Sun GlassFish Mobility Platform 1.1 Installation Guide

Sun microsystems

Contents

Preface

This guide explains how to install Sun GlassFish Mobility Platform 1.1 Gateway software and how to run a simple application to verify that installation succeeded.

Who Should Use This Book

This guide is intended for users who will install the Sun GlassFish Mobility Platform software on systems running Sun Solaris, Linux, and Windows operating systems.

Before You Read This Book

Before reading this guide, you should be familiar with installing applications on systems running Sun Solaris, Linux, and Windows operating systems, be able to create and configure databases, database users, and tables with MySQL and Oracle databases. It also helps to have some familiarity with the Sun GlassFish Enterprise Server as well as mobile devices that run Java Platform, Micro Edition (Java ME).

Sun GlassFish Mobility Platform Documentation

The Sun GlassFish Mobility Platform 1.1 documentation set will be available at `http://docs.sun.com/coll/1918.1`. To learn about Sun GlassFish Mobility Platform, refer to the books listed in the following table.

TABLE P–1   Books in the Sun GlassFish Mobility Platform Documentation Set

Book Title	Description
Sun GlassFish Mobility Platform 1.1 Release Notes	Late-breaking information about the software and the documentation. Includes a comprehensive summary of the supported hardware, operating systems, application server, Java™ Development Kit (JDK™), databases, and EIS/EAI systems.
Sun GlassFish Mobility Platform 1.1 Architectural Overview	Introduction to the architecture of Sun GlassFish Mobility Platform.

TABLE P–1 Books in the Sun GlassFish Mobility Platform Documentation Set   *(Continued)*

Book Title	Description
Sun GlassFish Mobility Platform 1.1 Installation Guide	Installing the software and its components, configuration, and running a simple application to verify that installation succeeded.
Sun GlassFish Mobility Platform 1.1 Deployment Guide	Deployment of applications and application components to Sun GlassFish Mobility Platform.
Sun GlassFish Mobility Platform 1.1 Administration Guide	System administration for Sun GlassFish Mobility Platform, focusing on the use of the Sun GlassFish Mobility Platform Administration Console.

For up-to-the-minute information about Sun GlassFish Mobility Platform from the Sun GlassFish Mobility Platform technical team at Sun, see the Enterprise Mobility Blog at `http://blogs.sun.com/mobility/`.

Related Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

Note – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- Documentation (`http://www.sun.com/documentation/`)
- Support (`http://www.sun.com/support/`)
- Training (`http://www.sun.com/training/`)

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Typographic Conventions

The following table describes the typographic conventions that are used in this book.

TABLE P–2 Typographic Conventions

Typeface	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file.
		Use `ls -a` to list all files.
		`machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen computer output	`machine_name%` **`su`**
		`Password:`
aabbcc123	Placeholder: replace with a real name or value	The command to remove a file is `rm` *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*.
		A *cache* is a copy that is stored locally.
		Do *not* save the file.
		Note: Some emphasized items appear bold online.

Shell Prompts in Command Examples

The following table shows the default UNIX® system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–3 Shell Prompts

Shell	Prompt
C shell	`machine_name%`
C shell for superuser	`machine_name#`

TABLE P–3 Shell Prompts   *(Continued)*

Shell	Prompt
Bourne shell and Korn shell	$
Bourne shell and Korn shell for superuser	#

1

Installing Sun GlassFish Mobility Platform 1.1

This chapter lists prerequisite software that must already be installed on your system and explains procedures that you must follow to install the Sun GlassFish Mobility Platform 1.1 server-side software. Chapter 3, "Setting Up and Running the MusicDB Sample Application," explains how to set up and run the MusicDB client application to verify that your installation was successful.

The Sun GlassFish Mobility Platform software has been tested with the following operating systems:

- Solaris 10 (SPARC and x86) and Open Solaris 2008.11
- Red Hat Enterprise Linux 4 and 5
- Microsoft Windows (XP Professional and Server 2003)

Download the Sun GlassFish Mobility Platform installation bundle appropriate for your operating system and the Sun GlassFish Mobility Platform client bundle.

The Sun GlassFish Mobility Platform 1.1 FCS bundle contains the Sun GlassFish Mobility Platform Gateway, Sun GlassFish Enterprise Server 2.1, and Sun JCA Adapters.

The Sun GlassFish Mobility Platform 1.1 FCS client bundle includes the following items:

- Secure MusicDB and Secure Salesforce sample clients for the Palm and Blackberry mobile devices
- API documentation for the Mobile Client Business Object (MCBO) API, the Enterprise Connector Business Object (ECBO) API, JerseyMe API, and sample clients
- Sources for the Secure MusicDB and Secure Salesforce sample client applications and the MusicDB sample Enterprise Connector

Before You Begin

Before you install the Sun GlassFish Mobility Platform software, ensure that the following software has already been installed:

- Java Platform, Standard Edition 6 (JDK 6)

  You can download JDK 6 from `http://java.sun.com/javase/downloads/index.jsp`.

- If you are going to use the Sun GlassFish Mobility Platform software with a back-end system, such as Siebel EAI, SAP BAPI, or Oracle Applications, the back-end software must be installed, configured, and operational before you begin the Sun GlassFish Mobility Platform installation. The back-end software must be installed on a different system from the one on which you install the Sun GlassFish Mobility Platform software.

- Database to use for Sun GlassFish Mobility Platform Sync database (MySQL or Oracle)

  Sun GlassFish Mobility Platform 1.1 can be used with MySQL 5.1 Community Server or Oracle 10g Release 2. The database does not need to be installed on the same system as the Sun GlassFish Mobility Platform software.

  - If you are using MySQL 5.1 Community Server, enable TCP/IP networking when you configure the MySQL database. During the Sun GlassFish Mobility Platform installation, you will be prompted for the username and password for the MySQL database administrator account so the installer can create the databases and database users required by the Sun GlassFish Mobility Platform software.

    You can download the MySQL database software appropriate for your operating system from `http://www.sun.com/software/products/mysql/getit.jsp`.

  - If you are using Oracle 10g Release 2, it is recommended that you install the database on a different system from the one on which you install the Sun GlassFish Mobility Platform software. Only one Sun GlassFish Mobility Platform installation can use the database.

    You can download the Oracle database software appropriate for your operating system from `http://www.oracle.com/technology/software/products/database/index.html`. Before you can install the Sun GlassFish Mobility Platform software and use Oracle as a database, you must complete the configuration steps in Appendix A, "Configuring Oracle Databases and Database Users for Use with the Sun GlassFish Mobility Platform Software."

- (Optional) Sun Java Wireless Toolkit 2.5.2 for CLDC

  You can use the Wireless Toolkit (WTK) to run a client emulator to validate your Sun GlassFish Mobility Platform installation. Download the WTK from `http://java.sun.com/javame/downloads/index.jsp`. The WTK runs on Windows and Linux X86 systems only.

In addition, ensure that your JAVA_HOME environment variable has been set.

Installing the Sun GlassFish Mobility Platform Server-Side Software

The following sections explain how to perform two types of installation:

- Single-tier install, in which all of the Sun GlassFish Mobility Platform software is installed on one system
- Two-tier install, in which the Sun GlassFish Mobility Platform Gateway engine is installed on the first system and the other Sun GlassFish Mobility Platform components, including the web service endpoint, enterprise connectors, and Sun JCA adapters are installed on a second system.

Performing a Single-Tier Installation

Complete the following steps to install all of the Sun GlassFish Mobility Platform components in a single tier.

1. If you are installing on a Solaris system, log in as root or use the `sudo` command.

   Use the `sudo` command if you are installing on a Linux system.

2. Unzip the `sgmp-1_1-<operating_system>.zip` installation bundle appropriate for your operating system.

3. If you are using Oracle, download `ojdbc14.jar`, the Oracle JDBC driver, from `http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html`. Place this JAR file in the `lib` subdirectory under the top-level directory where you unzipped the Sun GlassFish Mobility Platform installation bundle.

4. Change to the directory where you unzipped the installation bundle and type the command to start the installation and run the installer appropriate for your operating system:

   - `install-solaris.sh` on Solaris
   - `install-linux.sh` on Linux
   - `install-windows.bat` on Windows

5. When you are prompted to select the installation type (single tier, tier1, or tier2), select "1" to perform a single-tier installation.

6. The first step in the Sun GlassFish Mobility Platform installation process is to install Sun GlassFish Enterprise Server 2.1:

   a. When you are prompted to install the Application Server, type "y".

   b. When you are prompted to display the Software License, press Enter.

   c. When you are prompted to accept the Software License, type "yes".

   d. When you are prompted to accept the default location of the installation directory, press Enter. If you want to install the Application Server in another location, type the full path to that directory then press Enter.

e. If the directory does not exist, type "1" to create the directory or "2" to choose a new directory, then press Enter.

f. If the installer finds a suitable Java SDK installation, it displays that installation directory as the default. If the default is a valid JDK 6 installation directory, press Enter to accept that installation directory or type the full path name of another JDK 6 installation.

g. When you are prompted for the admin user name, type the administrator user name or press Enter to accept the default (admin).

h. When you are prompted for the admin user's password, type the password then reenter it when you are prompted to do so.

i. When you are prompted to store the username and password in a file in your home directory, press Enter or type "yes".

j. When you are prompted to accept or override the initial Application Server port settings (Admin port, HTTP port, HTTPS port), press Enter.

k. When you are prompted to add the `bin` directory to the PATH, press Enter or type "yes".

l. When you are prompted to enable the Update Center client, press Enter or type "yes".

m. If you are prompted to create a Windows service, press Enter or type "no" to bypass creating a service or type "yes" to create a Windows service. If you opted to create a service, follow the online instructions for doing so.

n. When you are prompted to create a desktop shortcut to the `autodeploy` directory, press Enter or type "no" to bypass creating the shortcut or type "yes" to create the shortcut on your desktop.

o. When you are prompted to upgrade from a previous version of the Application Server, press Enter or type "no".

p. When you are prompted to install now, start over, or exit the installation, type "1" to install the Application Server.

q. When you are prompted, press Enter to exit the installation program that just completed.

7. The next step in the Sun GlassFish Mobility Platform installation process is to install the Sun GlassFish Mobility Platform software:

a. When you are prompted, press Enter or type the full path to the Application Server installation directory.

b. When you are prompted to review the product license, press Enter.

   Press Enter repeatedly as you page through the license.

c. When you are prompted to accept the license, type "y" or "yes".

d. When you are prompted to select the database, type "1" for MySQL or "2" for Oracle, then press Enter.

If you select Oracle, you must have completed the steps in Appendix A, "Configuring Oracle Databases and Database Users for Use with the Sun GlassFish Mobility Platform Software," before you can proceed with the installation.

e. When you are prompted, type the database host name or press Enter to accept the default (localhost).

f. When you are prompted, type the database access port or press Enter to accept the default.

    The default is 3306 on MySQL and 1521 on Oracle.

g. When you are prompted, type the database JDBC driver class or press Enter to accept the default.

    The default is `mysql.jdbc.Driver` on MySQL and `oracle.jdbc.OracleDriver` on Oracle.

h. If you selected MySQL, when you are prompted, type the userid of the database administrator account.

    On MySQL, the userid is usually `root`.

i. If you selected MySQL, when you are prompted, type the password for the root account (or database administrator account).

    If you are using MySQL, the installer creates all of the necessary databases, users, and tables. No action is needed on your part.

j. When you are prompted to delete `domain1`, type "y" or "yes".

k. When you are prompted, press Enter or type the name for the new Application Server domain. The default is "mep".

l. When you are prompted, press Enter or type the Admin Port for the new domain. The default is "4848".

m. When you are prompted, press Enter or type the HTTP port for the new domain. The default is "8080".

n. When you are prompted, press Enter or type the HTTPS port for the new domain. The default is "8181".

o. When you are prompted, press Enter or type the admin password for the new domain. The default is "adminpass". The password that you type in this step should match the password that you typed in step 6h.

    The installer configures the new domain. No action is needed on your part.

When the installation completes successfully, the following message is displayed:

```
Install was successful

BUILD SUCCESSFUL
```

Performing a Two-Tier Installation

Complete the following tasks to perform a two-tier installation, which installs the Sun GlassFish Mobility Platform Gateway engine on the first tier, the Gateway tier, and the other Sun GlassFish Mobility Platform components including the web service endpoint, enterprise connectors, and Sun JCA adapters, on the second tier, the Enterprise tier:

- "Installing Sun GlassFish Mobility Platform on the Tier 1 System" on page 14
- "Installing Sun GlassFish Mobility Platform on the Tier 2 System" on page 15

Installing Sun GlassFish Mobility Platform on the Tier 1 System

1. On the first system, the Gateway tier system, complete steps 1 through 3 in "Performing a Single-Tier Installation" on page 11 .

2. Change to the directory where you unzipped the installation bundle and type the command to start the installation. Type the command that is appropriate for your operating system:
   - `installer-solaris.sh` on Solaris
   - `installer-linux.sh` on Linux
   - `installer-windows.bat` on Windows

3. When you are prompted to select the installation type (single tier, tier1, or tier2), select "2" to install tier1 of a two-tier installation.

4. Perform step 6, installing the Application Server, in "Performing a Single-Tier Installation" on page 11.

5. Perform steps 7a through 7o in "Performing a Single-Tier Installation" on page 11.

6. When you are prompted to begin the tier 1 configuration, type "y" and press Enter, then type "y" and press Enter again.

7. When you are prompted to use an HTTPS connection, type "y" and press Enter or type "n" and press Enter to use an HTTP connection instead.

8. You are prompted to identify the host name and port number for the endpoint URL to the web service that will be installed on the system in the second tier. The web service uses the Sun JCA adapters configured on the system in the second tier that connects to the back-end system.

   a. When you are prompted for the host name, type the host name of the tier2 system and press Enter.

   b. When you are prompted for the port number, press Enter or type the port number for the tier2 system.

      If are using an HTTPS connection, the default is "8181". If are using an HTTP connection, the default is "8080".

c. When you are prompted to confirm or correct the endpoint URL, check the URL that is displayed.

If the correct host name and port number are displayed, press Enter.

If either the host name or the port number, or both, are incorrect, retype the entire URL using the correct host name and port number, then press Enter.

When the tier1 installation completes successfully, the following message is displayed:

```
Install was successful

BUILD SUCCESSFUL
```

Installing Sun GlassFish Mobility Platform on the Tier 2 System

1. On the second system, the Enterprise tier system, complete steps 1 through 3 in "Performing a Single-Tier Installation" on page 11 .

2. Change to the directory where you unzipped the installation bundle and type the command to start the installation. Type the command that is appropriate for your operating system:
   - `installer-solaris.sh` on Solaris
   - `installer-linux.sh` on Linux
   - `installer-windows.bat` on Windows

3. When you are prompted to select the installation type (single tier, tier1, or tier2), select "3" to install tier2 of a two-tier installation.

4. Perform step 6, installing the Application Server, in "Performing a Single-Tier Installation" on page 11.

5. Perform steps 7a through 7o in "Performing a Single-Tier Installation" on page 11.

6. When you are prompted to begin the tier2 installation, type "y" or "yes" and press Enter. You may need to do this twice.

   When the tier2 installation completes successfully, the following message is displayed:

```
BUILD SUCCESSFUL
```

Next Steps

To use the Sun GlassFish Mobility Platform software across corporate networks, you may need to configure the gateway to use an HTTP or HHTPS proxy. Follow the instructions in Chapter 4, "Configuring HTTP and HTTPS Proxies," to add the necessary JVM options for the HTTP or HTTPS proxy.

If you installed the Sun GlassFish Mobility Platform software in two tiers and you elected to use an HTTPS connection, follow the instructions in Chapter 2, "Establishing Trust," to establish trust between the gateway and enterprise tiers.

To use the Sun GlassFish Mobility Platform software in a clustered environment, follow the instructions in Chapter 5, "Creating A Cluster." These instructions explain how to create and start a node agent, define a cluster configuration that will be shared among multiple instances. and make the Sun GlassFish Mobility Platform gateway and components available on the cluster.

After successfully installing the Sun GlassFish Mobility Platform software, and optionally establishing trust between the applicable tiers and configuring HTTP and HTTPS proxies, follow the instructions in Chapter 3, "Setting Up and Running the MusicDB Sample Application," to install, deploy, and run the MusicDB client application using the WTK client emulator software. This will verify that your Sun GlassFish Mobility Platform software components are working correctly.

Uninstalling the Sun GlassFish Mobility Platform 1.1 Software

Complete the following steps to uninstall the Application Server and Sun GlassFish Mobility Platform 1.1 software.

1. If you are on a system running the Solaris operating system, log in as root or use the sudo command.

   If you are on a Linux system, use the sudo command.

2. Change to your AS_HOME directory.

3. Execute the ./uninstall command.

   The Application Server and Sun GlassFish Mobility Platform 1.1 software are both uninstalled.

4. Drop all tables, databases, and users that were created for Sun GlassFish Mobility Platform.

2

Establishing Trust

This chapter explains how to establish trust between tier 1, the Gateway tier, and tier 2, the Enterprise tier. The procedures included in this chapter use self-signed certificates that are automatically generated by the Enterprise Server. In a production environment, you would obtain certificates from a certificate authority (CA), a trusted third party that issues digital certificates for use by other parties. There are many commercial CAs, such as Verisign, that charge for their services. Some institutions and governments have their own CAs and there are even some CAs that issue certificates free of charge.

A CA issues digital certificates that contain a public key and the identity of the owner. The CA attests that the public key contained in the certificate belongs to the person, organization, server or other entity noted in the certificate. The CA verifies an applicant's credentials, so other users and parties that rely on the veracity of the credentials can trust the information in the CA's certificates.

A self-signed certificate, on the other hand, is an identity certificate that is signed by its own creator. The person that created the certificate also signed off on its legitimacy. The mobile client, Gateway tier, and Enterprise tier in a Sun GlassFish Mobility Platform environment can use either self-signed or CA-issued certificates.

Trust is established in two phases:

1. Configuring the Enterprise tier to trust the Gateway tier
2. Configuring the Gateway tier to trust the Enterprise tier

The following sections explain these phases.

Configuring the Enterprise Tier to Trust the Gateway Tier

There is a two-step process to configure trust between the Gateway tier and the Enterprise tier:

1. On the Gateway tier, export the keystore then copy it to the Enterprise tier.

   a. Change to the `config` subdirectory in the Gateway tier Sun GlassFish Mobility Platform installation:

   ```
   $ cd as-install/domains/domain-dir/config
   ```

   b. Export the keystore to a file:

   ```
   $ keytool -export
   -keystore keystore.jks
   -alias s1as
   -file tier1_sjsas.cer
   -storepass adminpass
   ```

   c. Copy the exported keystore to the `config` subdirectory in the Enterprise tier Sun GlassFish Mobility Platform installation:

   ```
   $ cp tier1_sjsas.cer /net/tier2-hostname/as-install/domains/domain-dir/config
   ```

   In this case, *as-install* is the location where the Enterprise Server has been installed and *domain-dir* is the name of the Sun GlassFish Mobility Platform domain, usually `mep`.

2. On the Enterprise tier, import the keystore from the Gateway tier.

   a. Change to the `config` subdirectory in the Enterprise tier Sun GlassFish Mobility Platform installation:

   ```
   $ cd as-install/domains/domain-dir/config
   ```

   b. Import the keystore that was exported from the Gateway tier:

   ```
   $ keytool -import
   -keystore cacerts.jks
   -alias tier1_sjsas
   -file tier1_sjsas.cer
   -storepass adminpass
   -trustcacerts
   -noprompt
   ```

3. Stop then restart the Enterprise Server on the Enterprise tier to use the new security settings.

   a. Stop the Enterprise Server:

   ```
   $ asadmin stop-domain domain-dir
   ```

   b. Restart the Enterprise Server:

```
$ asadmin start-domain domain-dir
```

Configuring the Gateway Tier to Trust the Enterprise Tier

Text

There is a two-step process to configure trust between Enterprise tier and the Gateway tier.

1. On the Enterprise tier, export the keystore and copy it to the Gateway tier.

   a. Change to the `config` subdirectory in the Enterprise tier Sun GlassFish Mobility Platform installation:

   ```
   $ cd as-install/domains/domain-dir/config
   ```

   b. Export the keystore to a file:

   ```
   keytool -export
   -keystore keystore.jks
   -alias s1as
   -file tier2_sjsas.cer
   -storepass adminpass
   ```

   c. Copy the exported keystore to the `config` subdirectory in the Gateway tier Sun GlassFish Mobility Platform installation:

   ```
   $ cp tier2_sjsas.cer /net/tier1-hostname/as-install/domains/domain-dir/config
   ```

2. On the Gateway tier, import the keystore from the Enterprise tier.

   a. Change to the `config` subdirectory in the Gateway tier Sun GlassFish Mobility Platform installation:

   ```
   $ cd as-install/domains/domain-dir/config
   ```

   b. Import the keystore that was exported from the Enterprise tier:

   ```
   $ keytool -import
   -keystore cacerts.jks
   -alias tier2_sjsas
   -file tier2_sjsas.cer
   -storepass adminpass
   -trustcacerts
   -noprompt
   ```

3. Stop then restart the Enterprise Server on the Gateway tier to use the new security settings.

   a. Stop the Enterprise Server:

   ```
   $ asadmin stop-domain domain-dir
   ```

   b. Restart the Enterprise Server:

```
$ asadmin start-domain domain-dir
```

◆ ◆ ◆   C H A P T E R   3

3

Setting Up and Running the MusicDB Sample Application

This chapter explains how to set up and run the a sample application, secure MusicDB, to verify your Sun GlassFish Mobility Platform software installation. This exercise is an optional part of the installation process. You only need to complete it to verify that your Sun GlassFish Mobility Platform installation was successful.

Overview of the Secure MusicDB Application

Secure MusicDB is a simple application that quickly shows you how to set up and use the Sun GlassFish Mobility Platform software to complete an end-to-end run from the client through to a MySQL or Oracle database without having to undergo the arduous process of setting up and configuring a more complex EIS/EAI system. The application can be run in a single-tier or two-tier environment.

Figure 3–1 shows the secure MusicDB application running in a single tier.
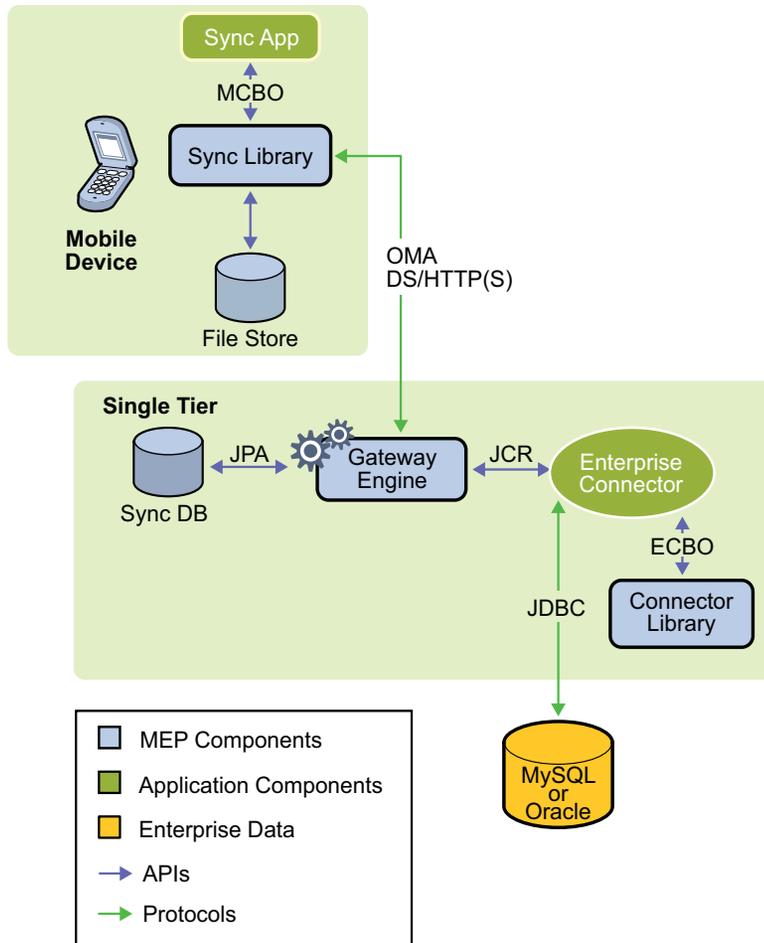
FIGURE 3–1   Secure MusicDB Application Running in a Single-Tier Environment

Figure 3–2shows the secure MusicDB application running in a two-tier environment.
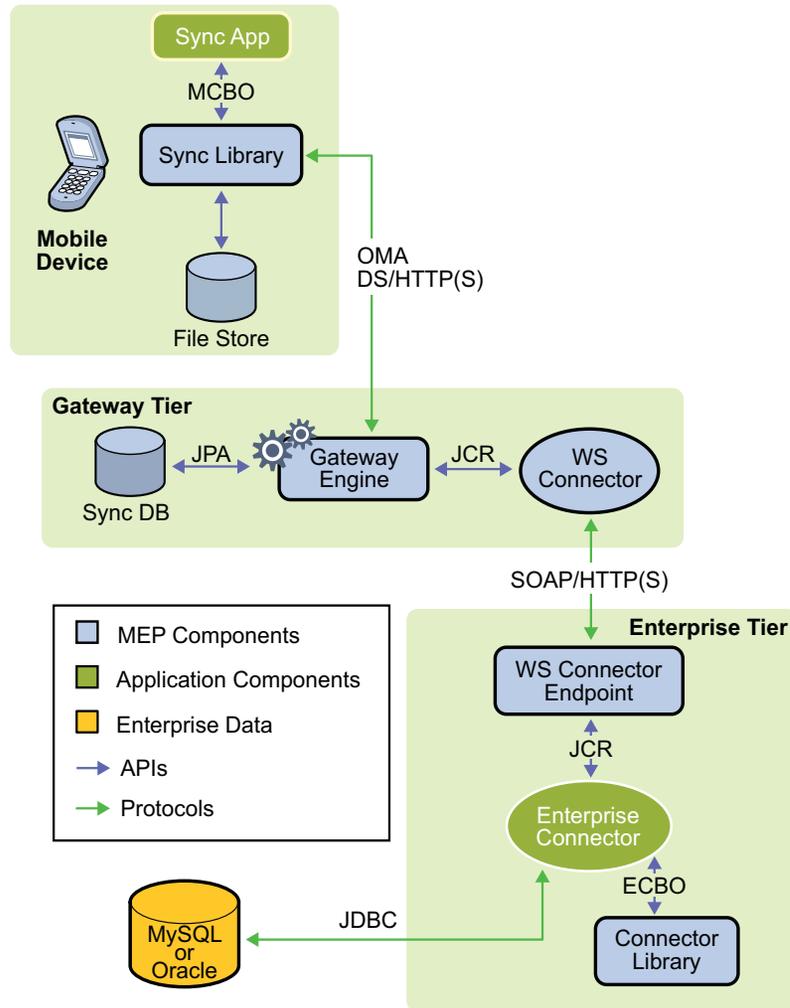
FIGURE 3–2 Secure MusicDB Application Running in a Two-Tier Environment

To run the secure MusicDB application you need to do the following:

1. Configure the Sun GlassFish Mobility Platform Gateway

2. Download the client application JAD file

3. Populate the `album` table

4. Run the MusicDB client application using the WTK client emulator on a Windows system

Configuring the Gateway

Create a Sun GlassFish Mobility Platform user for the MusicDB sample application.

If you have a two-tier Sun GlassFish Mobility Platform installation, perform this task on the tier1, or Gateway tier, system.

1. In a browser window, open `http://tier1host:8080/sync/admin`.

   The Gateway Administration Console login screen appears.

2. Log in using user `admin` and password `adminpass`.

   The Sun GlassFish Mobility Platform Administration Console appears.

3. Click the Users tab, then click the Create User tab.

4. In the Email Address field, type the user's email address, such as `musicdbuser@mycompany.com`.

5. In the Password field, type `musicdbpass`.

6. In the Username field, type `musicdbuser`.

7. Optionally, type the telephone number for the mobile device in the Phone Number field.

   This telephone number will be used for SMS notification.

8. Select MusicDb from the Enterprise Connector drop-down list.

9. Click Register.

10. Click the Edit User tab to verify that the user was created.

Downloading the MusicDB Client Application

Complete the following steps to download and unzip the Sun GlassFish Mobility Platform client bundle and locate the `secure-musicdb.jad` file that you will run with WTK 2.5.2 in a subsequent procedure to verify your Sun GlassFish Mobility Platform installation.

1. Download the `sjsmep-client-1_1—fcs.zip` client bundle if you haven't already done so.

2. Unzip the client bundle.

   The bundle unzips into the `sjsmep-client-1_1—fcs` directory.

3. Check the contents of the `samples/secure-musicdb` subdirectory and locate the `secure-musicdb.jad` file.

   This is the client application file that you will run in a subsequent section.

Populating the album Table

The album table in the musicdb database was created during the Sun GlassFish Mobility Platform installation, but it does not contain any data. This procedure explains how to populate the album table so you have data to manipulate with your client application in subsequent steps.

If you have a two-tier Sun GlassFish Mobility Platform installation, perform this task on the tier2, or Enterprise tier, system.

Complete the following steps to add data to the album table:

1. Connect to the musicdb database.

   If you are using Oracle, start SQL*Plus and connect as follows:

   ```
   $ sqlplus musicdbuser/musicdbpass@musicdb
   ```

   If you are using MySQL, start the mysql utility and connect as follows:

   ```
   $ mysql -umusicdbuser -pmusicdbpass musicdb
   ```

2. Verify that the album table was created during the Sun GlassFish Mobility Platform installation and that it has no contents:

   ```
   select * from album;
   ```

3. Add your first album:

   ```
   insert into album (name, artist, date_published, rating, username)
   values ('Crossroads', 'Eric Clapton', DATE '1988-04-18', 5, 'musicdbuser');
   ```

4. Add another album:

   ```
   insert into album (name, artist, date_published, rating, username)
   values ('Unplugged', 'Eric Clapton', DATE '1992-08-25', 5, 'musicdbuser');
   ```

5. Add a third album:

   ```
   insert into album (name, artist, date_published, rating, username)
   values ('The Road to Escondido', 'Eric Clapton', DATE '2006-11-06',
   5, 'musicdbuser');
   ```

6. If you are using Oracle, commit your changes.

   ```
   sqlplus> commit;
   ```

7. Check that the album table contains the three albums that you just added:

   ```
   select * from album;
   ```

8. Exit the utility:

```
exit
```

Running the Secure MusicDB Client Application

Start the client emulator on a Windows system:

1. Choose Start→All Programs→Sun Java Wireless Toolkit 2.5.2 for CLDC→Wireless Toolkit 2.5.2.

    The Sun Java Wireless Toolkit 2.5.2 for CLDC screen is displayed.

2. To configure the toolkit security settings, complete the following steps:

    a. Select Edit from the menu bar and then select Preferences.

        The Preferences screen is displayed.

    b. Select Security in the Category pane.

        The Security tab is displayed.

    c. Ensure that MSA is selected for the Security Policy.

    d. Ensure that maximum is selected for the Security domain.

    e. Click OK when you are done.

        The console will display messages indicating that your Preferences have been updated and saved.

3. If you plan to use HTTPS instead of HTTP as the transport between the mobile client (the toolkit) and the gateway, complete the following steps:

    a. Change to the config subdirectory in the Gateway tier Sun GlassFish Mobility Platform installation:

        ```
        $ cd as-install/domains/domain-dir/config
        ```

    b. Export the keystore to a file:

        ```
        $ keytool -export
        -keystore keystore.jks
        -alias s1as
        -file sjsas.cer
        -storepass adminpass
        ```

    c. Copy the exported keystore to the system from which you will run the toolkit.

    d. In the toolkit, select File from the menu bar, then select Utilities.

    e. Select Manage Certificates and press the Launch button.

    f. In the Java ME Platform Certificate Manager, select Import Certificate.

    g. Locate the certificate, s1as.cer, that you generated in step 3b and copied locally and press Import.

     h. Select Maximum from the Select Security Domain drop-down and then press OK.

       The Key Details pane, on the right side of the window, reports that the certificate has been imported and is enabled.

4. Select File from the menu bar, then select Create project from JAD/JAR file.

   The Create new project from JAD screen is displayed.

5. Locate the `secure-musicdb.jad` file in the `samples/secure-musicdb` subdirectory, then click Open.

   After the WTK opens the project, it displays the following message:

```
Project "secure-musicdb" loaded
```

6. Click Run in the toolbar.

   The emulator appears with `MepSecureJdbcMIDlet` selected.

7. To launch the client application, click Launch (the top right button on the keypad, with a dot on it).

   The Initialize PIN screen displays.

8. In the Enter Secret field, type any sequence of characters. You do not need to remember what you typed.

9. In the Set Your PIN field, type a sequence of alphanumeric characters. You can type up to 32 characters but keep in mind that you need to remember what you typed for your PIN.

10. Click OK.

   The Sun GlassFish Mobility Platform JDBC Client configuration screen displays. This screen includes several settings for the application.

11. In the sync server url field, type `http://`*hostname.dnsdomainname*`:`*port-number*`/sync`.

   You'll need to edit the URL that is shown by default.

   If you have a two-tier Sun GlassFish Mobility Platform installation, type the *hostname.dnsdomainname* :*port-number* of the tier1, or Gateway tier, system.

12. In the email field, type the email address that you used when you created the `musicdbuser` in "Configuring the Gateway" on page 24 (for example, `musicdbuser@mycompany.com`).

13. In the password field, type `musicdbpass`.

14. In the syncType pane, use the emulator arrow keys and the Select button (the big square button) to select Slow sync.

15. Click Menu and select Sync.

   A Sync Successful message appears briefly, followed by a description of the synchronization results.

16. To verify that the albums have been downloaded from the server, click Menu then select Albums.

   The three albums that you created in "Populating the `album` Table" on page 25 appear.

17. Create a new album.

    a. Click Menu and select New Album.

    b. Type data in the Name, Artist, Publish Date, and Rating fields and click OK when you are done.

       The album name appears with a `.alb` suffix.

    c. Click Back.

       The Sun GlassFish Mobility Platform JDBC Client screen appears.

18. Synchronize the data with the MusicDB database.

    a. Select the Two-way sync type, then click Menu and then select Sync.

       A Sync Successful message appears, and the synchronization results are displayed.

    b. Click Ok.

       The albums are displayed.

       The data on your client device and the data in the MusicDB database are now synchronized.

4

Configuring HTTP and HTTPS Proxies

The Sun GlassFish Mobility Platform software can be used across corporate networks where, it is highly likely that, an HTTP proxy would be required to tunnel beyond the firewall protecting the gateway. This chapter explains how to configure the Sun GlassFish Mobility Platform gateway to use HTTP and HTTPS proxies to communicate with corporate enterprise components outside the firewall.

Configuring HTTP and HTTPS Proxies with the Sun GlassFish Enterprise Server Admin Console

On the JVM Options page in the Sun GlassFish Enterprise Server Admin Console, you can specify these options for the Java application launcher that runs the Enterprise Server. The following -D JVM options designate proxy properties that are specific to this Enterprise Server:

- -Djava.http.proxyHost=*proxyHostName* where *proxyHostName* is the host name of the proxy server

- -Djava.http.proxyPort=*proxyPortNumber* where *proxyPortNumber* is the port number of the proxy server

- -Djava.https.proxyHost=*secureProxyHostName* where *secureProxyHostName* is the host name of the secure proxy server

- -Djava.https.proxyPort=*secureProxyPortNumber* where *secureProxyPortNumber* is the port number of the secure proxy server

To set these JVM options:

1. Start the Sun GlassFish Enterprise Server Admin Console.
2. In tree component, expand the Configurations node and then the server-config node.
3. Select JVM Settings.
4. Click the JVM Options tab.

5. Add the options:

    a. Click Add JVM Option.

    b. In the blank row that appears, type the information for the `-Djava.http.proxyHost` option in the Value field.

    c. Repeat steps a and b for the `-Djava.http.proxyPort`, `-Djava.https.proxyHost`, and `-Djava.https.proxyPort`options.

6. Click Save.

7. Restart the server.

5

◆ ◆ ◆   **C H A P T E R   5**

Creating A Cluster

This chapter explains how to create a cluster and multiple cluster instances in which the Sun GlassFish Mobility Platform gateway and its components can run.

This chapter contains the following sections:

Starting Your Sun GlassFish Mobility Platform Domain

Start your Sun GlassFish Mobility Platform gateway domain, if that domain hasn't already been started. To see if the gateway domain is running, issue the following command:

```
asadmin list-domain
mep not running
Command list-domains executed successfully.
```

If the domain isn't running, start it by executing the following command:

```
asadmin start-domain sgmpDomainName
```

Substitute *sgmpDomainName* with the name of the domain name of your Sun GlassFish Mobility Platform gateway.

Creating A Node Agent

You need to create a node agent but you will not start it at this point.

Node agents are responsible for communications between your domain administration server and server instances or clusters. You create a node agent by executing the asadmin create-node-agent command, as shown, where *nodeAgentName* is the name of your node agent.

```
asadmin create-node-agent nodeAgentName
Command create-node-agent executed successfully.
```

If you don't specify a node agent name, the hostname of your system will be used. If you create a node agent on a different server, you must also specify host and port information for your domain administration server by passing the --host *hostname* and --port *portnumber* options to the asadmin command.

Defining A Sun GlassFish Enterprise Server Cluster Configuration

You can use the Sun GlassFish Enterprise Server Admin Console to set up a cluster by defining a cluster configuration that is shared among multiple instances:

1. Start the Sun GlassFish Enterprise Server Admin Console.

    a. In a browser window, open http://*gateway_hostname*:4848.

       The login screen for the Enterprise Server Admin Console appears.

    b. Log in using user admin and password adminpass.

       The Enterprise Server Admin Console appears.

2. Select Clusters in the navigation tree.

3. Select New to create a new cluster.

4. Type a cluster a name.

5. Select the default configuration.

6. Add at least 2 new server instances for now.

7. For each cluster instance, select the node agent that represents the machines where your cluster instances will run.

8. Press OK.

    The new cluster and its instances are created. This process may take a long time.

Starting Your Node Agent

After the cluster and its instances have been created, you need to start the node agent:

1. Issue the following command:

   ```
   asadmin start-node-agent nodeAgentName
   ```

2. Enter the administrative user name, if prompted:

   ```
   Please enter the admin user name>
   ```

3. Enter the administrative password, if prompted:

   ```
   Please enter the admin password>
   ```

4. Enter the master password or press the Enter key to accept the default master password:

   ```
   Please enter the master password [Enter to accept the default]:>
   ```

   You should see the following messages:

   ```
   Redirecting output to
     /nodeagents/nodeAgentName/agent/logs/server.log
   Redirecting application output to
     /nodeagents/nodeAgentName/agent/logs/ser ver.log
   Command start-node-agent executed successfully.
   ```

5. Start the Sun GlassFish Enterprise Server Admin Console.

6. Select the Node Agents item in the navigation tree.

   Your node agent should be shown as running. This procedure will also start up your cluster and its cluster instances.

Making the Sun GlassFish Mobility Platform Gateway and Its Components Available to the Cluster Instances

Complete the following steps to make the Sun GlassFish Mobility Platform gateway, default components, and optional components available to the cluster instances:

1. Start the Sun GlassFish Enterprise Server Admin Console.

   a. In a browser window, open http://gateway_hostname:4848.

      The login screen for the Enterprise Server Admin Console appears.

   b. Log in using user admin and password adminpass.

      The Enterprise Server Admin Console appears.

2. Select Enterprise Applications from the navigation tree.

3. Select gateway-tier-server.

4. Select the Target tab.

5. Press the Manage Targets button.

6. Select your cluster from the available targets choice box and press the Add button.

7. Press the OK button.

8. Repeat steps 3 – 7 for the Salesforce, MusicDB, and Siebel connector modules that were configured as part of the default Sun GlassFish Mobility Platform installation:

   - Web Applications→musicdb-ws
   - Web Applications→salesforce-ws
   - Connector Modules→sun-siebeleai-adapter
   - Connector Modules→ds-jcr-connector-jaxrs
   - Connector Modules→ds-jcr-connector-jaxws
   - Connector Modules→ds-jcr-musicdb
   - Connector Modules→ds-jcr-siebel-eway

The following connector modules components are optional. You only need to make the ones that you are using available to the cluster instances:

- `sun-jms-adapter`
- `sun-batch-adapter`
- `sun-file-adapter`
- `sun-jdbc-adapter`
- `sun-oracledb-adapter`
- `sun-sap-adapter`
- `sun-tcpip-adapter`

Making the Sample Resources on the Sun GlassFish Mobility Platform Gateway Available to the Cluster Instances

The resources for the Salesforce.com, MusicDB and Siebel sample applications were added to the gateway during the Sun GlassFish Mobility Platform installation to make the examples without any additional user configuration. Complete the following steps to make these resources available to the cluster instances:

1. Start the Sun GlassFish Enterprise Server Admin Console.

2. Select Resources→JDBC→JDBC Resources from the navigation tree.

3. Select `jdbc/gw`.

4. Select the Target tab.

5. Press the Manage Targets button.

6. Select your cluster from the available targets choice box and press the Add button.

7. Press the OK button.

8. Select the checkbox next to the target name of cluster that was just added and then press the Enable button to enable it on the cluster.

9. Repeat steps 2–8 for the following resources:

- Resources→JDBC→JDBC Resources→jdbc/musicdb
- JMS Resources→Connection Factories→jms/ConnectionFactory
- JMS Resources→Destination Resources→queue/MontorQueue
- Connectors→Connector Resources→mep/musicdb
- Connectors→Connector Resources→mep/siebel
- Connectors→Connector Resources→mep/sforce

Stopping and Restarting the Cluster

You need to stop and restart your cluster for the new settings to take effect:

1. Select the cluster in the Sun GlassFish Enterprise Server Admin Console.

2. Select the checkbox to the left of the cluster name and then press the Stop Cluster button.

3. Once the cluster has been stopped, select the checkbox to the left of the cluster again and then press the Start Cluster button to restart your cluster.

◆ ◆ ◆ **APPENDIX A**

A

Configuring Oracle Databases and Database Users for Use with the Sun GlassFish Mobility Platform Software

Before you can install and use the Sun GlassFish Mobility Platform software, you must complete the following tasks:

Creating Databases

You need to manually create the gwdb and musicdb databases before you can select Oracle as your database during the Sun GlassFish Mobility Platform installation.

To create the gwdb and musicdb databases, complete the following steps:

1. Start the Database Configuration Assistant (DBCA) utility.

2. On the Operations screen, select the Create a Database radio button and click Next.

3. On the Database Template screen, select the General Purpose radio button and click Next.

4. On the Database Identification screen, specify "gwdb" in the Global Database Name field and accept the default SID setting, which is also "gwdb". Click Next.

5. On the Management Options screen, accept the default settings and click Next.

6. On the Database Credentials screen, select the Use the Same Password for All Accounts radio button. Type any password, such as gwdb, in the Password and Confirm Password fields, then click Next.

7. On the Storage Options screen, accept the default settings, then click Next.

8. On the Database File Locations screen, accept the default settings, then click Next.

9. On the Recovery Configuration screen, accept the default settings, then click Next.

10. On the Database Content screen, accept the default settings, then click Next.

11. On the Initialization Parameters screen, select the Character Sets tab.

12. Select the radio button labeled "Choose from the list of character sets", then select UTF8 from the menu. Click Next.

13. On the Database Storage screen, click Next.

14. On the Creation Options screen, accept the default setting of Create Database, then click Finish.

15. On the Confirmation screen, click OK.

    DBCA creates and starts the Oracle database instance and completes the database creation.

16. Repeat steps 1–15 for the musicdb database, replacing "gwdb" with "musicdb" in step 4 and step 6.

Creating Database Users

You must create a database user for each database.

To create a user for the musicdb database instance, complete the following steps.

1. Log in as the Oracle user.

2. In a terminal window, type the following command:

   setenv ORACLE_SID musicdb

3. In a terminal window, type the following command:

   sqlplus / as sysdba

   After some messages are displayed, the SQL prompt is displayed.

4. Type the following command to create musicdbuser:

   SQL> **create user musicdbuser identified by musicdbpass;**

5. Type the following command to grant privileges to musicdbuser:

   SQL> **grant connect, resource to musicdbuser;**

6. Type the following command to log out of sqlplus:

   SQL> **quit**

To create a user for the gwdb database instance, complete the following steps.

1. In a terminal window, type the following command:

   setenv ORACLE_SID gwdb

2. In a terminal window, type the following command:

   sqlplus / as sysdba

   After some messages are displayed, the SQL prompt is displayed.

3. Type the following command to create gwdbuser:

   SQL> **create user gwdbuser identified by gwdbpass;**

4. Type the following command to grant privileges to settingsdbuser:

   SQL> **grant connect, resource to gwdbuser;**

5. Type the following command to log out of sqlplus:

   SQL> **quit**

Starting the Oracle Listener

The lsnrctl utility manages the Oracle listener processes, which enable database applications to connect to specific Oracle database instances through SQLPlus. Refer to your Oracle documentation on how to configure and setup the listener.ora and tnsname.ora configuration files for the lsnrctl utility.

1. Log in as the Oracle user.

2. Type the following command to enter the lsnrctl shell:

   $ **lsnrctl**

3. Type the following command to start up the listener:

   LNSRCTL> **startup**

4. Type the following command to see the status of the listener process:

   LNSRCTL> **status**

5. Type the following command to exit the lsnrctl shell:

   LSNRCTL> **exit**

Connecting to the Sun GlassFish Mobility Platform Databases

To connect to the gwdb and musicdb databases as the database as gwdbuser and musicdbuser database users, complete the following steps after you start the Oracle listener.

1. Log in as the Oracle user.

2. In a terminal window, type the following command to connect to the gwdb database:

   ```
   $ sqlplus gwdbuser/gwdbpass@gwdb
   ```

3. Type the following command to connect to the musicdb database:

   ```
   $ sqlplus musicdbuser/musicdbpass@musicdb
   ```