAL\_ORGANIZATION\_OFFSET**

Optional. The offset in milliseconds for the timer for organization-related tasks.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### TIMER\_INTERVAL\_SUBSCRIPTION\_EXPIRATION

Optional. The time interval in milliseconds at which a check for expired subscriptions is executed. This timer cannot be disabled, i.e. it cannot be set to 0.

Allowed values: Any value between 1 and 9223372036854775807

Default: 86400000, i.e. 1 day

### TIMER\_INTERVAL\_SUBSCRIPTION\_EXPIRATION\_OFFSET

Optional. The offset in milliseconds for the timer for subscription expiration checks.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### TIMER\_INTERVAL\_TENANT\_PROVISIONING\_TIMEOUT

Optional. The time interval in milliseconds at which a check for timed-out subscriptions is executed. A value of 0 indicates that this timer is disabled.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### TIMER\_INTERVAL\_TENANT\_PROVISIONING\_TIMEOUT\_OFFSET

Optional. The offset in milliseconds for the timer for pending subscription checks.

Allowed values: Any value between 0 and 9223372036854775807

Default: 0

### WS\_TIMEOUT

Mandatory. The timeout for outgoing Web service calls in milliseconds. After this time has passed, a timeout exception is thrown by the JAX-WS framework.

An outgoing Web service call is a call initiated by CT-MG. A typical example is the invocation of the `createUsers` method of the `ProvisioningService` interface, which is implemented by an application. If the timeout is reached before the Web service call returns, the operation is aborted and an exception is thrown.

Allowed values: Any value between 1 and 9223372036854775807

Default: 30000, i.e. 30 seconds

**Note:** Make sure that timeouts set in the GlassFish application server, e.g. request timeouts, do not conflict with or overrule the timeouts defined in the CT-MG configuration settings.

## B.5 SAML\_SP Configuration Setting

The `sso.properties` file contains the configuration setting for creating the first platform operator in CT-MG when installing CT-MG in SAML\_SP authentication mode.

### ADMIN\_USER\_ID

Mandatory if you install CT-MG in SAML\_SP authentication mode. The ID of the user who is to become the first CT-MG operator. Each user in CT-MG must relate to an existing user in the Identity Provider system.

User IDs are restricted to 100 characters and must not contain any of the following characters:

! " # \$ % & ' \* + , / : ; < = > ? \ ^ `