# FUJITSU

# Systemwalker
# Service Catalog Manager V15.2.1
# (Business Support System)

# Installation Guide (GlassFish)

**High Risk Activity**

The Customer acknowledges and agrees that the Product is designed, developed and manufactured as contemplated for general use, including without limitation, general office use, personal use, household use, and ordinary industrial use, but is not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage or other loss (hereinafter "High Safety Required Use"), including without limitation, nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system. The Customer shall not use the Product without securing the sufficient safety required for the High Safety Required Use. In addition, FUJITSU (or other affiliate's name) shall not be liable against the Customer and/or any third party for any claims or damages arising in connection with the High Safety Required Use of the Product.

# Contents

# About this Manual

This manual describes how to install and uninstall Systemwalker Service Catalog Manager - hereafter referred to as Business Support System (BSS).

The manual is structured as follows:

| Chapter | Description |
|---|---|
| *Introduction* on page 8 | Provides an overview of BSS, its architecture, and the distribution media. |
| *Prerequisites and Preparation* on page 10 | Describes the prerequisites that must be fulfilled and the preparations you need to take before installing and deploying BSS. |
| *Installation* on page 13 | Describes how to install BSS with the help of the utilities which are shipped with the software. |
| *Update Installation* on page 20 | Describes how to update BSS. |
| *Uninstallation* on page 23 | Describes how to uninstall BSS. |
| *Application Server Resources* on page 24 | Describes the resources required for BSS on the application server. |
| *Configuration Settings* on page 27 | Describes the BSS configuration settings. |

## Readers of this Manual

This manual is directed to operators who install and maintain BSS 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.
- BSS 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:

| **Add** | The names of graphical user interface elements like menu options are shown in boldface. |
|---|---|
| `init` | System names, for example, command names, and text that is entered from the keyboard are shown in Courier font. |
| `<variable>` | 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:

| | |
|---|---|
| **API** | Application Programming Interface |
| **BSS** | Business Support System |
| **DBMS** | Database Management System |
| **EJB** | Enterprise JavaBeans |
| **JMS** | Java Message Service |
| **LDAP** | Lightweight Directory Access Protocol |
| **PaaS** | Platform as a Service |
| **PSP** | Payment Service Provider |
| **SaaS** | Software as a Service |

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

## Available Documentation

The following documentation on BSS is available:

- *Overview:* A PDF manual introducing BSS. It is written for everybody interested in BSS and does not require any special knowledge.
- *Online Help:* Online help pages describing how to work with the administration portal of BSS. 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 BSS. It is directed to operators who set up and maintain BSS in their environment.
- *Operator's Guide:* A PDF manual for operators describing how to administrate and maintain BSS.
- *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 BSS.
- *Supplier's Guide:* A PDF manual for suppliers describing how to define and manage service offerings for applications that have been integrated with BSS.
- *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 BSS.
- *Developer's Guide:* A PDF manual for application developers describing the public Web service interface of BSS and how to use it to integrate applications and external systems with BSS.
- Javadoc documentation for the public Web service interface of BSS and additional resources and utilities for application developers.

# 1    Introduction

Business Support System (BSS) 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, BSS 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.

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

## 1.1    BSS Architecture

BSS 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:
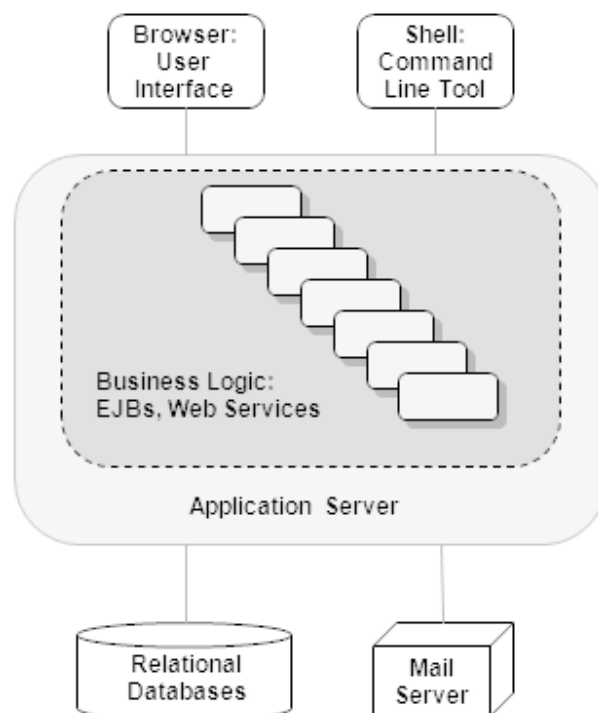
BSS has a three-tier architecture:

- 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, BSS 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 BSS. However, it can also be employed for accessing BSS functionality from a Web service client. HTTPS must be used for communication with the public Web service interface.
- BSS **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), BSS must have access to a mail server.

## 1.2   Distribution Media

BSS is distributed in the following packages:

- **Installation Package, `fujitsu-bss-install-pack.zip`:**

  Contains the BSS software and documentation for installation and deployment in a data center. The package includes utilities (XML files, ant scripts for Windows and UNIX/Linux) that facilitate the setup. 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 BSS, 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 BSS. 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 BSS. 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 BSS 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 BSS.

## 2.1    Hardware and Operating Systems

BSS 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).

BSS without any data requires about 150 MB of disk space.

Apart from this, BSS does not have specific requirements as to the power, performance, capacity, or configuration of CPUs, memory, and disks. BSS 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

BSS 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

BSS 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 64 bit JDK 7.

Proceed as follows:

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

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.

The installation of BSS always requires two domains in your application server:

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

Both domains can be created by running the BSS installation scripts.

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

> **Note:** BSS can be operated in a multi-node environment: You can install several BSS 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

BSS 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 BSS 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 BSS 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), BSS 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 28 for details.

## 2.6 Web Browsers

The BSS user interface supports the following Web browsers:

- Google Chrome 14.0 - 23.0
- Microsoft Internet Explorer 8.0, or Microsoft Internet Explorer 9.0 or 10.0 running in 8.0 compatibility mode
- Mozilla Firefox 13.0 - 16.0

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

# 3 Installation

The installation of BSS consists of the following main steps:

1. Preparing the BSS software and setup utilities.
2. Adapting configuration files.
3. Setting up the databases.
4. Setting up the resources in the application server and deploying the BSS archives.

These steps are described in detail below. The descriptions assume that you are using the BSS 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 BSS.

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 BSS resources in an existing environment on an application server.

The resources required by BSS on the application server are described in detail in *Application Server Resources* on page 24. 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 BSS software and setup utilities are provided in the BSS 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 BSS installation package, `fujitsu-bss-install-pack.zip`, to a separate temporary directory on the system from where you want to install and deploy BSS.

   In the following sections, this directory will be referred to as `<install_pack_dir>`.

---

**Note:** The path and name of `<install_pack_dir>` must not contain blanks.

---

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 BSS.

## 3.2 Configuring BSS

The BSS 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 BSS 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.

For details, refer to *Configuration Settings* on page 27.

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, if required.

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 BSS.
  **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`
- `masterbesBroker.accesscontrol.properties`
- `masterIndexerBroker.passwd`
- `masterbesBroker.passwd`

## 3.3    Setting up the Databases

BSS requires and stores its data in the following PostgreSQL databases:

- The BSS 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 BSS 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 BSS 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.amin.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

BSS 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 24.

Before starting to install BSS, 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 BSS installation assumes the following ports:

`8048`: admin port of the BSS 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:

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

3. 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 BSS as follows:

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

Redeploy BSS to the `bes-domain` and the search indexer application to the `master-indexer-domain`, respectively, following the procedure in step 2. This is required for the setting to become effective.

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

**1. BSS domain (`bes-domain`)**
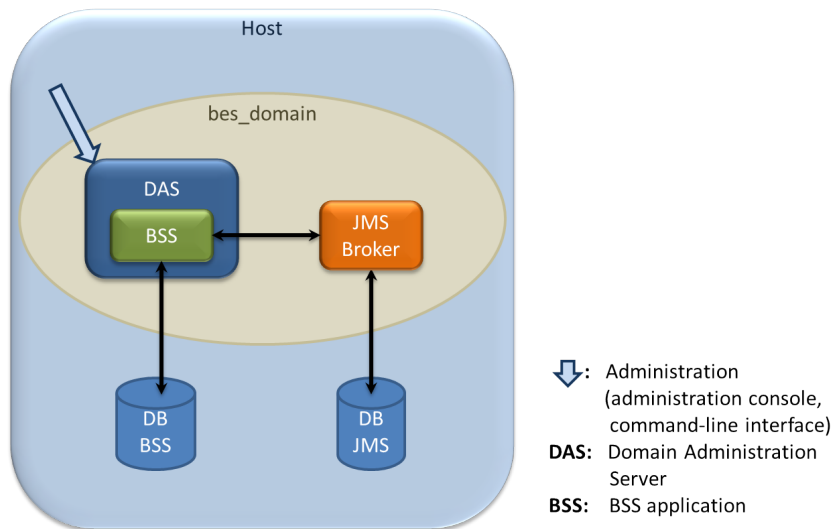


Host is the machine where your application server is installed. The `bes-domain` domain has a Domain Administration Server (DAS) which is used for domain administration and the hosting of the BSS application. Configuration information and actual business data is stored in the BSS database (`bss`). The JMS broker administer 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`)**
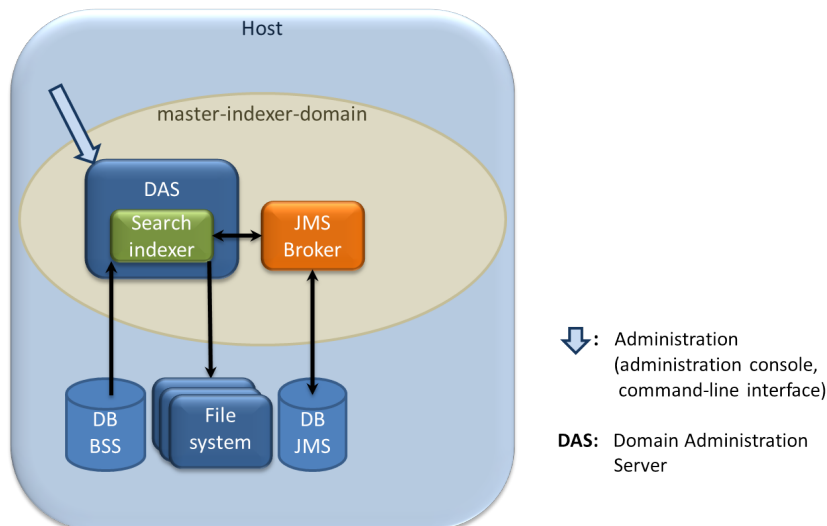


Host is the machine where your application server is installed. The `master-indexer-domain` domain has a Domain Administration Server (DAS) which is used for domain administration and the hosting of the search indexer application. Data for indexing is read from

the BSS 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 BSS.
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 BSS, 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 BSS installation package (`<install_pack_dir>`).

4. Create the `bes-domain` domain and start it.
5. Create the settings and resources for BSS 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 BSS 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 BSS installation package (`<install_pack_dir>`).

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 BSS as follows:

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

   Redeploy BSS 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   Next Steps

After you have successfully completed the installation of BSS, you can start to set up the BSS organizations using the BSS administration portal.

### Accessing BSS

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

```
http://<server>:<port>/fujitsu-bss-portal
```

`<server>` is the host of the application server where BSS has been deployed. `<port>` is the port to address the application server (default: `8080` for HTTP, `8081` for HTTPS).

You are prompted for a user ID and password. The initial credentials are:

- User ID: `administrator`
- Password: `admin123`

It is recommended that you change the initial password in the BSS administration portal (**Edit Profile** page in the **Account** menu).

### 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 BSS administration portal, choose **Register new users** in the **Account** menu. Enter the relevant user data and assign at least the **Operator** role.

### Changing the BSS Configuration

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

# 4    Update Installation

Before updating your installation of BSS, 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 BSS 15.2 installation to this release.

## Preparing the Update

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

1. 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. Stop the GlassFish 2.1 domains to which you deployed BSS and the search indexer application.

3. In order to retain any certificates for later use with GlassFish 3.1.2.2, create a backup of the `bes-domain` keystore and truststore (`keystore.jks` and `cacerts.jks` files). They are located in the following directory:

```
<GLASSFISH_HOME>/glassfish/domains/bes-domain/config
```

4. Install Apache Ant 1.8 or higher on the machine where you want to run the GlassFish 3.1.2.2 application server.

5. Install JDK 7 on the machine where you want to run the GlassFish 3.1.2.2 application server.

6. Install GlassFish 3.1.2.2 following the standard installation procedure.

**Note:**    Do not create or configure domains for BSS. The BSS update installation procedure will create the required domains automatically.

7. 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 of marketplaces.

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

8. Install PostgreSQL 9.1.6.

9. Prepare the software and setup utilities for the new version of BSS as described in *Preparing the Software and Setup Utilities* on page 13.

10. Enter the required configuration settings as described in *Configuring BSS* on page 13. If you have a backup of your properties files and configuration settings, you can look up the settings defined there and reuse them.

## Updating the BSS Installation

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

**Databases:**

1. Set up the databases, `bss` and `bssjms`, as described in *Setting up the Databases* on page 14.

2. Drop the `bss` database and recreate it with the owner `bssuser` using the relevant PostgreSQL commands. This step is required to ensure that the database exists and is empty for restoring the `bss` database backup.

3. Restore the `bss` database from the backup using the relevant PostgreSQL commands.

4. Update the schema and configuration settings of the databases 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.amin.pwd=<password>` in double or single quotes depending on the operating system.

**Application server:**

1. Install and configure BSS in the application server as described in *Setting up the Application Server Resources* on page 15.

**Note:** Make sure that Ant runs in a Java 7 runtime environment when calling the `build-glassfish-setup.xml` file.

2. Stop the GlassFish 3.1.2.2 domains to which you deployed BSS and the search indexer application.

3. Create a backup of the GlassFish 3.1.2.2 `bes-domain` keystore and truststore (`keystore.jks` and `cacerts.jks` files). They are located in the following directory:

   `<GLASSFISH_HOME>/glassfish/domains/bes-domain/config`

4. Restore your certificates backed up in the GlassFish 2.1 environment in the GlassFish 3.1.2.2 installation as follows:

   1. Copy the GlassFish 2.1 `keystore.jks` and `cacerts.jks` files to the GlassFish 3.1.2.2 `bes-domain` domain. For example, copy the files to

      `<GLASSFISH_HOME>/glassfish/domains/bes-domain/config`

      where `<GLASSFISH_HOME>` is the installation directory of GlassFish 3.1.2.2.

   2. Add the default GlassFish 3.1.2.2 instance certificate to the keystore and truststore. Use the following commands:

```
<YourJRE>/bin/keytool -importkeystore -srckeystore
    <GF3.1CertBackup>/keystore.jks -srcalias glassfish-instance
```

```
     -destkeystore keystore.jks -destalias glassfish-instance
```

```
<YourJRE>/bin/keytool -importkeystore -srckeystore
    <GF3.1CertBackup>/cacerts.jks -srcalias glassfish-instance
    -destkeystore cacerts.jks -destalias glassfish-instance
```

where `srckeystore` is the backup copy of the GlassFish 3.1.2.2 certificates and `destkeystore` is the destination keystore of the GlassFish 3.1.2.2 installation.

5. Restart the `master-indexer-domain` domain.
6. Restart the `bes-domain` domain.

**Command line tool:**

The current version of the command line tool is provided in the BSS 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, 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 BSS consists of the following steps:

1. Stop the application server domains related to BSS.
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 BSS 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 BSS.

## A.1 BSS Domain

The following sections give an overview of the resources which must be provided for the BSS 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 BSS stores its data.

| Name | `BSSDS` |
|---|---|
| **Class name** | `org.postgresql.xa.PGXADataSource` |
| **Resource type** | `javax.sql.XADataSource` |
| **Database schema** | As distributed with BSS. |

### 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:

| **Initial and minimum pool size** | `1` connection |
|---|---|
| **Maximum pool size** | `250` connections |
| **Pool resize quantity** | `2` connections |

| Idle timeout | `600` seconds |
|---|---|
| Max wait time | `60000` milliseconds |
| On any failure | `Close all connections` |
| Transaction support | `XATransaction` |
| Connection validation | `Required` |
| UserName | `jmsuser` |
| Password | `jmsuser` |

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

| AddressList | `<master_indexer_host_name>:<port>`, where `port` 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.

| JNDI Name | `mail/BSSMail` |
|---|---|
| Store Protocol | `imap` |
| Transport Protocol | `smtp` |
| mail-smtp-auth | `false` |
| mail-user | `saas` |
| mail-smtp-port | `25` |
| mail-smtp-password | `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

BSS 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:

| Name | `bss-realm` |
|---|---|
| JAAS context | `bssRealm` |
| Implementation class | `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 BSS stores its data.

| Name | BSSDS |
|---|---|
| Class name | org.postgresql.xa.PGXADataSource |
| Resource type | javax.sql.XADataSource |
| Database schema | As distributed with BSS. |

### JMS Queue

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

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

### 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 BSS 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`

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 BSS.

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.

### 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 BSS 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 BSS.

Example: `8048`

### glassfish.bes.domain.name

The name of the domain where you deployed BSS.

Example: `bes-domain`

### glassfish.bes.domain.admin.user

The user name of the BSS domain administrator.

Default: `admin`

### glassfish.bes.domain.admin.pwd

The password of the BSS domain administrator.

Default: `adminadmin`

### glassfish.bes.domain.admin.master.pwd

The master password of the BSS 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`

## 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 BSS 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 BSS Configuration Settings

The `configsettings.properties` file contains the configuration settings for the BSS services.

### BASE_URL

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

Syntax: `BASE_URL=http://<host>:<port>/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: `BASE_URL=https://<host>:<port>/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.

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

Default: `2`

### HIDDEN_UI_ELEMENTS

Optional. Specifies menus, pages, or fields to be hidden from the BSS administration portal.

If you want to hide a specific page, you can find out which value needs to be specified here as follows:

1. Open the respective page at the BSS 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, 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, enter one of the following values:

- `navigation.myAccount`: **Account** menu
- `navigation.operator`: **Operation** menu
- `navigation.techService`: **Technical service** menu
- `navigation.service`: **Marketable service** menu
- `navigation.priceModel`: **Price model** menu
- `navigation.marketPlace`: **Marketplace** menu

## 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 BSS 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 BSS 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 BSS 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 BSS 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 authentication.

Allowed values: Any value between `1` and `9223372036854775807`

Default: `100`

## LOG_CONFIG_FILE

Optional. The path to the `log4j` configuration file of BSS.

Default:

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

## LOG_FILE_PATH

Mandatory. The path to the BSS log files.

Default:

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

## LOG_LEVEL

Optional. The log level for BSS. 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 BSS. 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`

## 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 BSS reports. The URL template of the report engine. If you do not specify a correct URL template, BSS 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 BSS 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, BSS 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 BSS 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, BSS 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.

## 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 BSS 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 BSS. 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 BSS configuration settings. |