Oracle® Communications MetaSolv Solution

Installation Guide

Release 6.2.1

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Oracle Communications MetaSolv Solution Installation Guide, Release 6.2.1

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Preface

This guide contains the procedures and information you need to install and initially configure Oracle Communications MetaSolv Solution (MSS) and its utility programs.

This guide includes some information on third-party software products used by MSS. However, this information is limited to information needed to install and perform initial configuration tasks. If you need additional information on a third-party software application, consult the documentation provided by the product's manufacturer.

Audience

This guide is for individuals responsible for installing or maintaining MSS and ensuring the software is operating as required. This guide assumes the installer has an Oracle DBA and WebLogic administrator background, with a working knowledge of Java JEE.

Related Documents

For more information, see the following documents in Oracle Communications MetaSolv Solution 6.2.1 documentation set:

- *MSS Planning Guide:* Describes information you need to consider in planning your MetaSolv Solution environment prior to installation.
- *MSS System Administrator's Guide:* Describes post-installation tasks and administrative tasks such as maintaining user security.
- *MSS Database Change Reference:* Provides information on the database changes for the MetaSolv Solution 6.2.1 release. Database changes for subsequent maintenance releases will be added to this guide as they are released.
- *MSS Network Grooming User's Guide:* Provides information about the MSS Network Grooming tool.
- *MSS Address Correction Utility User's Guide:* Provides information about the MSS Address Correction utility.
- *MSS Technology Module Guide:* Describes each of the MetaSolv Solution technology modules.
- *MSS Data Selection Tool How-to Guide:* Provides an overview of the Data Selection Tool, and procedures on how it used to migrate the product catalog, equipment specifications, and provisioning plans from one release of your environment to another.

- *MSS Operational Reports:* Provides an overview of using Operational Reports and Business Objects with MSS, and procedures for running reports, updating universes, and simple maintenance.
- *MSS CORBA API Developer's Reference:* Describes how MetaSolv Solution APIs work, high-level information about each API, and instructions for using the APIs to perform specific tasks.
- *MSS Custom Extensions Developer's Reference:* Describes how to extend the MetaSolv Solution business logic with custom business logic through the use of custom extensions.
- *MSS XML API Developer's Reference:* Describes how to integrate MetaSolv Solution with other Oracle products, or with external applications, through the use of APIs.
- *MSS Flow-through Packages Guide:* Describes information and procedures you need to install and work with the flow-through packages provided by Oracle as an example of how to integrate MetaSolv Solution with ASAP for flow-through activation.

For step-by-step instructions for tasks you perform in MetaSolv Solution, log into the application to see the online Help.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

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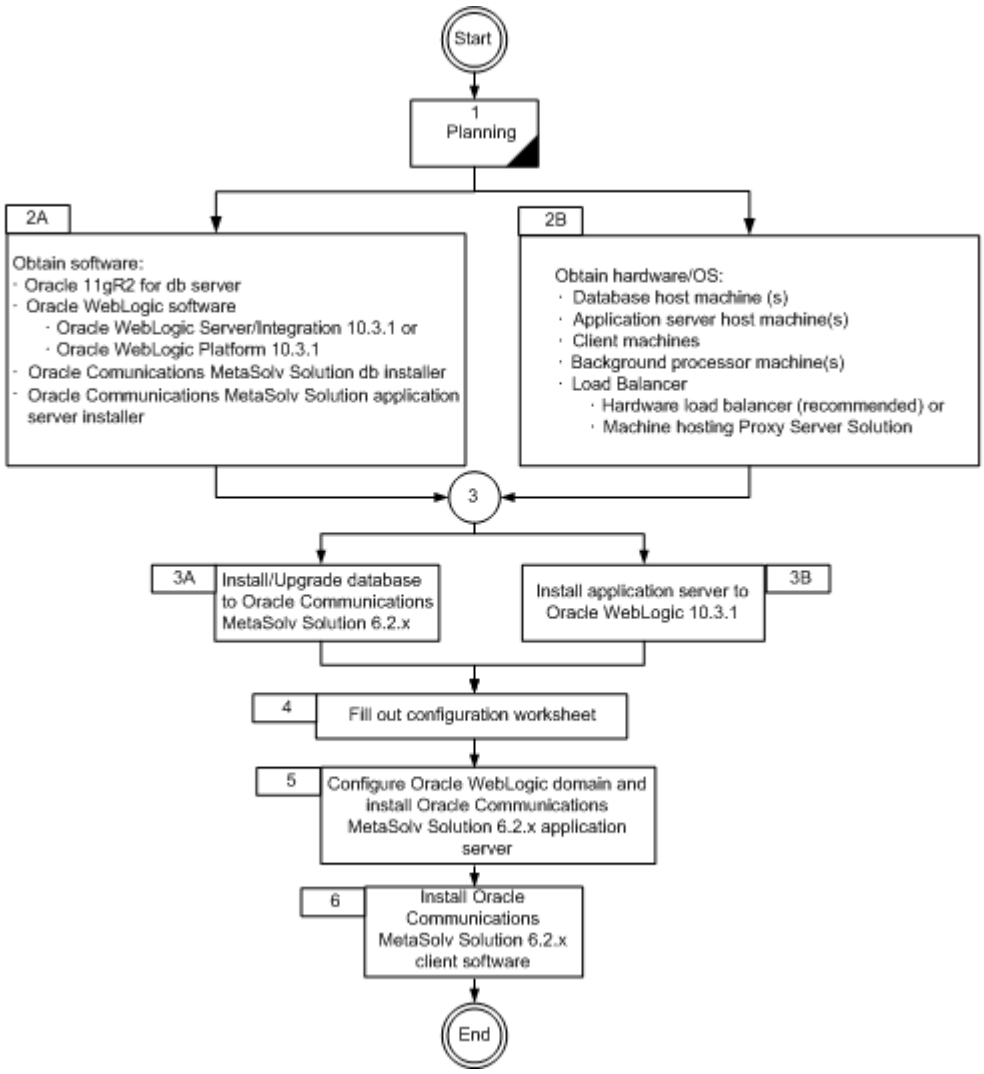
1

Installation Overview

This chapter provides a high-level overview of the steps needed to perform an Oracle Communications MetaSolv Solution (MSS) 6.2 installation. The chapters that follow provide full information on each step. Figure 1–1 shows the high-level installation process.

Figure 1–1 Overview of the MSS 6.2 Installation Process



Step 5 in Figure 1–1 shows that the installation and deployment of the MSS 6.2 application server begins after the installation of Oracle WebLogic application server and the Oracle database on the host server machine.

The Oracle client is required for two MSS utilities: NPAA/NXX Split utility and Location and Routing Gateway (LERG). Once the Oracle WebLogic domain is configured, the MSS installer identifies the configuration and sets the appropriate parameters for the installation. Values are pulled from the Oracle WebLogic application server and Oracle database to provide configuration information for MSS. This minimizes the amount of information you must research and enter into the installer.

If You Are a New Customer

MSS 6.2 is the GA release for the software stream. The current release requires the following installation tasks:

- **Database**: Install the 6.2 database. See "Setting Up The 6.2.x Database" for complete information.
- **Application server**: Install the WebLogic application server 10.3.1 software release. See Oracle WebLogic Server documentation on the following Web site:

  `http://docs.oracle.com/cd/E12840_01/wls/docs103/sitemap.html`
- **Client workstation**: See "Installing The Client Workstation" for information on installing individual workstations.

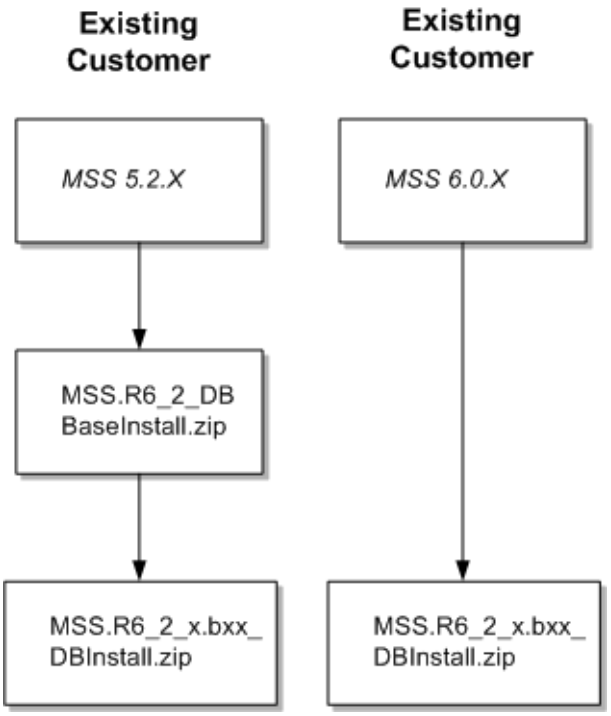
If You Are an Existing Customer

The upgrade path for the MSS database differs from the path for the application server. This section explains the upgrade path for each component.

Database Upgrade Path

Figure 1–2 shows the upgrade path for the MSS database if you are on a pre-6.2 version.

Figure 1–2 MSS Database Upgrade Path



Application Server Upgrade Path

Due to platform changes made in MSS 6.2.0, it is necessary to perform a full installation of the application server the first time you upgrade to the 6.2.*x* release stream, refer to "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MetaSolv Solution on a Clustered Server".

The upgrade option in the installer can be used to install subsequent maintenance releases and patches. Refer to the specific maintenance release or patch file for detailed instructions. If you are installing a patch, refer to "Upgrading Oracle Communications MetaSolv Solution".

Related Software Dependencies

ASR and LSR require the following actions:

- If you use ASR or LSR, you must reinstall them after the new version of MSS is installed.
- If you currently have open LSR 6 orders, these will be *view only* in MSS 6.2.*x*. To avoid this problem, you can close any open orders before you move to MSS 6.2.*x*, or you can upgrade the orders to LSOG 9 or LSOG 10 before or after installing MSS 6.2.*x*.

Downloading the Installation Files

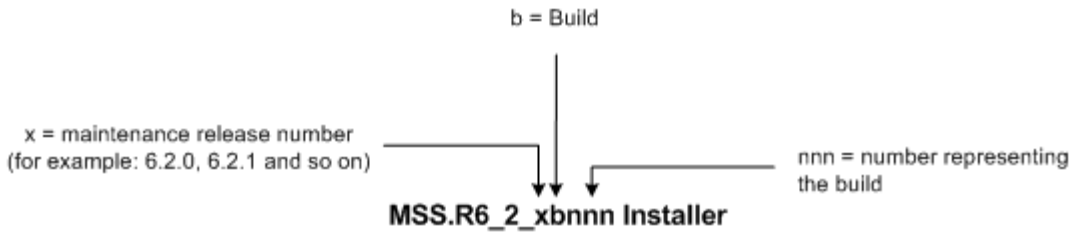
Before you begin the installation, download the MSS files for the platform you are using from the Oracle software delivery Web site:

`http://edelivery.oracle.com`

Identifying the Installation Files

This section explains which installation files you need to download from the Oracle software delivery Web site. Generic file names are used to identify the files in this section. Figure 1–3 shows the naming format used on the Oracle software delivery Web site.

Figure 1–3 File Naming Format



Where to Download the Files

Download the application server/client installation files to the appropriate platform (Windows, Sun Solaris, AIX, Linux or HP) directly to the application server machine you intend to install on. The client files are downloaded and installed from the application server machine.

Data Migration

If you are moving to MSS 6.2.x from a pre-MSS 6.0 release, it might be necessary for you to perform a data migration. The Broadband Module available before MSS 6.0 has been discontinued, and customers who use the Broadband Module must migrate data to use Oracle's network templates, which replace the broadband functionality. Two tools are available to assist with the migration effort:

- Pre-Migration Analysis Tool (PMAT): This tool can be run against your pre-MSS 6.0 database to determine the amount of data that potentially may need to be converted. This include circuits (bandwidth, virtual, facilities, specials), product catalog, and orders. This tool is located on the Oracle software delivery Web site.
- Next-Generation Migration Tool: This tool is part of MetaSolv Solution Utilities. This tool automates the process of migrating network elements, migrating network systems, migrating connections, and the circuit conversion to next gen connections and any related order conversion.

The *MetaSolv Solution 6.0 Migration Guide* can be found on the Oracle software delivery Web site.

Basic Installation Steps

Each of the steps shown here for installing MSS contains additional tasks and information that you must know to proceed with the installation. The chapters in this book discuss each basic step.

1. Plan the installation by completing the following tasks:

a. Plan for the hardware and software you will need to implement MSS.

   See *MetaSolv Solution Planning Guide* for information on minimum technical requirements.

b. Complete the pre-installation checklist in this chapter.

   The checklist contains planning tasks that should be done before you begin the installation process.

2. Obtain the appropriate hardware and software.
3. Prepare the database and application server environments by completing the following tasks:

   a. Install Oracle Database 11gR2.

   b. Install the MSS 6.2.*x* database.

      To complete this step, you must run the appropriate MSS database scripts. If you do not currently have the 6.2.*x* database installed, see "Setting Up The 6.2.x Database" for information on getting your database to the 6.2.*x* release level so that you can apply the current maintenance release.

   c. Install third-party software on machines that will host the application server.

      To complete this step, you must:

      Install Oracle WebLogic Platform 10.3.1 on each machine hosting MSS. You can install your system in different configurations, but each machine must have Oracle WebLogic software installed.

4. Complete the worksheets that define properties for the installation machines.

   Worksheets are included for each installation configuration type that MSS provides. The worksheets let you identify, in advance, information that is needed during the installation.

5. Install and deploy MSS 6.2.x on the Oracle WebLogic application servers by completing the following tasks:

   a. Create the Oracle WebLogic domain and define the administration server and its clustered servers, or the single server.

      When you create the domain and define the server(s) that belong to the domain, the Oracle WebLogic software creates the necessary files on the servers you indicate.

   b. Install and deploy MSS 6.2.*x*.

      To complete this step, you must:

      – Run the installer to copy MSS files to every machine that will host an Oracle WebLogic application server(s).

      – In the situation where the administration server is on a separate machine, it is not necessary to load MSS on that machine.

      – Deploy MSS from the single server or administration server to the managed servers.

6. Install on the client workstation.

   You must perform an initial client installation to perform post-installation tasks that require the use of the client.

   To complete this step, you must:

a. Install the client on a workstation.

You can use a program called the Zero Admin Client (ZAC) to install or you can install manually. Instructions are provided for both methods.

b. Install utilities or other separate MSS components.

Most software components can be installed using ZAC or a manual method.

7. Complete post installation tasks.

Tasks include:

- Loading graphics to the database from a utility program.
- Running a client utility to determine the health of the database.
- Customizing the application with your company logo (optional).
- Setting up user authentication.

Preinstallation Checklist

The following list indicates the information you need to research and understand before you start the installation process for MSS and the third-party software it requires. As you identify names, IP addresses, and so on, keep a written record of the information. You will need it during the system installation.

- See *MetaSolv Solution Planning Guide* for the proper hardware and software for the application server, database server, and client machines.
- Back up any customized reports and stored procedure exits. See the discussion on customizing the application in the *MetaSolv Solution System Administrator's Guide* for more information.
- Identify the following:
  - Application server machines, names, and IP addresses.
  - Database server machine, name, IP address, database SID name, and database port (default = 1521).
  - See "Planning Worksheets" for help identifying and completing this information for the installation type you select.
- Do a DNS and reverse DNS lookup for each application server machine from a user workstation.
  - DNS lookup: From a user workstation, use the `nslookup` command for the application server machine DNS name.

    For example: **`nslookup serversun`**`1`
  - Reverse DNS lookup: From a user workstation, use the `nslookup` command for the application server machine IP address.

    For example: **`nslookup 192.168.1.225`**

  If the name or IP address is not found, contact your system administrator.
- Test network connectivity between the following machines:
  - Application server machine to the database server machine
  - Log on to the application server machine and ping the database server machine using either the DNS name or the IP address. Do this for each application server machine.

  - Database server machine to the application server machine
  - Log on to the database server machine and ping the application server machine using either the DNS name or the IP address. Do this for each application server machine.

- If your firewall does network address translation (NAT) and MSS end users reside outside the firewall, define an external DNS name for the Oracle WebLogic Server. Contact your network/transport and system administrator groups to verify and define the external DNS, if necessary.

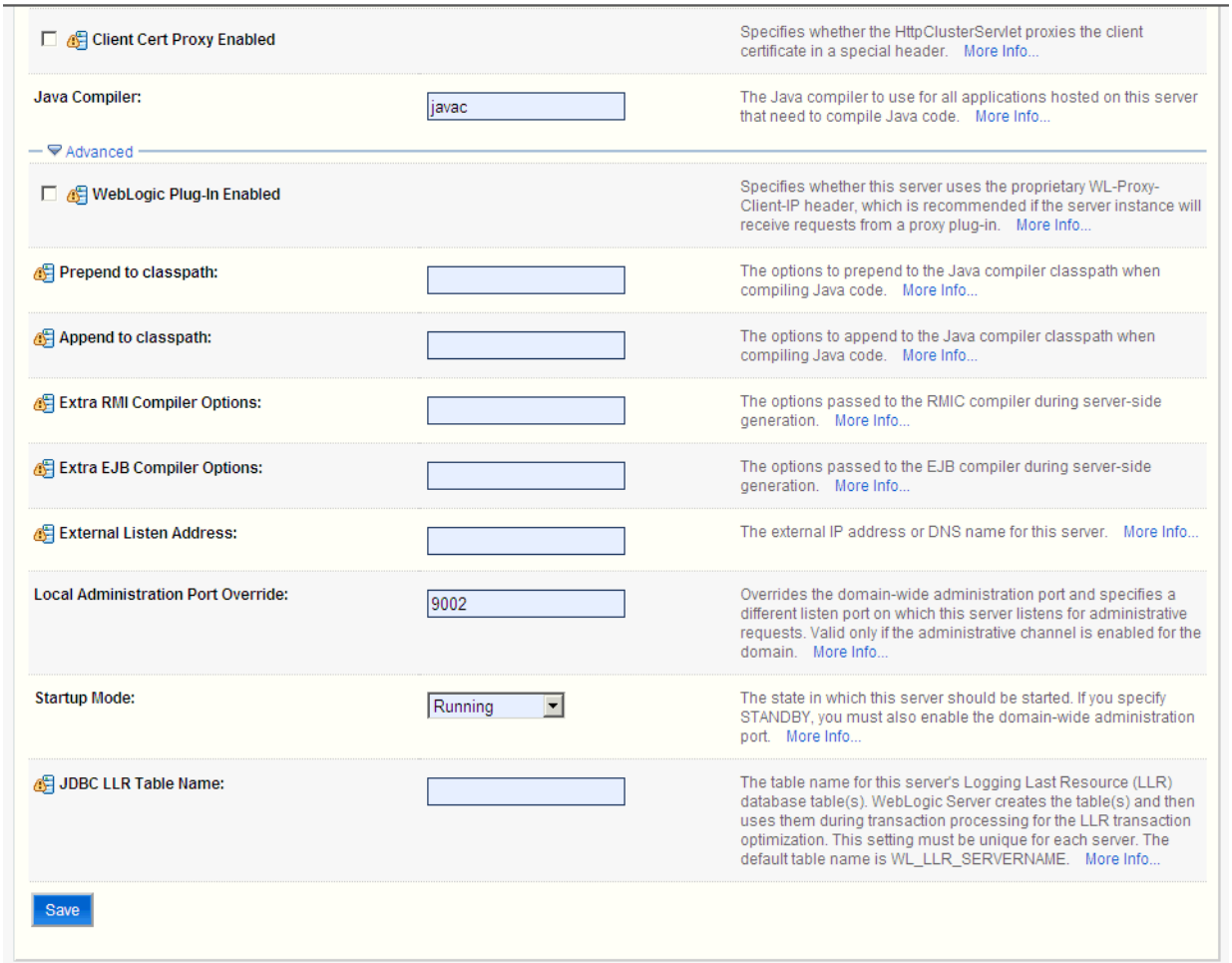
To add an external DNS name:

1. Log on to the Oracle WebLogic Administration Server Console.
2. In the Change Center pane, click on **Lock & Edit**.
3. In the Domain Structure tree, expand **Environment** and then select **Servers**.

   The Summary of Servers pane appears.
4. Click on the *server_name* (admin server).

   The Settings for *server_name* pane appears.
5. Click on the **General** tab and then click the **Advanced** link.

   The following pane appears.



6. Enter the address into the **External Listen Address** field and click **Save**.

a. If you are using an external load balancer, the following conditions must be met:
   - **Server affinity**: Sticky Session must be enabled.
   - **Cookie persistence**: The load balancer must NOT modify WebLogic cookies.

b. Choose the installation configuration you plan to use for the application server(s):
   - **Single server:** You can have multiple single server instances.
   - **Clustered servers:** This configuration provides failover benefits.

c. Download the MSS 6.2.*x* files from the Oracle software delivery Web site.

d. If cluster is configured, create a DNS entry including all clustered managed servers' listening IP addresses in the same cluster. This DNS entry will be used as Cluster Address for the cluster during domain configuration in production environment.

Installing on a UNIX/Linux Platform

The following list contains special tasks required for graphics on a UNIX machine:

- To run the installation using a graphical user interface:
  - On a workstation, start Hummingbird Exceed or another X-Windows emulator.
  - On the UNIX machine, set the `DISPLAY` environment variable to send the graphical display to the workstation.
  - `$DISPLAY=`*`mymachinename`*`:0.0;export DISPLAY`
- Enable xhost for application servers that run on a UNIX machine.

  To enable the lookup of graphic settings on the application server, you must enable xhost on the machine. Run the following command on the application server machine while logged on as **root**:

  ```
  xhost +
  ```

2

Setting Up The 6.2.*x* Database

This chapter assumes that you already have Oracle Database 11gR2 installed on the database server. Consult the Oracle Database online documentation for questions on how to install the database.

What's in This Chapter

This chapter explains how to install a new database or bring your existing database to the 6.2.*x* GA level. Specifically, the chapter covers how to:

- Extract the database scripts.
- Create tablespaces (new customers only).
- Run the upgrade or installation scripts to make specific changes to bring the database structure to the Oracle Communications MetaSolv Solution (MSS) 6.2.*x* level.
- Drop the **app_data** tablespace (upgrading customers only).

Some sections apply to new customers who have never installed an MSS database before, and some apply to existing customers who have previously installed the database but need to bring the database up to the current level.

Getting the Database to the 6.2.*x* GA Level

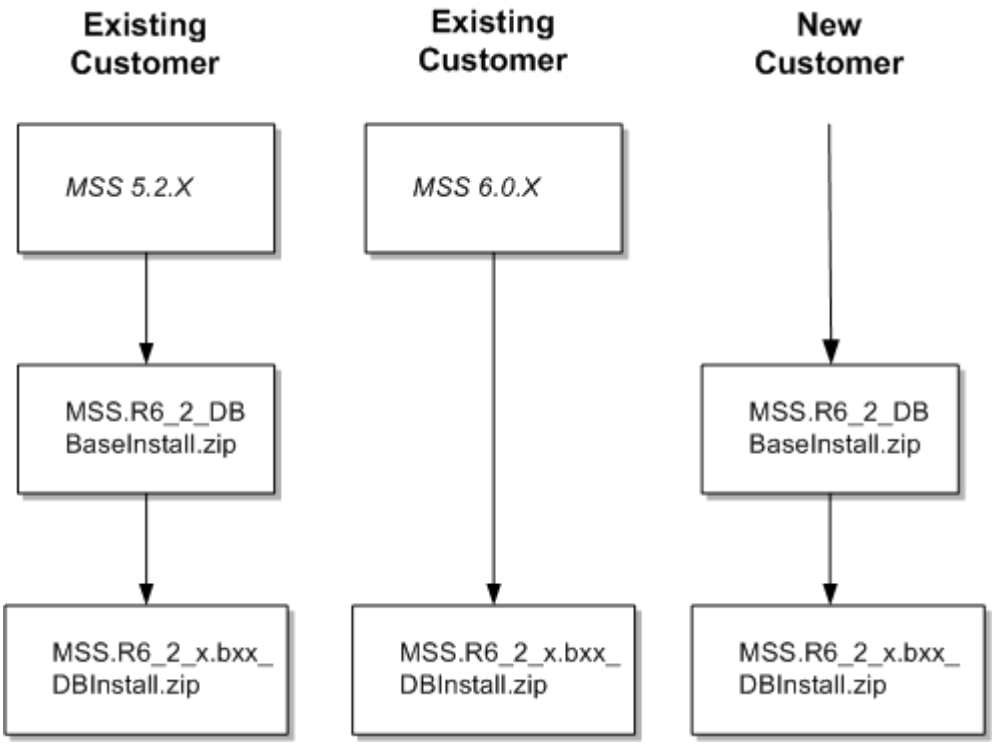
The MSS 6.2.*x* database upgrade/installation files provide customers with everything needed to get the database to the MSS 6.2.*x* GA level.

Note : Customers on MSS 5.2.*x* and new customers will need to extract and run two sets of scripts. The first set of scripts will setup the database structure and the second set of scripts will install the MSS 6.2.*x* database.

Customers on MSS 6.0.*x* will need to extract and run one set of scripts. The scripts will install the MSS 6.2.*x* database.

Figure 2–1 depicts the upgrade/installation paths for setting up an MSS 6.2.*x* database.

Figure 2–1 MSS 6.2.x Database Upgrade / Installation Paths



Database Space Requirements

The database installation requires approximately 2.5 GB of free space. This default size is based on a production database supporting 100,000 circuits. The specific space requirements are shown in Table 2–1.

Table 2–1 Space Requirements for Installation Files

File Name	Size
DATA	1325 MB
INDEXES	700 MB
SYSTEM	200 MB
TEMP	100 MB
SYSAUX	200 MB
Total Size	**2.5 GB**

Prerequisites

- Make sure you have Oracle Database 11gR2 installed on the database server machine. Work with Oracle Global Customer Support to determine the recommended patch level for your intended platform/version combination.
- Ensure the following initialization parameters are set for databases running Oracle Database 11gR2.

```
_b_tree_bitmap_plans = false
O7_DICTIONARY_ACCESSIBILITY=TRUE
OPTIMIZER_FEATURES_ENABLE=9.2.0
```

```
optimizer_mode=CHOOSE
_old_connect_by_enabled = true
compatible = 10.2.0.3
```

Oracle recommends you do the following:

- Set the `O7_DICITONARY_ACCESSIBILITY` parameter to **TRUE** to ensure that the install script completes successfully.
- Set the `OPTIMIZER_FEATURES_ENABLE` parameter to **9.2.0** for Oracle Database 11gR2.
- Set the `compatible` parameter to a minimum value of **10.2.0.3** to ensure that all the materialized views are created successfully. Do not modify this parameter if it is already set to a higher value.

- For technical bulletins that pertain to the 6.2.*x* release, check the **Knowledge** tab on the My Oracle Support Web site:

  https://support.oracle.com

Extracting the MSS Database Scripts

The first set of scripts that need to be run reside in the **MSS.R6_2_DBBaseInstall.zip** file. You can extract the contents of this zip file to the directory of your choice. This zip file contains database scripts used to set up the structure for an MSS 6.2.*x* database.

To extract the MSS database scripts to the database server machine, do the following:

1. Locate and select the **MSS.R6_2_DBBaseInstall.zip** file.
2. Right-click the file and select **Open With**, select **WinZip Executable**.
3. From the main menu bar, select **Actions**, select **Select All**.
4. From the main menu bar, select **Actions**, select **Extract**, or simply click the **Extract** icon.
5. Browse to the directory to which you want to extract the database scripts. Oracle recommends extracting the scripts to a directory on your database server.

The second set of scripts that need to be run reside in the **MSS.R6_2_1.b***xxx*_**DBInstall.zip** file (where *xxx* is the build number). This zip file contains database scripts used to upgrade an existing MSS 6.0.2 or higher database to MSS 6.2.*x*.

To extract the MSS database scripts to the database server machine, do the following:

1. Locate and select the **MSS.R6_2_1.b***xxx*_**DBInstall.zip** file.
2. Right-click the file, select **Open With**, then select **WinZip Executable**.
3. From the main menu bar, select **Actions** and then select **Select All**.
4. From the main menu bar, select **Actions** and then select **Extract**, or simply click the **Extract** icon.
5. Browse to the directory to which you want to extract the database scripts. Oracle recommends extracting the scripts to a directory on your database server.

Creating Tablespaces (New Customers Only)

If you are a new customer setting up your database for the first time, you must create tablespaces using the scripts extracted from the **MSS.R6_2_DBBaseInstall.zip** file.

The **a_tblspc.sql** file, located in the directory where you installed the database scripts, creates tablespaces. You must modify the file and run it to create tablespaces. Make sure you have write privileges for the file and modify the following information:

- Path to the datafile
- Tablespace size

> **Note :** All tablespace sizes must be equal to or greater than the space requirements listed in Table 2–1, " Space Requirements for Installation Files".

The following UNIX/Linux example shows the line you must modify.

```
REM * Create a table space for DATA.
create tablespace DATA datafile '...'  size   1325M
create management local SEGMENT SPACE MANAGEMENT AUTO;
```

To run **a_tblspc.sql**, do the following:

1. Log on to the database server as a user with database administrator privileges and start SQL*Plus.

   User ID: *system*

   Password: *manager*

   Host String: *Database_name_of_the_Oracle_instance*

2. Run **a_tblspc.sql**.

Running the Installation Scripts (New Customers Only)

Each script writes an audit log to a subdirectory called **Audits**. The **Audits** subdirectory is located in the same directory as the database installation scripts.

Prerequisites

Before running the installation scripts, extracted from the **MSS.R6_2_ DBBaseInstall.zip** file:

- The script file **_instmss.sql** is for new installations only. You must have database administrator privileges to complete this procedure.
- The following script files create database users and you need to supply passwords for these application users. Modify the script files by replacing occurrences of <PASSWORD HERE> with a password.
  - db/inst_60/app_users.sql
  - db/inst_60/a_users.sql

> **Note :** In Oracle Database 11g the passwords are case sensitive.

To begin the installation, do the following:

1. In SQL*Plus, run **_instmss.sql** and complete the following information:
   a. Enter the operating system for the SQL*Plus client (the machine you are running the scripts from) and press ENTER.

This value is either **UNIX/Linux** or **Windows**. **Windows** is the default.

b. Enter the full directory path for the SQL script files.

The path must include the trailing virgule (/ for UNIX and Linux or \ for Windows), and you must be able to write to the directory. If you enter an invalid path or a protected directory, SQL*Plus exits.

The path length is limited by SQL*Plus and the operating system.

c. Enter the database name.

d. Enter each of the following passwords and press ENTER after each one:

ASAP, **EBOND**, **EDI**, **JOB**, and **SYS_ERROR**

If a password fails, SQL*Plus exits. If this happens, review **a_getpas.log** for errors.

This step initiates the installation process. When the installation is complete, you receive an **Install Complete** message.

If this message does not appear, the installation process was not successful and must be restarted beginning with step 1. Prior to restarting, back up the Audits directory. If you restart the installation process, ORA- messages appear for every item that failed.

2. Search the files in the **Audits** directory for **ORA-**.

3. When the installation is complete, run the **mdl_cur.sql** script.

This process can take up to 30 minutes to complete. The **mdl_cur.sql** spools a report in the **Audits** directory called **mdl_cur.txt**. The report verifies the database structure by identifying missing tables or columns, extra tables or columns, and differences with column data types as compared to the database. If no ORA- messages are found and the **mdl_cur.txt** file is clean, the installation completed successfully.

4. Run the **mdl_cmp.sql** script.

This script spools a report in the **Audits** subdirectory called **mdl_cmp.txt.** The report indicates extra or missing indexes, primary keys, foreign keys, and sequences. This script gives the option to fix problems or only report the differences. When you run the script, you can compare the differences for individual sections or for all sections. The default is to compare all sections.

For any missing information in **mdl_cmp.txt**, such as missing objects, run the **mdl_cmp.sql** file again in fix mode. Then run it again in report mode to verify that any problems were fixed.

5. Install the MSS 6.2.*x* database, using the scripts extracted from the **MSS.R6_2_1.DBInstall.zip** file.

For complete instructions on installing the MSS 6.2.*x* database, refer to the following sections, in "Upgrading Oracle Communications MetaSolv Solution" of this guide:

- Upgrading Oracle Communications MetaSolv Solution
- Updating Stored Procedures
- Running Reports

Running the Upgrade Scripts (Existing 5.2.*x* Customers Only)

This section explains how to upgrade an existing MSS 5.2.*x* database to an MSS 6.2.*x* database.

Prerequisites

Before upgrading the database, complete the following tasks:

- Back up the existing MSS database.
- Empty the job queue for the Background Processor.

  Use Job Queue Manager to verify that the job queue is empty Oracle recommends that no other jobs run in the background during the upgrade.
- Confirm that the user IDs ASAP, EBOND, EDI, JOB, and SYS_ERROR exist on the instance, and that ASAP has DBA-level authority.
- Perform a test run of the upgrade process on a copy of the production database.
- Update your database statistics to ensure the upgrade conversions perform as tested. Refer to the Oracle Database online documentation for more information on the Analyze command.
- The following script file creates database users and you need to supply passwords for these application users. Modify the script file by replacing occurrences of <PASSWORD HERE> with a password.

  db/upg_60/app_users.sql

  Note: In Oracle Database 11g the passwords are case sensitive.

Running the Upgrade Scripts

To upgrade the database

1. Log on to the database server as ASAP.

   Password: *ASAP_password*

   Host String: *Name_of_your_5.2_database*
2. Run the SQL scripts in the **precheck** folder. (optional)

   These scripts generate information on the data to be converted during the upgrade.
3. Run the **mdl_pri.sql** script.
   a. Enter the operating system (either UNIX or Windows) for the SQL*Plus client.

   Note: If you are using a Linux operating system, enter UNIX.

   b. Enter the full directory path for the SQL script files.

   The path must include the trailing virgule (/ for UNIX and Linux or \ for Windows), and you must be able to write to the directory. If you enter an invalid path or a protected directory, SQL*Plus exits.

   The path length is limited by SQL*Plus and the operating system.

This script spools the **mdl_pri.txt** report to the Audits subdirectory, located in the SQL upgrade directory. The **mdl_pri.txt** report lists differences between your database and the data model. This report verifies the database structure by identifying missing tables or columns, extra tables or columns, and differences with column data types. Some differences listed will be commented if added in an MSS maintenance release. If you have any differences listed that are not commented, contact Oracle Global Customer Support before you proceed.

4. Run the **_upgmss.sql** script.

   a. Enter the operating system (either UNIX or Windows) for the SQL*Plus client.

   Note : If you are using a Linux operating system, enter UNIX.

   b. Enter the full directory path for the SQL script files.

   The path must include the trailing virgule (/ for UNIX and Linux or \ for Windows), and you must be able to write to the directory. If you enter an invalid path or a protected directory, SQL*Plus exits.

   The path length is limited by SQL*Plus and the operating system.

   c. If this is your first time to run the upgrade script, select upgrade mode **1**.

   Caution: If your upgrade fails before you reach the message MAIN UPGRADE IS ABOUT TO BEGIN, fix the problem and rerun the upgrade in mode 1. If your upgrade fails after the main upgrade has started, fix the problem and rerun the upgrade in mode 3.

   Table 2–2 describes the upgrade modes.

Table 2–2 Upgrade Modes

Upgrade Modes	Description
Setup and run immediately	Upgrade mode 1 is the default setting and sets up the required framework of upgrade related tables, procedures, and data. Any framework-related objects from a previous upgrade, including the audit tables, are dropped and re-created. The upgrade continues immediately after setup.
Setup upgrade framework only	Upgrade mode 2 only sets up required upgrade framework objects; the upgrade does not continue after setup. This mode allows you to make custom changes to the upgrade process. For example, you might have a weekly scheduled job that performs the Oracle Analyze Statistics command. If so, you can set the override option for the Omega-Analyze Statistics process that does the same thing.
Already setup, just run it	Use upgrade mode 3 after you run the first or second upgrade mode, and when any of the following apply: ■ You are ready to continue with the upgrade. ■ The upgrade exited SQL*Plus during part of the DDL upgrade. ■ There were conversion errors.

After correcting any problems, use upgrade mode 3 to restart the upgrade without losing any override options.

d. Enter the database name.

This step does not occur in upgrade mode 3.

e. Enter the passwords for ASAP, EBOND, JOB, EDI, and SYS.

All passwords are verified. If a password fails, SQL*Plus exits.

This step does not occur in upgrade mode 3.

f. Choose one of the following storage options:

- If you want the tables that are dropped and recreated to be recreated with their current storage parameters, set the storage option to **2**. The upgrade takes into account the tablespace in which the tables are currently stored.
- If you choose not to use the tables' current storage parameters, select storage option **1**. The tables are recreated using the default values in the **ddlasap.sql** file.

The screen scrolls data as the upgrade script sets up the required framework of upgrade related tables, procedures, and data. The message MAIN UPGRADE IS ABOUT TO BEGIN displays in SQL*Plus, indicating the main upgrade.

Note: If for some reason, you must restart the upgrade after you reach this point, use upgrade mode 3.

The **_upgmss.sql** script is the master script for the upgrade process and calls the main process group scripts. Before the upgrade process begins, an on-screen report appears, indicating the database is in restricted mode access and listing any users already connected. Only the DBA should be connected during the upgrade process. If other users are connected, you can start another SQL*Plus session to remove the user connections and return to this session to continue with the upgrade process.

If SQL*Plus exits, search the files in the Audits subdirectory for the string "ORA-". If you find any ORA messages, contact Oracle Global Customer Support and e-mail the **ddlerrs.txt** log in the Audits subdirectory.

If the upgrade is successful, the following message appears:

```
Upgrade Process Finished.
Please review the \audits\upgchk.txt report.
The report will show processes that passed and/or failed.
The \audits\*.log files should also be searched for 'ora-'
messages which will require further review by the DBA.
Don't forget to run the mdl_cur.sql script to produce an mdl_cur.txt report
file to verify table structures.
```

If the upgrade is not successful, the following message appears:

```
****** Upgrade PROBLEMS ******
Please review the \audits\upgchk.txt report.
The report will show processes that passed and/or failed.
The \audits\*.log files should also be searched for 'ora-'
messages which will require further review by the DBA.
After addressing any issues, restart the upgrade
and use OPTION MODE 3.
```

5. Review the **upgchk.txt** log in your Audits subdirectory to determine any processes that failed, then review the specific audit report to determine what caused the process to fail.

   Perform this task even if the upgrade was successful. The **upgchk.txt** log contains several views that provide information on the upgrade:

   - **Process Hierarchy:** Lists the upgrade hierarchy table, which enforces parent/child relationships. The upgrade framework uses this table when determining if parent or child processes performed successfully. The **process_nbr** field contains the unique identifier ID for the process that is referenced within the audit tables.
   - **Processes USER Marked as "OVERRIDE":** Lists processes that were overridden. If **upg_ovex.sql** is used to set the override option for any processes, the audits indicate that these processes passed even though they did not run.
   - **Grouping Type Processes That Passed:** Lists the major process groups within the upgrade that passed. If a group of processes has a controlling parent process, that parent process is listed along with duration statistics.

     If the filename **_upgmss.sql** does not appear in this list, the upgrade did not complete successfully.
   - **Non-Grouping Type Processes That Passed:** Lists the processes within the upgrade that passed. The filename of each successful process is listed, along with duration statistics.
   - **Processes That Did Not Complete:** If the **_upgmss.sql** filename was not present in the list of grouping processes that passed, this view lists all processes that ran and failed, or that did not run. Typically, when a process fails, there are other processes that depend on its success and which do not run. Because of this, this view can list multiple processes that did not run because an earlier process failed.

     If this view contains any processes, look at the *S*uspect Processes That Did Not Complete view.
   - **Suspect Processes That Did Not Complete and May Have Cascaded the Other Processes to Fail:** Lists likely suspect processes. Use this view in conjunction with the Processes That Did Not Complete view to locate the processes that failed. This view is only a starting point and might not be completely accurate because of the complexity of the process dependencies in the upgrade framework.

     If this view contains any processes, contact Oracle Global Customer Support and e-mail the **upgchk.txt** log and all audits in the *S*uspect Processes that Did Not Complete view.
   - **Before/After Record Counts for Processes**: Lists any tables along with record counts affected during conversions. The view groups the information by process name, listing each table affected by that process, along with the before and after record counts.

6. Search the files in the **Audits** subdirectory for ORA messages using the string "**ORA-**".

   The **Audits** subdirectory is located in the **SQL upgrade** directory. The following ORA messages are noncritical because they do not cause upgrade failure.

- **Name is already used by an existing object**: This occurs when you try to assign a name that has already been assigned to a new object. These messages are written to **master_p.log**.
- **Cannot drop constraint - nonexistent constraint**: This occurs when you try to drop a constraint that does not exist or has already been dropped. These messages are written to **ddlcmp.log.**
- **Table or view does not exist**: This occurs when you try to drop a table or view that does not exist or has already been dropped. This message can be important in other contexts and can appear in any log file in the **Audits** subdirectory.
- **Such a referential constraint already exists in the table**: This occurs when you try to add a foreign key constraint that already exists. The message can appear in any log file in the Audits subdirectory.
- **Integrity constraint violated - child record found**: This occurs when base data that is in use is not deleted. These messages show up in the **static_r.log.**
- **Success with compilation error**: This occurs when there is an error compiling an object. These messages are written to **o_recmpl.log.**

If you find ORA messages that are not on the list, contact Oracle Global Customer Support.

7. Run the **mdl_cur.sql** script.

   The **mdl_cur.sql** script spools the **mdl_cur.txt** report to the Audits subdirectory. This view verifies the database structure by identifying missing tables or columns, extra tables or columns, and differences with column data types as compared to the data model.

8. Run the **mdl_cmp.sql** script.

   This script spools a report that indicates extra or missing indexes, primary keys, foreign keys, and sequences. This script gives the option to fix problems or only report the differences. When you run the script, you can compare the differences for individual sections or for all sections. The default is to compare all sections. For any missing information in **mdl_cmp.txt**, such as missing objects, run the **mdl_cmp.sql** script again in fix mode. Then run it again in report mode to verify that any problems were fixed.

9. Run the SQL scripts in the **postcheck** folder. (optional)

   These scripts generate information on the data that was converted during the upgrade.

10. Exit SQL*Plus.

11. Install the MSS 6.2.*x* database, using the scripts extracted from the **MSS.R6_2_1.b***xxx*_**DBInstall.zip** file.

    For complete instructions on installing the MSS 6.2.*x* database, refer to the following sections, in "Upgrading Oracle Communications MetaSolv Solution" of this guide:

    - Upgrading Oracle Communications MetaSolv Solution
    - Updating Stored Procedures
    - Running Reports

You can review the following files for additional errors:

- **o_cfgrpt.txt**: Consists of objects currently being stored with storage settings below minimum standards or indicates if the index is not on the Indexes tablespace.
- This report is generated in the **Audits** subdirectory by the **o_config.sql** script and contains a list of tables and indexes having more than 100 extents allocated to them. These items are good candidates to be rebuilt (if indexes).
- **o_cfggen.sql**: Consists of a series of SQL statements that contain a list of stored objects with storage settings below minimum standards, or indicates if the index is not on the indexes tablespace. SQL code is used to correct the storage settings.
- **o_glocon.log**: Consists of a list of records in the foreign key exceptions section, where at least one constraint could not be enabled. All data issues must be corrected before you can enable the constraint. Run the **mdl_excp.sql** script to view a list of records containing constraint problems. Also, run the **mdl_cmp.sql** script to enable the foreign keys. If there are no records listed in this report, all constraints were enabled.

Note: If you do not find any ORA-messages in any of the audit files, the upgrade completed successfully.

Dropping the appdata Tablespace

If you are moving from a pre-6.0 version of MSS to MSS 6.2.*x*, you might have the **appdata** tablespace present in your database. If so, you must delete it. It was present in MSS 5.2.*X* and was deleted in the MSS 6.0 version.

To drop the tablespace

1. Start SQL*Plus.
2. Enter the following command at the prompt:

```
drop tablespace appdata including contents;
```

3. Delete the data file from the operating system.

XML API Database Considerations

Note: If you are not installing the XML API option, skip this section and proceed to the next section.

If you are installing the XML API option with MSS, you have additional steps that you must complete for the database. See "Running Reports" for more information.

Post Database Installation Tasks

You must complete the following tasks to ensure that the database operates properly:

- Load a set of graphics to the database
- Check the database using an Oracle Communications MetaSolv Solution feature called DB Health.

You cannot complete these tasks until the appropriate files are installed on the client workstation. See "Post Installation Tasks" for information on these tasks.

3

Preparing For the Application Server Installation

This chapter explains the tasks that must be completed before you start the installation of the Oracle Communications MetaSolv Solution (MSS) application server(s).

What's in This Chapter

This chapter explains:

- Required software information
- How the MSS installer works
- The MSS directory structure
- Using worksheets to plan your installation
- Prerequisites for installing MSS

About Required Software Installation

MSS requires Oracle database software and Oracle WebLogic application server software. This document does not explain how to install the software for either of these products. Chapter 2, "Setting Up The 6.2.x Database" describes how to install or upgrade your Oracle database. Table 3–1 shows where to find information for configuring Oracle WebLogic application server for MSS.

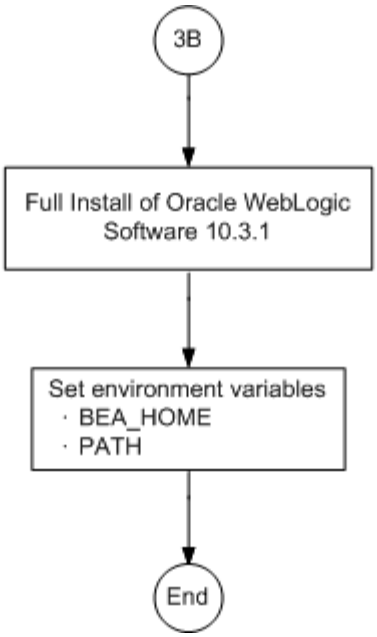
Table 3–1 Required Software Information

If you are setting up:	Find information on how to do it here:
An application server for use with MSS with or without XML APIs	In this guide: "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MetaSolv Solution on a Clustered Server"

Oracle WebLogic Software Installation on an MSS Host Machine

Figure 3–1 shows the steps involved in installing Oracle WebLogic 10.3.1 software on a machine that will host MSS. The figure describes step 3B in Figure 1–1, "Overview of the MSS 6.2 Installation Process".

Figure 3–1 Installing Oracle WebLogic Software on an Application Server Machine



About the Oracle WebLogic Installation

This document does not explain how to install the Oracle WebLogic software, but it does provide basic information on how to set up and configure an Oracle WebLogic domain for MSS.

Where to Find Oracle WebLogic Server Software

You can find Oracle WebLogic software in the following location:

- If you purchased Oracle WebLogic software as part of or separately from MSS, you can find the software in the *Oracle Communications MetaSolv Solution 6.2 Media Pack* on the Oracle software delivery Web site.

Where to Find Oracle WebLogic Server Documentation

You can find Oracle WebLogic documentation in the following location:

- If you purchased Oracle WebLogic software as part of or separately from MSS, you can find the documentation on the Oracle software delivery Web site.

Installation Notes

- If you are installing on a UNIX/Linux platform, you can run an X-Windows emulator like Hummingbird Exceed. The installer defaults to console mode if no X-Windows connection is made.
- Install Oracle WebLogic Server or WebLogic Platform on every machine that will be either the WebLogic administration server, a clustered server, or a single server hosting the MSS application.

Setting the BEA_HOME Environment Variable

Once you have installed WebLogic Server or WebLogic Integration on a machine, add the environment variable for BEA_HOME that points to the WebLogic directory.

For example:

For UNIX/Linux:

```
BEA_HOME=/MSLV_Home/bea
```

For Windows:

```
BEA_HOME=c:\MSLV_Home\bea
```

Setting the environment variable `BEA_HOME` for Windows and UNIX/Linux before the installation and configuration of MSS is optional. However, it is a good practice to follow and Oracle recommends that you set these variables before you start the installation process.

Installing WebLogic Patches

There are no required patches for WebLogic Server 10.3.1.

After you install WebLogic Integration 10.3.1, you must install a number of patches. The patches must be downloaded from the My Oracle Support Web site and can be applied using the WebLogic Smart Update tool. Download the following private patches, from the My Oracle Support Web site:

- T4EH
- EB3S
- PS4A
- 7SSV
- 4DRC
- RT9X
- 3Q67
- GUFX

Note: The PS4A patch must be applied before applying the 7SSV, 4DRC, RT9X, 3Q67, and GUFX patches.

Note: These patches are password protected. Contact WebLogic Server Support for more information

For information about downloading and applying private patches, see *Knowledge Article 1302053.1 - Master Note: How to Locate and Download Patches for WebLogic Server Using My Oracle Support* and *Knowledge Article 1075833.1 - Master Note on WebLogic Server (WLS) Patches, Upgrade Installers, and Full Installers*.

If You are Using the IBM AIX Operating System

MSS 6.2.*x* is certified to run on AIX 6.1. Oracle includes JDK 1.6 for Windows, HP, and Sun operating systems. JDK 1.6 for AIX is not provided by Oracle. If you have an AIX operating system, you must download the AIX JDK from the IBM Web site and install it in the following location:

/usr/java16

For information on the AIX JDK, see the following Web site:

http://www.ibm.com/us

About JacORB 2.3.1

JacORB 2.3.1 is installed automatically during the MSS installation. Do *not* install JacORB 2.3.1 manually.

How the Installer Works

You must download the installer, **MSS.R6_2_1.b*xxx*_AppServerInstaller.jar**, from the Oracle software delivery Web site, then copy or FTP the installer into a temporary directory on each machine on which you intend to install MSS.

Two options are available in the installer:

- **Full installation**: Select this option for new installations of any 6.2.*x* release. This option is also used when upgrading to 6.2.*x* from a pre-6.2 release.
- **Upgrade installation**: Select this option for subsequent MSS 6.2.*x* maintenance releases and patches.

The installer is delivered in a jar file. You only have to run the installer on each physical machine in a domain one time, regardless of the number of Oracle WebLogic application server instances and/or clusters running on the machine. The following actions are automated by the installer:

- **Parameter configuration**: Default parameters are entered for logging, threads, JDBC pool creation and sizing, reload, JMS/Bridge, memory GC, and SSL.
- **Deployment**: You can deploy to both clustered and non-clustered configurations from the installer.

The program validates the database connection and creates custom scripts for starting JacORB 2.3.1 and WebLogic application server.

Directory Structure

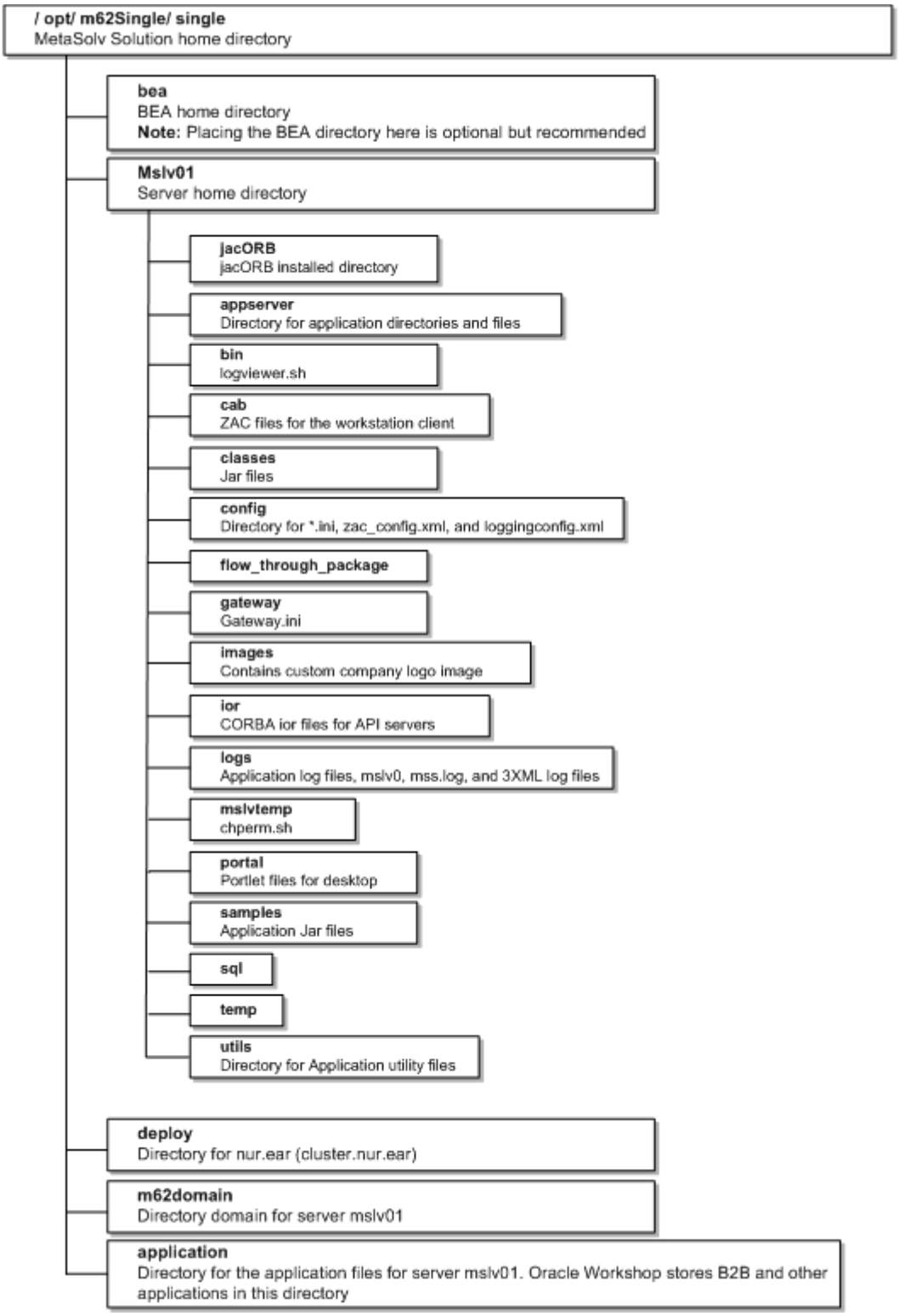
MSS requires each server directory and its WebLogic domain directory to be placed in the *MSLV_Home* directory. This directory is a location on the server under which the MSS software will be installed.

In the example shown in Figure 3–2, "Example of an MSS Directory Structure", the following structure exists:

- MetaSolv home directory: **/opt/m62Single/single**
- Server directory: **/opt/m62Single/single/mslv01**
- Server domain directory: **/opt/m62Single/single/m62domain**
- Application directory: **/opt/m62Single/single/application**

Figure 3–2 shows an example of a typical MSS directory structure.

Figure 3–2 Example of an MSS Directory Structure



In the example shown in the figure, the following structure exists:

- MetaSolv home directory: **/opt/m62Single/single.**
- Server directory: **mslv01**. The directory is located in **/opt/m62Single/single**.

- Server domain directory: **m6domain**. The directory is located in **/opt/m62Single/single**.

Using Worksheets to Plan Your Installation

Before you begin to install MSS, it is prudent to plan the installation on paper. This is important if you have a number of machines on which to install. In this case, the assignment of names, port numbers, and other information is critical so that contention issues do not arise when you try to run the system for the first time.

The WebLogic application server domain that you plan to create dictates how you install MSS and what information you need to know beforehand. A sample worksheet is provided in Appendix C to help you plan out the information required at installation time. The worksheet indicates the information you need to create the Oracle WLS/WLI domain and provide examples of the expected values. Included in the worksheet is:

- Common installation information
- Single server environment information
- Clustered server environment information

Prerequisites for MSS 6.2.*x*

- Upgrade to the MSS 6.2.*x* database.
- Install Oracle WebLogic 10.3.1 software for the environment you need for MSS.
- Do not need to install the Oracle client on the server machine. The Oracle thin client for these versions is supplied through Oracle. The API startup detects the database information from the WebLogic server connection pool. This removes the need to store any of the database information in non-Oracle configuration files. It also prevents the API connections from being configured to connect to a different database.
- Resolve the DNS name of the database host machine. This means you must be able to ping the database server. If you cannot, add the IP address and host machine's name to the /etc/hosts file.
- Make sure the database users APP_MSLV, APP_API, and APP_INT (for XML API installs only) exist. If they do not exist, ask your database administrator to create them before you proceed. These users should have been created during the database installation.
- Read the section entitled "Preinstallation Checklist".
- Make sure the user executing the installer has write permissions in the MetaSolv home directory and WebLogic home directory of the machine on which the installation is performed.
- (Optional) Verify that the `BEA_HOME` environment variables have been set. The following text shows an example entry for these variables in **.profile** for a ksh (UNIX/Linux) user.

```
################################################
# M62 Environment variables
################################################
BEA_HOME=/opt/m62Single/single/bea; export BEA_HOME
################################################
```

- After installing Oracle WebLogic 10.3.1 on all target application server machines, verify that the `PATH` environment variable is set with the **jdk directory** defined as the first entry. See the following example:

  ```
  PATH=$BEA_HOME/jdk160_11/bin:$PATH
  ```

  Run the command `java -version` to verify that you have the correct version of the Java SDK in the `PATH`.

- Download the MSS 6.2.*x* files from the Oracle software delivery Web site to an application server. Download the following files for the appropriate platform: Oracle WebLogic 10.3.1 files (if you purchased them as part of MSS) and **MSS.R6_2_***x.bnnn***_AppServerInstaller**.

- Make sure the person installing has execute rights on the application server installation file. If you are using UNIX/Linux, use the `chmod` command to change permissions if this is necessary.

- If you are a UNIX/Linux user using an X-Windows emulator, set the `DISPLAY` environment variable to send the graphical display to your workstation by typing `$DISPLAY=mymachinename:0.0;export DISPLAY` and pressing ENTER.

4

Installing and Deploying MetaSolv Solution on a Single Server

This chapter describes how to perform a full installation of an Oracle Communications MetaSolv Solution (MSS) 6.2.*x* release, if you are a new customer or upgrading from a pre-6.2 release, and explains how to set up the MSS application server for single server installations. The chapter covers the Oracle WebLogic server domain configuration and the installation and deployment of the MSS application server.

Setting Up for Development or Test Environments (XML API Option Only)

Note the following issues if you are installing MSS in a development or test environment:

- To use Oracle WebLogic Workshop with Oracle WebLogic Integration Server, you must configure your domain in Development Mode. See step 6 in "Creating a Single Server WebLogic Domain (XML API and Non-XML API Options)".
- Multiple WebLogic Integration domains cannot use the same database schema. There is a work around if you must use this setup. See "Multiple WebLogic Integration Domains Pointing to the Same Database".
- Special steps are required to copy a production database to a WebLogic Integration development or test environment. See "Copying a Production Database to a WLI Development or Test Environment".

About Single Server Installation

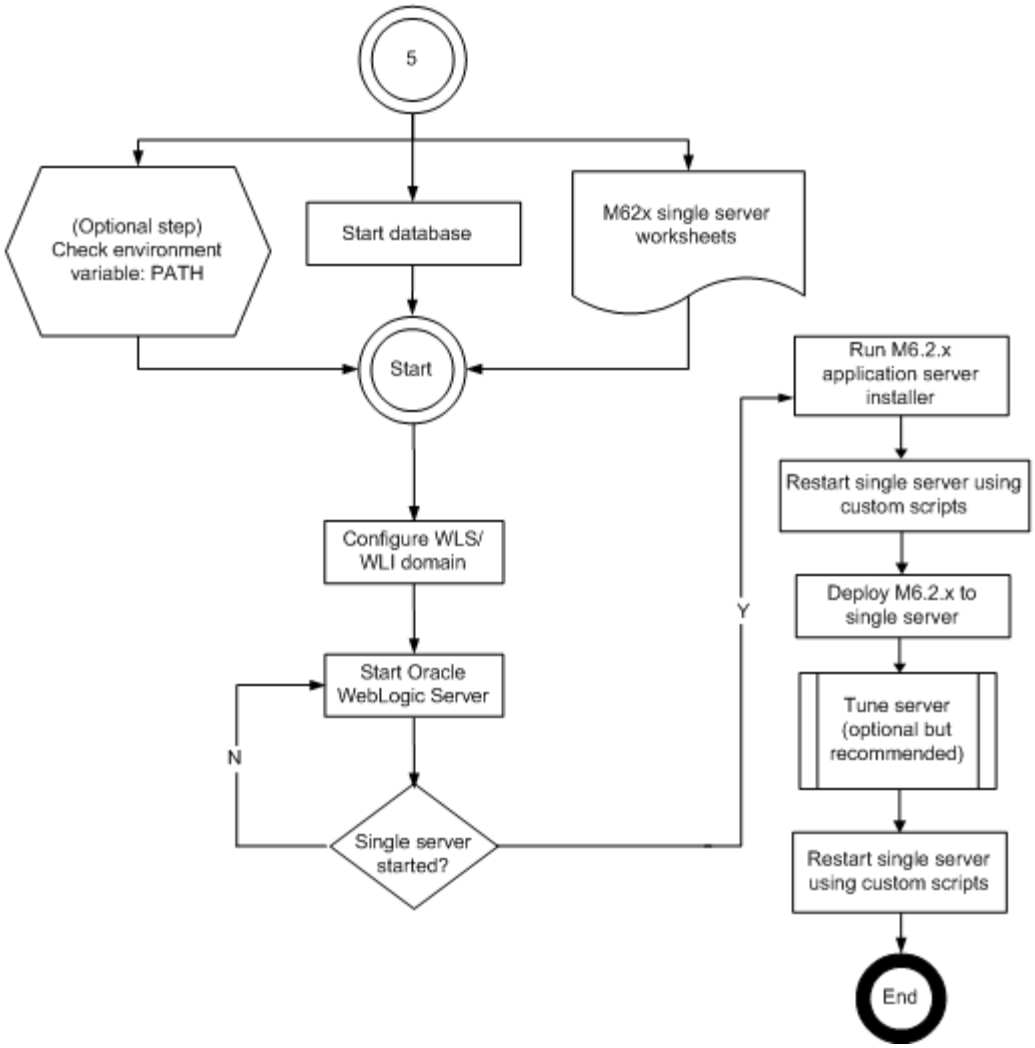
A single server installation is one in which a single WebLogic server instance hosts the MSS application server process.

This section describes how to:

- Create a WebLogic domain for a single server.
- Install the MSS application server software.
- Deploy MSS to the single server.

Figure 4–1 shows the basic steps for installing MSS on a single server. The figure is an expansion of step 5 of the basic installation process shown in Figure 1–1, "Overview of the MSS 6.2 Installation Process".

Figure 4–1 Single Server Installation



Before You Start

- Print and complete the following planning worksheets:
  - Application server common installation worksheet. See Table C–1, " Application Server Common Installation Worksheet".
  - Single server installation worksheet. See Table C–2, " Single Server Installation Worksheet".
  - Some steps in the procedures for the WebLogic domain configuration and the MSS installation refer to the worksheets. Each value that you are asked to enter has a worksheet reference number.
- Review "Prerequisites for MSS 6.2.x" and make sure all tasks listed that apply to your installation are completed.

Creating a Single Server WebLogic Domain (XML API and Non-XML API Options)

To create a single server domain, perform the following:

Note: This procedure was written based on the Oracle WebLogic Integration (32-bit) software. If the Oracle WebLogic Server (32-bit) software is utilized, it follows a different installation flow. Refer to the Oracle WebLogic Server documentation for more information.

1. From the Administration Server, start the WebLogic Configuration Wizard by doing one of the following:
   - For UNIX/Linux platforms, this program (**config.sh**) is located in the following directory: *BEA_HOME***/wlserver_10.3/common/bin**.
   - For Windows platforms, this program (**config.cmd**) is located in the following directory: *BEA_HOME***wlserver_10.3\common\bin**.

   The Welcome window appears.
2. Select **Create a new WebLogic domain** and click **Next**.

   The Select Domain Source window appears.
3. Select the **Generate a domain configured automatically to support the following products** option and do the one of the following:
   - If you are creating the domain for XML API development, select **WebLogic Integration** and **Workshop for WebLogic 10.3**. Continue with step 4.
   - If you are creating the domain for non-XML API development, continue with step 4.
4. Click **Next**.

   The Configure Administrative User Name and Password window appears.
5. Enter a user name and password and verify the password by retyping, then click **Next**.

   Worksheet references and example values:

Field name	Worksheet reference number	Example value
User name	COMM-0020	weblogic
User password	COMM-0030	web_logic

   Note the user name and password. You will need them to log on to the administration console.

   The Configure Server Start Mode and JDK window appears.
6. Do one of the following:
   - If you are installing for company operations, select the **Production Mode**.
   - If you are installing to do integration development or testing, select **Development Mode**.
7. Select the **Available JDKs** option in the right pane and select the **Sun SDK** in the list window, and click **Next.**

   The Sun SDK option is supported for both UNIX/Linux and Windows platforms.

Note: If you are using the IBM AIX operating system, select the **Other Java SDK** option and browse for the location of the IBM Java SDK. See "If You are Using the IBM AIX Operating System".

The Customize Environment and Services Settings window appears.

8. Select **Yes** and click **Next**.

   The Configure RDBMS Security Store Database window appears.

9. Select **I don't want to change anything here**, then click **Next**.

   The Configure the Administration Server window appears.

10. Do the following:

    a. Enter the AdminServer name.

    b. Enter a valid DNS name or IP address.

    c. Enter a port number for the AdminServer.

    Worksheet references and example values:

Field name	Worksheet reference number	Example value
Name	Single-0150	mslv01
Listen address	Single-0160	srvrchosa1
Listen port	Single-0170	7001
SSL Listen port **Note:** If using SSL, use this parameter.	Single-0180	7002

11. Click **Next**.

    The Configure Managed Servers window appears.

12. Click **Next**.

    The Configure Machines window appears.

Note:

For XML API installations, continue with step 13.

For non-XML API installations, proceed to step 17.

13. Click **Next**.

    The Configure JDBC Data Sources window appears.

14. Enter the configuration information for the JDBC data sources, click on each data source tab. Perform the following steps:

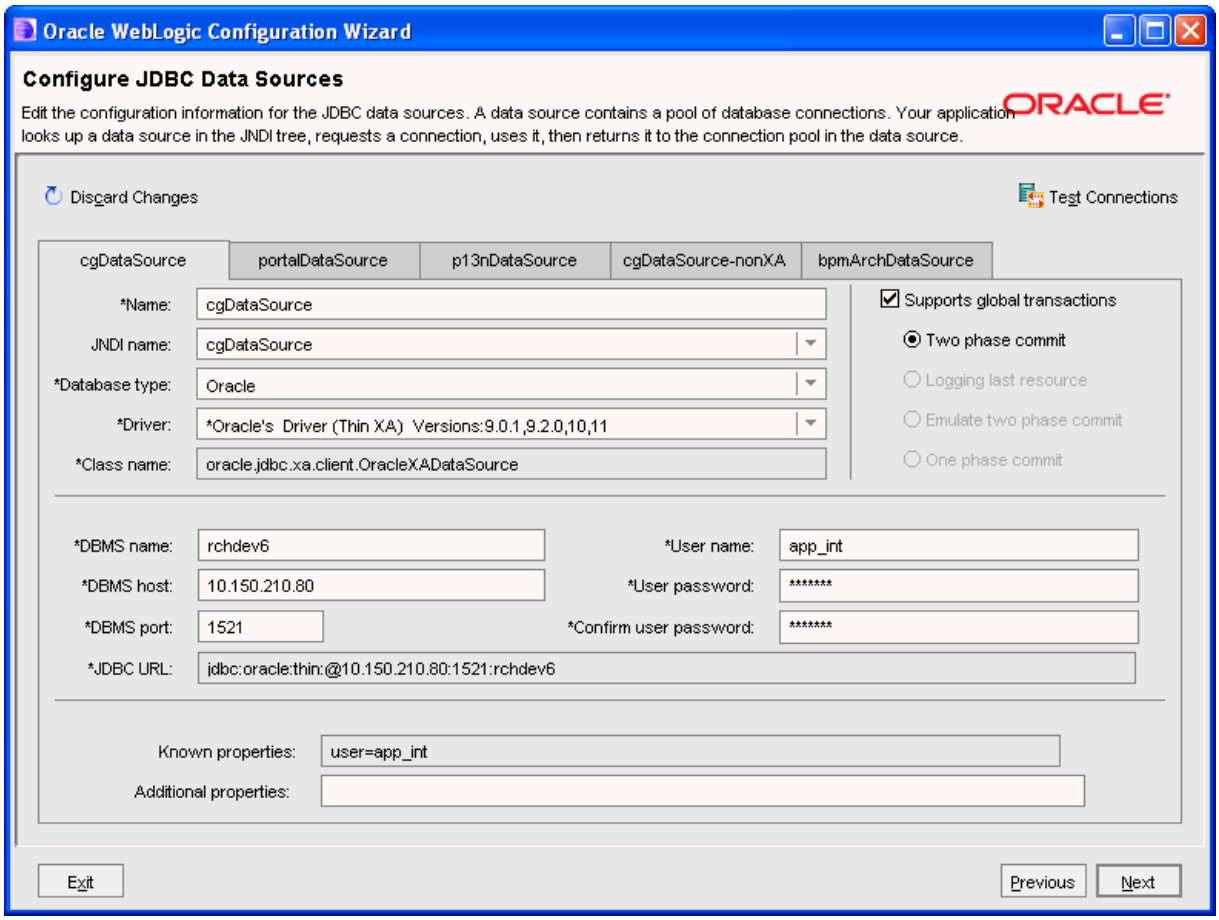
    a. Click the **cgDataSource** tab, enter values in the following fields:

    – In the **Database type** list, select **Oracle**.

    – In the **Driver** list, select **Oracle's Driver (Thin XA) Versions: 9.0.1, 9.2.0, 10, 11**.

- Select the **Supports global transactions** and the **Two phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name**, enter **APP_INT.**
- For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note : Other fields on this tab already contain defaulted values. You can make any additional changes required.

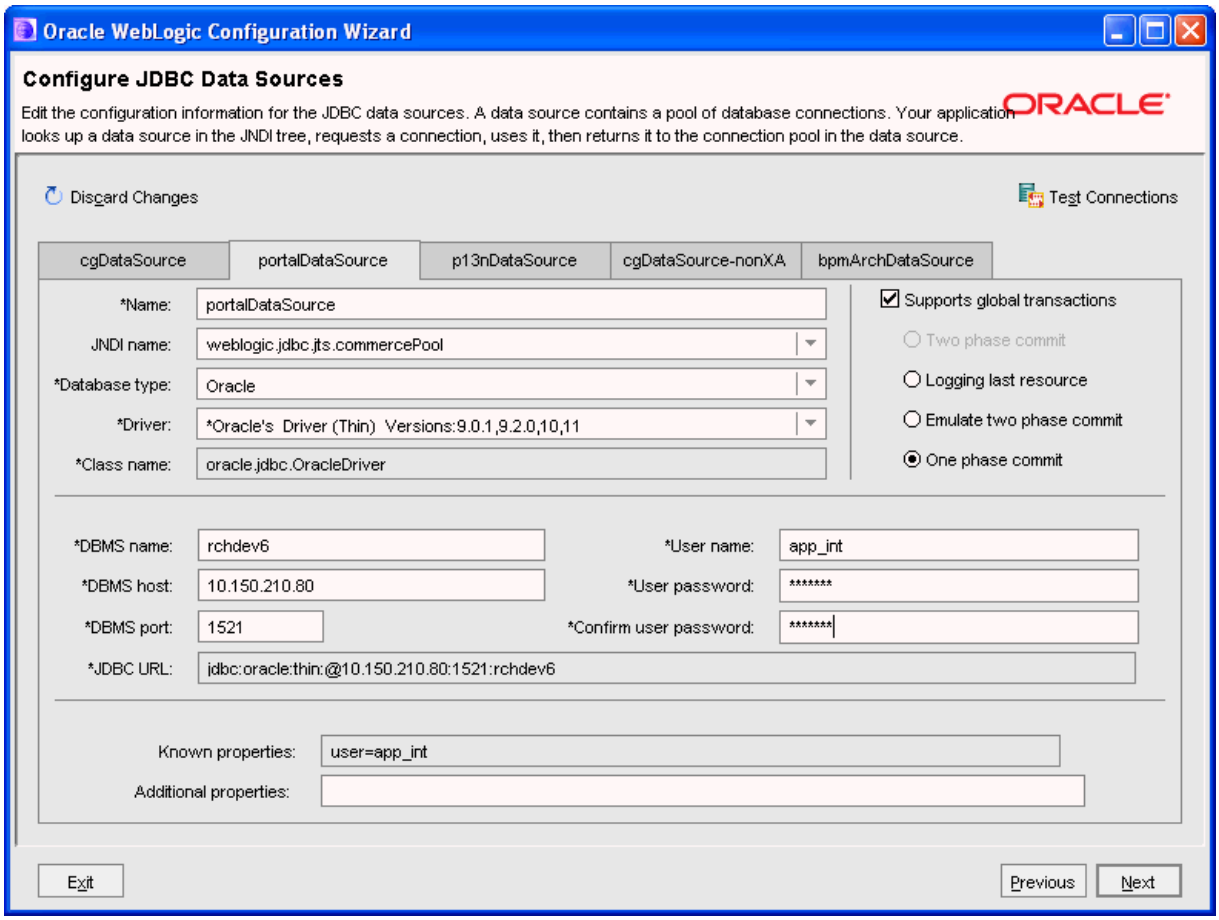


b. Click the **portalDataSource** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **One phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).

- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name**, enter **APP_INT.**
- For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note : Other fields on this tab already contain defaulted values. You can make any additional changes required.

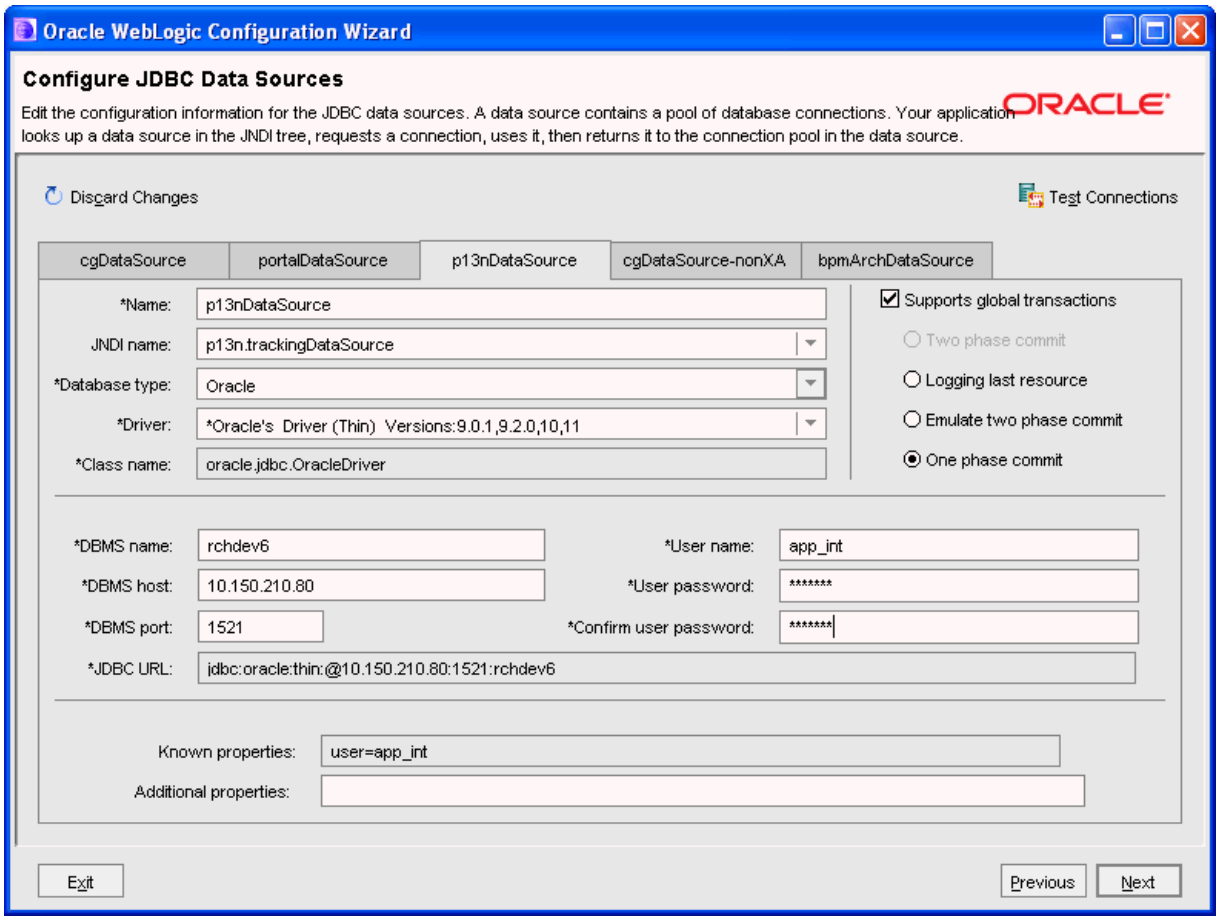


c. Click the **p13nDataSource** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **One phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name**, enter **APP_INT.**

– For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.



d. Click the **cgDataSource-nonXA** tab, enter values in the following fields:

– In the **Database type** list, select **Oracle**.

– In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.

– Select the **Supports global transactions** and the **Emulate two phase commit** options.

– For the **DBMS name,** enter the Oracle system ID (SID).

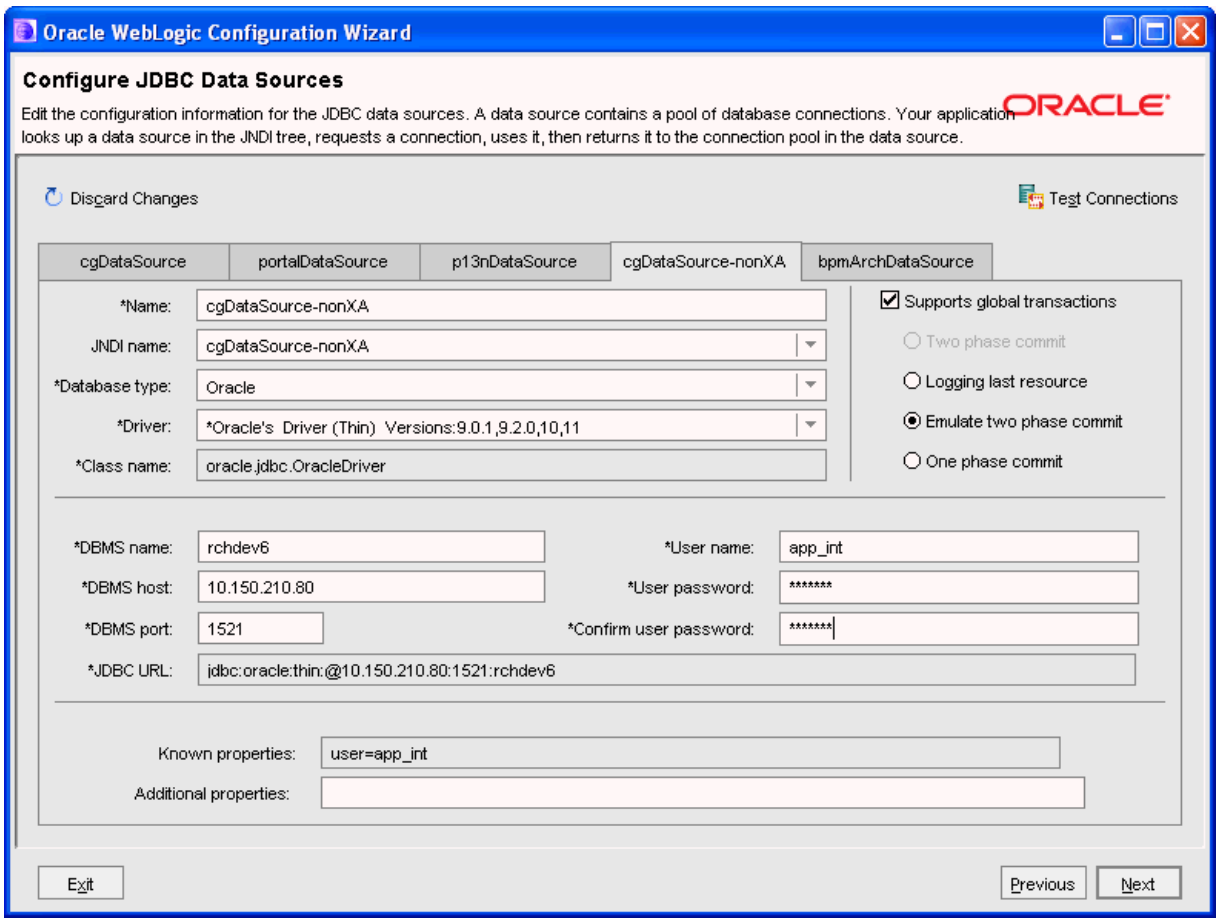
– For the **DBMS host**, enter the name of your database server.

– For the **DBMS port**, enter the port number for the database server.

– For the **User name**, enter **APP_INT.**

– For the **User password** (and **Confirm user password**), enter the Oracle user password.

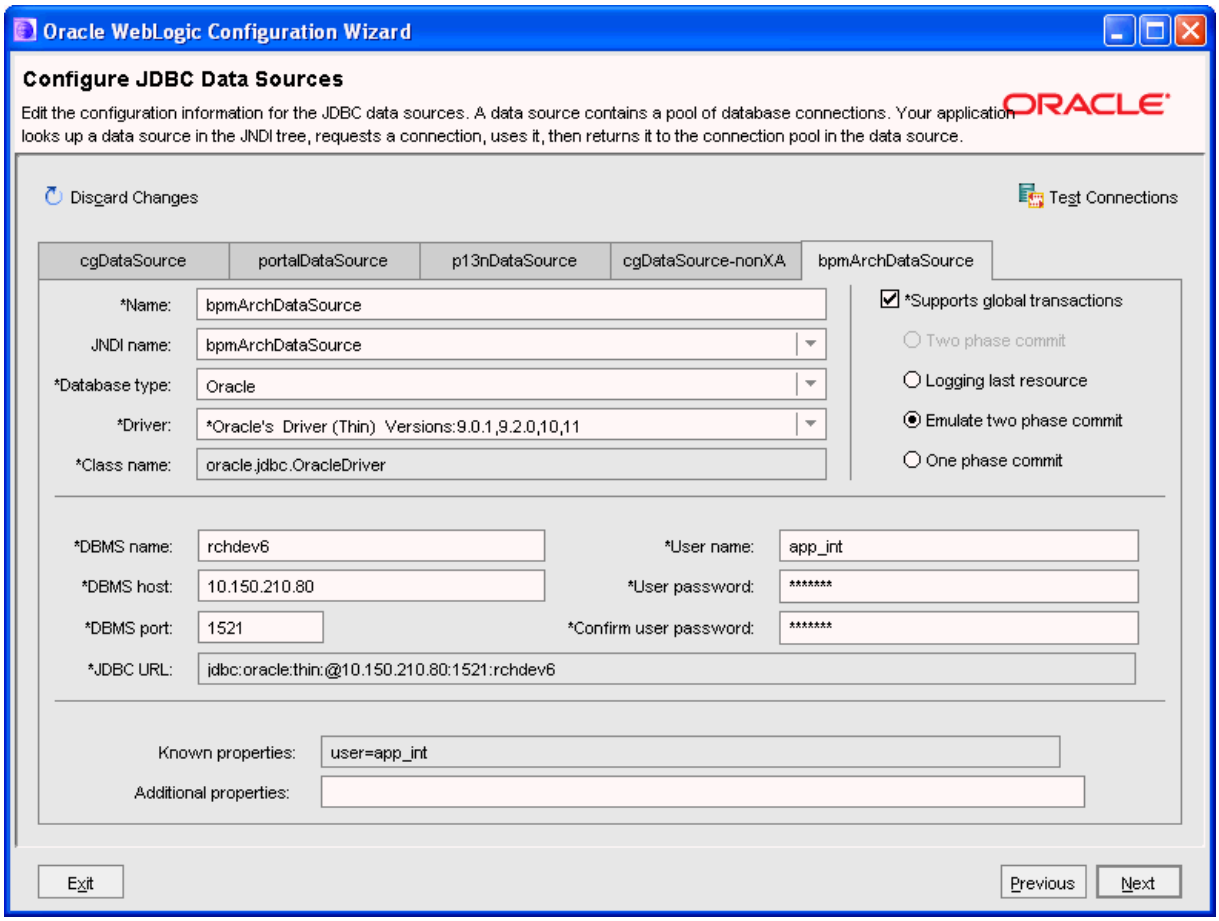
Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.



e. Click the **bpmArchlDataSource** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **Emulate two phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name,** enter **APP_INT**
- For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.

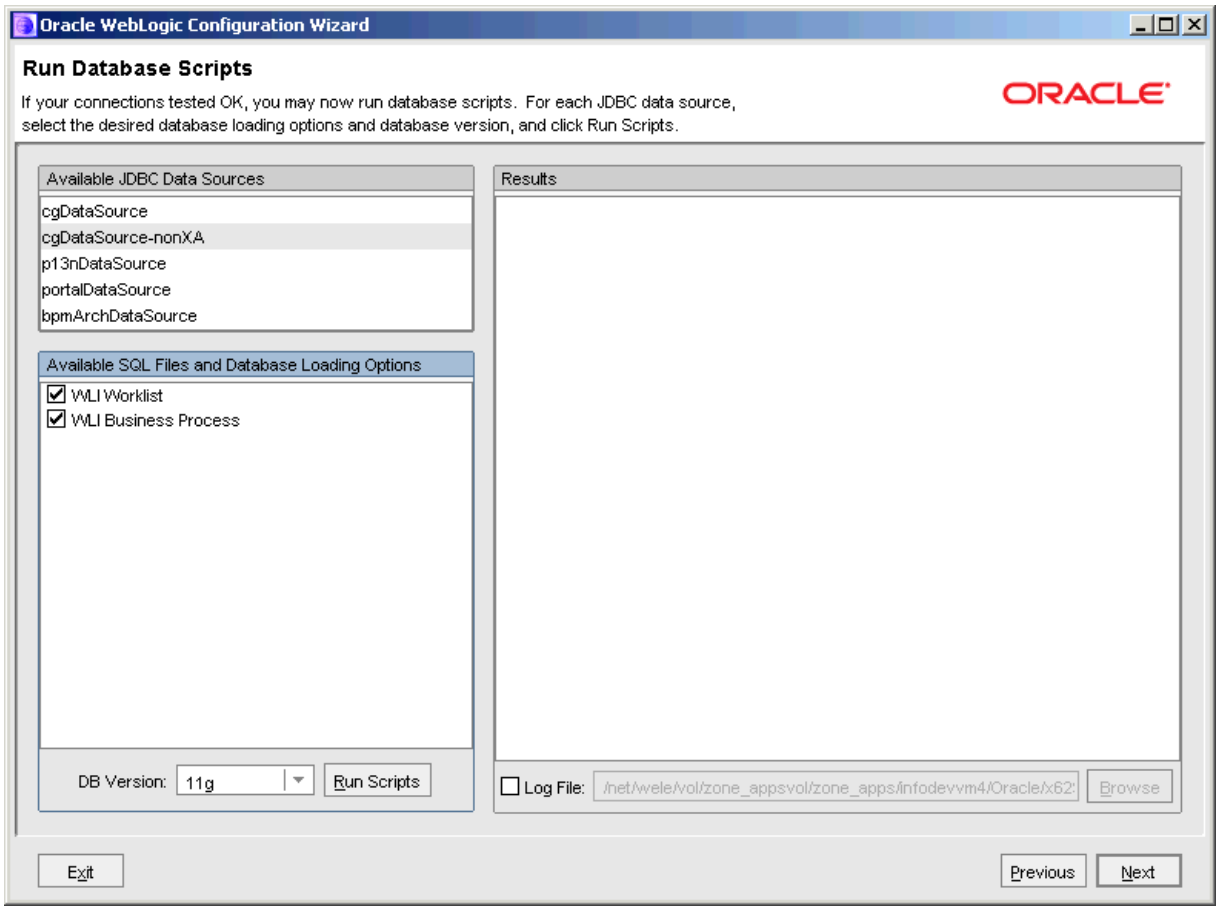


After the data sources have been configured, click on **Test Connections**.

The Test Data Source Connections window appears.

15. Test each data source by clicking **Test** next to each data source. Once all the tests have passed, click **Ok** and then **Next**.

    The Run Database Scripts window appears.



16. For each data source, select the available files and the **DB Version**, then click **Run Scripts**. After all the scripts have been run for each data source, click **Next**.

    Note: For the **cgDataSource-nonXA** data source, select the **11g** database version and for the **p13nDataSource**, select the **10g** database version.

    The Configure JMS File Stores window appears.

17. Click **Next**.

    The Review WebLogic Domain window appears.

18. Review the summary information displayed and verify that all the information is correct and click **Next**.

    The Create WebLogic Domain window appears.

19. Do the following:

    a. Enter the Domain name. (Oracle recommends *m62domain*.)

    b. In the **Domain location** field, click the **Browse** button to select the location where the domain is to be created.

    c. In the **Application location** field, click the **Browse** button to select the location where the application directory is to be created.

    Worksheet references and example values:

Field name	Worksheet reference number	Example value
Domain Name	COMM-0010	m62domain
Domain Location	COMM-0110	/opt/m62Single/single/
Application Location	COMM-0115	/opt/m62Single/single/

20. Click **Create**

    The Creating Domain window appears, indicating the progress during the creation of the domain.

21. Click **Done** when the configuration creation is complete.

22. To verify the domain setup, start the server by completing the following steps:

    a. Run **startWebLogic.sh** (UNIX/Linux) or **startWebLogic.cmd** (Windows) in the domain directory.

       The domain directory is the name you specified during configuration.

       For example: */opt/m62Single/single/m62domain*

    b. Type your administrator user name and password, when prompted, to start the server.

       The server takes a few moments to start. You will see information scroll on the screen. When the server has successfully started, you will see the words RUNNING mode at the prompt.

Installing and Deploying MSS

This section explains how to install and deploy MSS.

Prerequisites

- The instructions for creating the domain configuration included starting the server after the configuration was complete. Leave the server running until you are instructed to shut it down.
- Ensure that the following environmental variables are set:

```
JAVA_HOME=/opt/m62Single/single/bea/jdk_version
PATH= JAVA_HOME/jdk_version/bin $PATH
BEA_HOME=/opt/m62Single/single/bea
```

To install and deploy MSS, do the following:

1. From directory where the file was downloaded, enter the following command:

   ```
   java -jar releaseNo.buildNo_AppServerInstaller.jar
   ```

   For example:

   ```
   java -jar MSS.R6_2_1.b56_AppServerInstaller.jar
   ```

   Note: For 64-bit systems, use the following java_options parameter: **-d64**.

   The Select MetaSolv home directory window appears.

2. From the **Look In** list, click the down arrow and select a directory in which the installer files can be stored and used during the installation process, then click Select.

   A directory named **installer** is automatically created in the selected directory. Oracle recommends choosing your *MSLV_Home* directory for this task.

   The installer auto-launches the installation process by invoking **setup.sh** (UNIX/Linux) or **setup.cmd** (Windows) in the *MSLV_Home*/**installer** directory.

   Worksheet references and example values:

Field name	Worksheet reference number	Example value
File Name (*MSLV_Home*)	COMM-0090	/opt/m62Single/single

   The Oracle Communications MetaSolv Solution Installation window appears.

3. Click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Choose Install Type window appears.

4. For non-XML API installations: select **Full Installation on WebLogic Server Domain (WLS)** and click **Next**.

   For XML API installations: select **Full Installation on WebLogic Integration Domain (WLI)** and click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Select Server window appears.

5. Do the following:

   a. Enter the Admin Host name or the physical IP address.

   Note: The MetaSolv Solution installer does not support the use of virtual IP address during installation. If you specify a virtual IP address during installation, the installer does not display the following:

   - The check box to select the server you want MSS installed on.
   - The following configuration tabs:
     - Directory
     - Oracle Database
     - Oracle RAC
     - Gateway
     - Port
     - Proxy

   If your configuration requires the use of virtual IP address, you must specify the physical IP address during installation. After the installation is complete, you can change the server's listen address to the virtual IP address, and then restart the WebLogic server. See "Changing an IP Address" for more information.

b. Enter a port number for the Admin Host.

c. Enter a user name and password.

Worksheet references and example values:

Field name	Worksheet reference number	Example value
Admin Host	Admin-0250	srvrchscal
Port#	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)
User ID	COMM-0020	weblogic
Pass	COMM-0030	web_logic

d. (Optional) If you want to install and deploy MSS using the SSL port, select the **Connect to WebLogic using SSL** check box. In the **Key Store Location** field, enter the path or click **Browse** to search for the keystore location.

See the Oracle WebLogic Server documentation for information about configuring keystores.

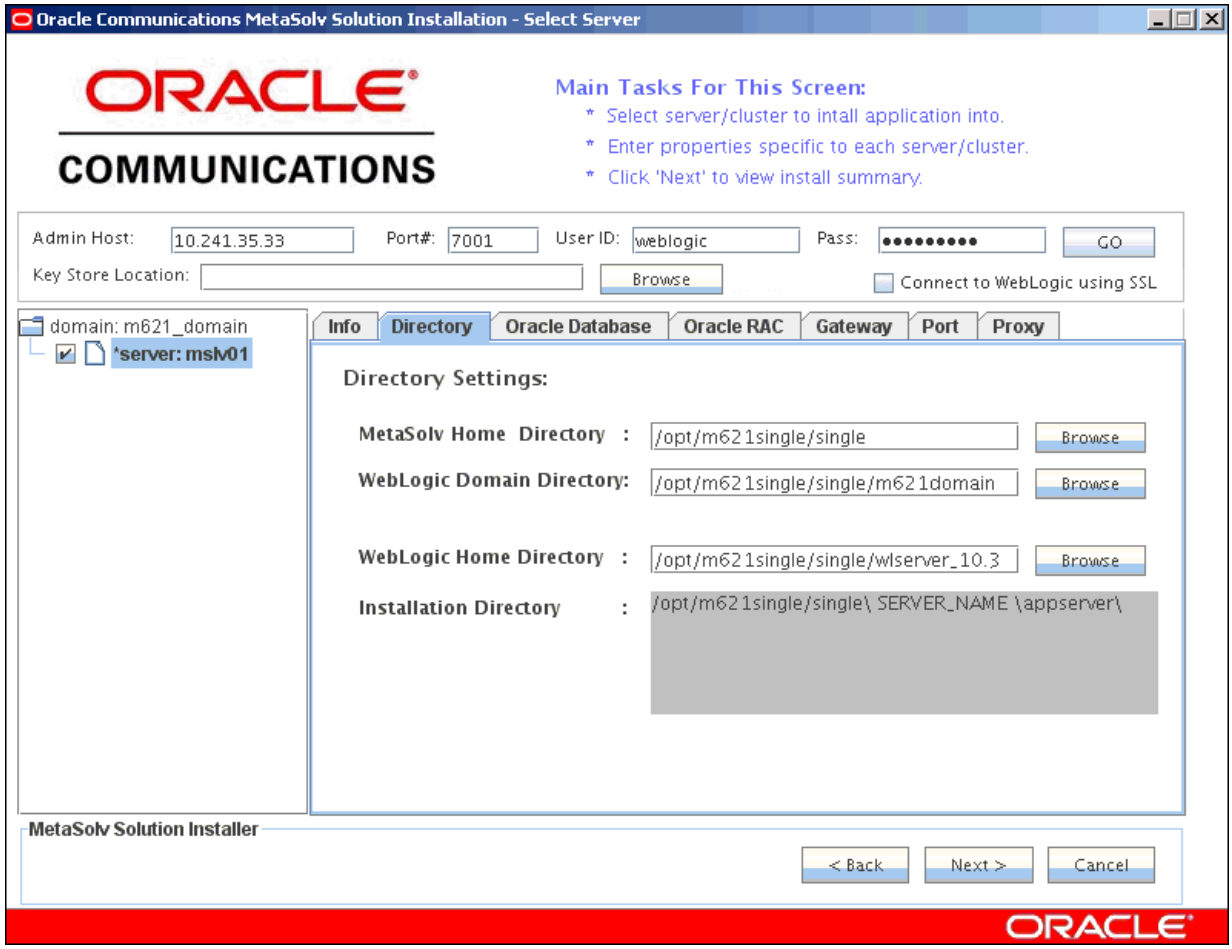
6. Click **Go**.

The installer queries the Admin Host machine and returns with values you entered during the configuration of the WebLogic domain. This process can take a few moments.

The Oracle Communications MetaSolv Solution Installation window appears with the domain and any servers in the domain appearing in the left pane.

7. In the tree view on the left, select the check box next to the single server you want MSS installed on.

Tabs appear in the right pane for information to be entered for the selected server.



8. Complete domain information by selecting and completing the following tabs:

   a. Click the **Directory** tab and enter the path and name of the MetaSolv home directory, WebLogic domain directory, and WebLogic Home directory or click **Browse** to search for the directories.

      Worksheet references and example values:

Field name	Worksheet reference number	Example value
MetaSolv Home Directory	COMM-0090	/opt/g62Single/single
WebLogic Domain Directory	COMM-0110	/opt/g62Single/single /m62domain

   b. Depending on your database configuration, do one of the following (Option 1 or Option 2):

      Option 1:

      Click the **Oracle Database** tab and either specify values in the **Oracle Server Name**, **Oracle Port#**, and the **Oracle Service Name** fields or enter your own free-form JDBC connect string in the **JDBC URL** field:

      Example of a JDBC URL string:

      ```
      jdbc:oracle:thin:@srvrchscal2:1521:BEN6
      ```

Worksheet references and examples values:

Field name	Worksheet reference number	Example value
Oracle Database Server Name	COMM-0130	srvrchscal2
Oracle Database Port	COMM-0140	1521
Oracle Database Service Name	COMM- 0150	BEN6
APP_MSLV Password	COMM-0040	mss6mslv
APP_API Password	COMM-0050	mss6api
XML API integration user id **Note:** This parameter applies to the XML API Option only.	COMM-0057	APP_INT
XML API integration password **Note:** This parameter applies to the XML API Option only.	COMM-0059	mss6int

Option 2:

Click the **Oracle RAC** tab (MSS 6.2.1 only). The **Remote Listener** check box is selected by default. Deselect this check box if remote listener is turned off in the Oracle RAC database. In the **Number of RAC Nodes** field, specify the number of RAC nodes and click **GO**.

Do one of the following (Option A or Option B):

Option A:

Specify values in the fields: **Oracle DBService Name**, **Oracle Server1**, **Oracle Port#1**, **Oracle Instance name1**, **Oracle Server2**, **Oracle Port#2**, **Oracle Instance name2.....Oracle Server***n*, **Oracle Port#***n*, **Oracle Instance name***n*, and so on, where *n* is the number of nodes specified in the **Number of RAC Nodes** field.

Option B:

Specify the JDBC URLs in the following fields:

JDBC URL#1

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ip1:port1/dbservice1
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ip1)(PORT=port1))(CONNECT_DATA= (SERVICE_
NAME=dbservice1)(INSTANCE_NAME=instance1)))
```

JDBC URL#2

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ip2:port2/dbservice2
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ip2)(PORT=port2))(CONNECT_DATA= (SERVICE_
NAME=dbservice2)(INSTANCE_NAME=instance2)))
```

JDBC URL#*n*

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ipn:portn/dbservicen
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ipn)(PORT=portn))(CONNECT_DATA= (SERVICE_
NAME=dbservicen)(INSTANCE_NAME=instancen)))
```

Where:

n is the number of nodes specified in the **Number of RAC Nodes** field.

v-ip is the IP address of the node.

port is the port address of the node.

dbservice is the database service name.

instance is the instance name.

Note: You must specify values in either the **Oracle Database** tab or the **Oracle RAC** tab (MSS 6.2.1 only). If you specify values in both the **Oracle Database** and the **Oracle RAC** tabs, you get an error message.

If you specify the incorrect number of nodes in the **Number of RAC Nodes** field and click **GO** on the **Oracle RAC** tab, do the steps in "Correcting the Specified Number of RAC Nodes".

Worksheet references and example values for a two-node RAC:

Field name	Worksheet reference number	Example value
Oracle Database Service Name	COMM- 0150	BEN6
Oracle Database Server Name1	COMM-0160	srvrchscal1
Oracle Database Port#1	COMM-0165	1521
Oracle Instance Name1	COMM-0170	drac1
Oracle Database Server Name2	COMM-0175	srvrchscal2
Oracle Database Port#2	COMM-0180	1521
Oracle Instance Name2	COMM-0185	drac2
APP_MSLV Password	COMM-0040	mss6mslv
APP_API Password	COMM-0050	mss6api
XML API integration user id **Note:** This parameter applies to the XML API Option only.	COMM-0057	APP_INT

Field name	Worksheet reference number	Example value
XML API integration password **Note:** This parameter applies to the XML API Option only.	COMM-0059	mss6int

For multiple WebLogic Integration domains pointing to the same database, use different XML API integration user IDs and corresponding passwords. See "Multiple WebLogic Integration Domains Pointing to the Same Database".

c. Click the **Gateway** tab, check the default selections for event servers that are to be activated, and make any necessary changes.

Note: For XML API installations, the **INTEGRATIONSERVER** option must be checked.

If you are unsure, leave the default settings. You can manually edit these settings through the **gateway.ini** file. The check boxes that appear on the tab are for APIs. When you select a check box, modifications are made to the **gateway.ini** file used to configure MSS APIs. See *MetaSolv Solution System Administrator's Guide* for more information on the **gateway.ini** file.

d. Click the **Port** tab and enter values in the **Log Port** and **CORBA Port** fields

Worksheet references and example values:

Note : Default port assignments appear and may be replaced with the available port values.

Field name	Worksheet reference number	Example value
Log Port	Single-0190	4501
CORBA Port	Single-0200	2507
Debug Port	Single-0205	8453

e. Click the **Proxy** tab and enter the URL of the proxy server.

Worksheet reference and example value:

Field name	Worksheet reference number	Example value
Proxy Server URL	Single-0210	http://srvrchosa1:7070, https://srvrchosa1:7071 (when using the SSL port)

f. Click the **Info** tab to see a summary of the selected server's properties.

9. When all tabs have correct information for the single server, click **Next**.

The installation summary appears.

10. After checking the information in the summary for accuracy, click **Install**. When the files are installed, the location of the startup file created for the server is displayed.

Caution: Do not exit the installer.

11. Note the location of the startup file for the application server, then minimize the installer window.
12. Shut down the server, and restart it using the custom script installed by the installer and listed on the window.

    To start the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    - For UNIX/Linux:

      ```
      startmslv01.sh
      ```

    - For Windows:

      ```
      startmslv01.cmd
      ```

    To shut down the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    - ForUNIX/Linux:

      ```
      stopmslv01.sh
      ```

    - For Windows:

      ```
      stopmslv01.cmd
      ```

13. Start the WebLogic Server Administration Console by typing the following information into the **Address** field of Internet Explorer:

    ```
    http://host_admin:port number/console
    ```

    You can monitor the deployment from the console. To check the servers, click **Servers** in the left pane of the Console, and the right pane will show the status of all servers.

14. After the startup commands have been run and the application server has been started, maximize the installer window and click **Deploy Application**.

    The Oracle Communications MetaSolv Solution Installation window appears listing the server you can select for deployment.

    This process can take a few moments. If the server is not started, a status appears on the window indicating the installer is waiting for the server to be in running mode. When the server is in running mode, you can begin the deployment.

15. Select a server in the Target Servers list box, and click **Deploy**.

    The deployment process begins. You can follow the progress of the deployment by viewing the text that appears in the right pane of the installation window.

    When the deployment is complete, the Deployment Completed window appears.

16. Click **OK**.
17. Click **Exit**.

    The Exit? window appears.

18. Click **OK** to exit.

Correcting the Specified Number of RAC Nodes

To correct the specified number of RAC nodes:

1. On the **Oracle RAC** tab, click **GO** beside the **Password** field.
2. Select the check box for the server.
3. Specify correct values in all the fields on the **Info**, **Directory**, **Oracle Database**, **Oracle RAC**, **Gateway**, **Port**, and **Proxy** tabs.

Verifying the Installation

Verification is done from the WebLogic Server Administration Console on a client workstation.

To verify the installation, do the following:

1. From a client workstation, close all open applications and start a web browser.
2. Enter the following information into the **Address** field:

   `http://host_admin:port number/console`

3. Log on to the Administration Console using your user name and password.

   The WebLogic Server Console window appears.
4. In the left pane, click on *DOMAIN_NAME*, then click on **Deployments**.

   The list of available applications appears in the pane on the right of the screen.
5. Verify that the following applications appear in the list:

   Note: Click **Next** in the Deployments window to advance to the next page of applications.

   XML API option only:

   - calendar-ejbs
   - httpEG_ear
   - jcaEG_ear
   - mss-integration
   - mqEG_ear
   - nur
   - rdbmsEG_ear
   - tibRVEG_ear
   - worklist-admin
   - worklist-ejbs-worksub

   non-XML API option only:

   - nur
6. From the Domain Structure tree, expand **Services**, then expand **JDBC**, then click on **Data Sources** in the left pane.

The list of available data sources and connection pools appears in the pane on the right of the screen.

7. Compare the values, shown in Table 4–1, to your installation screen to make sure you have configured WebLogic correctly for your installation.

Table 4–1 Data Sources and Connection Pools

Data Sources	Connection Pools	WLI only
bpmArchDataSource	bpmArchDataSource	WLI
cgDataSource	cgDataSource, weblogic.jdbc.jts.commercePool, contentDataSource, contentVersioningDataSource, portalFrameworkPool	WLI
cgDataSource-nonXA	cgDataSource-nonXA	WLI
mslvDataSource	MSLVPool	
mslvDbTraceDataSource	MSLVDbTracePool	
mslvNoneTxDataSource	MSLVNonTxPool	
mslvProcDataSource	MSLVProcPool	
mslvWliDataSource	MSLVWliPool	WLI
p13nDataSource	p13n.trackingDataSOurce, p13n.sequencerDataSource, cm.sequencerDataSource, p13n.leasemanager, p13n.dataSyncDataSource, p13n.entitlementsDataSource, p13n.quiesenceDataSource, p13n.credentialsDataSource	WLI

8. (XML API option only) In the left pane, click on *DOMAIN_NAME*, then click on **Services**, then click on **Messaging**, then click on **JMS Modules**.

   The list of available JMS modules appears in the pane on the right of the screen.

9. (XML API option only) In the right pane, click on **conversational-jms**.

   The list of available resources appears in the pane on the right of the screen.

10. (XML API option only) Verify that the following JMS connection factory is present in the list of resources:

    - MSS.QueueConnectionFactory

11. (XML API option only) Verify that the following destinations are included in the list of resources:

    - API.queue.AsyncDispatcher
    - API.queue.AsyncDispatcher_error
    - mss.internal.event.queue
    - mss.external.event.queue

12. From the web browser, enter the following information into the **Address** field:

    `http://host_admin:port number/main`

    The Start page appears.

13. Click the **MetaSolv Solution** link to start the download process on the client machine.

    The MetaSolv Solution login window is displayed.

Deploying Samples (XML API Installations Only)

To install and deploy MetaSolv Samples, perform the following:

1. From the *MSLV_Home*/**installer** directory, enter the following command:

   `setup.sh` (UNIX/Linux)

   or

   `setup.cmd` (Windows)

   The MetaSolv Solution Installation window appears.

2. Click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Choose Install Type window appears.

3. Select **Deploy Samples** and click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Deploy Servers window appears.

4. Do the following:

   a. Enter the Admin Host name.

   b. Enter a port number for the Admin Host.

   c. Enter a user name and password.

      Worksheet references and example values:

Field name	Worksheet reference number	Example value
Admin Host	Admin-0250	srvrchscal
Port#	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)
User ID	COMM-0020	weblogic
Pass	COMM-0030	web_logic

   d. (Optional) If you want to deploy samples using the SSL port, select the **Connect to WebLogic using SSL** check box. In the **Key Store Location** field, enter the path or click **Browse** to search for the keystore location.

      See the Oracle WebLogic Server documentation for information about configuring keystores.

5. Click **Go**.

   The samples deployment process begins.

   The Oracle Communications MetaSolv Solution Installation - Deploy Servers window displays text in the right pane, indicating the deployment has started.

   When the deployment is complete, the Deployment Complete window appears.

6. Click **OK**, then click **Exit** to exit the installer.

   The Exit? window appears.

7. Click **OK** to exit.

Configuring WebLogic Integration (XML API Installations Only)

This section describes how to set the following configuration parameters in WebLogic Integration:

- Setting up an event generation
- Tracking data management

Logging on to the WebLogic Integration Administration Console

Start the WebLogic Integration Administration Console by pointing your browser to:

`http://<host_admin:port number>/wliconsole`

The initial console window appears.

Setting Up an Event Generator

To set up event generator:

1. Click **Event Generators**.

   The View All File Event Generators window appears.

2. On the left panel under JMS, click **Create New**.

   The Create a New JMS Event Generator information appears in the right panel.

3. Enter the following:
   a. Generator Name: InternalOutBoundGenerator
   b. Destination Type: javax.jms.Queue
   c. Destination JNDI Name: mss.internal.event.queue
   d. JMS Connection Factory JNDI Name: weblogic.jws.jms.QueueConnectionFactory
   e. Message Selector: Leave this field blank
   f. Default Rule Channel: /MSS/internalOutboundEventChannel (xml)

4. Click **Submit**.

   The JMS Event Generator Definition summary appears.

To return to the main WebLogic Integration Administration Console window, click **Home** in the tabs listed at the top of the pane.

Setting Parameters for Purging Data

To set up purge parameters:

1. On the left panel click **System Configuration**.

   The Current Tracking and Reporting Data Settings window appears.

2. Click **Configure** in the Purge Schedule section that appears in the right pane.

   The Tracking Data Purge and Reporting Data Policy Settings information appears in the right pane.

3. Set the purging policy by completing the following fields in the window:
   a. Next Purge Start Time: The start time and date for the first (or next purge).

b. Repeat Every: Select a unit of time you want to measure by in the drop-down box (days, for example), and type a number to indicate the length of time between purges in the text box.

c. Purge Delay: Select the unit of time and type a number in the text box to indicate how long a purge can be delayed.

4. Click **Submit**.

   The change is processed and the right pane returns to Current Tracking and Reporting Data Settings.

5. Click **Configure** in the Default Reporting Data Policy and Tracking Level for Processes section.

   The Default Tracking Level and Reporting Data Policy for Processes window appears.

6. In the right pane, select **Minimum** in the **Default Tracking Level** field and click **Submit**.

   The changes are processed and the Current Tracking and Reporting Data Settings reappear showing the changes. To return to the main WebLogic Integration Administration Console window, click the **Home** tab listed at the top of the pane.

5

Installing and Deploying MetaSolv Solution on a Clustered Server

This chapter describes how to perform a full installation of an Oracle Communications MetaSolv Solution (MSS) 6.2.*x* release, if you are a new customer or upgrading from a pre-6.2 release, and explains how to set up the MSS application server for clustered server installations. The chapter covers the Oracle WebLogic server domain configuration and the installation and deployment of the MSS application server.

Setting Up for Development or Test Environments (XML API Option Only)

Note the following issues if you are installing MSS in a development or test environment:

- To use Oracle WebLogic Workshop with Oracle WebLogic Integration Server, you must configure your domain in Development Mode. See step 5 of "Creating the Clustered Server WebLogic Domain (XML API and Non-XML API options)".
- Multiple WebLogic Integration domains cannot use the same database schema. There is a work around if you must use this setup. See "Multiple WebLogic Integration Domains Pointing to the Same Database".
- Special steps are required to copy a production database to a WebLogic Integration development or test environment. See "Copying a Production Database to a WLI Development or Test Environment".

About Clustered Server Installation

A clustered server installation (also called an administration server with cluster-managed servers installation) is one in which one or more WebLogic Server instances are managed by a separate administration server. In this arrangement, clustering the managed servers in WebLogic allows the servers to work together as one unit, rather than several independent processing units. This is the configuration Oracle recommends because it provides protection in the event a server fails.

This section describes how to:

- Create a WebLogic domain for clustered servers
- Install MSS
- Deploy MSS to the cluster

Figure 5–1 shows the detailed process for a clustered server installation.

Figure 5–1 Installing a Cluster-Managed Server

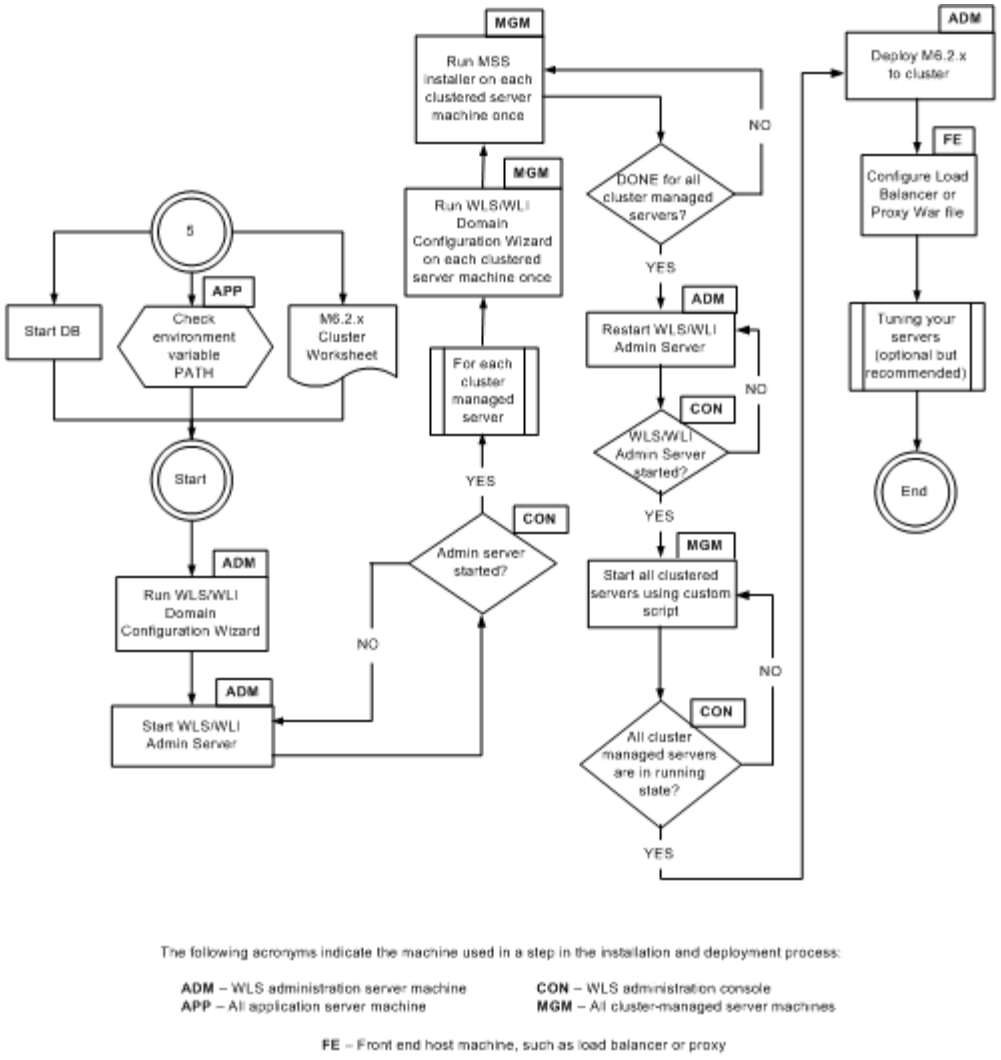
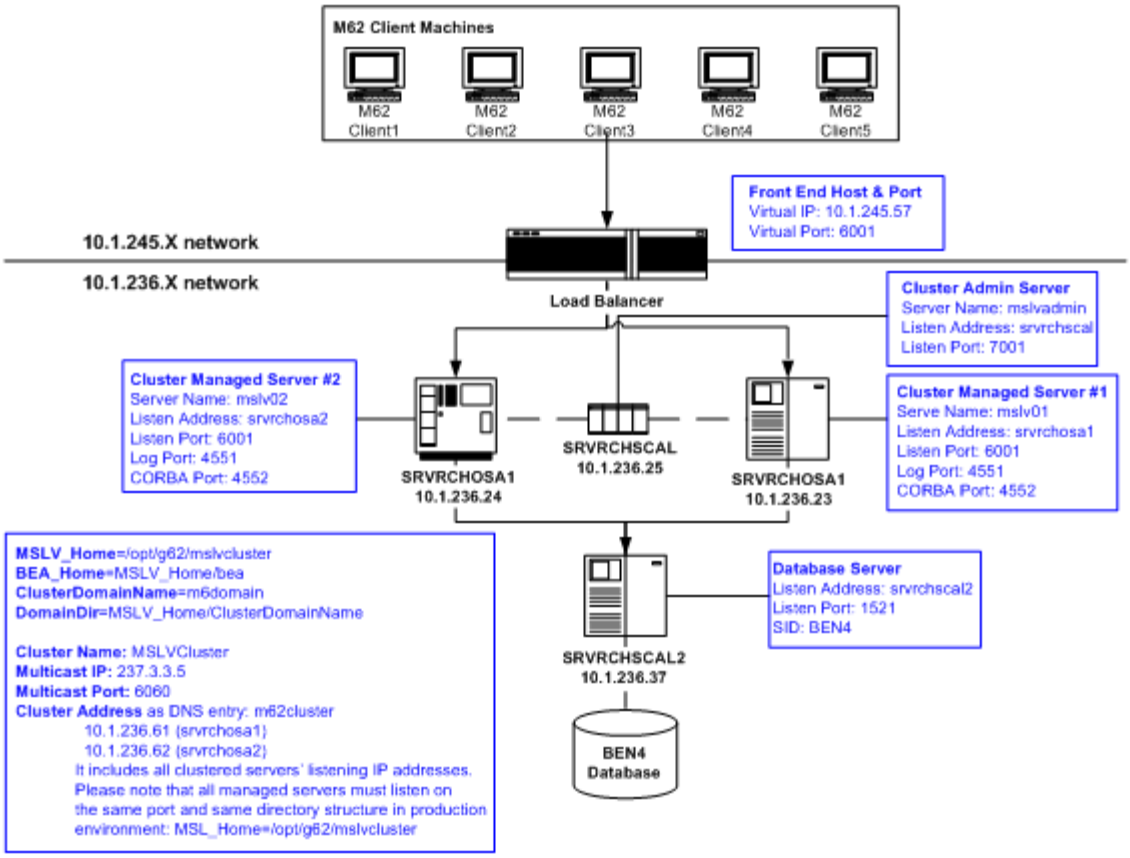


Figure 5–2 shows an example configuration. This installation includes two clustered managed servers (mslv01 and mslv02), an administration server, and a hardware load balancer or Proxy server used for load balancing. To see complete information on the data for the installation, refer to the worksheet examples.

Figure 5–2 Example Cluster-Managed Server Configuration



Before You Start

- Print and complete the following planning worksheets:
  - Application server common installation worksheet. See Table C–1, " Application Server Common Installation Worksheet".
  - Admin server installation worksheet. See Table C–3, " Admin Server Installation Worksheet".
  - Clustered server general installation worksheet. See Table C–4, " Clustered Server General Installation Worksheet".
  - Clustered server installation worksheet. See Table C–5, " Clustered Server Installation Worksheet".

    Complete a worksheet for each managed server in the cluster. In the example configuration used for the installation, two worksheets must be filled out, one for mslv01 and the other for mslv02.
  - WebLogic proxy server installation worksheet. See "Proxy Server Setup" for a complete description of the proxy server installation.

Some steps in the procedures for the WebLogic domain configuration and the MSS installation refer to the worksheet.

- Review "Prerequisites for MSS 6.2.x" on page 6 and make sure all tasks listed there that apply to your installation are completed.
- You may need assistance from your system administrator or network engineering team to perform the following tasks:
  - Set up a DNS entry to include all clustered servers' listening IP addresses for cluster address during cluster domain configuration in production environment.
  - In production environment, all clustered servers must listen on the same port. If there are multiple clustered servers running on the same machine in the same cluster, the machine must have multiple network interface cards (NICs).
  - Set up a load balancer
  - Acquire the multicast IP address and port for the cluster
  - Define and verify a range of ports for each machine hosting cluster-managed servers and administration servers.
- See "Load Balancer Configuration Example" if you are using a load balancer in your clustered server installation.

Creating the Clustered Server WebLogic Domain (XML API and Non-XML API options)

To create the domain, perform the following:

Note: This procedure was written based on the Oracle WebLogic Integration (32-bit) software. If the Oracle WebLogic Server (32-bit) software is utilized, it follows a different installation flow. Refer to the Oracle WebLogic Server documentation for more information.

---

1. From the Administration Server, start the WebLogic Configuration Wizard by doing one of the following:
   - For UNIX/Linux platforms, this program (**config.sh**) is located in the following directory: *BEA_Home*/**wlserver_10.3/common/bin**.
   - For Windows platforms, this program (**config.cmd**) is located in the following directory: *BEA_Home***wlserver_10.3\common\bin**.

   The Welcome window appears.
2. Select **Create a new WebLogic domain** and click **Next**.

   The Select Domain Source window appears.
3. Select **Generate a domain configured automatically to support the following products** and **WebLogic Integration,** then click **Next**.

   The Configure Administrator User and Password window appears.
4. Enter a user name and password and verify the password by retyping, then click **Next**.

   Worksheet references and example values:

Field name	Worksheet reference number	Example value
User name	COMM-0020	weblogic
User password	COMM-0030	web_logic

The Configure Server Start Mode and JDK window appears.

5. Do one of the following:
   - If you are installing for company operations, select the **Production Mode**.
   - If you are installing to do integration development or testing, select **Development Mode**.
6. Select the **Available JDKs** option in the right pane and select the **Sun SDK** in the list window, and click **Next.**

   The Sun SDK option is supported for both UNIX/Linux and Windows platforms.

   Note: If you are using the IBM AIX operating system, select the **Other Java SDK** option and browse for the location of the IBM Java SDK. See "If You are Using the IBM AIX Operating System".

   The Customize Environment and Services Settings window appears.
7. Select **Yes** and click **Next**.

   The Configure RDBMS Security Store Database window appears.
8. Select the **I don't want to change anything here** option, then click **Next**.

   The Configure the Administration Server window appears.
9. Do the following:
   - Enter the AdminServer name.
   - Enter a valid DNS name or IP address.
   - Enter a port number for the AdminServer.

     Worksheet references and example values:

Field name	Worksheet reference number	Example value
Name	Admin-0240	mslvadmin
Listen address	Admin-0250	srvrchsca1
Listen port	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)

10. Click **Next**.

    The Configure Managed Servers window appears.
11. Click **Add** and do the following:
    a. Enter the name of a server.
    b. Select an address by clicking the arrow and selecting a name from the list that appears.
    c. Enter the listen port number.

Note: You can also add a proxy server at this point, if the WebLogic proxy is used.

For example:

- Name: **M62Proxy**;
- Listen address: **servrchosal**;
- Listen port: **7001**.

Field name	Worksheet reference number	Example value
Name	Cluster-0520	mslv01, mslv02
Listen address	Cluster-0550	srvrchosa1, srvrchosa2
Listen port	Cluster-0570, Cluster-0580	6001, 6001 (HTTP port); 6002, 6002 (HTTPS port) (2-node cluster)

12. Repeat step 11 for each server that is to be included in the cluster, then click **Next**.

    The Configure Clusters window appears. This window allows you to name the cluster and provide information about it.

13. Click **Add** and do the following:
    a. Enter the name of the cluster.
    b. Enter the multicast address.
    c. Enter the multicast port number.
    d. Enter the cluster address.

Field name	Worksheet reference number	Example value
Name	Cluster-0410	MSLVCluster
Multicast address	Cluster-0430	237.3.3.5
Multicast port	Cluster-0440	6060
Cluster address	Cluster-0420	Test/development environment: srvrchosa1:6001 (HTTPS port), srvrchosa1:6002 (HTTPS port) srvrchosa2:6001 (HTTP port), srvrchosa2:6002 (HTTPS port) (2-node cluster). Production environment requires a DNS entry: m62cluster: 10.1.236.23 (srvrchosa1), 10.1.236.24 (srvrchosa2)

14. Click **Next**.

    The Assign Servers to Clusters window appears.

15. Select the cluster to which servers are being added in the right pane, then select the servers in the left pane to add to the cluster and click the right arrow button.

    The servers are added to the cluster. The Assign Servers In Clusters window displays the clustered servers in the right pane.

16. Click **Next**.

    The Create HTTP Proxy Applications window appears.

17. Select **Create HTTP proxy for cluster** *Clustername* and select the managed server by clicking the arrow and selecting a name from the list that appears, then click **Next**.

    The Configure Machines window appears.

18. Click the **Machine** tab.

19. Click **Add** and do the following:

    a. Enter the name of a machine.

    b. Select an address by clicking the arrow and selecting a name from the list that appears.

    c. Enter the listen port number.

20. Repeat step 19 until all machine names for the domain are added, including the machine name for the administration server, then click **Next**.

    The Assign Servers to Machines window appears.

21. In the right pane, select the machine to which a server is being assigned, and in the left pane, select the server you want to assign, then click the right arrow button.

22. When all servers have been assigned to a machine, do one of the following:

    For XML API installations, continue with step 23.

    For non-XML API installations, proceed to step 27.

23. Click **Next**.

    The Configure JDBC Data Sources window appears.

24. Enter the configuration information for the JDBC data sources, click on each data source tab. Perform the following steps:

    a. Click the **cgDataSource** tab, enter values in the following fields:

    – In the **Database type** list, select **Oracle**.

    – In the **Driver** list, select **Oracle's Driver (Thin XA) Versions: 9.0.1, 9.2.0, 10, 11**.

    – Select the **Supports global transactions** and the **Emulate two phase commit** options.

    – For the **DBMS name,** enter the Oracle system ID (SID).

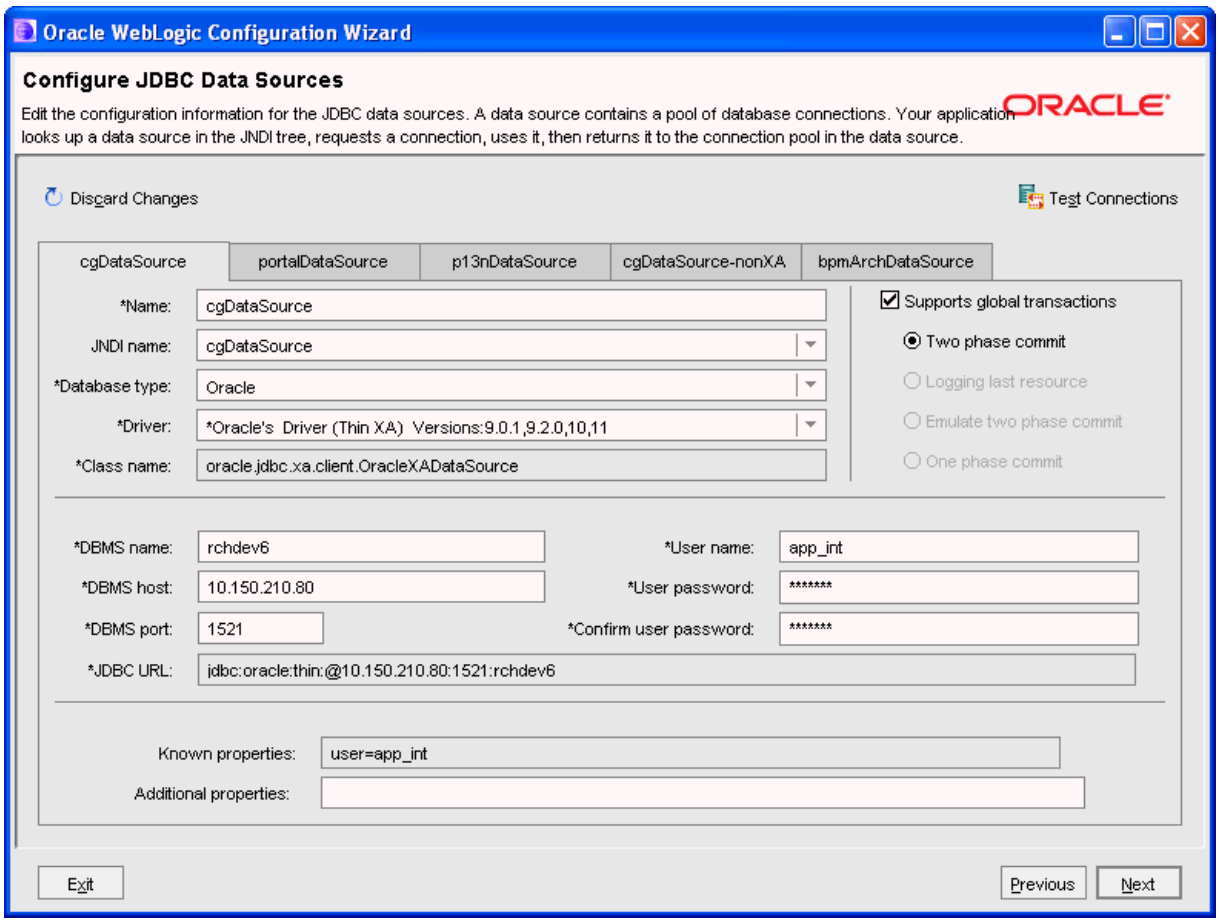
    – For the **DBMS host**, enter the name of your database server.

    – For the **DBMS port**, enter the port number for the database server.

    – For the **User name**, enter **APP_INT**.

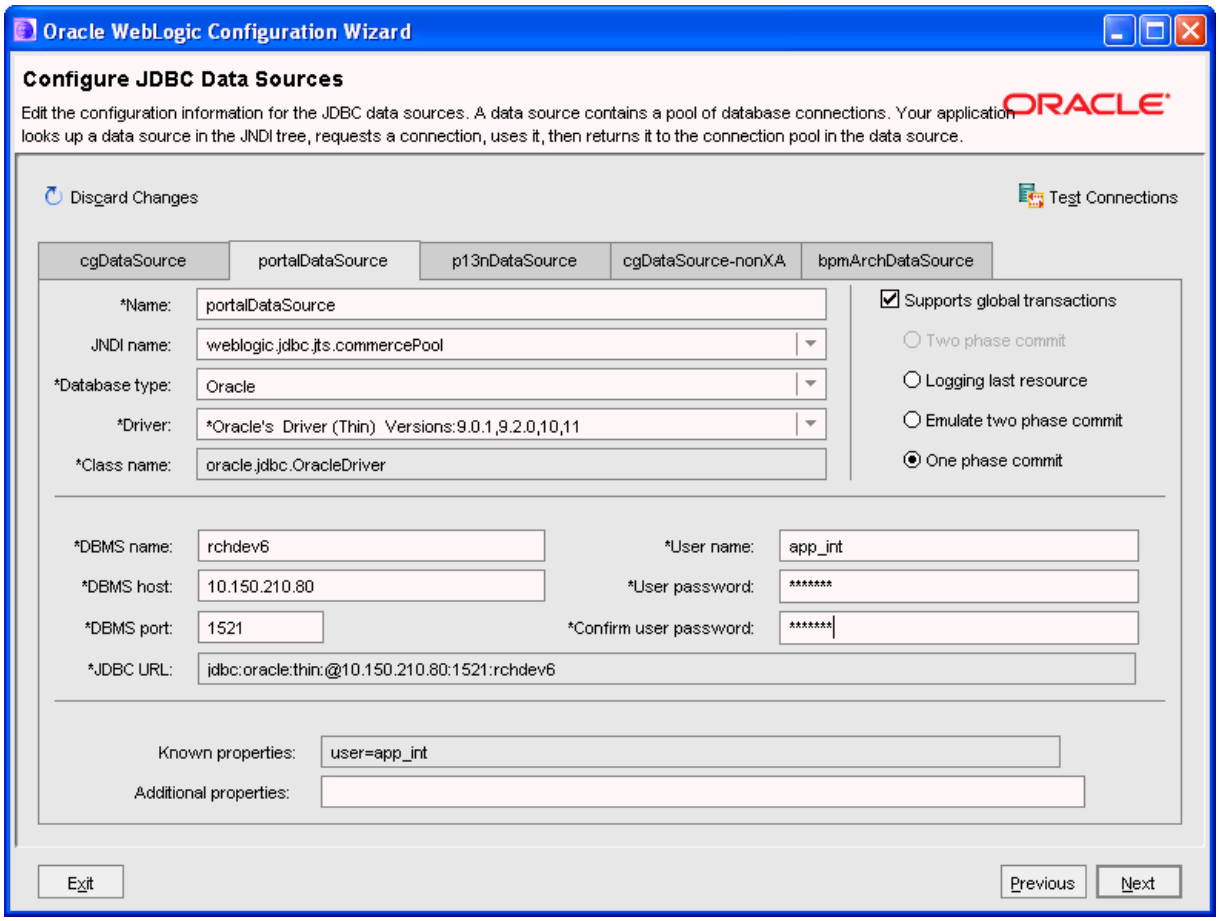
    – For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.



b. Click the **portalDataSource** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **One phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name,** enter **APP_INT**.
- **For the User password** (and **Confirm user password**), enter the Oracle user password.

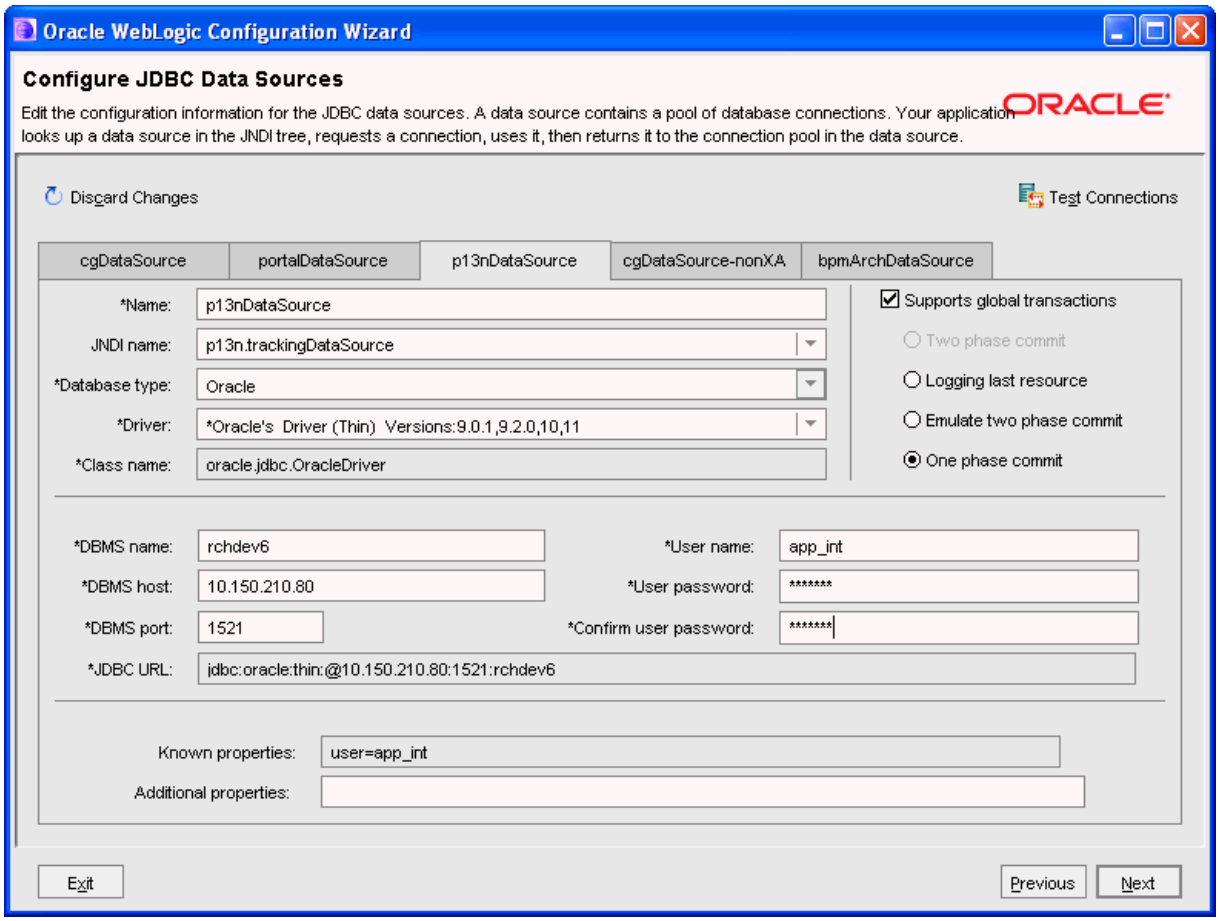


Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.

c. Click the **p13nDataSource** tab, enter values in the following fields:

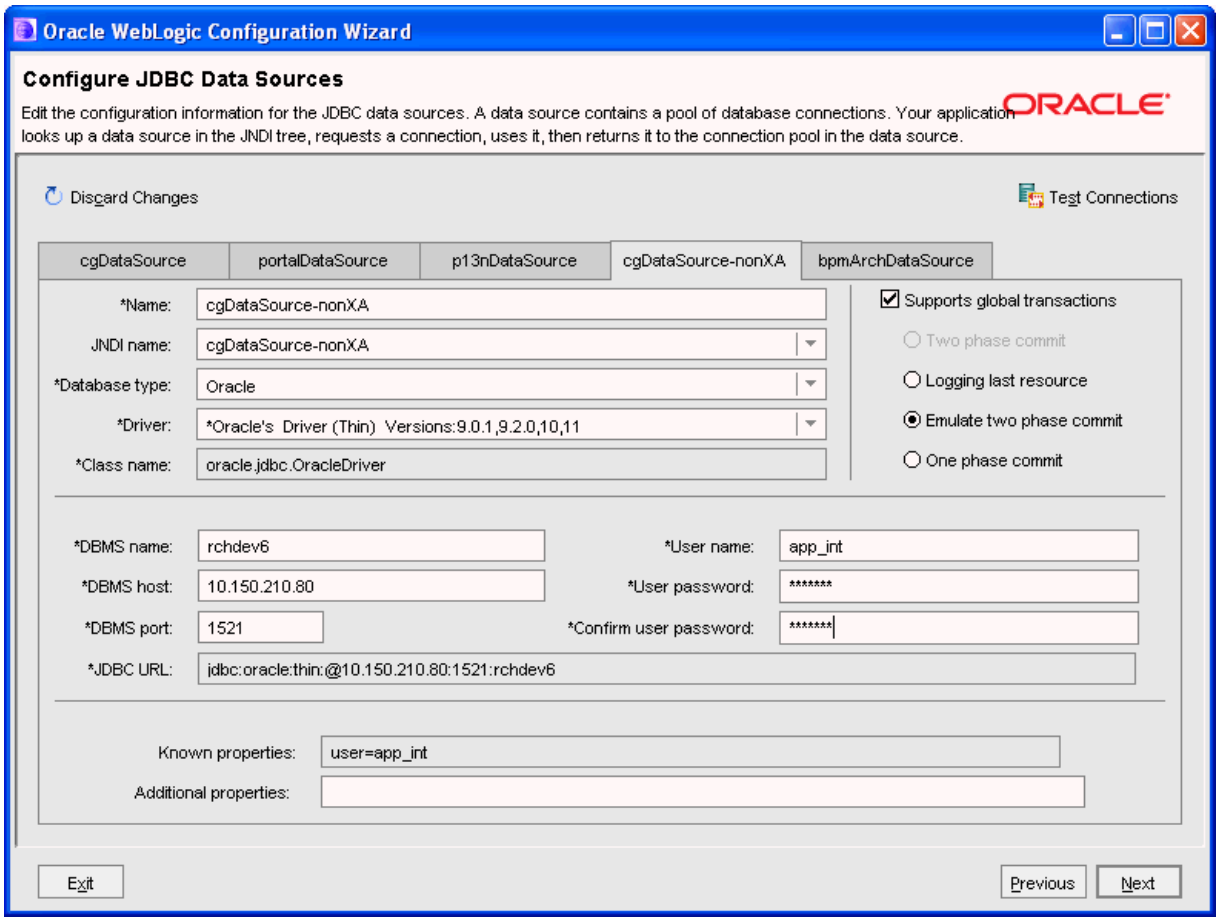
- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **One phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host,** enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name,** enter **APP_INT**.
- **For the User password** (and **Confirm user password**), enter the Oracle user password.

Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.



d. Click the **cgDataSource-nonXA** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **Emulate two phase commit** options.
- **For the DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port,** enter the port number for the database server.
- For the **User name,** enter **APP_INT**.
- For the **User password** (and **Confirm user password**), enter the Oracle user password.

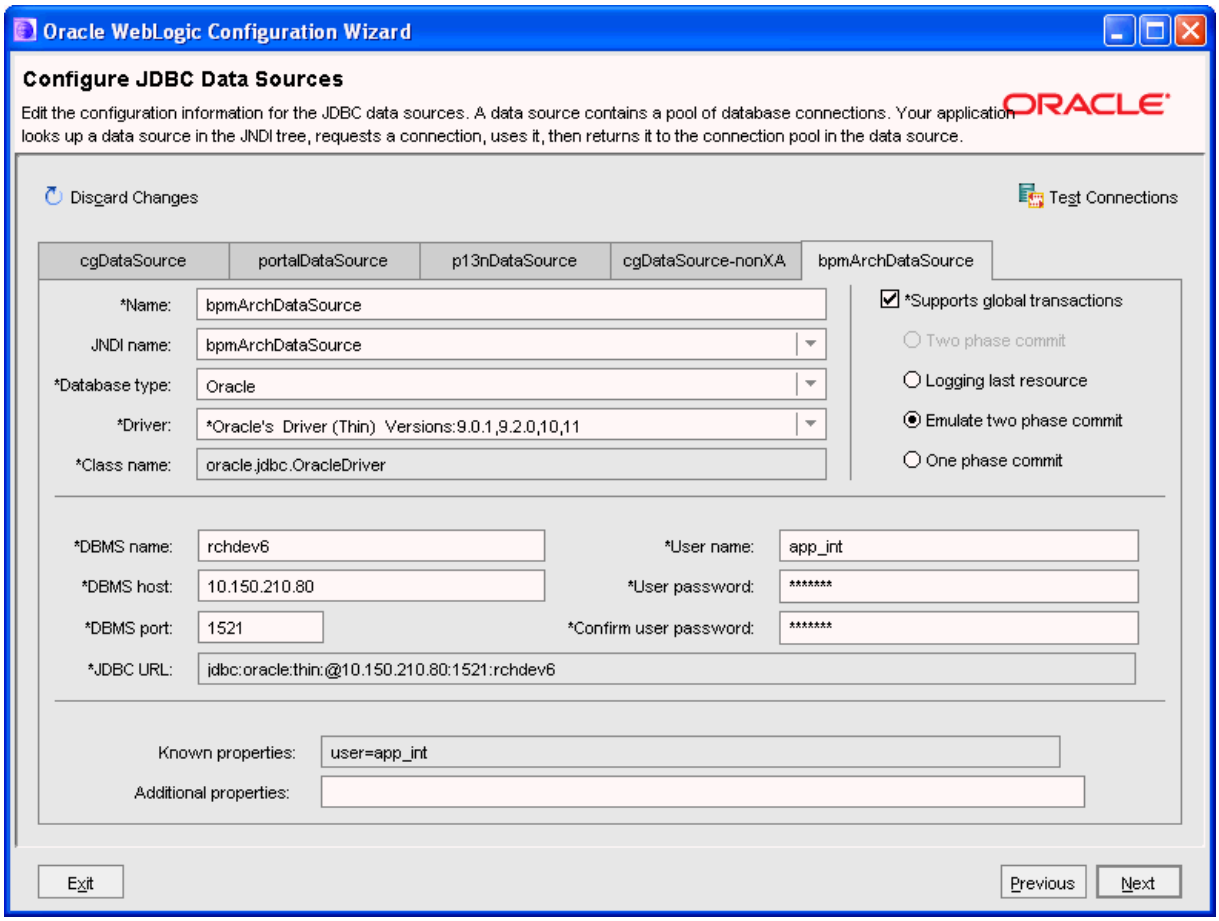


Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.

e. Click the **bpmArchDataSource** tab, enter values in the following fields:

- In the **Database type** list, select **Oracle**.
- In the **Driver** list, select **Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11**.
- Select the **Supports global transactions** and the **Emulate two phase commit** options.
- For the **DBMS name,** enter the Oracle system ID (SID).
- For the **DBMS host**, enter the name of your database server.
- For the **DBMS port**, enter the port number for the database server.
- For the **User name,** enter **APP_INT**.
- For the **User password** (and **Confirm user password**), enter the Oracle user password.

Note: Other fields on this tab already contain defaulted values. You can make any additional changes required.

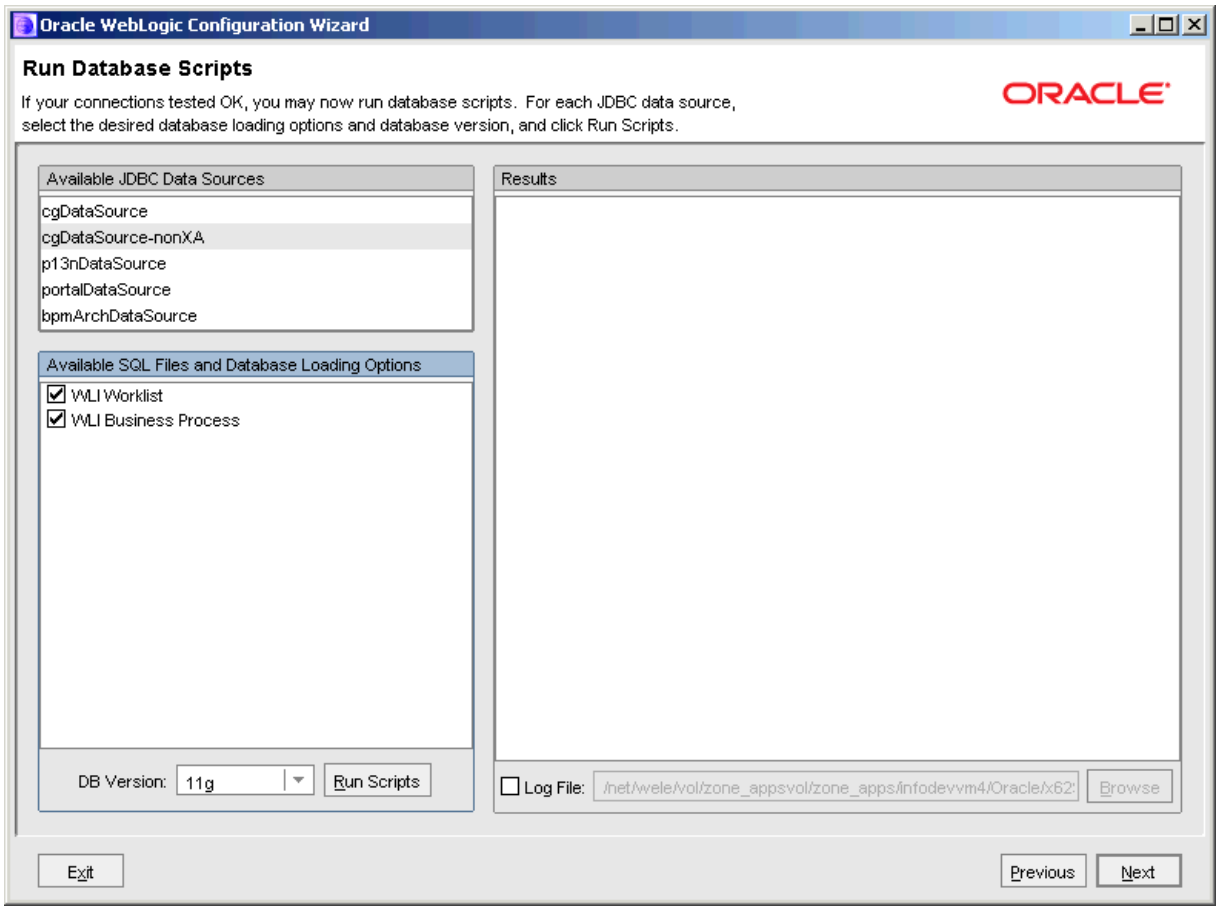


After the data sources have been configured, click **Test Connections**.

The Test Data Source Connections window appears.

25. Test each data source by clicking **Test** next to each data source. After all the tests have passed, click **Ok** and then **Next**.

    The Run Database Scripts window appears.



26. For each data source, select the available files and the **DB Version**, then click **Run Scripts**. After all the scripts have been run for each data source, click **Next.**

    Note: For the **cgDataSource-nonXA** data source, select the **11g** database version and for the **p13nDataSource**, select the **10g** database version.

    The Configure JMS File Stores window appears.

27. Click **Next**.

    The Review WebLogic Domain window appears.

28. Review the summary information displayed and verify that all the information is correct and click **Next**.

    The Create WebLogic Domain window appears.

29. Do the following:

    - Enter the Domain name. (Oracle recommends *m62domain*.)
    - In the **Domain location** field, click the **Browse** button to select the location where the domain is to be created.
    - In the **Application location** field, click the **Browse** button to select the location where the application directory is to be created.

    Worksheet references and example values:

Field name	Worksheet reference number	Example value
Domain Name	COMM-0010	m62domain
Domain Location	COMM-0110	/opt/m62Cluster/cluster
Application Location	COMM-0115	/opt/m62Cluster/cluster

30. Click **Create**.

    The Creating Domain window appears, indicating the progress during the creation of the domain.

31. Click **Done** when the configuration creation is complete.

32. To verify the domain setup, start the server by completing the following steps:

    a. Run **startWebLogic.sh** (UNIX/Linux) or **startWebLogic.cmd** (Windows) in the domain directory.

       The domain directory is the name you specified during configuration.

       For example: **/opt/m62Cluster/cluster/m62domain**

    b. Enter your administrator user name and password, when prompted.

       The server takes a few moments to start. You will see information scroll on the screen. When the server has successfully started, you will see the words RUNNING mode at the prompt.

Installing and Deploying MSS

You must run the installer and install MSS on each machine that will host a clustered server.

Prerequisites

- The instructions for creating the domain configuration included starting the server after the configuration was complete. Leave the server running until you are instructed to shut it down.
- Ensure that the following environmental variables are set:

```
JAVA_HOME=/opt/m62Single/single/bea/jdk_version
PATH= JAVA_HOME/jdk_version/bin $PATH
BEA_HOME=/opt/m62Single/single/bea
```

To install and deploy MSS, do the following:

1. From *MSLV_Home*, enter the following command:

   ```
   java -jar releaseNo_buildNo_AppServerInstaller.jar
   ```

   For example:

   ```
   java -jar MSS_R6_2_1.b56_AppServerInstaller.jar
   ```

   Note: For 64-bit systems, use the following java_options parameter: **-d64**.

   The Select MetaSolv home directory window appears.

2. From the **Look In** list, select a directory in which to store the installer files then click **Select**.

   A directory named **installer** is automatically created in the selected directory. Oracle recommends choosing your *MSLV_Home* directory for this task.

   The installer auto-launches the installation process by invoking **setup.sh** (UNIX/Linux) or **setup.cmd** (Windows) in the *MSLV_Home*/**installer** directory.

   Worksheet reference and example value:

Field name	Worksheet reference number	Example value
File Name (*MSLV_Home*)	COMM-0090	/opt/m62Cluster/cluster

   The Oracle Communications MetaSolv Solution Installation window appears.

3. Click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Choose Install Type window appears.

4. For non-XML API installations: select **Full Installation on WebLogic Server Domain (WLS)** and click **Next**.

   For XML API installations: select **Full Installation on WebLogic Integration Domain (WLI)** and click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Select Server window appears.

5. Do the following:

   a. Enter the Admin Host name or the physical IP address.

   Note: The MetaSolv Solution installer does not support the use of virtual IP address during installation. If you specify a virtual IP address during installation, the installer does not display the following:

   - The check box to select the server you want MSS installed on.
   - The following configuration tabs:
     - Directory
     - Oracle Database
     - Oracle RAC
     - Gateway
     - Port
     - Proxy

   If your configuration requires the use of virtual IP address, you must specify the physical IP address during installation. After the installation is complete, you can change each managed server's listen address and port to the virtual IP address, and then restart the WebLogic server. See "Changing an IP Address" for more information.

b. Enter a port number for the Admin Host.

c. Enter a user name and password.

Worksheet references and example values:

Field name	Worksheet reference number	Example value
Admin Host	Admin-0250	srvrchscal
Port#	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)
User ID	COMM-0020	weblogic
Pass	COMM-0030	web_logic

d. (Optional) If you want to install and deploy MSS using the SSL port, select the **Connect to WebLogic using SSL** check box. In the **Key Store Location** field, enter the path or click **Browse** to search for the keystore location.

See the Oracle WebLogic Server documentation for information about configuring keystores.

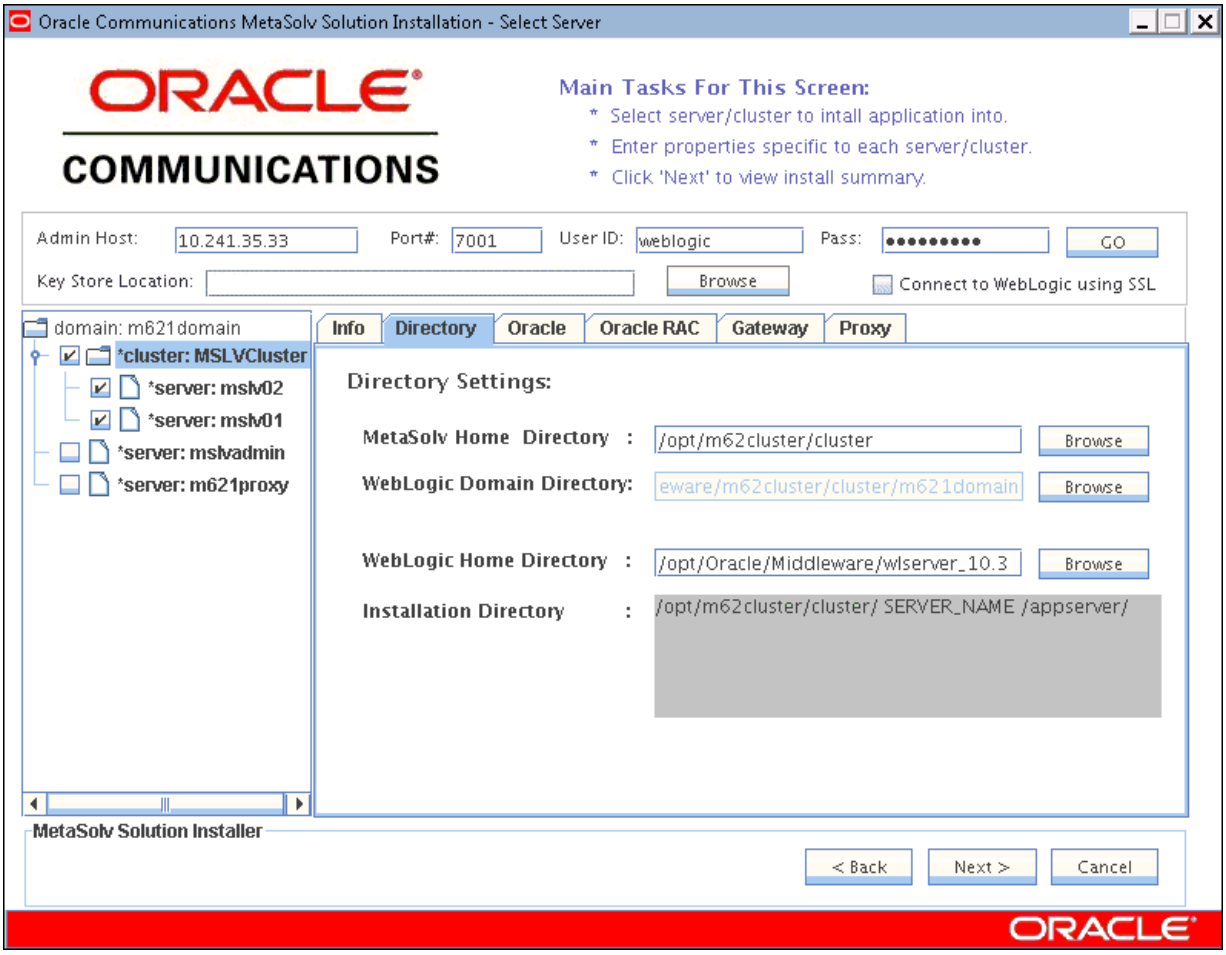
6. Click **Go**.

The installer queries the Admin Host machine and returns with values you entered during the configuration of the WebLogic domain. This process can take a few moments.

The Oracle Communications MetaSolv Solution Installation window appears with the domain and any servers in the domain appearing in the left pane.

7. In the tree view on the left, select the check box next to the server you want MSS installed on.

Tabs appear in the right pane for information to be entered for the selected cluster.



8. Complete domain information by selecting and completing the following tabs:

   a. Click the **Directory** tab and type the path and name of the MetaSolv home directory, WebLogic Domain directory, and WebLogic Home directory or click **Browse** to search for the directories.

      Worksheet references and example values:

Field name	Worksheet reference number	Example value
MetaSolv Home Directory	COMM-0090	/opt/m62Cluster/cluster
WebLogic Domain Directory	COMM-0010	/opt/m62Cluster/cluster/m62domain

   b. Depending on your database configuration, do one of the following (Option 1 or Option 2):

      Option 1:

      Click the **Oracle Database** tab and either specify values in the **Oracle Server Name**, **Oracle Port#**, and the **Oracle Service Name** fields or enter your own free-form JDBC connect string in the **JDBC URL** field:

      Example of a JDBC URL string:

      jdbc:oracle:thin:@srvrchscal2:1521:BEN6

Worksheet references and example values:

Field name	Worksheet reference number	Example value
Oracle Database Server Name	COMM-0130	srvrchscal2
Oracle Database Port	COMM-0140	1521
Oracle Database Service Name	COMM- 0150	BEN6
APP_MSLV Password	COMM-0040	mss6mslv
APP_API Password	COMM-0050	mss6api
XML API integration user id **Note:** This parameter applies to the XML API Option only.	COMM-0057	APP_INT
XML API integration password **Note:** This parameter applies to the XML API Option only.	COMM-0059	mss6int

Option 2:

Click the **Oracle RAC** tab (MSS 6.2.1 only). The **Remote Listener** check box is selected by default. Deselect this check box if remote listener is turned off in the Oracle RAC database. In the **Number of RAC Nodes** field, specify the number of RAC nodes and click **GO**.

Do one of the following (Option A or Option B):

Option A:

Specify values in the fields: **Oracle DBService Name**, **Oracle Server1**, **Oracle Port#1**, **Oracle Instance name1**, **Oracle Server2**, **Oracle Port#2**, **Oracle Instance name2.....Oracle Server***n*, **Oracle Port#***n*, **Oracle Instance name***n*, and so on, where n is the number of nodes specified in the **Number of RAC Nodes** field.

Option B:

– Specify the JDBC URLs in the following fields:

JDBC URL#1

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ip1:port1/dbservice1
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ip1)(PORT=port1))(CONNECT_DATA= (SERVICE_
NAME=dbservice1)(INSTANCE_NAME=instance1)))
```

JDBC URL#2

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ip2:port2/dbservice2
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ip2)(PORT=port2))(CONNECT_DATA= (SERVICE_
NAME=dbservice2)(INSTANCE_NAME=instance2)))
```

JDBC URL#n

(Remote listener turned off)

```
jdbc:oracle:thin:@v-ipn:portn/dbservicen
```

(Remote listener turned on)

```
jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS=
(PROTOCOL=TCP)(HOST=v-ipn)(PORT=portn))(CONNECT_DATA= (SERVICE_
NAME=dbservicen)(INSTANCE_NAME=instancen)))
```

Where:

n is the number of nodes specified in the **Number of RAC Nodes** field.

v-ip is the IP address of the node.

port is the port address of the node.

dbservice is the database service name.

instance is the instance name.

Note: You must specify values in either the **Oracle Database** tab or the **Oracle RAC** tab (MSS 6.2.1 only). If you specify values in both the **Oracle Database** and the **Oracle RAC** tabs, you get an error message.

If you specify the incorrect number of nodes in the **Number of RAC Nodes** field and click **GO** on the **Oracle RAC** tab, do the steps in "Correcting the Specified Number of RAC Nodes".

Worksheet references and example values for a two-node RAC:

Field name	Worksheet reference number	Example value
Oracle Database Service Name	COMM- 0150	BEN6
Oracle Database Server Name1	COMM-0160	srvrchscal1
Oracle Database Port#1	COMM-0165	1521
Oracle Instance Name1	COMM-0170	drac1
Oracle Database Server Name2	COMM-0175	srvrchscal2
Oracle Database Port#2	COMM-0180	1521
Oracle Instance Name2	COMM-0185	drac2
APP_MSLV Password	COMM-0040	mss6mslv
APP_API Password	COMM-0050	mss6api
XML API integration user id **Note:** This parameter applies to the XML API Option only.	COMM-0057	APP_INT

Field name	Worksheet reference number	Example value
XML API integration password **Note:** This parameter applies to the XML API Option only.	COMM-0059	mss6int

c. For multiple WebLogic Integration domains pointing to the same database, use different XML API integration user IDs and corresponding passwords. See "Multiple WebLogic Integration Domains Pointing to the Same Database".

d. Click the **Gateway** tab, check the default selections for event servers that are to be activated, and make any necessary changes.

Note: For XML API installations, the **INTEGRATIONSERVER** option must be checked.

If you are unsure, leave the default settings. You can manually edit these settings through the **gateway.ini** file. The check boxes that appear on the tab are for APIs. When you select a check box, modifications are made to the **gateway.ini** file used to configure MSS APIs. See *MetaSolv Solution System Administrator's Guide* for more information on the **gateway.ini** file.

e. Click the **Proxy** tab if you use a proxy server or an external load balancer and provide the URL of the proxy server.

Worksheet references and example values:

Field name	Worksheet reference number	Example value
Proxy Server URL	Cluster-0450	http://srvplosa1:7001

f. Click the **Info** tab to see a summary of the selected server's properties.

9. When all tabs have correct information for the single server, click **Next**.

The Installation Summary window appears.

10. After checking the information in the summary for accuracy, click **Install**.

The installer installs the appropriate MSS files to the server. When the files are installed, the location of the startup file created for the server is displayed.

Caution: Do not exit the installer.

---

11. Note the location of the startup file for the application server.

12. Shut down the server by navigating to the *m62domain* directory and entering the following command:

- For UNIX/Linux:

```
stopmslv01.sh
```

- For Windows:

```
stopmslv01.cmd
```

13. Restart the server by entering the command:
    - For UNIX/Linux:

      ```
      startmslv01.sh
      ```

    - For Windows:

      ```
      startmslv01.cmd
      ```

14. (Optional) If you are in Development mode, you should also start the Debug Proxy server using the following command:
    - For Windows:

      ```
      startDebugProxy.cmd
      ```

    - For UNIX/Linux:

      ```
      startDebugProxy.sh
      ```

15. Start the WebLogic Server Administration Console by entering the following information into the **Address** field of Internet Explorer:

    `http://`*`host_admin:port number`*`/console`

    where *host_admin* is the IP address or host name of the Administration Server.

    You can monitor the deployment from the console. To check the servers, click **Servers** in the left pane of the Console, and the right pane will show the status of all servers.

16. After the startup commands have been run and the application server has been started, maximize the installer window and click **Deploy Application**.

    The Oracle Communications MetaSolv Solution Installation window appears listing the server you can select for deployment.

    This process can take a few moments. If the server is not started, a status appears on the window indicating the installer is waiting for the server to be in running mode. When the server is in running mode, you can begin the deployment.

17. From the Target Servers list, select a server and click **Deploy**.

    The deployment process begins. You can follow the progress of the deployment by viewing the text that appears in the right pane of the installation window.

    When the deployment is complete, the Deployment Completed window appears.

18. Click **OK**.

19. Click **Exit**.

    The Exit? window appears.

20. Click **OK**.

21. When all clustered servers have been deployed, shut down all servers, and restart them from the locations given using the start command listed on the window.

    Start the administration server first, then bring up the remaining servers using the commands listed in the window. For example, using the servers from the procedures, the first server to be started would be mslvadmin, then mslv01, and then mslv02.

To shut down the admin, manage, and proxy servers, use the stop server scripts in the **m6domain** directory.

For example:

```
stopmslv01.sh
stopmslv02.cmd
stopProxyAndAdmin.sh
stopProxyAndAdmin.cmd
```

Note:

For non-XML API installations, proceed to step 22.

For XML API installations, proceed to "Configuring WebLogic Integration (XML API option only)".

22. (Non-XML install only, optional) Configure the load balancer.

    See "Load Balancer Configuration Example" for more information.

23. (Non-XML install only, optional) Configure the proxy server set up.

    See "Proxy Server Setup" for more information.

24. (Non-XML install only, optional) Do performance tuning on the servers.

    See "Tuning Servers For Performance" for more information.

    For non-XML API installations, proceed to "Gateway Events".

Configuring WebLogic Integration (XML API option only)

This section describes how to set configuration parameters in WebLogic Integration. WebLogic Integration has a separate console that allows configuration to be done. Do not confuse this console with the WebLogic Server Administration Console which allows you to do WebLogic domain maintenance.

The configuration that will be set in the WebLogic Integration Administration Console includes:

- Setting up JMS event generators
- Setting up parameters for purging data

Logging on to the WebLogic Integration Administration Console

To start the WebLogic Integration Administration Console, do the following:

1. Start the web browser.
2. In the **Address** field, enter the following:

   `http://host_admin:port number/wliconsole`

   Where *host_admin* is the IP address or host name of the Administration Server.

The Console window appears.

Setting Up a JMS Event Generator

To set up an event generator, do the following:

1. Click **Event Generators**.

The View All File Event Generators window appears.

2. On the left panel under JMS, click **Create New**.

   The Create a New JMS Event Generator information appears in the right panel.

3. Enter the following values on the Create a New JMS Event Generator window:

   a. Generator Name: InternalOutBoundGenerator

   b. Destination Type: javax.jms.Queue

   c. Destination JNDI Name: mss.internal.event.queue

   d. JMS Connection Factory JNDI Name: weblogic.jws.jms.QueueConnectionFactory

   e. Message Selector: Leave this field blank

   f. Default Rule Channel: /MSS/internalOutboundEventChannel (xml)

4. Click **Submit**.

   The JMS Event Generator Definition summary appears.

Setting Parameters for Purging Data

To set up purge parameters:

1. Start the WebLogic Integration Administration Console.

   For more information, see "Logging on to the WebLogic Integration Administration Console".

   The Console window appears.

2. Click **System Configuration**.

   The Current Tracking and Reporting Data Settings window appears.

3. Click **Configure** in the Purge Schedule section that appears in the right pane.

   The Tracking Data Purge and Reporting Data Policy Settings information appears in the right pane.

4. Set the purging policy by completing the following fields on the window:

   a. Enter a start time and date, for the first (or next) purge.

   b. Enter a unit of time (days, for example) and a number to indicate the length of time between purges.

   c. Enter the unit of time and a number to indicate how long a purge can be delayed.

5. Click **Submit**.

   The change is processed and the right pane returns to Current Tracking and Reporting Data Settings.

6. In the Default Reporting Data Policy and Tracking Level for Processes section, click **Configure**.

   The Default Tracking Level and Reporting Data Policy for Processes window appears.

7. In the right pane, select **Minimum** in the **Default Tracking Level** field and click **Submit**.

The changes are processed and the Current Tracking and Reporting Data Settings reappear showing the changes.

Verifying the Deployment and Configuration

To verify deployment:

1. From a client workstation, close all open applications and start Microsoft Internet Explorer.
2. Enter the following information into the **Address** field:

   `http://host_admin:port number/main`

   The Zero Admin Client (ZAC) Start page appears.

The ZAC Start page allows a workstation user to automatically download the client files from the application server and install them on a workstation. If the page appears, the deployment was successful.

To verify the configuration:

1. Start the WebLogic Server Administration Console by typing the following information into the **Address** field of Internet Explorer and pressing ENTER:

   `http://<host_admin:port number>/console`

2. Type your user name and password, then click **Sign in**.
3. Compare the values shown in Table 5–1 to your installation screen to make sure you have configured WebLogic correctly for your installation.

Table 5–1 Data Sources and Connection Pools

Data Sources	Connection Pools	WLI only
bpmArchDataSource	bpmArchDataSource	WLI
cgDataSource	cgDataSource, weblogic.jdbc.jts.commercePool, contentDataSource, contentVersioningDataSource, portalFrameworkPool	WLI
cgDataSource-nonXA	cgDataSource-nonXA	WLI
mslvDataSource	MSLVPool	
mslvDbTraceDataSource	MSLVDbTracePool	
mslvNoneTxDataSource	MSLVNonTxPool	
mslvProcDataSource	MSLVProcPool	
mslvWliDataSource	MSLVWliPool	WLI
p13nDataSource	p13n.trackingDataSOurce, p13n.sequencerDataSource, cm.sequencerDataSource, p13n.leasemanager, p13n.dataSyncDataSource, p13n.entitlementsDataSource, p13n.quiesenceDataSource, p13n.credentialsDataSource	WLI

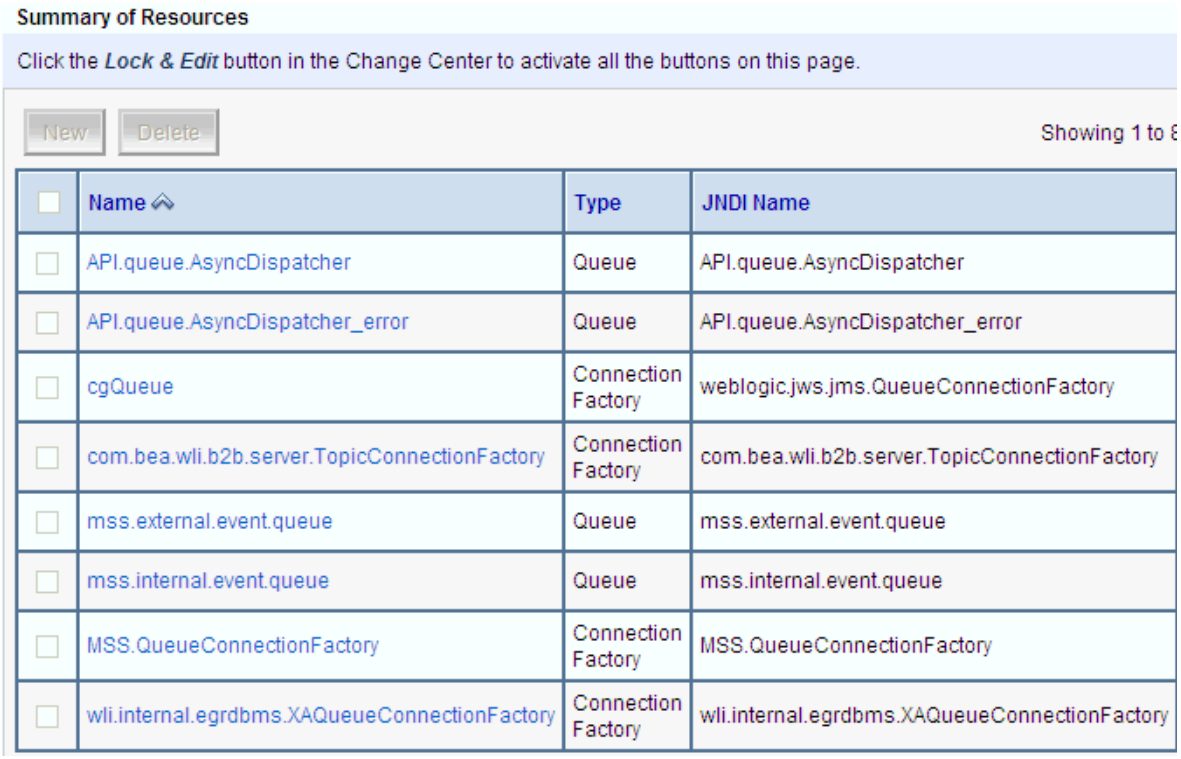
JMS Connection Factories and Distributed Destinations

To view the JMS connection factories and distributed destinations:

1. Select *DOMAIN_NAME*>**Services>Messaging>JMS Modules>conversational-jms**.

   Figure 5–3 shows the list of connection factories and distributed destinations.

Figure 5–3 Summary of Resources Web Page



Connection Factories:

- cgQueue
- com.bea.wli.b2b.server.TopicConnectionFactory
- MSS.QueueConnectionFactory
- wli.internal.egrdbms.XAQueueConnectionFactory

Distributed Destinations:

> **Note:** The following queues in the list of Distributed Destinations have a separate queue configured for each clustered server for load balancing.

- API.queue.AsyncDispatcher
- API.queue.AsyncDispatcher_error
- mss.external.event.queue
- mss.internal.event.queue

JMS Servers

To view JMS Servers:

1. Select *DOMAIN_NAME*>**Services>JMS>Servers**

The installer creates queues under each JMS server.

Figure 5–4 shows JMS servers for the installation example.

Figure 5–4 JMS Servers Web Page

Configuration Parameters for the XML API Option

This section contains configuration tasks that you must complete after installation is complete.

Gateway Events

In addition to the configuration required to make the XML APIs functional at installation, you must configure MSS to receive data and return data.

The Integration server continuously checks the MSS database for events that are ready to be sent to an external application. The Integration server also monitors the external application for updates to the status of a gateway event. When an external application sends a status update, the Integration server records the new status in the MSS database.

The following sections describe how create a gateway event for communication between MSS and an external application.

Creating a Gateway Event

To create a gateway event:

1. Create a new gateway event.

   For example: *xxx_xml_order_event*.

   This is done in the Gateway window in MSS. MSS creates a gateway event and assigns an event ID.

2. Query for the event ID associated with the gateway event, using the following SQL:

```
select
gateway_event_id, gateway_event_nm
from
asap.gateway_event ge
where
gateway_event_nm like = <XMLAPIGatewayName>
```

   In this case, *XMLAPIGatewayName* is the name associated with the event.

3. Configure the event by make the following entries in the **integration.xml** file located at *MSLV_Home*/**appserve**r:

```
<handler enabled="true">
<event-id><YourGatewayEventId></event-id>
<class>com.mslv.integration.handlers.DefaultEventHandler</class>
<destination>api</destination>
</handler>
```

   YourGatewayEventID is the gateway eventID generated in step 2.

4. Restart the MSS application server.

Outbound Events

All outbound events are published to a JMS queue, **mss.external.event.queue**, using the JMS Factory **MSS.QueueConnectionFactory**. The following list indicates how outbound events can be subscribed to:

- Clients (both, third-party systems not on WebLogic 10.3.1 and Oracle clients) can subscribe to the JMS queue externally and receive all events.
- Products using WebLogic Workshop can subscribe to the queue through a channel and use event-name-based filtering to trigger appropriate workflows.

  The sample files provided with the XML APIs contain an outbound event that demonstrates how to accomplish this task. The outbound event is contained in the **GetCustomerHttpSample.java** workflow. See *XML API Developer's Reference* for more information about the sample files.

Locating Help Information on Gateway Events

1. Open the Gateway Events window in MSS.
2. Click **Application Setup>Work Management Setup** on the navigation bar, then click **Gateway Events** from the Work Management window..
3. Press **F1** for Help.

   The Help window that appears is for the Gateway Events window. You will find a number of links on this window that explain gateway events and how to create them.

Multiple Single Server Instances on the Same Machine

Complete the following steps for each single server being set up on a machine.

Note: Create each single server under a different logon user ID.

To set up one single server instance on a machine:

1. Create an *MSLV_Home* directory for the single server.
2. Install Oracle WebLogic under the *MSLV_Home* directory.
3. Follow the steps in "Creating a Single Server WebLogic Domain (XML API and Non-XML API Options)" for the WebLogic configuration of single servers.

   Note: You only need to perform the Load Database action one time per database, regardless of the number of servers on the machine.

4. After configuration, start the WebLogic Server Administration Console and change **cgJMSStore Prefix Name**.

   This value should be unique for each server. You can find this field at the following location in the console:

   DOMAIN_NAME>**Services>Persistent Stores>cgJMSStore>Configuration tab**

5. Restart the server.

Multiple WebLogic Integration Domains Pointing to the Same Database

Multiple WebLogic Integration domains cannot use the same database schema. WebLogic Integration system tables represent part of a single domain's internal state. This assumption is embedded in the WebLogic Integration operations and management algorithms. Because there is no way to distinguish the two sets of data, results are unpredictable.

There is a work around solution. You must modify the **mssint.sql** file for each standalone server domain or clustered server domain.

On the Database Server:

1. Locate the **mssint.sql** file in the directory where you downloaded the database installation files and complete the following actions:

   a. Change all occurrences of the tablespace **INTDATA** (both upper and lower case occurrences) to indicate the target standalone server domain or clustered server domain.

      For example, **MSLV01DATA** or **CLUSTER01DATA**.

   b. Change the data file location.

      A DBA should decide where the data file will reside, based on disk space. The minimal requirement is 1.5 GB.

   c. Change all occurrences of the user name **APP_INT** to be specific for the standalone server domain or clustered server domain.

      For example, **MSLV_INT** or **CLST_INT**

      Note: MetaSolv Solution only supports user IDs of 8 characters or less.

2. Log on to the database server as *ASAP* and run the **mssint.sql** file.
3. Repeat this procedure for each WebLogic Integration domain that will point to the database.

On each standalone server or clustered serve:

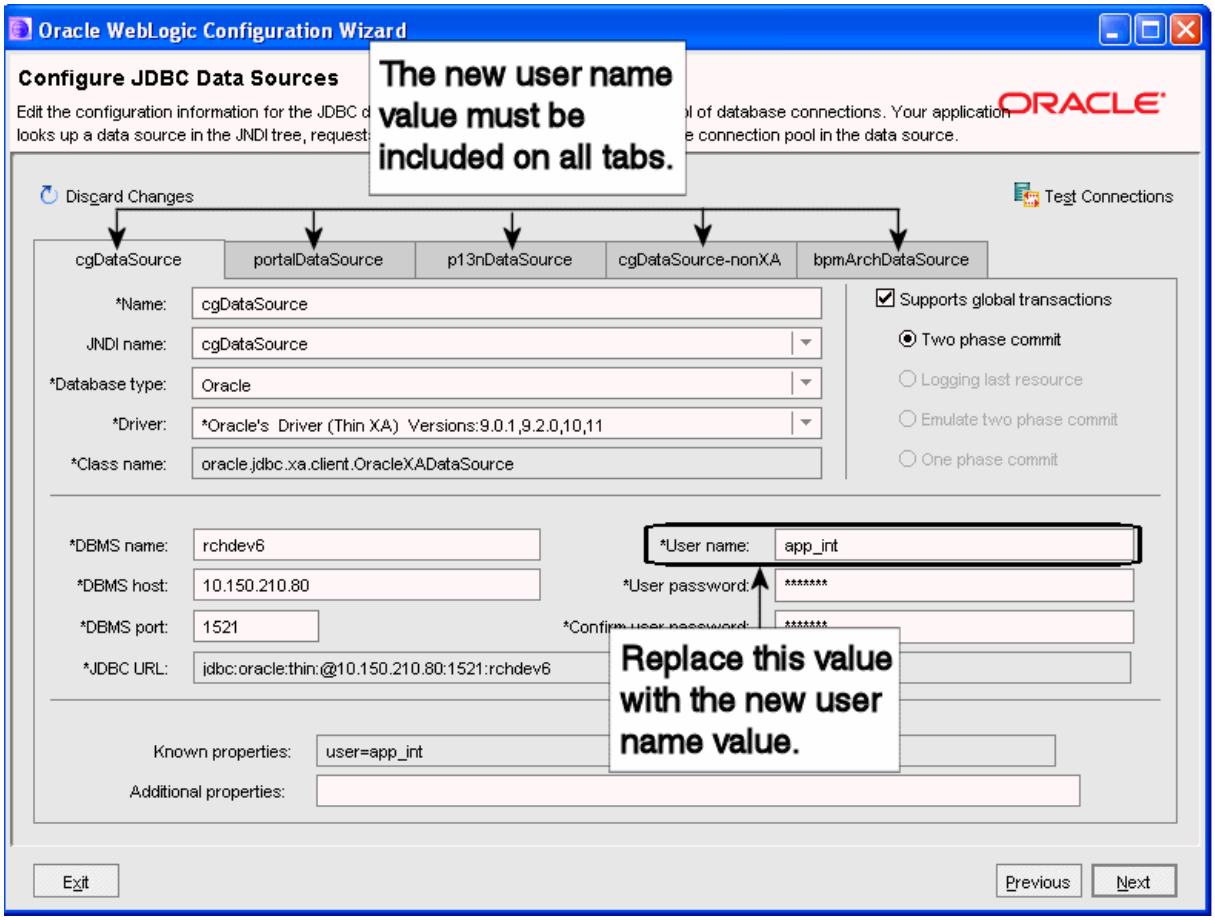
Run the Oracle WebLogic configuration wizard on each standalone server or clustered server. See one of the following procedures on configuring a domain:

- Creating a Single Server WebLogic Domain (XML API and Non-XML API Options)
- Creating the Clustered Server WebLogic Domain (XML API and Non-XML API options)

In the Oracle WebLogic Configuration Wizard, make sure that the new value for **APP_INT** created in the previous procedure is entered on all tabs on the Configure JDBC Connection Pools window.

Figure 5–5 shows where to enter the value in the Configure JDBC Data Sources window of the Oracle WebLogic Configuration Wizard.

Figure 5–5 Oracle WebLogic Configuration Wizard



Copying a Production Database to a WLI Development or Test Environment

To copy the production database to a WebLogic Integration development or test environment:

1. Copy the production database to the new database server host machine.
2. Drop the **APP_INT** user in the new database, including all contents associated with the user.

3. Download the database installation files from the Oracle software delivery Web site and locate the **mssint.sql** file in the directory where you downloaded.
4. Edit **mssint.sql** and change all occurrences of the user name **APP_INT** to be specific for the new development or test domain.

   For example, **MSLV_INT** or **CLST_INT**.

   Note: MSS only supports user IDs of 8 characters or less.

5. Log on to the database server as ASAP and run the **mssint.sql** file.
6. Recreate the necessary WebLogic Integration tables by completing the following actions:
   a. In the *BEA_Home* directory (for example, **/opt2/bea**), navigate to the **bea** directory using the `cd` command.

      For example: **cd /opt/bea/wli_10.3/dbscripts/oracle**

   b. Enter **sqlplus app_int/mss6@***yourSIDname*.

      If you have multiple standalone server or clustered server domains that must point to the development/test database, repeat this procedure for each user that you identify. The **mssint.sql** file must be modified for each user name. See "Multiple WebLogic Integration Domains Pointing to the Same Database" for more information.

   c. Run the following SQL files:
      – **wli_runtime.sql**
      – **wli_archive.sql**
   d. Enter **commit**.
   e. Enter **quit**.
   f. Restart the application server(s).

Web Service Character Set

If you are using Web Services with extended character codes, the Web service character set must be specified in the startup properties. Use the following directives.

- Add a directive in the WebLogic Server domain environment configuration file to force the proper encoding for Web services. For example:

  `setDomainEnv.cmd` (Windows)

  ```
  @REM Added to force webservices to use utf-8 encoding
  set EXTRA_JAVA_PROPERTIES=%EXTRA_JAVA_PROPERTIES%
  -Dweblogic.webservice.i18n.charset=utf-8
  ```

  `setDomainEnv.sh` (UNIX/Linux)

  ```
  # To force webservices to use UTF-8 encoding
  EXTRA_JAVA_PROPERTIES=${EXTRA_JAVA_PROPERTIES}
  -Dweblogic.webservice.i18n.charset=utf-8
  export EXTRA_JAVA_PROPERTIES
  ```

- Add a directive in the WebLogic Server domain startup file to force the proper encoding for Web services. For example:

`startWebLogic.cmd` (Windows)

```
@REM Added to force webservices to use utf-8 encoding
set SAVE_JAVA_OPTIONS=%SAVE_JAVA_OPTIONS%
-Iweblogic.webservice.i18n.charset=utf-8
```

`startWebLogic.sh` (UNIX/Linux)

```
# To force webservices to use UTF-8 encoding
SAVE_JAVA_OPTIONS="${SAVE_JAVA_OPTIONS}
-Dweblogic.webservice.i18n.charset=utf-8"
export SAVE_JAVA_OPTIONS
```

Note: Adding this property causes a warning during startup. According to Oracle WebLogic documentation, this warning can safely be ignored.

Setting Memory for WebLogic Workshop

You must increase the memory allotment for the IDE process. The **workshop.ini** file in the *BEA_Home*/**workshop_10.3** directory contains the memory parameters for the IDE process (-Xmx and -Xms). Set the default memory parameters for your specific requirements.

Changes Made During Installation for XML APIs

The following changes were made to the MSS setup by the installer for the XML API option:

- **clusters.script** was copied to *MSLV_Home*/**domain/script**.
- To change message logging from info to error, **workshopLogCfg.xml** was copied to *BEA_Home*/**wlserver_10.3/common/lib**.
- The **Enable Default JMS Connection Factories** was turned on.

The following change must be made manually for the XML API option:

- For process archiving and documentation store cleanup for high availability, MDB targets need to be set to cluster by commenting out the following two lines in **cluster.script**:

```
/*
unassign application "WLI System EJBs.WLI Admin: from target  '%Cluster%';
assign application "WLI System EJBs.WLI Admin: to target '%AManagedServer%';
*/
```

6

Upgrading Oracle Communications MetaSolv Solution

This chapter explains how to upgrade Oracle Communications MetaSolv Solution (MSS) to a newer version. The topics in the chapter cover downloading and installing a maintenance release or patch to the following MSS components:

- Database
- Application server
- Client workstation

> **Note:** This chapter focuses on upgrading to a future maintenance release or patch of MSS 6.2.*x*, using the Upgrade option of the MSS Installer.
>
> If MSS 6.2.*x* has not been previously installed, refer to "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MetaSolv Solution on a Clustered Server" to install MSS 6.2.*x* and then return to this chapter to perform subsequent maintenance release or patch installations.
>
> If MSS 6.2.*x* has been previously installed and if desired, the maintenance release or patch can be installed using the *Full Installation* option of the MSS Installer. Refer to "Installing and Deploying MSS" in "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MSS" in "Installing and Deploying MetaSolv Solution on a Clustered Server" to install the maintenance release or patch using this option.

MSS Application Server Upgrade Process

The high-level application server upgrade process is described below:

- Un-deploy custom developed JPDs.
- Un-deploy MSS 6.2-related applications.
- Install MSS 6.2.*x*.
- Install/deploy MSS 6.2.*x*-related applications.
- Re-compile custom-developed JPDs with jdk160.
- Deploy custom-developed JPDs.
- Update/restore configuration files.

Downloading the Maintenance Release or Patch Software

Software for MSS patches is downloaded from the My Oracle Support Web site. For information on downloading product software, see "Downloading the Installation Files".

Download the file for the appropriate patch you are installing. The following bullet shows how the download link for the file appears on the Oracle software delivery Web site.

- **MSS.R6_2_***x*.**b***nnn*_**AppServerInstaller**: This file contains an installer that installs to application server machines. The files it installs on the application server include both the application server software and the client software, which is distributed from the application server. The installer is compatible with Windows, Solaris, AIX, HP, or Oracle Linux operating systems.

Installing a Maintenance Release or Patch on the Database

Your database must be at the 6.2 level to install a 6.2.*x* maintenance release or patch. See "Setting Up The 6.2.x Database" for steps on how to upgrade the database to MSS 6.2.*x*. Then, follow the steps in this chapter to apply a subsequent maintenance release or patch.

To learn about database changes included in a given release, see *MetaSolv Solution Database Change Reference*. This document can be downloaded from the Oracle software delivery Web site.

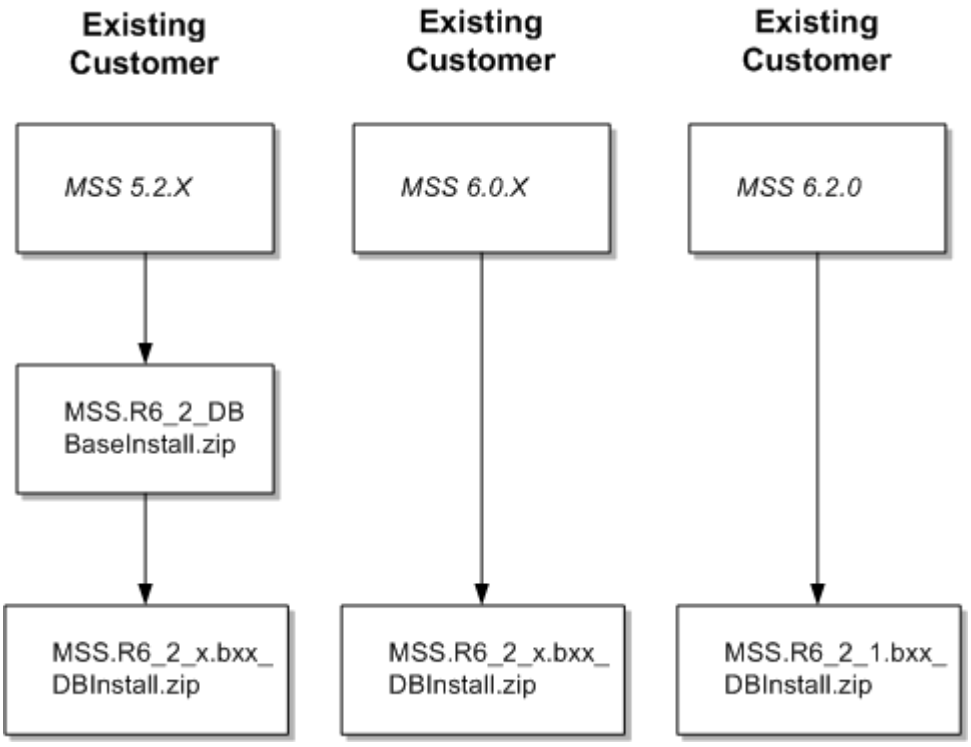
Note: Before upgrading your database to MSS 6.2.*x*, refer to Technical Bulletin ID # 435884.1 to determine how it affects your upgrade. To locate this bulletin, go to the My Oracle Support Web site:

`https://support.oracle.com`

and click on the **Knowledge** tab

Figure 6–1 shows the upgrade path for the database.

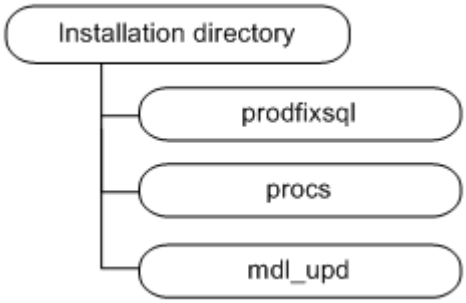
Figure 6–1 MSS Database Upgrade Path



Extracting the MSS Database Scripts

Extracting the contents of the **MSS.R6_2_1.b*xx*_DBInstall.zip** file copies SQL scripts, procs, and reports to a directory you choose on a client machine or on the database server. Figure 6–2 shows the directory structure that results from the extract, based on the paths specified in the ZIP file.

Figure 6–2 Structure of Database Upgrade File



The MSS database scripts reside in the **MSS.R6_2_1.b*xx*_DBInstall.zip** file (where *xx* is the build number). This zip file contains database scripts used to upgrade an existing MSS 6.0.2 or higher database to MSS 6.2.*x*.

To extract the MSS database scripts to the database server machine:

1. Locate and select the **MSS.R6_2_1.b*xx*_DBInstall.zip** file.
2. Right-click the file, select **Open With**, then select **WinZip Executable**.
3. From the main menu bar, select **Actions** and then select **Select All**.

4. From the main menu bar, select **Actions** and then select **Extract**.
5. Browse to the directory to which you want to extract the database scripts. Oracle recommends extracting the scripts to a directory on your database server.

To successfully install a maintenance release or patch on the database, you must run the two following master SQL files:

- **pfixSQL_Master** located in the **prodfixsql** directory
- **master** located in the **procs** directory.

All 6.2.*x* maintenance releases carry cumulative changes from previous maintenance releases. That means you only have to run the **pfixSQL_Master** and **master** SQL files for the maintenance release you are installing to get all changes since the 6.0.2 GA release.

Updating the Database by Running SQL Scripts

The **prodfixsql** directory has a number of SQL scripts that update your database.

To update the database:

1. Change your **Start in:** directory to the location where you want the audit logs to appear and connect (from that location) to SQL*Plus using the ASAP user ID.
2. At the prompt, enter:

   `@driveletter:`*`installation_directory/`*`prodfixsql/pfixSQL_Master.sql`

   The SQL scripts run against the database and make the appropriate changes for the maintenance release or patch. When the prompt reappears, the contents of the **prodfixsql** directory where the SQL files were stored have been applied.

   Note: Before running the SQL scripts, refer to Technical Bulletin ID # 435879.1 to determine how it affects your upgrade. To locate this bulletin, go to the My Oracle Support Web site:

   `https://support.oracle.com`

   and click on the **Knowledge** tab.

   ---

3. Verify that the contents of the **prodfixsql** directory have been applied to your database correctly, review the log file for each **prodfixsql** file that was applied.

   The log files reside in the **Start in:** directory. Search the files in the directory for **ORA-**.
4. Open the **dm_rprt.txt** file and look for processes that have passed, failed, or not run.

   If you find processes that failed or did not run, contact Oracle Global Customer Support.

Updating Stored Procedures

Use SQL*Plus to apply the contents of the *install_directory***procs** directory to the database. These steps update the stored procedures for your database.

To update stored procedures:

1. Set the current directory to:

```
drive letter:install_directory\procs
```

2. Connect to SQL*Plus using the ASAP user ID.
3. At the prompt, enter:

```
spool master.log
@master
```

   The stored procedures have been applied when the **SQL>** prompt reappears.

4. Enter:

```
spool offrun
```

Running Reports

The **mdl_upd** directory contains SQL files that include any modifications to the database structure in a service pack. To apply these updates to the reports, copy the contents of this directory into either the **db/inst_60** or **db/upg_60** directory. After applying the files in the **prodfixsql** directory, you can validate the database structure by running the **mdl_upd_cur.sql** and/or **mdl_upd_cmp.sql** file. These processes provide the reports **mdl_upd_cur.txt** and **mdl_upd_cmp.txt** identical to the **mdl_cur.sql** and **mdl_cmp.sql** files. See *MetaSolv Solution System Administrator's Guide* for more information on reports.

> **Note:** This task is not required. If you choose not to apply updates to the reports before you run them, extra database objects can appear in the reports.

Upgrading the MSS Application Server

The installer (**MSS.R6_2_1.b***nnn*_**AppServerInstaller .jar**) for the application server portion of MSS is the same for both maintenance release and patch installations. Download the installer for the appropriate platform (Windows, Solaris, AIX, or HP) and the appropriate upgrade type (maintenance release or patch) from the Oracle software delivery Web site.

Installation Options for the Application Server

Oracle recommends the following for the application server installation of the MSS 6.2.*x* maintenance release and patches:

- **First time installing or upgrading the MSS 6.2.*x* release stream**: Select the MSS 6.2.*x* **Full Installation** option in the application installer. Significant changes were made in the WebLogic Server configuration for these maintenance releases, and using the full installation guarantees that all changes are installed on your machine. Refer to "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MetaSolv Solution on a Clustered Server" to install MSS 6.2.*x*.

  The files in the following directories (under the *MSLV_Home/server_name*/**appserver** directory) are updated if you select the **Full Installation** option and it will be necessary to backup the following files and directories:

  – bin

  – cab

  - classes
  - config
  - flow_through_package
  - portal
  - samples
  - samples/customExtensions
  - utils

- **Patches and Subsequent Maintenance Releases:** select the MSS 6.2.x **Upgrade** option when you install a patch or subsequent maintenance release. Review the **ReadMe** file and manually apply any required configuration changes.

  The following application server configuration files are updated if you select the **Upgrade** option and it will be necessary to backup these files:

  - jmaster.ini
  - lerg.ini
  - loggingconfig.xml
  - npasplit.ini
  - tbs.ini
  - tbs_util.ini
  - zac_config_jobmgr

  The following files are not updated if you select the **Upgrade** option:

  - Application server start up files:
    - **startMSLVmanaged.sh** or **startMSLVmanaged.cmd**
    - **startMSLVsingle.sh** or **startMSLVsingle.cmd**
    - **start***servername***.sh** or **start***servername***.cmd**
  - Gateway configuration files
    - **gateway.ini**
    - **integration.xml**
  - WebLogic Server configuration parameters
  - JacORB configuration parameters

Single Server Upgrade Basic Steps

1. Prepare for the upgrade. This includes downloading files and collecting information.
2. Install /Deploy MSS 6.2.*x*.
3. Complete post-upgrade tasks.
   a. (Optional) Tune the server.
   b. (Optional) Make changes to the configuration files.

Single Server Upgrade

Follow the procedures in this section to upgrade the server.

Note: Before upgrading your application server to MSS 6.2.*x*, refer to Technical Bulletin ID # 435745.1, to determine how it affects your upgrade. Failure to do so results in the server failing to start after installing the application. To locate this bulletin, go to the My Oracle Support Web site:

`https://support.oracle.com`

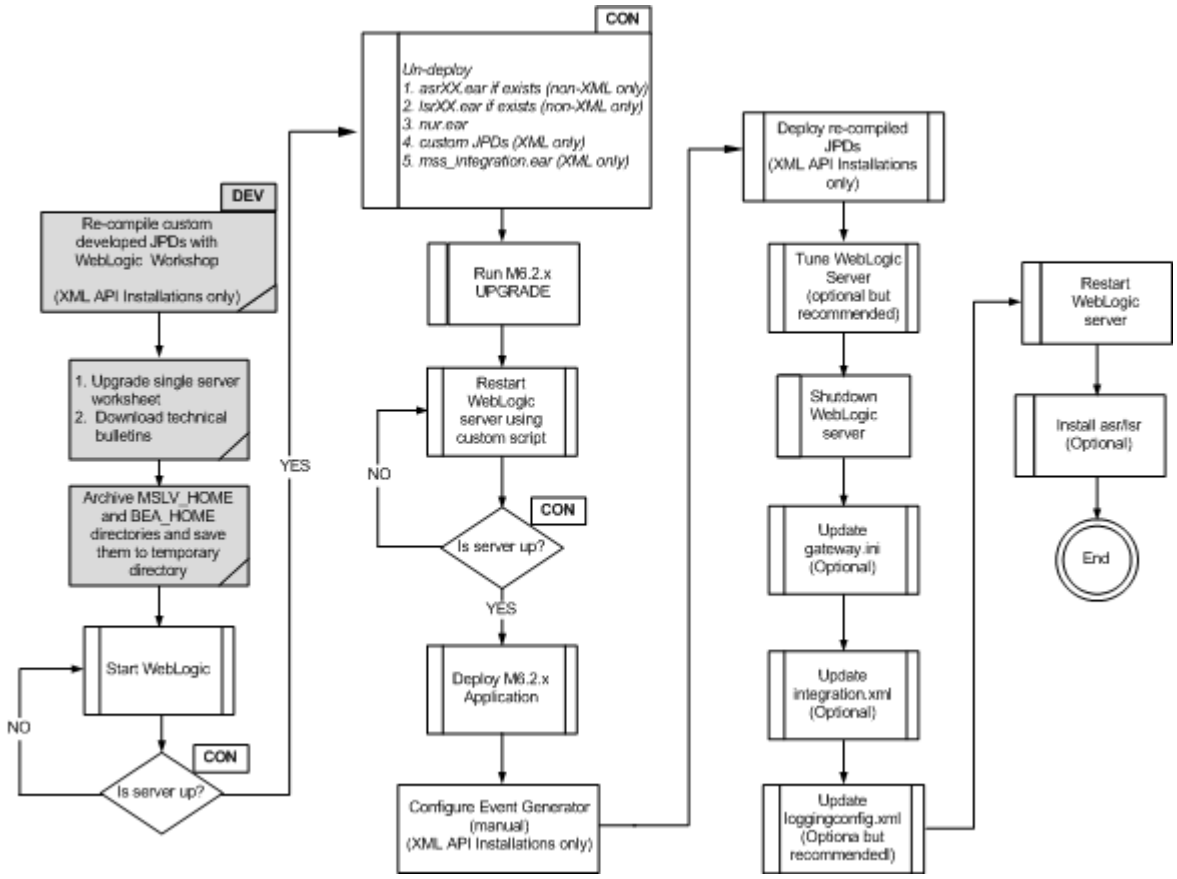
and click on the **Knowledge** tab.

Note: You will need to manually modify the **loggingconfig.xml** and the **integration.xml** files or you will receive an error on your appserver console. Additionally, if using custom extensions, you will need to manually modify the **gateway.ini** file. For information on custom extensions, see *MetaSolv Solution Custom Extensions Developer's Reference*.

Preparing for the Upgrade

The highlighted sections of Figure 6–3 show the steps for preparing for the upgrade.

Figure 6–3 Preparing for the Upgrade



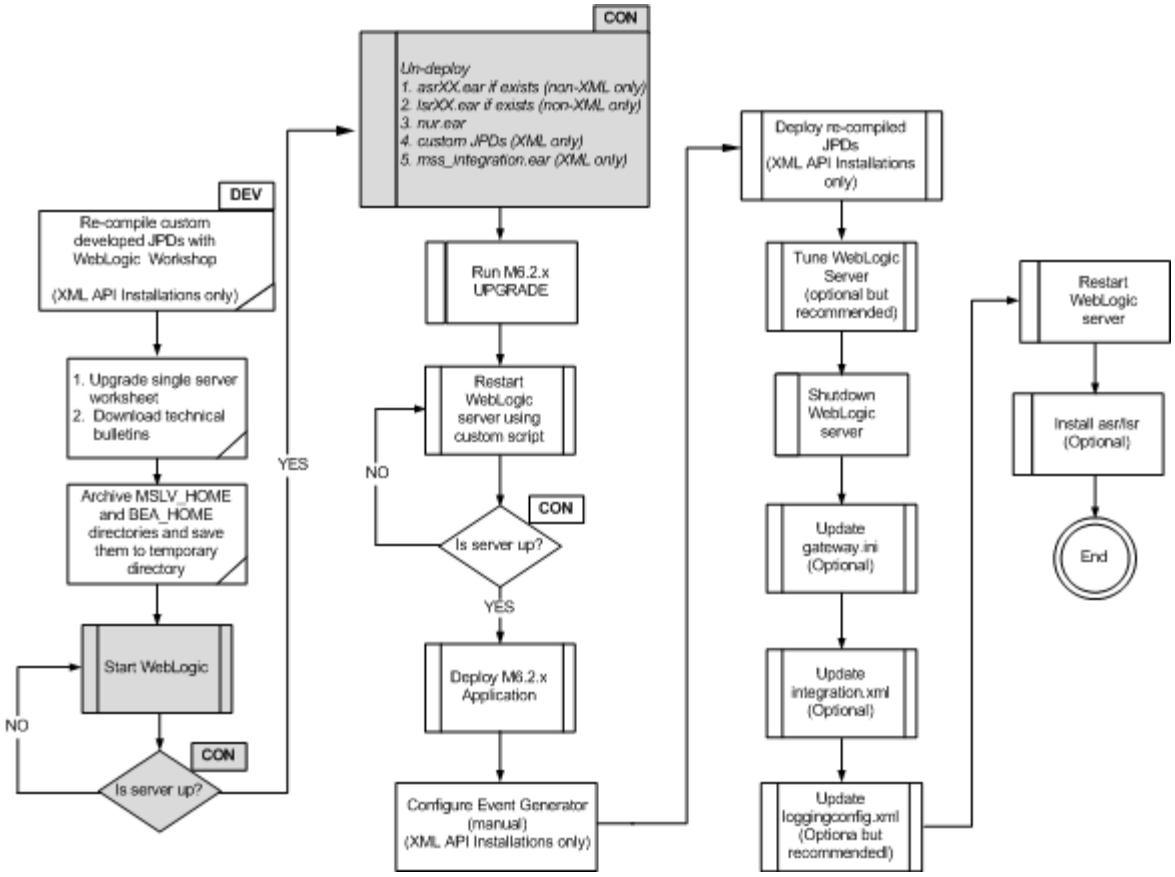
To prepare for the upgrade**:**

1. Download the MSS upgrade (either a maintenance release or a patch) from the Oracle software delivery Web site.
2. FTP the MSS upgrade file to the target server machine.
3. Complete the appropriate single server worksheets in Appendix C.
4. Archive the *MSLV_Home* and *BEA_Home* directories and save the archive file to a temporary directory.

Undeploy Previously Installed Applications

The highlighted sections of Figure 6–4 show the steps for undeploying previously installed applications.

Figure 6–4 Undeploying Applications



To undeploy previously installed applications:

1. Start the WebLogic server and log on to the WebLogic Server Administration Console.
2. To undeploy the application, do the following:
   a. From the Domain Structure tree, click on **Deployments**.
   b. In the Change Center pane, click on **Lock & Edit**.
   c. From the Summary of Deployments pane, click the check box for **nur.ear**.

d. Click on **Stop** and select **Force Stop Now**.

e. Click on **Delete**.

f. Click on **Yes** to delete the deployment.

g. In the Change Center pane, click on **Activate Changes**.

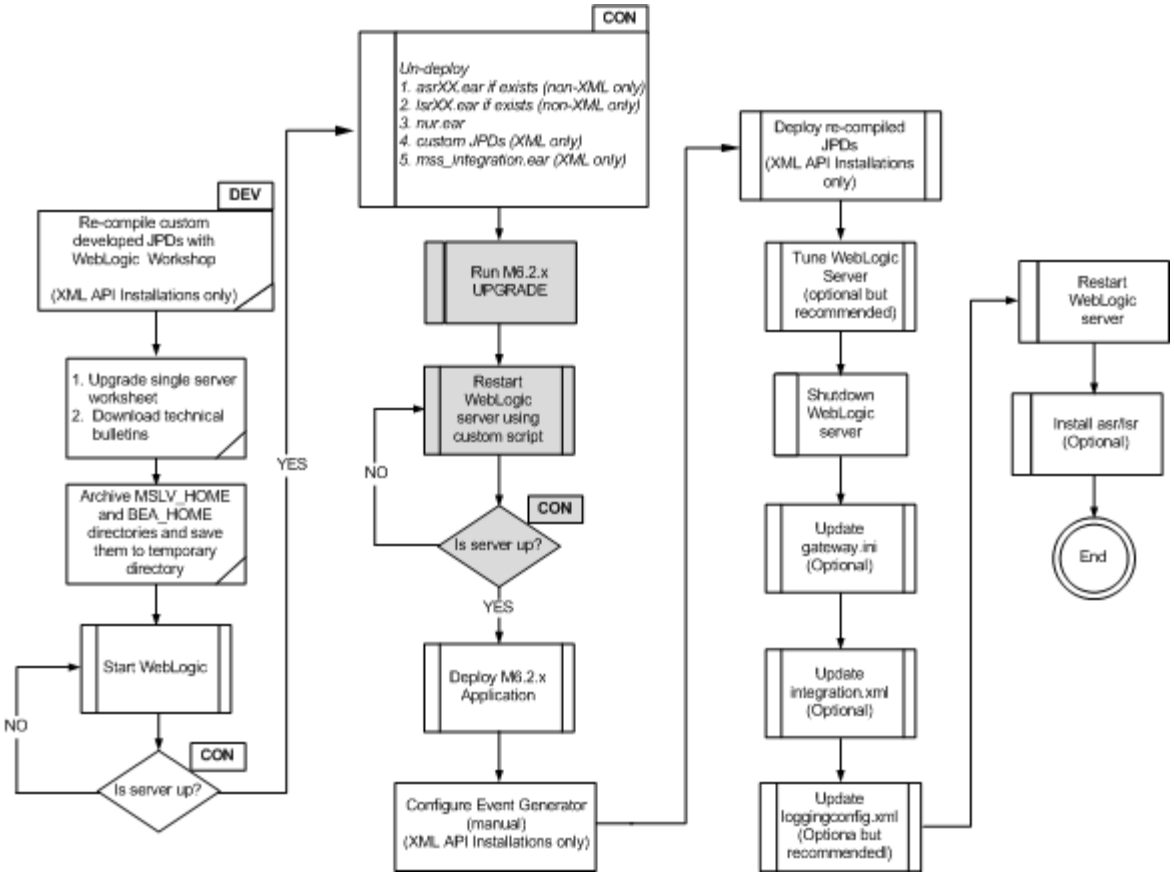
3. Repeat step 2 for each application that is to be deleted, refer to the following list:

- **asr***XX***.ear** (if deployed) - (non-XML installations only)
- **lsr***XX***.ear** (if deployed) - (non-XML installations only)
- custom JPDS - (XML instllations only)
- **mss-integration.ear** - (XML installations only)

Installing the Upgrade

The highlighted sections of Figure 6–5 show the steps for installing the upgrade.

Figure 6–5 Installing the Upgrade



To install the upgrade, do the following:

1. From the directory where the maintenance release or patch file was downloaded, enter the following command:

```
java -jar releaseNo.buildNo_AppServerInstaller.jar
```

For example:

```
java -jar MSS.R6_2_1.b150_AppServerInstaller.jar
```

Note: For 64-bit systems, use the following java_options parameter: **-d64**.

The Select MetaSolv home directory window appears.

2. From the **Look In** list, click the down arrow and select a directory in which the installer files can be stored and used during the installation process, then click **Select**.

   A directory named **installer** is automatically created in the selected directory. Oracle recommends choosing your *MSLV_Home* directory for this task.

   The installer auto-launches the installation process by invoking **setup.sh** (UNIX/Linux) or **setup.cmd** (Windows) in the *MSLV_Home*/**installer** directory.

   Worksheet references and example values:

Field name	Worksheet reference number	Example value
File Name (MSLV_Home)	COMM-0090	/opt/m62Single/single

   The Oracle Communications MetaSolv Solution Installation window appears.

3. Click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Choose Install Type window appears.

4. Select **Upgrade** and click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Select Server window appears.

5. Select *MetaSolv_Home* and do the following:

   a. Verify the Admin Host name.

   b. Verify the port number for the Admin Host.

   c. Verify the user name and enter the password.

      Worksheet references and example values:

Field name	Worksheet reference number	Example value
Admin Host	Admin-0250	srvrchscal
Port#	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)
User ID	COMM-0020	weblogic
Pass	COMM-0030	web_logic

   d. (Optional) If you want to upgrade MSS using the SSL port, select the **Connect to WebLogic using SSL** check box. In the **Key Store Location** field, enter the path or click **Browse** to search for the keystore location.

      See the Oracle WebLogic Server documentation for information about configuring keystores.

6. Click **Go**.

   The installer queries the Admin Host machine and returns with values you entered during the configuration of the WebLogic domain. This process can take a few moments.

   The Oracle Communications MetaSolv Solution Installation window appears with the domain and any servers in the domain appearing in the left pane.

7. Select the server in the left pane.

8. Click **Install**.

   The Installation Summary window appears.

9. After the installation completes, the Installation Complete window appears.

   The installer installs the appropriate MSS files to the server. When the files are installed, the location of the startup file created for the server is displayed.

   Caution: Do not exit the installer.

10. Note the location of the startup file for the application server, then minimize the installer window.

11. Shut down the server, and restart it using the custom script installed by the installer and listed on the window.

    To start the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    For UNIX/Linux:

    ```
    startmslv01.sh
    ```

    For Windows:

    ```
    startmslv01.cmd
    ```

    To shut down the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    For Unix/Linux:

    ```
    stopmslv01.sh
    ```

    For Windows:

    ```
    stopmslv01.cmd
    ```

    Note: To start or stop the administration server and managed servers (in a cluster environment) using the SSL port, you must add an **s** after **http** in the ADMIN_URL argument in the startup/stop server scripts for the administration server and for each managed server. For example:

    ```
    https://host_name:admin_sslport
    ```

12. Start the WebLogic Server Administration Console by typing the following information into the **Address** field of Internet Explorer:

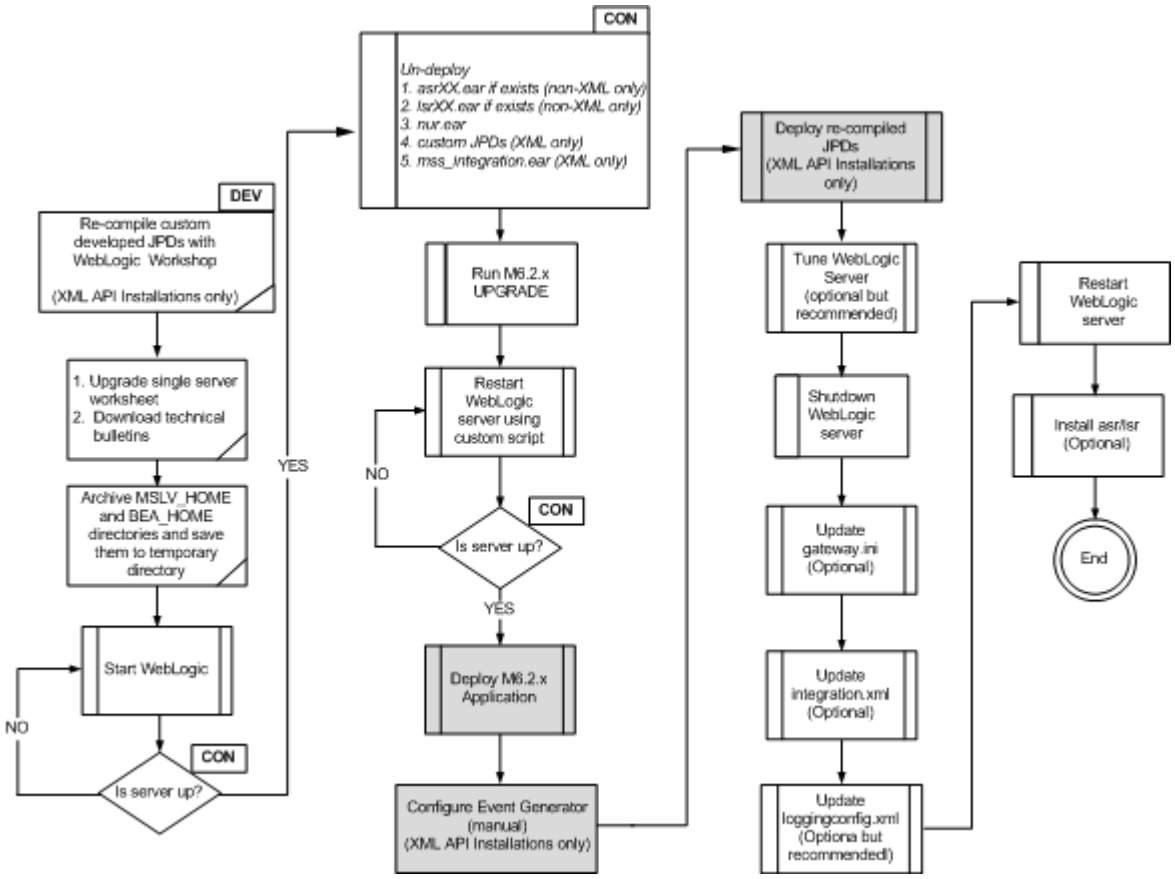
    ```
    http://host_admin:port number/console
    ```

You can monitor the deployment from the console. To check the servers, click **Servers** in the left pane of the Console, and the right pane will show the status of all servers.

Deploying the Application

The highlighted sections of Figure 6–6 show the steps for deploying the upgrade.

Figure 6–6 Deploying the Application



To deploy the upgrade, do the following:

1. After the startup commands have been run and the application server has been started, maximize the installer window and click **Deploy Application**.

   The Oracle Communications MetaSolv Solution Installation window appears listing the server you can select for deployment.

   This process can take a few moments. If the server is not started, a status appears on the window indicating the installer is waiting for the server to be in running mode. When the server is in running mode, you can begin the deployment.

2. Select a server in the Target Servers list box, and click **Deploy**.

   The deployment process begins. You can follow the progress of the deployment by viewing the text that appears in the right pane of the installation window.

   When the deployment is complete, the Deployment Completed window appears.

3. Click **OK**.

4. Click **Exit**.

   The Exit? window appears.

5. Click **OK** to exit.

   For non-XML API upgrades, proceed to the next section.

   For XML API upgrades, continue to step 6.

6. Set up an event generator by doing the following:

   a. Start the WebLogic Integration Administration Console by pointing your browser to:

      `http://<host_admin:port number>/wliconsole`

      The initial console window appears.

   b. Click **Event Generators**.

      The View All File Event Generators window appears.

   c. On the left panel under JMS, click **Create New**.

      The Create a New JMS Event Generator information appears in the right panel.

   d. Enter the following values on the Create a New JMS Event Generator window:

      – Generator Name: InternalOutBoundGenerator

      – Destination Type: javax.jms.Queue

      – Destination JNDI Name: mss.internal.event.queue

      – JMS Connection Factory JNDI Name: weblogic.jws.jms.QueueConnectionFactory

      – Message Selector: Leave this field blank

      – Default Rule Channel: /MSS/internalOutboundEventChannel (xml)

   e. Click **Submit**.

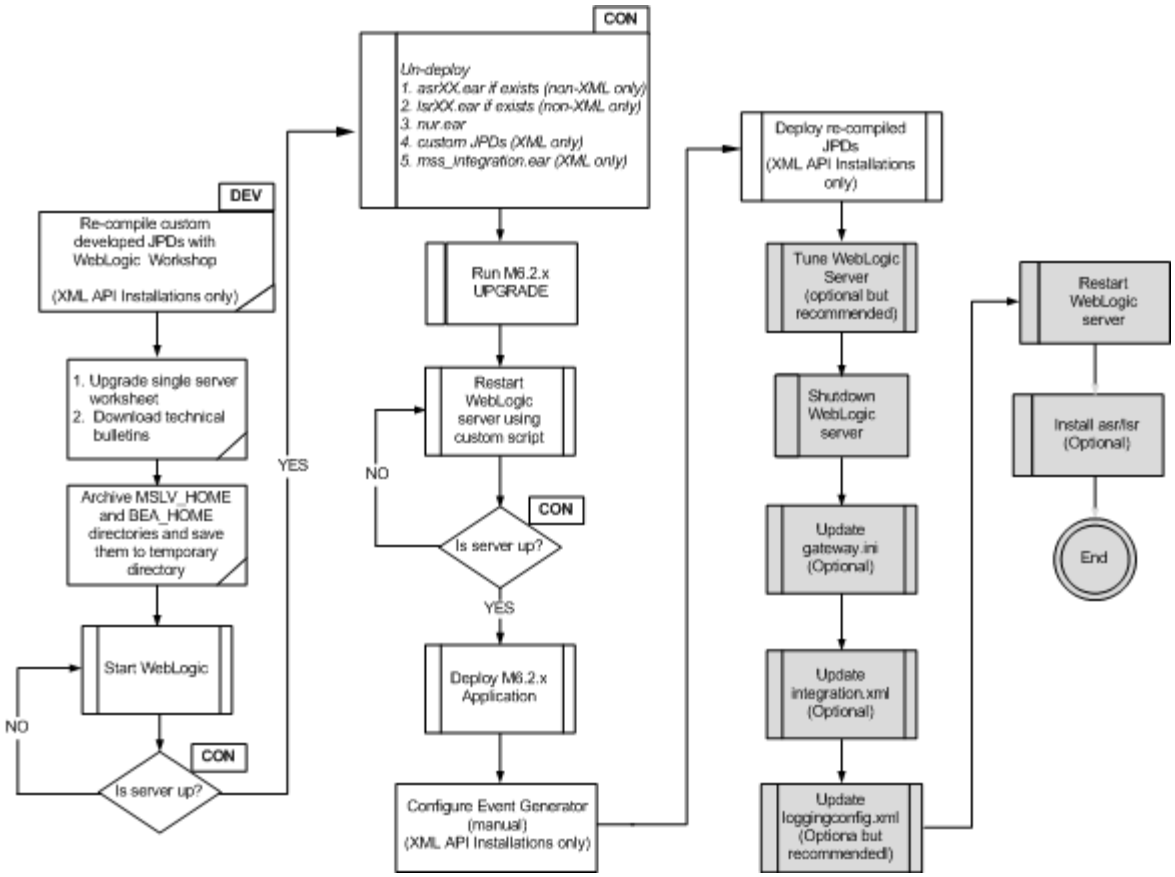
      The JMS Event Generator Definition summary appears.

To return to the main WebLogic Integration Administration Console window, click **Home** in the tabs listed at the top of the pane.

Completing Post-Upgrade Tasks

The highlighted sections of Figure 6–7 show the steps for completing post-upgrade tasks.

Figure 6–7 Completing Post-Upgrade Tasks



To complete the post-upgrade tasks, do the following:

1. Tune the Oracle WebLogic server.

   See "Tuning Servers For Performance" for information on tuning.

2. Shut down the Oracle WebLogic Server and update the following files:

   - **gateway.ini file.**
   - **integration.xml file.**
   - **loggingconfig.xml**

   See "Configuration Files" for more information.

3. Start the Oracle WebLogic Server.
4. Run **TBSGraphicsLoad.exe** from a client workstation to load specific graphics to the database. See "Loading New and Updated Graphics to the Database" for more information.
5. Re-install LSR or ASR, if required.

Clustered Server Upgrade Basic Steps

1. Prepare for the upgrade. This includes downloading files and collecting information.
2. Install/Deploy MSS 6.2.1.

3. Complete post-upgrade tasks.

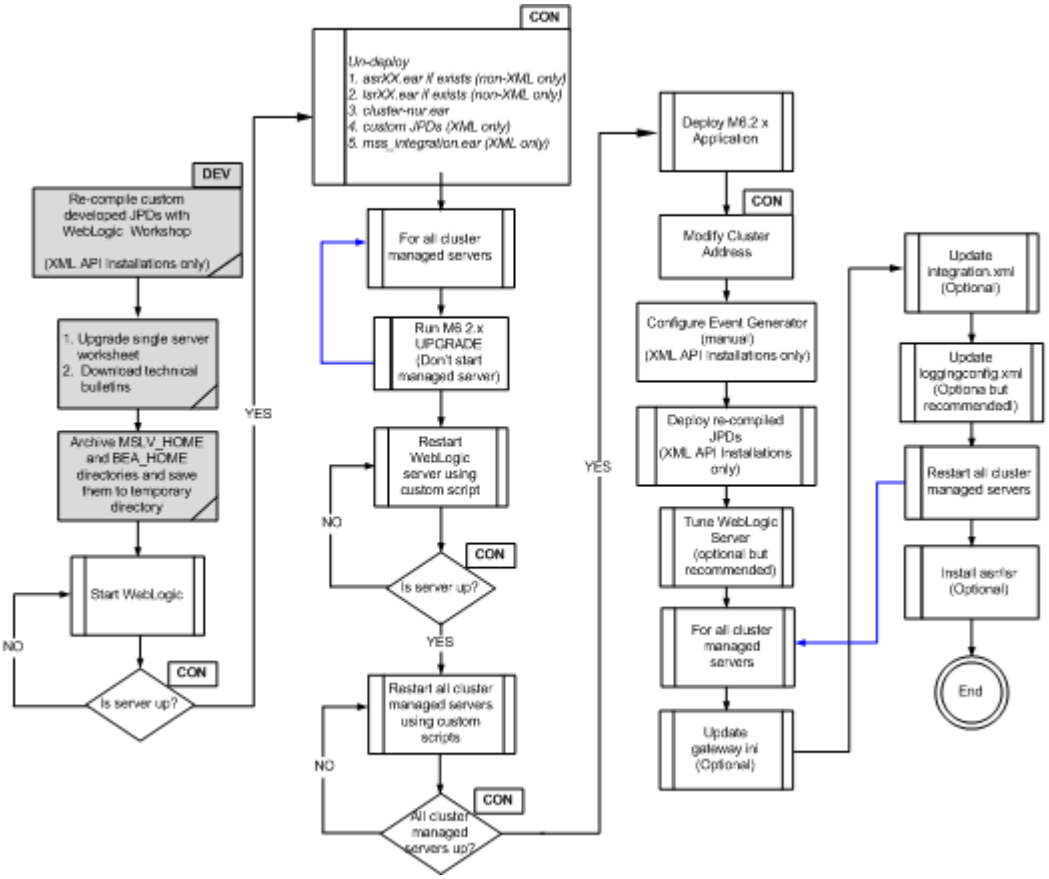
Clustered Server Upgrade

Follow the procedures in this section to upgrade the clustered servers.

Preparing for the Upgrade

The highlighted sections of Figure 6–8 show the steps for preparing for the upgrade.

Figure 6–8 Preparing for the Upgrade



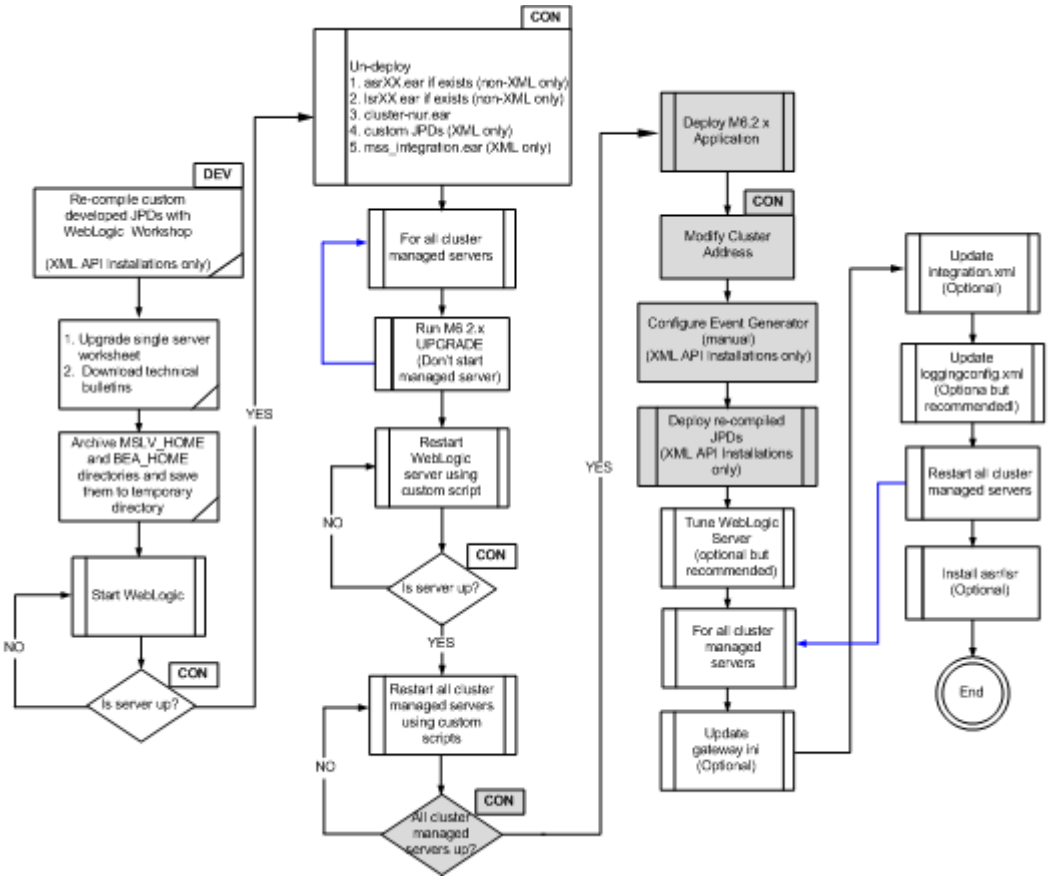
To prepare for the upgrade:

1. Download the MSS upgrade (either a maintenance release or a patch) from the Oracle software delivery Web site.
2. FTP the MSS upgrade file to the target server machine.
3. Complete the appropriate single server worksheets in Appendix C.
4. Archive the *MSLV_Home* and *BEA_Home* directories, on the administration server and all clustered servers, and save the archive files to a temporary directory.

Undeploy Previously Installed Applications

The highlighted sections of Figure 6–9 show the steps for undeploying previously installed applications.

Figure 6–9 Undeploying Applications



To undeploy previously installed applications:

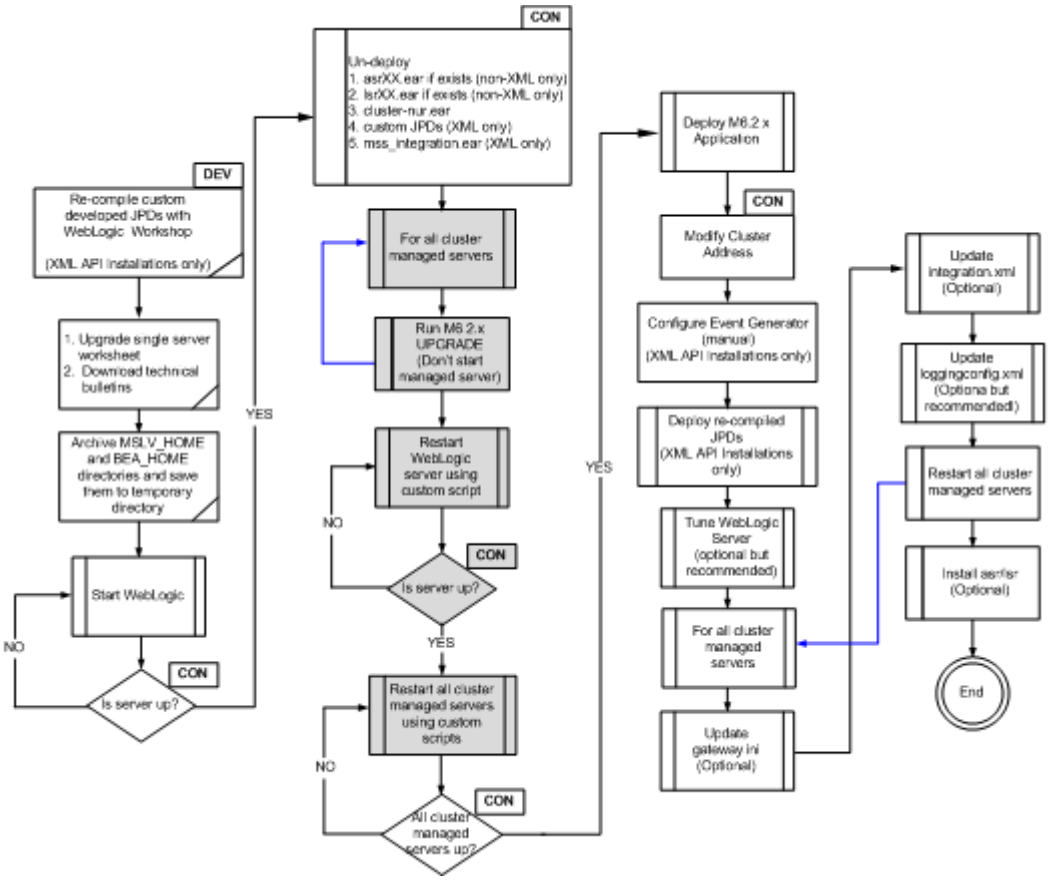
1. Start the WebLogic server and log on to the WebLogic Server Administration Console.
2. Verify that all the clustered servers are running.
   a. From the Domain Structure tree, expand **Environment** and click **Servers**.
3. To undeploy the application, do the following:
   a. From the Domain Structure tree, click on **Deployments**.
   b. In the Change Center pane, click on **Lock & Edit**.
   c. From the Summary of Deployments pane, click the check box for **cluster-nur.ear**.
   d. Click on **Stop** and select **Force Stop Now**.
   e. Click on **Delete**.
   f. Click on **Yes** to delete the deployment.
   g. In the Change Center pane, click on **Activate Changes**.
4. Repeat step 3 for each application that is to be deleted, refer to the following list:
   - **asr***XX*.**ear** (if deployed) - (non-XML installations only)
   - **lsr***XX*.**ear** (if deployed) - (non-XML installations only)
   - custom JPDS - (XML installations only)

- **mss-integration.ear** - (XML installations only)

Installing the Upgrade

The highlighted sections of Figure 6–10 show the steps for installing the upgrade.

Figure 6–10 Installing the Upgrade



To install the upgrade, do the following:

1. For each clustered server, from the directory where the maintenance release or patch file was downloaded, enter the following command:

   `java -jar` *`releaseNo.buildNo`*`_`**`AppServerInstaller.jar`**

   For example:

   `java -jar MSS.R6_2_1.b150_AppServerInstaller.jar`

   > **Note:** For 64-bit systems, use the following java_options parameter: **-d64**.

   The Select MetaSolv home directory window appears.

2. From the **Look In** list, click the down arrow and select a directory in which the installer files can be stored and used during the installation process, then click **Select**.

A directory named **installer** is automatically created in the selected directory. Oracle recommends choosing your *MSLV_Home* directory for this task.

The installer auto-launches the installation process by invoking **setup.sh** (UNIX/Linux) or **setup.cmd** (Windows) in the *MSLV_Home/i***nstaller** directory.

Worksheet reference and example value:

Field name	Worksheet reference number	Example value
File Name (MSLV_Home)	COMM-0090	/opt/m62Single/single

The Oracle Communications MetaSolv Solution Installation window appears.

3. Click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Choose Install Type window appears.

4. Select **Upgrade** and click **Next**.

   The Oracle Communications MetaSolv Solution Installation - Select Server window appears.

5. Select *MetaSolv_Home* and do the following:

   a. Enter the Admin Host name.

   b. Enter the port number for the Admin Host.

   c. Enter a user name and password.

      Worksheet references and example values:

Field name	Worksheet reference number	Example value
Admin Host	Admin-0250	srvrchscal
Port#	Admin-0260, Admin-0270	7001 (HTTP port), 7002 (HTTPS port)
User ID	COMM-0020	weblogic
Pass	COMM-0030	web_logic

   d. (Optional) If you want to upgrade MSS using the SSL port, select the **Connect to WebLogic using SSL** check box. In the **Key Store Location** field, enter the path or click **Browse** to search for the keystore location.

      See the Oracle WebLogic Server documentation for information about configuring keystores.

6. Click **Go**.

   The installer queries the Admin Host machine and returns with values you entered during the configuration of the WebLogic domain. This process can take a few moments.

   The Oracle Communications MetaSolv Solution Installation window appears with the domain and any servers in the domain appearing in the left pane.

7. Select the server in the left pane.

8. Click **Install**.

   The Installation Summary window appears.

9. After the installation completes, the Installation Complete window appears.

   The installer installs the appropriate MSS files to the server. When the files are installed, the location of the startup file created for the server is displayed.

   Caution: Do not exit the installer.

10. Note the location of the startup file for the application server, then minimize the installer window.
11. Repeat steps 1 through 10 for all clustered server machines.
12. Shut down the administration server, and restart it using the custom script installed by the installer and listed on the window.

    To start the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    - For UNIX/Linux:

      ```
      startmslv01.sh
      ```

    - For Windows

      ```
      startmslv01.cmd
      ```

    To shut down the servers, navigate to the *m62domain* directory. At the command prompt, enter the command:

    - For UNIX/Linux:

      ```
      stopmslv01.sh
      ```

    - For Windows

      ```
      stopmslv01.cmd
      ```

    Note: To start or stop the administration server and managed servers (in a cluster environment) using the SSL port, you must add an **s** after **http** in the ADMIN_URL argument in the startup/stop server scripts for the administration server and for each managed server. For example:

    ```
    https://host_name:admin_sslport
    ```

13. Start the WebLogic Server Administration Console by typing the following information into the **Address** field of Internet Explorer:

    ```
    http://host_admin:port number/console
    ```

    You can monitor the deployment from the console. To check the servers, click **Servers** in the left pane of the Console, and the right pane will show the status of all servers.

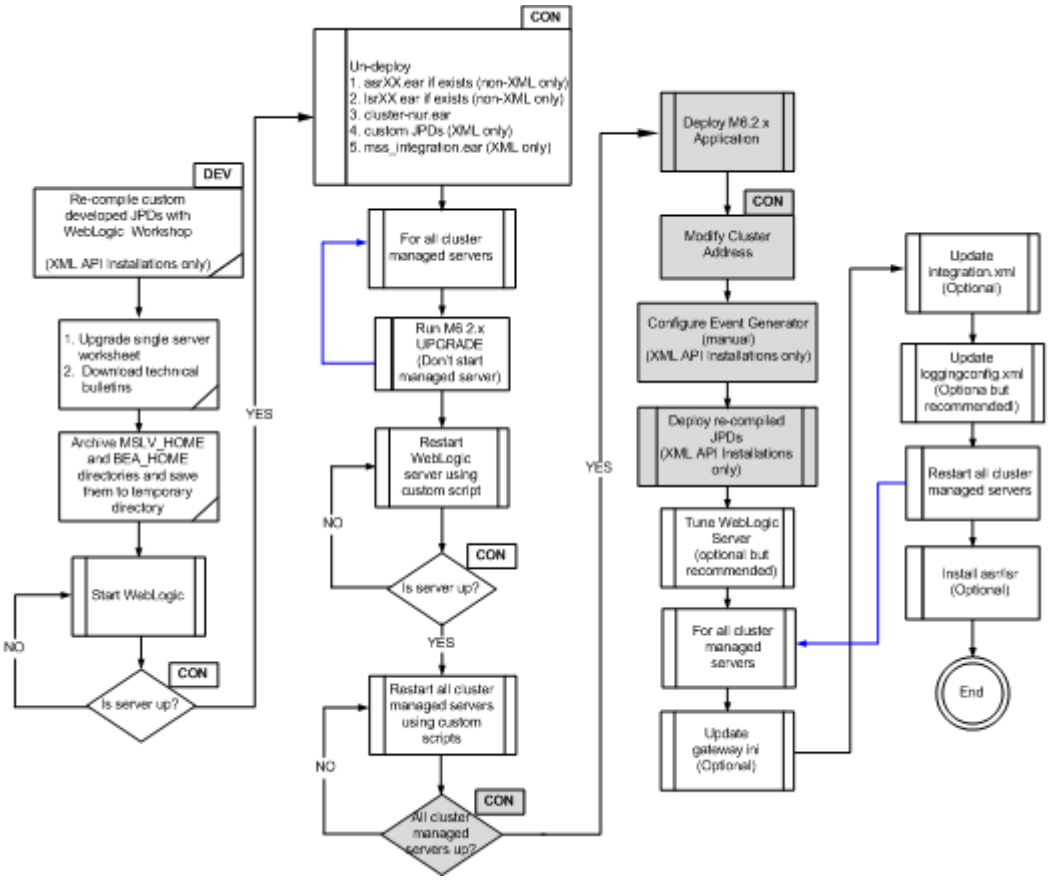
14. Restart all the clustered servers using the custom scripts installed by the installer and listed on the window.
15. Verify that all the clustered servers are running.

    a. From the Domain Structure tree, expand **Environment** and click **Servers**.

Deploying the Application

The highlighted sections of Figure 6–11 show the steps for deploying the upgrade.

Figure 6–11 Deploying the Application



To deploy the upgrade, do the following:

1. After the startup commands have been run and the application server has been started, maximize the installer window and click **Deploy Application**.

   The Oracle Communications MetaSolv Solution Installation window appears listing the server you can select for deployment.

   This process can take a few moments. If the server is not started, a status appears on the window indicating the installer is waiting for the server to be in running mode. When the server is in running mode, you can begin the deployment.

2. Select a server in the Target Servers list box, and click **Deploy**.

   The deployment process begins. You can follow the progress of the deployment by viewing the text that appears in the right pane of the installation window.

   When the deployment is complete, the Deployment Completed window appears.

3. Click **OK**.

4. Click **Exit**.

   The Exit? window appears.

5. Click **OK** to exit.

6. From the WebLogic Server Administration Console, modify the cluster address by performing the following:
   a. From the Domain Structure tree, expand **Environment** and click **Clusters**.
   b. Click on the cluster name.

      The **Configuration** tab and the **General** tab are selected by default.
   c. Change the SSL port for the cluster address to a DNS entry containing all clustered servers' listening IP addresses. All clustered servers in the production environment should listen on the same port. If not, navigate to **Servers**, select each clustered server, click the **Configuration** tab followed by the **General** tab, and change the **Listen Port**. Modify the **JNDI** URL in the **gateway.ini** file for each clustered server.

      For non-XML API upgrades, proceed to the next section.

      For XML API upgrades, continue to step 7.
7. Set up an event generator by doing the following:
   a. Start the WebLogic Integration Administration Console by pointing your browser to:

      `http://<host_admin:port number>/wliconsole`

      The initial console window appears.
   b. Click **Event Generators**.

      The View All File Event Generators window appears.
   c. On the left panel under JMS, click **Create New**.

      The Create a New JMS Event Generator information appears in the right panel.
   d. Enter the following values on the Create a New JMS Event Generator window:
      - Generator Name: InternalOutBoundGenerator
      - Destination Type: javax.jms.Queue
      - Destination JNDI Name: mss.internal.event.queue
      - JMS Connection Factory JNDI Name: weblogic.jws.jms.QueueConnectionFactory
      - Message Selector: Leave this field blank
      - Default Rule Channel: /MSS/internalOutboundEventChannel (xml)
   e. Click **Submit**.

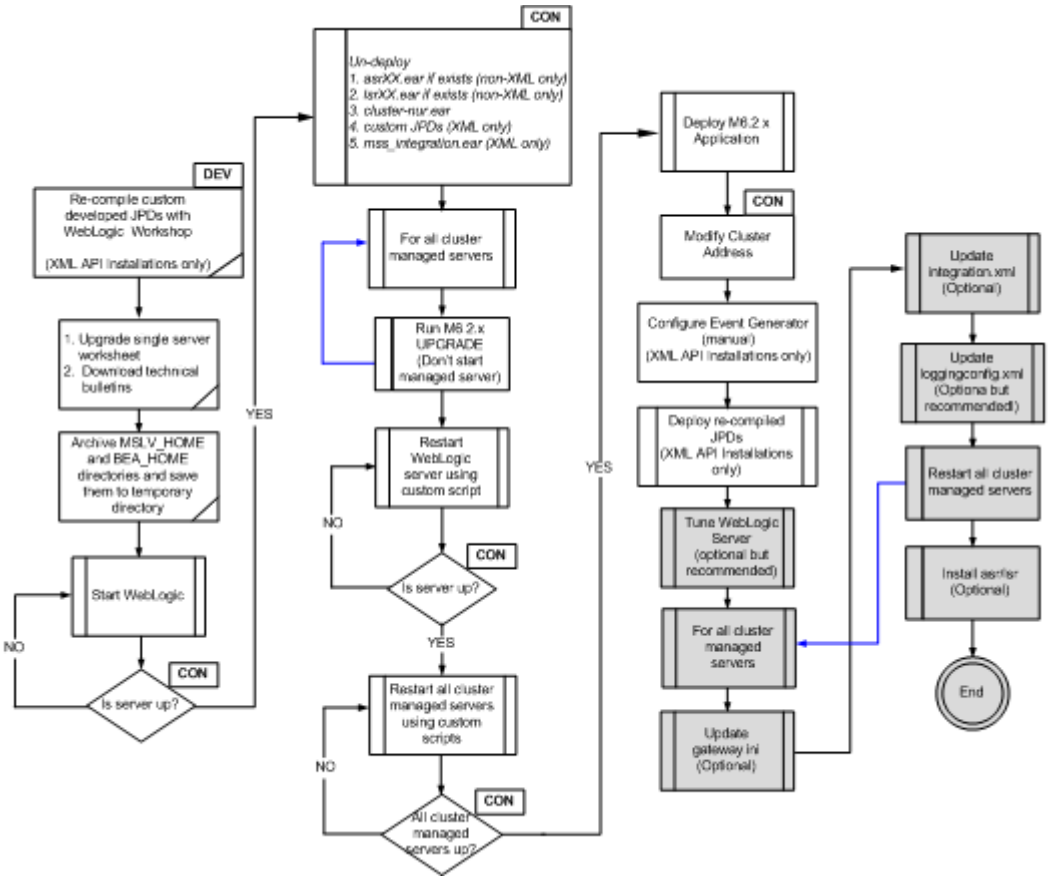
      The JMS Event Generator Definition summary appears.

To return to the main WebLogic Integration Administration Console window, click **Home** in the tabs listed at the top of the pane.

Completing Post-Upgrade Tasks

The highlighted sections of Figure 6–12 show the steps for completing post-upgrade tasks.

Figure 6–12 Completing Post-Upgrade Tasks



To complete the post-upgrade tasks, do the following**:**

1. Tune the Oracle WebLogic server.
2. See "Tuning Servers For Performance" for information on tuning.
3. Start the WebLogic Server Administration Console and in the left pane under your domain, select **Clusters >***cluster_name*.
4. Change the cluster address to the DNS host name.

   Note: Do *not* use the comma-separated list of single address host names or IP addresses in a production environment. These can be used in a development or test environment

5. Shut down the Oracle WebLogic Server and update the following files:
   - **gateway.ini file.**
   - **integration.xml file.**
   - **loggingconfig.xml**

   See "Configuration Files" for more information.
6. Restart all cluster managed servers.

7. Run **TBSGraphicsLoad.exe** from a client workstation to load specific graphics to the database. See "Loading New and Updated Graphics to the Database" for more information.
8. Re-install LSR or ASR, if required.

Updating Client Workstations

If you are using ZAC to install and update client workstations, a maintenance release or patch update to the workstation is automatic the first time a user logs on to MSS after the maintenance release or patch has been installed on the application server.

7

Installing The Client Workstation

This chapter explains how to install the client application onto your workstation. You need the client installed to complete post installation tasks for the database and application server installations.

This chapter also provides information on distributing the client application to users across a network.

Installation Methods

You can distribute the client application to workstations in the following ways:

- By using an automated installation utility provided by Oracle, the Zero Admin Client (ZAC).
- By using a third-party software product such as Microsoft SMS.
- By copying the compressed client CAB files stored on the application server to a location where you can expand them for users to copy to client workstations or use directly.

Editing IE 7/8 Registry Settings

By default, IE 7/8 uses WINDOWLESS SELECT control and hence you can view all the values in a drop-down list but not select them. To select a value from the drop-down list, add the WINDOWLESS Select Control value to the IE 7/8 registry settings.

To edit the registry settings:

1. Open **cmd.exe**.
2. Enter the following:

```
 "REG ADD "HKLM\SOFTWARE\Microsoft\Internet
Explorer\Main\FeatureControl\FEATURE_USE_WINDOWEDSELECTCONTROL" /V tbs.exe /T
REG_DWORD /F /D 1"
```

   For Windows Server 2008 and Windows 7, enter the following:

```
 "REG ADD "HKCU\SOFTWARE\Microsoft\Internet
Explorer\Main\FeatureControl\FEATURE_USE_WINDOWEDSELECTCONTROL" /V tbs.exe /T
REG_DWORD /F /D 1"
```

   Upon successful completion, The operation completed successfully message appears.

Installing using ZAC

ZAC is an automated way to manage client workstation installations and to update existing installations when upgrades or maintenance releases need to be applied. The following list explains how it works and its benefits.

- **What is it?**

  ZAC is a software program that resides on the application server and automatically installs client files to a workstation when a user clicks a specified link. You can configure the client installation and provide links from a browser page to a user for installation.

  When a user clicks the link, ZAC installs client files to the user's workstation, registers the appropriate dlls, creates Windows Start menu links, and then automatically starts the application.

- **How does it work after installation?**

  ZAC configuration files for different components are stored on the client workstation and the application server. The configuration files contain version information for the files that get downloaded to the workstation. Each time the user clicks the link to start Oracle Communications MetaSolv Solution (MSS) or another software component such as MSS Utilities, ZAC performs a comparison of the file versions. If the versions stored in the files are different, the component is updated on the client machine.

- **What are the benefits?**

  - Initial installations can be distributed over the network without the IT staff manually installing on each workstation.
  - Updates to the software are downloaded automatically when the user starts ZAC to log on to MSS or a component. The update process requires no user intervention.

- **Is it optional?**

  Yes, ZAC is optional. You can both install and upgrade the MSS client without using ZAC. See "Installing the Client Application Manually" for more information.

ZAC Configuration Files

ZAC configuration files are stored on the application server in the **appserver/config** directory. Configuration files for the following software components are included:

MSS: **ZAC_config_mss.xml**

Location and Routing Gateway: **ZAC_config_lerg.xml**

MSS Utilities: **ZAC_config_utility.xml**

NPA Split Utility: **ZAC_config_npasplit.xml**

Background Processor: **ZAC_config_jobmgr.xml and ZAC_config_jobmstr.xml**

The following parameters are included:

- **package name:** Name of the software files being installed or upgraded if the installable parameter is set to true.
- **version**: Version of the package files. The files contained in a package are downloaded to the client machine whenever the package version on the client is different from the package version on the application server.

- **installable:** Indicator for installing the package on the client. Values are true or false.
- **mss_home**: Location where the application will be installed on the client workstation.

For any packages that you do not want installed on the client workstation, change the installable values to **false**.

The following listing shows the **zac_config_mss.xml** file.

```
<zac_config>
<mss_home>c:\MSS</mss_home>
<integration_installed>false</integration_installed>
<package name="application">
<version>R6_2_0.b1</version>
<installable>true</installable>
</package>
<package name="mssini">
<version>R6_2_0.b1</version>
<installable>true</installable>
</package>
<package name="pbvm">
<version>R6_2_0.b1</version>
<installable>true</installable>
</package>
<package name="mapping">
<version>R6_2_0.b1</version>
<installable>true</installable>
</package>
</zac_config>
```

Selecting Trusted Sites for ZAC

To ensure that ZAC installs properly, identify the application server, the proxy server, and the external load balancer as trusted sites that can send data to the workstation. This is a Microsoft Internet Explorer setting.

To select trusted sites:

1. Start Microsoft Internet Explorer.
2. On the Tools menu, click **Internet Options**.

   The Internet Options window appears.
3. On the Security tab, click the **Trusted sites** icon, then click **Sites.**

   The Trusted sites window appears.
4. Clear the check box entitled **Require server verification** (**https:**) **for all sites in this zone.**
5. Type the URL for the application server, proxy server, or external load balancer, then click **Add**.
6. Click **OK** to save the trusted site information, then click **OK** to close the Internet Options window.

Setting Browser Settings for ZAC

The MSS Zero Admin Client runs on Microsoft IE 7/8. Before running a ZAC installation, you must change Internet Explorer browser settings on the client workstation.

> **Note:** The settings being modified apply only to your intranet. The changes do not create a risk to your network from outside your firewall.

To set the workstation browser settings:

1. Start Microsoft Internet Explorer.
2. On the Tools menu, click **Internet Options**.

   The Internet Options window appears.
3. On the **Security** tab, select the **Local Intranet** icon.
4. Click **Custom Level**.

   The Security Settings window appears.
5. Under the **ActiveX controls and plug-ins** section, select **Enable** for all the options.
6. Under the section entitled **Miscellaneous**, select **Enable** for the setting **Access data sources across domains**.
7. Click **OK** on the Security Settings window, then click **Yes** to change the security settings.
8. Click **OK** to complete the changes.

> **Note:** If your client workstation runs on Windows XP SP2, add the server name to Trusted Sites as described in the section"Selecting Trusted Sites for ZAC". When the server name has been added, return to the Security tab and with **Trusted Sites** selected, click **Custom Level,** then complete the settings shown in the preceding procedure.

Installing from the ZAC Start Page

To run the installation:

1. Close all open applications on the workstation and start Microsoft Internet Explorer.
2. Type the URL for the Start page in the **Address** field on the browser page and press ENTER.

   The URL must contain the server name and port address of an application server that has an instance of MSS application server installed and deployed. The format for the URL is:

   `http://<server name:port number>/main/`

   or in cluster or load balancer environment:

   `http://<virtual IP address configured in load balancer:port number>/main/`

   The Zero Admin Client (ZAC) Start page appears.

3. Click **MetaSolv Solution** or any of the other application links to start the installation.

Distributing to Users Using ZAC

Before you distribute MSS to users, note the following considerations:

- Oracle does not recommend distributing the Start page. Because the Start page contains links to all applications that come with the full MSS installation, it may not be appropriate for all users. The Start page gives a user the ability to install utilities, software options, and administrative tools. It should be considered an administrative tool that provides a system administrator access links to all applications in a single location.
- You can create a specific ZAC link for users using javascript. When a user clicks the ZAC link, ZAC checks for updates for the application associated with the link and starts the logon screen. The following section explains how to create a link.
- Because MSS can be started in a number of ways without using ZAC, you must inform users when a maintenance release or some other change is applied so they can start MSS using ZAC and receive the updates.
- Choose a time for the installation when network traffic is lighter. Concurrent machine and network activity impacts the time of the download and installation.
- Instruct users to close all open applications before installing.

Creating a ZAC Link for Users

You can create a separate ZAC link for each MSS application listed on the Start page. This is useful if the majority of your users work only with the MSS application. You can create a special link that installs only the files needed for MSS.

To create a ZAC link:

1. Create a special HTML page for distributing the ZAC link.
2. Copy javascript from the following listing into the html page where you want to place the links.

   To list all of the applications on the page, copy all of the code, otherwise, copy only the function and subsequent link(s) that you need.

   You can use the Text Copy tool in Adobe Acrobat Reader as you view this document. Copy the code and fill in your site-specific information.

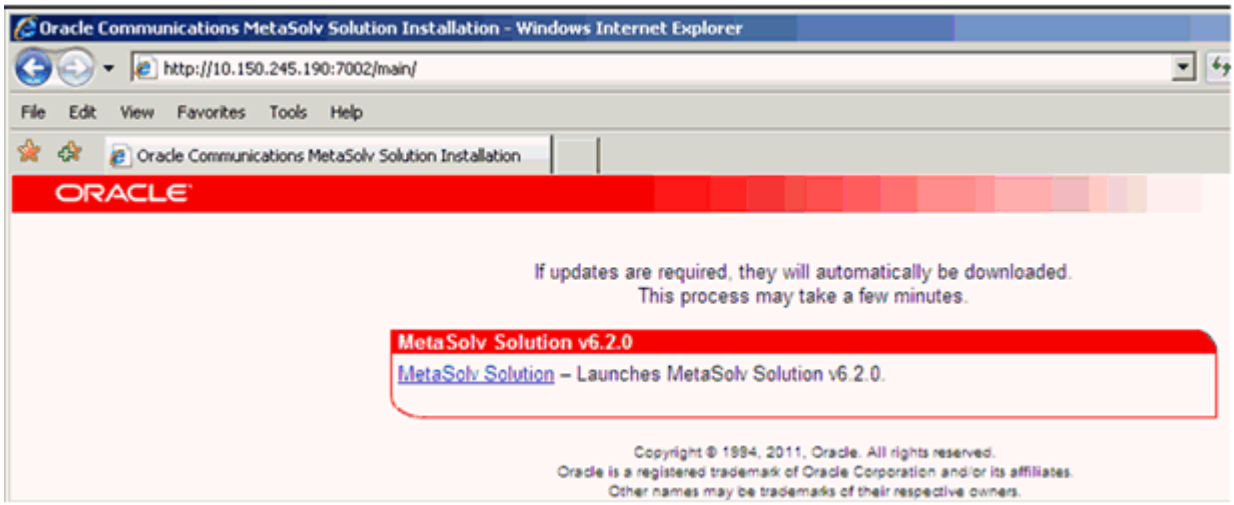
```
<script language="javascript1.2">
  //MSS application
  function mss() {
   window.open("http://your_server_name:listening_port/main/zac.html?app=mss",
"mss", "width=600, height=350, resizeable=no");
//for example: the above line could look like this:
window.open("http://wplwss01:8001/main/zac.html?app=mss", "mss", "width=600,
height=350, resizeable=no");
  }
  //Location and Routing Gateway
  function lerg() {
    window.open("http://your_server_name:listening_
port/main/zac.html?app=lerg", "lerg", "width=600, height=350, resizeable=no");
  }
  //TBS Utilities
  function utility() {
    window.open("http://your_server_name:listening_
port/main/zac.html?app=utility", "utility", "width=600, height=350,
resizeable=no");
  }
   //NPA NXX Split
  function npasplit()  {
    window.open("http://your_server_name:listening_
port/main/zac.html?app=npasplit", "npasplit", "width=600, height=350,
resizeable=no");
  }
  //Job Manager
  function jobmgr() {
    window.open("http://your_server_name:listening_
port/main/zac.html?app=jobmgr", "jobmgr", "width=600, height=350,
resizeable=no");
  }
  //Job Master
  function jobmstr() {
    window.open("http://your_server_name:listening_
port/main/zac.html?app=jobmstr", "jobmstr", "width=600, height=350,
resizeable=no");
  }
</script>
<body>
<!-- This is an example of a link that will call one of the above functions,
the actual text and description is up to you. Create a link for each
application you want to include on this page and make sure that it references
the appropriate function above.-->
<a href="javascript:mss();">MetaSolv Solution</a> - Launches MetaSolv Solution
v6.2.1.
</body>
```

Example

If your users need only the MSS core application on their workstations, the javascript file to create a link for them would look like the following listing.

```
<script language="javascript1.2">
  //MSS application
  function mss() {
    window.open("http://your_server_name:listening_port/main/zac.html?app=mss",
"mss", "width=600, height=350, resizeable=no");
//for example: the above line could look like this:
window.open("http://wplwss01:8001/main/zac.html?app=mss", "mss", "width=600,
height=350, resizeable=no");
  }
</script>
<a href="javascript:mss();">MetaSolv Solution</a> - Launches MetaSolv Solution
v6.2.1.
<body>
```

The following figure shows how a page can be altered to contain just the link you specify. In this instance, the code was combined with code for the Start window to produce a similar page with a single link. You can create a separate page with your company information, or you can include the link on an existing intranet page or in other locations accessible to users.



Installing the Client Application Manually

The following procedure explains how to install the core MSS application. It does not include any utility applications.

To install the client application manually:

1. Create a directory in the location where the client installation will be placed.
2. Copy the following files from the listed application server directories to the client installation location.
   - **/appserver/cab**
     - All CAB files
     - expand_mss.cmd
   - **/appserver/config**

  - zac_config_mss.xml
  - zac_config_lerg.xml
  - zac_config_utility.xml
  - zac_config_npasplit.xml
  - zac_config_jobmgr.xml
  - zac_config_jobmstr.xml
  - jmaster.ini
  - lerg.ini
  - npasplit.ini
  - tbs.ini
  - tbs_util.ini
- **/appserver/gateway**
  - gateway.ini

Note:: If you are copying the files using the FTP site, use the following modes for different file types:

- CAB files: Binary mode
- CMD, XML, and INI files: ASCII mode

---

3. Run **expand_mss.cmd** using the Run option on the Windows Start menu.

Starting the MSS Client

Start the client using one of the following procedures:

- On the MSS Start page, click **MetaSolv Solution**.
- From the Start menu select **Programs**, select **MetaSolv**, select **MetaSolv Solution v.6.2.**

  If you installed manually, you must add the menu option to the Start menu in Windows to start MetaSolv Solution.
- Double-click the executable file (**tbs.exe**) located in the MSS installation directory on the workstation.
- Launch from a desktop shortcut using a special ZAC link created using javascript. See "Creating a ZAC Link for Users". You can provide users with the http:// address for a page that contains customized links to start the initial installation. Users can create a desktop shortcut to start the application after installation. The following example shows how the http:// address for a customized ZAC page with links might look when distributed to users.

  `http://<host server name:port number>/<your HTML page>?app=mss`

  or in cluster or load balancer environment:

  `http://<virtual IP address configured in load balancer:port number>/<your HTML page>?app=mss`

Tools and Utilities

This section describes special considerations for MSS tool and utility applications. See *MetaSolv Solution System Administrator's Guide* for information on using these applications.

NPA NXX Split Utility

Before you can run this application, you must:

- Modify the INI file
- Create Oracle tables by applying the latest MSS maintenance release

The following sections explain how to complete these tasks.

Modifying the NPASplit.ini File

Before running the utility, you must customize the **npasplit.ini** file. The file is set up identically to the **tbs_util.ini** file in the client installation directory folder, so the logon database name and Oracle SID can be copied from that file.

To modify the **npasplit.ini** file:

1. Locate the file in the client installation directory and open it in a text editor.
2. Change the *Example1* text in the Profiles section to the name the users will pick from the **Database** drop-down box in the initial logon window.

   Any changes must match the title of the Profile listed in brackets that appears later in the file (for example: **[Profile Example1]**). Additional profiles can also be added in the same manner.
3. Change the value in the **ServerName** field to the Oracle SID shortcut in the **TNSNames.ora** file.

   The easiest method of finding this information is in the **tbs_util.ini** file (for example:

   ```
   ServerName=@EXAMPLE1
   ```
4. Save the **npasplit.ini** file with these changes.

Creating NPA NXX Split Utility Oracle Tables

The utility uses Oracle tables that are not found in the MSS database. To ensure that you have the appropriate Oracle tables for the NPA Split Utility, apply the latest MSS maintenance release. These tables must be created prior to the execution of a split.

To create the tables, do the following:

1. Download the **npasplit.cab** and **expand_mss.cmd** files from the *MetaSolv_Home/server_name*/**appserver/cab** directory, on the WebLogic Administration server, to a directory on the client workstation.
2. On the client workstation, run the **expand_mss.cmd** file to expand the **npasplit.cab** file.

Note: The **npasplit.cab** file can also be downloaded using ZAC, by performing the following:

1. On the client workstation, enter the URL for the Start page in the address field of your browser. For example:

```
http://server_name:port_number/main/
```

1. Click on the **NPA Split Utilities** link.
2. The **install.sql** file will be downloaded into the **C:/MSS** folder

3. Connect to SQL*Plus and run the following script:
   - **Install.sqll**

Note: There is also an **Uninstall.sql** file available to undo the changes, if necessary.

MetaSolv Solution Utilities

If you are installing using ZAC, open the Start page and click the **MetaSolv Solution Utilities** link. The appropriate files download to your workstation and the logon window appears.

If you are installing manually, copy the appropriate files into the client installation directory for MSS. See Table 7–1 for information on which files are needed for MSS Utilities.

If you want to run the Purge utility from a client workstation, you must install the Oracle 10.2.0.4+ client on the workstation to establish a connection to the database.

Note: Ensure that you have added the DB instance entry in the **TNSNames.ora** file on the workstation.

Background Processor

Oracle recommends installing this application on a separate machine. This application has two executables:

- Job Manager - is installed on a client workstation to view and manage jobs being processed
- Job Master - is installed on a separate machine to do processing

To install using ZAC, you must install each executable on the machine it is intended to run on.

See *MetaSolv Solution System Administrator's Guide* for complete information on the Background Processor.

This application requires an Oracle client.

See Table 7–1 for information on which files are needed for this application.

Location and Routing Gateway

If you are installing using ZAC, open the Start page and click the Location and Routing Gateway link. The appropriate files download to your workstation and the log on window appears.

If you are installing manually, copy the appropriate files into the client installation directory for MSS. See Table 7–1 for information on which files are needed for this application.

Installing a Utility to a Separate Installation Directory

Oracle recommends installing MSS applications in the same directory on the workstation. ZAC is designed to install applications in this manner. The exception to this rule is the Background Processor, which should be installed in its own directory on a separate machine.

You can install an application in a directory other than the MSS installation directory if you choose. If you use this method, you must make sure the INI file for the application you are copying is in the same installation directory as the application. If you install manually, make sure that you edit the **.ini** file for the utility you install to point to the appropriate application server. This is done automatically if you install using ZAC, but you must make the changes to the **.ini** file if you install manually.

The following table lists the CAB, INI, and XML files required for each application.

Table 7–1 MetaSolv Solution Application Files

Application	CAB file(s) required	INI/XML files required	Install to
MSS core application	app.cab dll.cab pbvm.cab mapping.cab	tbs.ini zac_config_mss.xml	Client installation directory
Job Manager (Background Processor)	jobmgr.cab pbvm.cab dll.cab	jmaster.ini zac_config_jobmgr.xml	Machine dedicated to running this application
Job Master (Background Processor)	app.cab jobmstr.cab pbvm.cab dll.cab	jmaster.ini zac_config_jobmstr.xml	Machine dedicated to running this application
Location and Routing Gateway	lerg.cab pbvm.cab dll.cab	lerg.ini zac_config_lerg.xml	Client installation directory
MetaSolv Solution Utilities	utility.cab pbvm.cab dll.cab	tbs_util.ini zac_config_utility.xml	Client installation directory
NPA NXX Utility	npasplit.cab pbvm.cab dll.cab	npasplit.ini zac_config_npasplit.xml	Client installation directory

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Post Installation Tasks

This chapter explains tasks that you must perform once the database, the application servers, and the first client installation have been completed.

See *MetaSolv Solution System Administrator's Guide* for more information on ongoing administration and maintenance tasks.

Verifying the Database

To verify the database, you must have Oracle Communications MetaSolv Solution (MSS) Utilities installed.

Run the Database (DB) Health Utility to make sure that all database objects required by MetaSolv Solution are valid, make response times quicker, and eliminate problems in processing information. While DB Health is required only after an installation, maintenance release or patch, you may use it at any time.

You can use the DB Health Utility to repair database errors.

> **Note:** The DB Health Utility cannot correct errors in invalid objects, the DBA must correct these errors. The DB Health Utility will attempt to grant privileges, create public synonyms and enable disabled objects.

The DB Health Utility can also generate a DB Status Report, which provides statistics vital to the health of the database.

See the discussion on using the DB Health Utility in the *MetaSolv Solution System Administrator's Guide* for detailed instructions.

Loading New and Updated Graphics to the Database

A utility named TBS Load Graphic Images loads new and updated graphics to the MSS database. You must run this utility one time, from any client workstation that has MSS Utilities installed, to update the database.

To load graphics to the database:

1. Open the MetaSolv Solution directory on a client workstation and double-click **TBSLoadGraphic.exe**.
2. The TBS Load Graphics Images utility appears minimized on the status bar. Click the icon on the status bar to display the utility. The TBS Load Graphics Images window appears.

3. Enter your user ID and password.
4. Enter the name of the database to which graphics are being loaded.
5. Click **Start**.

Once you run this file, subsequent attempts to run it have no effect on the database.

Loading Preferences to the Database

To ensure that all preferences have a value in the database after a first time installation, you must open the Preferences window. This causes any preferences that are not currently in the database to be added with the MSS default value.

To load preferences to the database:

1. On the MetaSolv Solution Navigation Bar, click **Application Setup**, then click **Preferences**.

   The Preferences window appears.

2. Click **Close**.

   Any preferences in this window not already defined in the database are included with default values.

   If a preference is added through an upgrade or a patch, you must open the Preferences window, locate the preference, and configure it with the appropriate value for the feature to which it applies.

Modifying the Oracle-Provided Startup Scripts

When you perform a full installation of MSS, startup scripts are included in the MSS files downloaded to the administration server. The startup scripts are for the following server types:

- Clustered administration server
  - **startAdminServer.sh** (UNIX/Linux)
  - **startAdminServer.cmd** (Windows)
  - **startAdminServer_wli.sh** (UNIX/Linux)
  - **startAdminServer_wli.cmd** (Windows)
- Software proxy server
  - **startProxyServer.sh** (UNIX/Linux)
  - **startProxyServer.cmd** (Windows)

The files are copied to the following location on the administration server:

/MSLV_Home/DOMAIN_NAME

To modify a startup script:

1. Locate and open the startup script in a text editor.
2. Change the following variables in the script to match the server environment:

   `SERVER_Name=[Admin_servername]`

   or

   `SERVER_Name=[Proxy_servername]`

```
BEA_Home=[BEA_home]

ADMIN_LOG=[Metasolv_home]
```

3. To bypass the startup prompt, provide your username and password in the script.

```
USER=[userid]
PW=[password]
```

4. Save your changes.

To start the server using the modified script:

1. Navigate to the directory where the startup file is located.
2. At the prompt, enter the script name.

   For example:

   For Unix/Linux:

```
./startAdminServer.sh
```

   For Windows:

```
./startAdminServer.cmd
```

Compiling Invalid Objects for Oracle Database

Run the DBHealth utility, from a client machine, to ensure that there are no invalid objects in the Oracle Database.

1. Navigate to the *MSLV_Home* directory and double-click **tbs_util.exe**.

   This starts MetaSolv Solution Utilities.

2. When the logon window appears, log on as **ASAP**.
3. In MetaSolv Solution Utilities, click **DBHealth** on the toolbar, then click the **Compile Invalid Objects** tab and click **Execute**.

   This recompiles any invalid procedures. If invalid procedures remain, click **Execute** again.

4. Select any of the tabs in the following list that have a value greater than zero and click the **Execute** button.
   - Grant Privileges
   - Create Public Synonyms
   - Enable Disabled Objects

   Note: It is not necessary to recompile the Analyze Statistics tab at this time.

5. Exit DBHealth.

Setting Up to View Reports in PDF Format

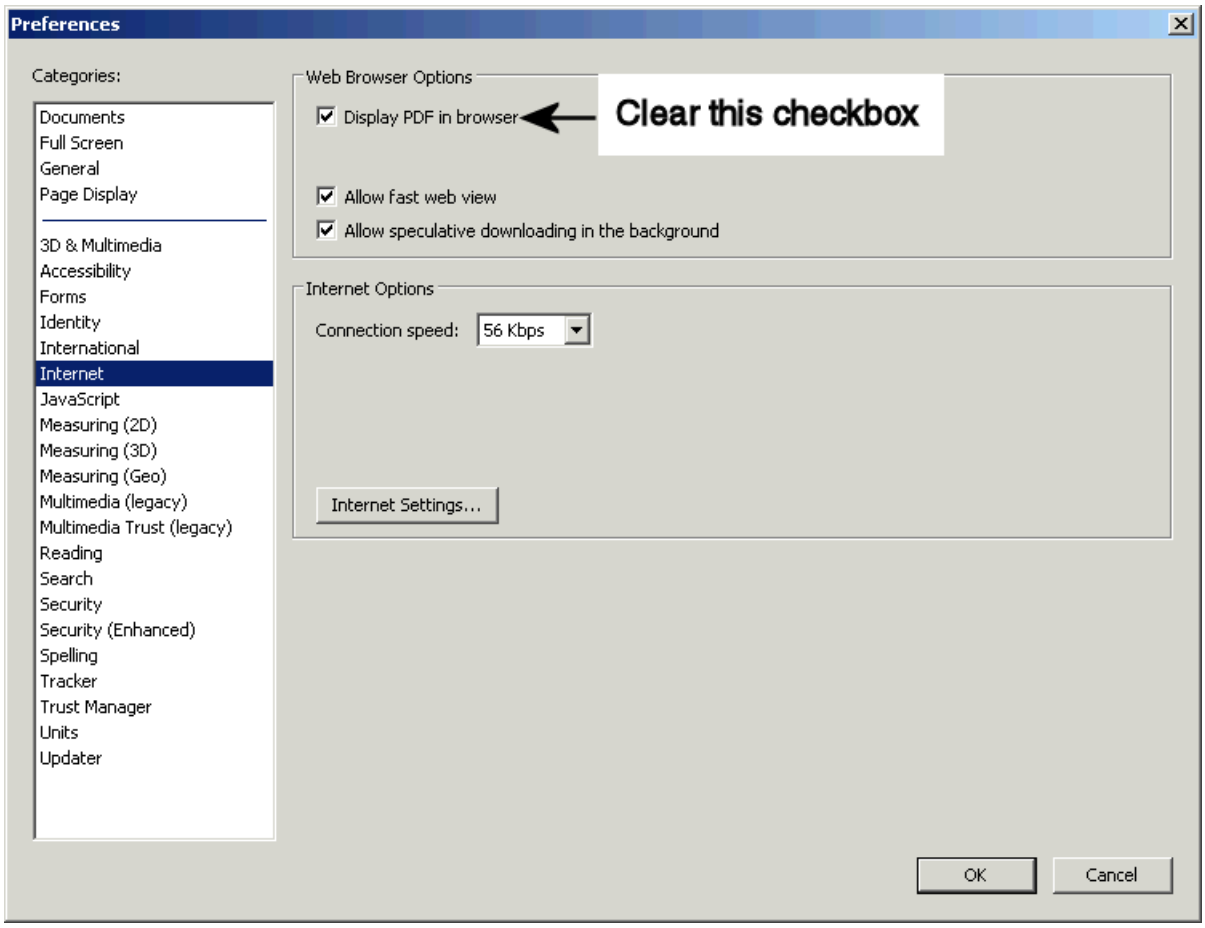
To ensure you can view MSS reports that appear in Adobe Acrobat's PDF format, complete the following actions.

- Make sure you have Adobe Acrobat Reader 8.1.2 or higher installed. If you have an older version, uninstall it. Then download and install Acrobat Reader 8.1.2 or higher from the Adobe Web site at: http://www.adobe.com
- Make Acrobat Reader a helper application to Microsoft Internet Explorer.

To make Adobe Acrobat Reader a helper application:

1. Open Adobe Acrobat Reader.
2. On the menu bar, select **Edit**, then select **Preferences.**

   The Preferences window appears.



3. In the selection pane on the left, select **Internet**.
4. Deselect the **Display PDF in Browser** check box.
5. Click **OK**.

Note: Make sure that you view the PDF with the zoom option set at 100 percent. Viewing a design report at a size below 100 percent can cause the text and grid lines on the report to touch, reducing readability.

Enabling Equipment Visualization

To use the equipment visualization feature, you must install Adobe Flash Player 10.0 or higher on the Citrix server or client machines, depending on your network configuration. To ensure you can view equipment graphically, complete one of the following actions:

- Install Flash Player on the Citrix server by downloading it from the Adobe Web site at:

  http://www.adobe.com/products/flashplayer

- Install Flash Player on each client machine that will access the equipment visualization feature by downloading it from the Adobe Web site at:

  http://www.adobe.com/products/flashplayer

- If you do not use a Citrix server and did not install Flash Player on a client machine, a message is displayed that prompts you to install it when you attempt to access a graphical view of your equipment for the first time. Click **Install** to proceed with the installation.

User Authentication

User authentication is the process that allows a user to log on and use MSS. For user authentication, MSS uses an external security provider to validate the user ID and password. MSS can support a variety of security providers. MSS system administrators must decide which security provider to use to validate users. The options available include authentication by:

- Oracle Database
- Oracle WebLogic Server
- A third-party software solution

Oracle Database Authentication

Oracle software provides the default user authentication.When Oracle database is used for user authentication, the user ID and password are validated using a standard SQL connect. The database performs the lookup to determine if the user ID is valid and returns the result to MSS. If the lookup is successful, the user is allowed to enter the system. If the lookup is not successful, the user receives an error message.

No changes are required to the default installation of MSS or Oracle WebLogic Server to use Oracle database authentication.

Oracle WebLogic Authentication

Oracle WebLogic Server provides an internal LDAP server and the ability to connect to other external providers such as Microsoft's Active Directory or another LDAP server. This authentication method has the advantage of being able to provide a common user ID and password for MSS as well as other applications.

The Oracle WebLogic Server authentication option requires an authentication provider. The default choice is the internal Oracle LDAP database. However, Oracle WebLogic Server also supports Microsoft Active Directory, Open LDAP providers, IPlanet, and Novell. Refer to the Oracle WebLogic Server security documentation for a description of capabilities for each of these providers. Oracle WebLogic Server documentation can be found on the following Web site:

http://docs.oracle.com/cd/E12840_01/wls/docs103/sitemap.html

To enable Oracle WebLogic Server authentication, configuration changes must be made to the base MSS installation. MSS uses the JEE JAAS authentication standard to connect to Oracle WebLogic. The changes that are outlined here enable the Java VM to load the correct classes. After you complete the changes, restart the server for the changes to take effect.

To enable Oracle WebLogic Server authentication:

1. Locate the JRE Security folder included in the *JAVA_Home* directory.

   Default paths:

   ForUNIX/Linux: *JAVA_Home*/**jre/lib/security**

   For Windows: *JAVA_Home***jre\lib\security**

2. Using any text editor, edit the text file called **mss_jaas.config** in the **Security** directory.

   This file creates a pointer to the class that accesses Oracle WebLogic Server for security functions. The file needs to have the exact contents defined below and it must appear with the text between the braces on one line.

   ```
   MSS {
   weblogic.security.auth.login.UsernamePasswordLoginModule required
   debug=false;
   };
   ```

3. Edit the **java.security** file to enable the external security call. Uncomment the following line:

   ```
   login.config.url.1=file:${java.home}/lib/security/mss_jaas.config.
   ```

4. Configure the Oracle WebLogic Server security realm.

   During this step, you must choose the Oracle WebLogic Server authentication mechanism. You have the choice of several providers distributed with the Oracle WebLogic Server software, or you can define a custom application and integrate it into the Oracle WebLogic Server installation. Refer to the Oracle WebLogic Server documentation for steps on how to accomplish this configuration.

5. Restart the server.

After the restart is completed, the MSS logon will use the Oracle WebLogic Server security configuration defined in step 4. There are several considerations for using this type of security:

- Creating a user is a two-step process.

  First, users must be added to the external security system so that authentication can be performed during the logon procedure. Refer to the Oracle WebLogic Server documentation on how to add users to the system.

  Next, users must be added to the MSS security tables. This step enables the permission functionality so that portions of the application, even individual screens, can be secured internally if necessary. See *MetaSolv Solution System Administrator's Guide* for more information.

- Oracle WebLogic Server security system users cannot be created from the MSS security window. This window only creates MSS users; it does not enable user logon.

- User IDs are limited to eight characters.

- Passwords are limited to 30 characters.
- The applications that connect to the database directly and do not use the application server cannot use this authentication method. These applications, which must continue to use the Oracle database authentication method, include the Location and Routing Gateway, MetaSolv Solution Utilities, and the NPA Split Utility.
- Group functionality is different in MSS and the external provider software, and groups are not kept in sync by the software. This task must be completed manually.

Third-party Authentication

The final alternative for user authentication is to use a third-party authentication software package. This option lets you use an enterprise security package and bypass the Oracle WebLogic Server for authentication. One reason for bypassing the Oracle WebLogic Server is that it does not directly support a security provider and you may not prefer to extend Oracle WebLogic Server to add an additional security package.

MSS allows this option because it has enabled JAAS. This is the same architecture used to enable Oracle WebLogic Server authentication. The only requirement to enable a third-party authentication provider is that the provider must have a JAAS logon module (that conforms to the Java 1.6 specification), or you must develop one. If the provider has a JAAS logon module, skip to the configuration section.

Developing a JAAS Logon Module

This section provides an overview of the steps required to develop a JAAS logon module. It is not a comprehensive guide. You will need to review Oracle's information about JAAS that can be accessed from java.sun.com, and you will have to review your security provider's documentation on how to provide for authentication.

The only class that needs to be developed is a logon module class. This class gets called from MSS on logon. The class must implement the LoginModule. Inside the class you develop several methods. The key method is the logon method. This method gets called on each logon. Inside this method you get the userid and password from the callback object, verify the information, and return a success or failure message. The following is a code fragment from the logon method of a sample JAAS logon module. It simply gets the userid and password and compares it to a static string of TESTUSER/TESTPASS. If it matches, it returns true.

```
NameCallback name = new NameCallback("name");
PasswordCallback pwd = new PasswordCallback("Password",false);
Callback[] calls = new Callback[2];
calls[0] = name;
calls[1] = pwd;
try {
callbackHandler.handle(calls);
} catch (Exception e) {
System.out.print(e);
}
boolean isSuccess = false;
String userId, password;
userId = name.getName();
password = String.valueOf(pwd.getPassword());

// verify the username/password

if (userId.equals("TESTUSER"))
```

```
 isSuccess = true;
if (isSuccess  &&
 password.equals("TESTPASS"))
{
// authentication succeeded!!!
isSuccess = true;
} else
   isSuccess = false;

      return isSuccess;
```

Configuring a JAAS Logon Module

If you are using a third-party JAAS logon module or a logon module you developed, you must configure the application server to use that module.

To configure a JAAS logon module:

1. Edit the **startMSLVServer** script file located in the domain directory.

   To do this, copy one of the POST_CLASSPATH lines and add your jar file to the line.

   Note: This file gets overlayed with each service pack. Therefore, this change needs to be re-applied to the **startMSLVServer** script after each service pack.

2. Navigate to the *JAVA_Home* directory and locate the **jre/security** directory.

   Default paths:

   For UNIX/Linux: *JAVA_Home*/**jre/lib/security**

   For Windows: *JAVA_Home***jre\lib\security**

3. Using any text editor, edit the text file called **mss_jaas.config** in the security folder.

   This file creates a pointer to the class that accesses the third-party security software. The file needs to have the package name of the third-party security class, and it must appear with the text between the braces on one line. Here is an example:

   ```
   MSS {
   Sample.module.SampleJAASLoginModule required debug=false;
   };
   ```

4. Edit the **java.security** file, located in the **jre/lib/security** folder, using any text editor and uncomment the following line:

   ```
   login.config.url.1=file:${java.home}/lib/security/mss_jaas.config.
   ```

   This allows the Java runtime to find **mss_jaas.config**.

5. Configure the third-party security software.

   Refer to the security software documentation for steps on how to accomplish this configuration.

6. Restart the server.

After the restart is completed, the MSS logon authentication uses the third-party security software. See the following considerations for using a third-party solution:

- Creating the user is a two-step process.

  First, users must be added to the external security system so that authentication can be performed during the logon procedure. Refer to your third-party security system documentation on how to add users to the system.

  Next, users must be added to the MSS security tables. This step enables permission functionality so that portions of the application, even individual screens, can be secured internally if necessary. See *MetaSolv Solution System Administrator's Guide* for more information.

- Third-party security system users cannot be created from the MSS security window. This window creates only MSS users; it does not enable user logon.
- User IDs are limited to eight characters.
- Passwords are limited to 30 characters.
- The applications that connect to the database directly and do not use the application server cannot use this authentication method. These applications, which must continue to use the Oracle authentication method, include: the Location and Routing Gateway, MetaSolv Solution Utilities, and the NPA Split Utility.
- Group functionality is different in MSS and the external provider software, and groups are not kept in sync by the software. This task must be completed manually.

Encrypting Network Traffic

MSS uses HTTPS to encrypt network traffic between the client and the application server; however, by default, MSS uses HTTP for client-to-server communication. To enable HTTPS for network encryption, you must change the standard installation.

The following steps apply only to applications that use the application server for its services. The applications that connect directly to the database can not use HTTPS.

To encrypt network traffic:

1. Obtain an SSL certificate.

   Typically you get this from a provider like Verisign. The provider requires a CSR to be generated from the application server. To generate the CSR, navigate to the URL:

   `https://<hostname:sslport>/certificate`

   See the Oracle WebLogic Server documentation for more information about the certificate application.

2. Configure the application server to enable HTTPS.

   Use the management console to complete the configuration. Refer to the Oracle WebLogic Server documentation and documentation from the certificate provider for details on how to complete this step. After the configuration is complete, restart the server.

3. Test the configuration by navigating to the MSS start page.

   The URL for the page is:

   `https://<hostname:sslport>/main`

The page should render without any warning dialog boxes from Internet Explorer. These warnings prevent the application from working with HTTPS.

4. To start or stop the administration server and managed servers (in a cluster environment) using the SSL port, you must add an **s** after **http** in the ADMIN_URL argument in the startup/stop server scripts for the administration server and for each managed server. For example:

   `https://host_name:admin_sslport`

5. Change the **gateway.ini** file for the application and distribute the changes to each client using ZAC or another distribution method.

   Under the JNDI heading, edit the URL parameter by changing:

   - HTTP to HTTPS
   - The port number to the SSL port number you configured

6. Configure the browser on the client workstation to allow mixed content to be displayed.

   a. Start Microsoft Internet Explorer.

   b. On the Tools menu, click **Internet Options**.

      The Internet Options window appears.

   c. On the Security tab, click **Custom Level**.

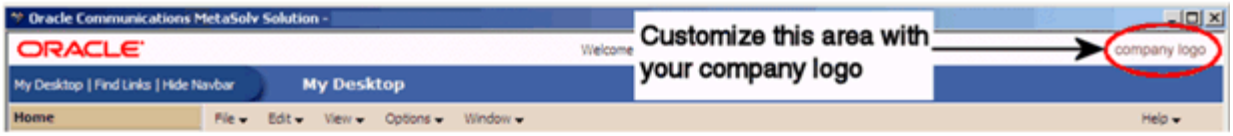
   d. For the **Display mixed content** option, click **Enable.**

      If this option is disabled, the application does not work. If you set the option to **Prompt**, the user will be prompted with each page.

Adding Your Company Logo to the MSS My Desktop and Forms

You can add your company logo to the MSS interface as shown in Figure 8–1.

Figure 8–1 Location of Customized Company Logo in the MSS Interface



The logo has the following requirements:

- Size: Width = 100 pixels Height = 25 pixels
- File name: **imgCompanyLogo.jpg**

To add your logo to My Desktop:

1. Locate a directory named **images** in the *MSLV_Home/DOMAIN_NAME*/**logo** directory.
2. Copy the company logo file with the required name (**imgCompanyLogo.jpg**) into the directory.

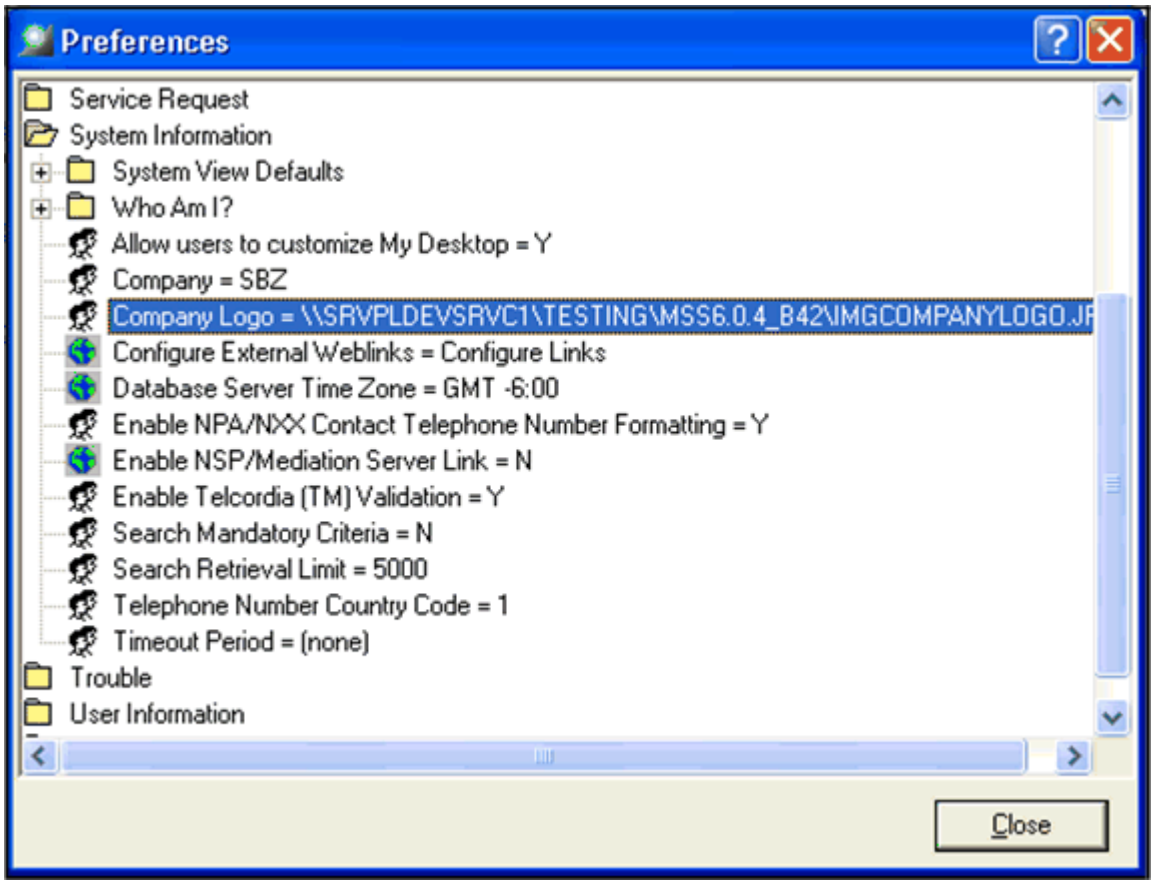
   The image stored in this directory under the file name given appears in the Company Logo field on the My Desktop page and on the Start page for MSS users.

The following option is available if you installed MSS as a full installation. If you used the upgrade option, rather than a full installation, this option is not available.

To add your logo to MSS forms:

1. On the Navigation Bar, select **Application Setup**, and then **Preferences**.

   The Preferences window appears.



2. Expand the System Information folder.
3. Double-click Company Logo and type the path for the bitmap logo into the **Company Logo** field of the window that appears.

   The default is **None**. If you leave the default, your company logo does not appear on forms such as orders or DLRs.
4. Click **OK**.
5. Click **Close** to close the Preferences window.

What to Do Next to Secure MSS

You must implement MSS security for individual users and groups of users. You can secure portions of the user interface to specific users to prevent unintended changes. This is especially useful if users only work in a portion of the application like ordering or connection design. See *MetaSolv Solution System Administrator's Guide* for complete information on setting up security for MSS.

9

Configuring JDBC Data Sources for Oracle RAC (MSS 6.2.0 Only)

This chapter describes how to configure the Oracle Communications MetaSolv Solution (MSS) JDBC data sources to work in an Oracle Real Application Cluster (RAC) environment for MSS 6.2.0.

About Oracle RAC

Oracle RAC consists of two or more Oracle database instances that run on two or more clustered machines and access a shared storage device using cluster technology. The host machines for the database instances must be linked by a high-speed interconnection to form the cluster and enable communications among the nodes in the cluster.

> **Note:** For more information on configuring Oracle RAC, your clustering software, your operating system, and storage solution, see the documentation from the respective vendors.

Using a RAC Node During MSS Installation

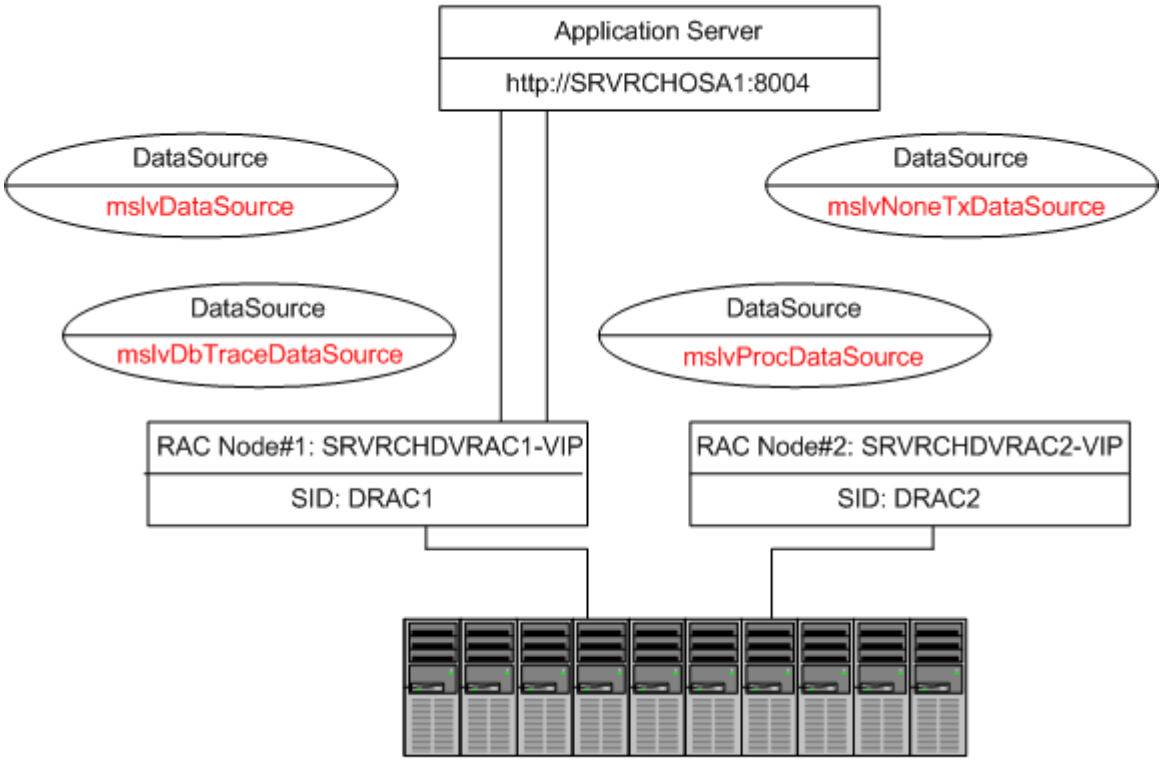
During the MSS installation process, use one of the Oracle RAC nodes for database connection information on a single server installation or on a cluster-managed servers installation. The connection information typically includes the host name, SID, and so forth.

Figure 9–1 shows how a single WebLogic server (`http://SRVRCHOSA1:8004`) and a two-node Oracle RAC are installed and configured.

The data sources point to:

```
Host = SRVRCHDVRAC1-VIP
SID = DRAC1
```

Figure 9–1 Example of Four Data Source



WebLogic Requirements for Oracle RAC

Table 9–1 contains references that database administrators and application server administrators can use to find general information on using Oracle RAC with Oracle WebLogic application servers, configuring Oracle RAC, and configuring multi data sources for Oracle RAC.

Table 9–1 Information Resources for Oracle RAC

Type of Information	Location
Using RAC with WebLogic application servers	Refer to the topic of configuring and managing WebLogic JDBC in the WebLogic Server 10.3.1 documentation.
RAC configuration information (for database administrators)	Refer to the topic of configuring and managing WebLogic JDBC in the WebLogic Server 10.3.1 documentation.
Configuring a multi data source for the RAC through the WebLogic console (application server administrators)	Refer to the topic of configuring and managing WebLogic JDBC in the WebLogic Server 10.3.1 documentation.

Configuring JDBC for Oracle RAC

After you perform a single-server installation or a cluster installation, perform the following tasks:

1. Delete existing data sources through the WebLogic administrator console.

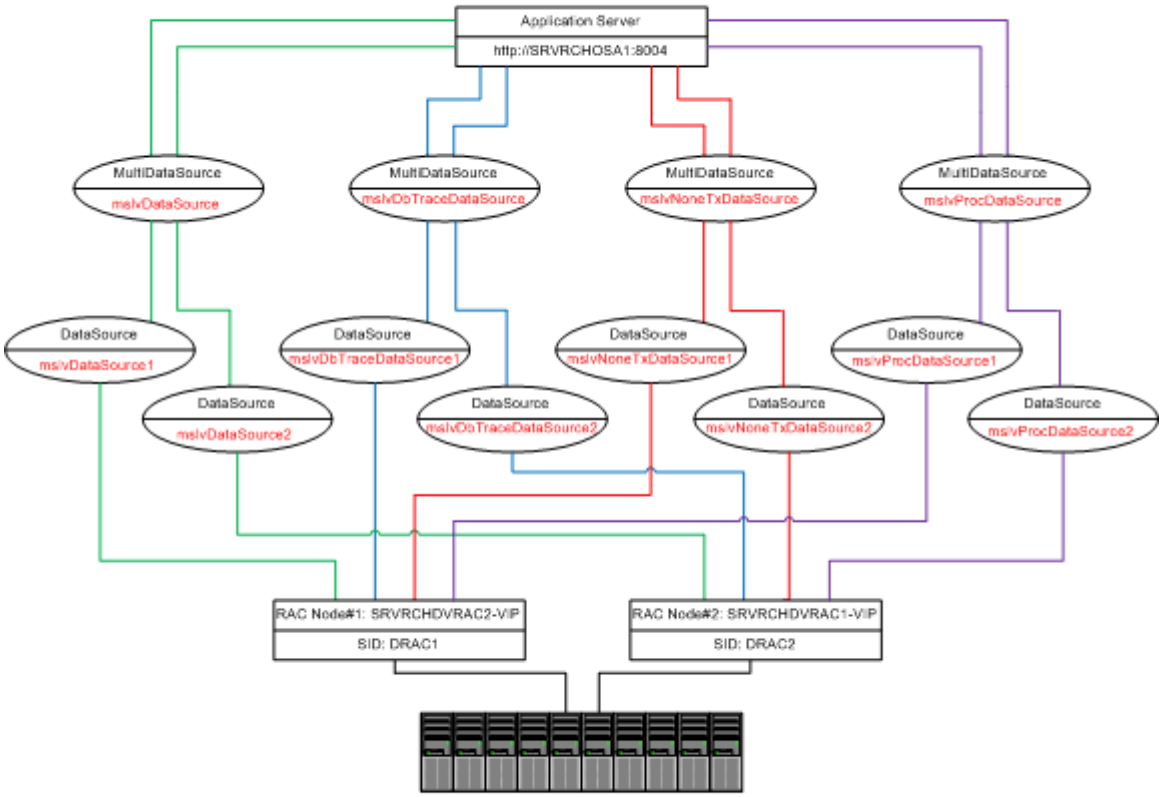
2. Configure JDBC data sources.
   a. Create JDBC data sources for mslvDataSource , mslvDbTraceDataSource, mslvNoneTxDataSource, and mslvProcDataSource for each Oracle RAC node.
   b. Tune each JDBC data source.
3. Configure JDBC multi data sources.
   a. Create the JDBC multi data sources: mslvDataSource, mslvDbTraceDataSource, mslvNoneTxDataSource, and mslvprocDataSource.
   b. Tune each JDBC multi data source.

Note: For XML API deployments, the following data sources/multi data sources will also be created:

- mslvWliDataSource
- bpm ArchDataSource
- cgDataSource
- cgDataSource-nonXA
- p13DataSource

Figure 9–2 shows the end result of the mslvDataSource, mslvDbTraceDataSource, mslvNoneTxDataSource, and mslvProcDataSource configuration for Oracle RAC.

Figure 9–2 End Result of DataSource and MultidataSource Configuration



Delete Existing JDBC Data Sources

Note: Before deleting the existing JDBC data sources, verify the data sources setup by the installer, to determine if they are XA or non-XA drivers, and then set up the RAC datasources in the same manner.

To delete existing data sources, refer to the Administration Console Online Help. Table 9–2 shows the values to use when deleting the data sources.

Table 9–2 Deleting Existing JDBC Data Sources - Configuration Values

Configuration Value	Description
Data Source	Select the check boxes for the data sources to be deleted.

Create JDBC Data Sources

Note: Before creating the JDBC data sources, verify the data sources setup by the installer, to determine if they are XA or non-XA drivers, and then set up the RAC datasources in the same manner.

To create a data source for each Oracle RAC node, refer to the Administration Console online Help. Table 9–3 shows the values to use when creating the data sources.

Table 9–3 Create JDBC Data Sources - Configuration Values

Configuration Value	Description
Name	Enter a name for the JDBC data source. This name is used in the configuration file (config.xml) and throughout the Administration Console whenever referring to this data source.
JNDI Name	Enter the JNDI path to where this JDBC data source will be bound. Applications look up the data source on the JNDI tree by this name when reserving a connection.
Database Type	Select the DBMS of the database that you want to connect to. If your DBMS is not listed, select Other.
Database Driver	Select the JDBC driver you want to use to connect to the database. The list includes common JDBC drivers for the selected DBMS.
Supports Global Transactions	Select this check box (the default) to enable global transaction support in this data source. Clear this check box to disable (ignore) global transactions in this data source. In most cases, you should leave the option selected. **Note:** Verify the data sources setup by the installer, to determine if they are XA or non-XA drivers, and then set up the RAC datasources in the same manner. If you selected **Supports Global Transactions**, select an option for transaction processing: (available options vary depending on whether you select an XA driver or a non-XA driver) ■ **Two-Phase Commit** - Select this option to enable standard XA processing. ■ **Logging Last Resource** - Select this option to enable a non-XA JDBC connection to participate in global transactions using the Logging Last Resource (LLR) transaction optimization. Recommended in place of Emulate Two-Phase Commit. ■ **Emulate Two-Phase Commit** - Enables a non-XA JDBC connection to emulate participation in distributed transactions using JTA. Select this option only if your application can tolerate heuristic conditions. ■ **One-Phase Commit** - Select this option to enable the non-XA connection to participate in a global transaction as the only transaction participant. ■ This option is only available when you select a non-XA JDBC driver to make database connections.
Database Name	Enter the name of the database that you want to connect to. Exact database name requirements vary by JDBC driver and by DBMS.
Host Name	Enter the DNS name or IP address of the server that hosts the database.

Table 9–3 (Cont.) Create JDBC Data Sources - Configuration Values

Configuration Value	Description
Port	Enter the port on which the database server listens for connections requests.
Database User Name	Enter the database user account name that you want to use for each connection in the data source.
Password/Confirm Password	Enter the password for the database user acccount.

Repeat this section to create additional data sources.

Tuning Each JDBC Data Source

For each data source you created in "Create JDBC Data Sources", perform the steps in this procedure to tune the data sources.

To tune each data source:

1. Ensure you are logged into the WebLogic administration console.
2. In the Domain Structure tree, expand **Services**, expand **JDBC**, and then expand **Data Sources**.
3. The Summary of JDBC Data Sources page is displayed.
4. Select the target data source (for example, *mslvDataSource1*).

   The Settings for <*DataSource*> page is displayed.
5. Click the **Connection Pool** tab.

   The Connection Properties are displayed.
6. Click on **Lock and Edit**.
7. Scroll down to Initial Capacity and Maximum Capacity.
8. In the **Initial Capacity** field, enter **1**.
9. In the **Maximum Capacity** field, enter **15**.

   Note: The values of the Initial Capacity and Maximum Capacity fields depend on their particular MSS deployment.

10. Scroll down to the bottom of the page and click **Save**.

    The Settings for <*DataSource*> page is displayed.
11. Click **Advanced** to display additional configuration items.
12. Select the check box for **Test Connections On Reserve**.
13. Click **Save**.

    The Settings for <*DataSource*> page is displayed.
14. Click the **Transaction** tab.

    The Transaction Properties are displayed.
15. Select the check box for **Set XA Transaction Timeout**.
16. In the **XA Transaction Timeout** field, enter **3600**.

17. In the **XA Retry Duration** field, enter **300**.
18. Click **Save**.
19. Click **Activate Changes**.

    The Settings updated successfully message is displayed.
20. Repeat steps 1 through 19 to tune each data source.
21. Proceed to "Create the JDBC Multi Data Source".

Create the JDBC Multi Data Source

A multi data source provides failover processing among data sources that are associated with the multi data source. The multi data source determines the data source to use to satisfy an application request for a database connection based on the failover algorithm selected in the multi data source configuration.

> **Note:** MSS supports only the failover algorithm.

To create a multi data source, refer to the Administration Console Online Help. Table 9–4 shows the values to use when creating the multi data source.

Table 9–4 Create the JDBC Multi Data Source - Configuration Values

Configuration Value	Description
Name	Enter a unique name for this JDBC multi data source. This name is used in the configuration files (config.xml and the JDBC module) and throughout the Administration Console whenever referring to this data source. The following four multi data sources need to be created, for use by the MSS application: ■ mslvDataSource ■ mslvDbTraceDataSource ■ mslvNoneTxDataSource ■ mslvProcDataSource
JNDI Name	Enter the JNDI path to where this JDBC data source will be bound. Applications look up the data source on the JNDI tree by this name when reserving a connection.
Algorithm Type	**Failover**: The multi data source routes connection requests to the first data source in the list; if the request fails, the request is sent to the next data source in the list, and so forth.
Target	Select the servers or clusters on which you want to deploy the multi data source. The targets you select will limit the data sources that you can select as part of the multi data source. You can only select data sources that are deployed to the same targets as the multi data source.
Data Source Type	Select one of the following options: ■ **XA Driver**: The multi data source will only use data sources that use an XA JDBC driver to create database connections. ■ **Non-XA Driver**: The multi data source will only use data sources that use a non-XA JDBC driver to create database connections.
Add Data Sources	Select the data sources that you want the multi data source to use to satisfy connection requests.

Tune the Multi Data Source

After creating the new multi data source, tune it to improve MSS and system performance.

To tune the multi data source:

1. Ensure you are logged into the WebLogic administration console.
2. In the Domain Structure tree, expand **Services**, expand **JDBC**, and then expand **Multi Data Sources**.
3. The Summary of JDBC Multi Data Sources page is displayed.
4. Select the target data source (for example, *mslvDataSource*).

   The Settings for <*DataSource*> page is displayed.
5. Click on **Lock and Edit**.
6. Select the check box for **Failover Request if Busy**.
7. Click **Save**.
8. Click **Activate Changes**.

   The Settings updated successfully message is displayed.

10

Setup Maintenance And Troubleshooting

This chapter contains basic setup maintenance and database troubleshooting information. See *MetaSolv Solution System Administrator's Guide* for full system maintenance information.

Basic Maintenance

This section contains information about the basic maintenance tasks for Oracle Communications MetaSolv Solution (MSS).

Starting the MSS System

When starting MSS, you must start components in the following order:

- Database
- Application server
- MSS client (user workstation)

The startup scripts are located in the domain directory. The script name includes the server name. For example, if a server is named *mslv01*, it will have a startup script named **start***mslv01***.sh** in the domain directory.

To start MSS, run the following scripts located in the domain directory:

- For Unix Linux:

  `startWebLogic.sh`

- For Windows:

  `startWebLogic.cmd`

  Starts the administration server if you are running in a domain that has a separate administration server. Start the administration server before starting the managed server(s).

- For Unix Linux:

  `start<server>.sh`

- For Windows:

  `start<server>.cmd`

  Starts an application server (either managed or single) running MSS.

If you are running an administration server and a managed server on the same machine, after the managed server is started, the administration server can be shut down to release resources that the process would otherwise consume. However, the administration server must be running to allow access to the management console or to perform any administration function.

Uninstalling MSS

To uninstall MSS from an application server:

1. Start the administration server and log on to the WebLogic Server Administration Console.
2. To undeploy the application, do the following:
   a. From the Domain Structure tree, click **Deployments**.
   b. In the Change Center pane, click **Lock & Edit**.
   c. From the Summary of Deployments pane, click the check box for **nur.ear** (or **cluster-nur.ear)**.
   d. Click **Stop** and select **Force Stop Now**.
   e. Click **Delete**.
   f. Click **Yes** to delete the deployment.
   g. In the Chnage Center pane, click **Activate Changes**.
3. Repeat step 2 for each version of ASR or LSR that is installed.
4. To delete the data sources, do the following:
   a. From the Domain Structure tree, expand **Services,** expand **JDBC**, and then click **Data Sources**.
   b. In the Change Center pane, click **Lock & Edit**.
   c. From the Summary of JDBC Data Sources pane, click the check box for each data source that is to be deleted (refer to the list below).
      – **Services** > **JDBC** > **Data Sources** > **mslvDataSource**
      – **Services** > **JDBC** > **Data Sources** > **mslvDbTraceDataSource**
      – **Services** > **JDBC** > **Data Sources** >**mslvNoneTxDataSource**
      – **Services** > **JDBC** > **Data Sources** >**mslvProcDataSource**
      – **Services** > **JDBC** > **Data Sources** >**mslvWliDataSource** (XML API only)
   d. Click **Delete**.
   e. Click **Yes** to delete the data sources.
   f. In the Change Center pane, click **Activate Changes**.
5. In the file system on the machine, delete the MSS installation directory.

Changing an IP Address

When an IP address for a server changes, adjustments must be made in the configuration. The following sections indicate how to handle this change.

Changing an IP Address for Clustered Servers

The IP address or DNS name can be used to identify a machine's listen address. Oracle recommends using the DNS name.

When the IP address changes on a server's machine, you must modify the machine's IP address in the Oracle WebLogic server if it is used as the server listen address, the **gateway.ini**, **integration.xml**, **tbs.ini**, **tbs_util.ini**, and any other files that identify the server machine using the IP address.

Changing an IP Address for Single or Administration Servers

Before the IP address changes, start the server and change the listen address to the new IP address, then implement the IP address change and restart the server.

Change the **startserver.sh** file to show the new address:

```
ADMIN_URL=http://<Admin server IP address:port number>/
```

If you use the DNS name of the server's host machine rather than the IP address, there is no effect when the IP address changes.

Troubleshooting Database Issues

This section contains information about the causes and resolutions to common database problems so you can troubleshoot in MSS.

ORA-12519, TNS: No Appropriate Service Handler Found

Problem

Listener refused the connection with the following error:

ORA-12519, TNS: no appropriate service handler found

Cause

You receive this error message when activating the data sources (DS) or when starting the server, most likely in WLI Cluster environments.

Resolution

Check the DB parameter for the number of processes. The number of processes should be high enough to hold the number of connections that you want to create in addition to the WL internal processes.

SQL*Plus Quits During the Upgrade

SQL*Plus may unexpectedly quit while running the upgrade under the following scenarios:

- The ASAP, EBOND, EDI, JOB, and SYS user IDs do not exist on the instance.
- You entered an incorrect password.
- ASAP does not have DBA-level authority.
- The database is not at the appropriate version level when starting the upgrade.
- You do not have the standard tablespaces **data** and **indexes**.
- The full directory path for the SQL script files does not include the trailing slash, you entered an invalid path, or you do not have write access to the directory.

- The free space checks did not pass (minimum available tablespace free for the largest contiguous space and total free space). Check the output log (**upgenv.log**) for the exit reason, correct the tablespace limitation, and run the **_upgmss.sql** script again.

Restarting a Failed Upgrade Attempt With the Incorrect Mode

When failure occurs before the main upgrade sequence has begun (for example, during the interactive upgrade sequence), use your original selection of either upgrade mode 1 or 2 to restart the upgrade. Do not use upgrade mode 3 to restart the upgrade if a failure occurs during the interactive upgrade sequence.

Upgrade Failure and Losing Audits

If upgrade mode 1 was run more than once, all audits are lost and you must start the upgrade again from the beginning.

Database Graphics Not Displaying Correctly

Check to make sure you have run the **TBSGraphicLoad.exe** located in the same directory as the MSS executable on the client workstation. This executable contains new and updated graphics for the MSS database. It does not need to be run by every user. It only has to run one time on the database for the release.

No Database Log Files

When **_upgradetbs.sql** runs, you are prompted for the directory path for the script files that are used to do the upgrade. The path must end with a trailing slash. The slash is different for UNIX/Linux and Windows:

/ for UNIX and Linux

\ for Windows

If the slash is not included, no log files are written.

A

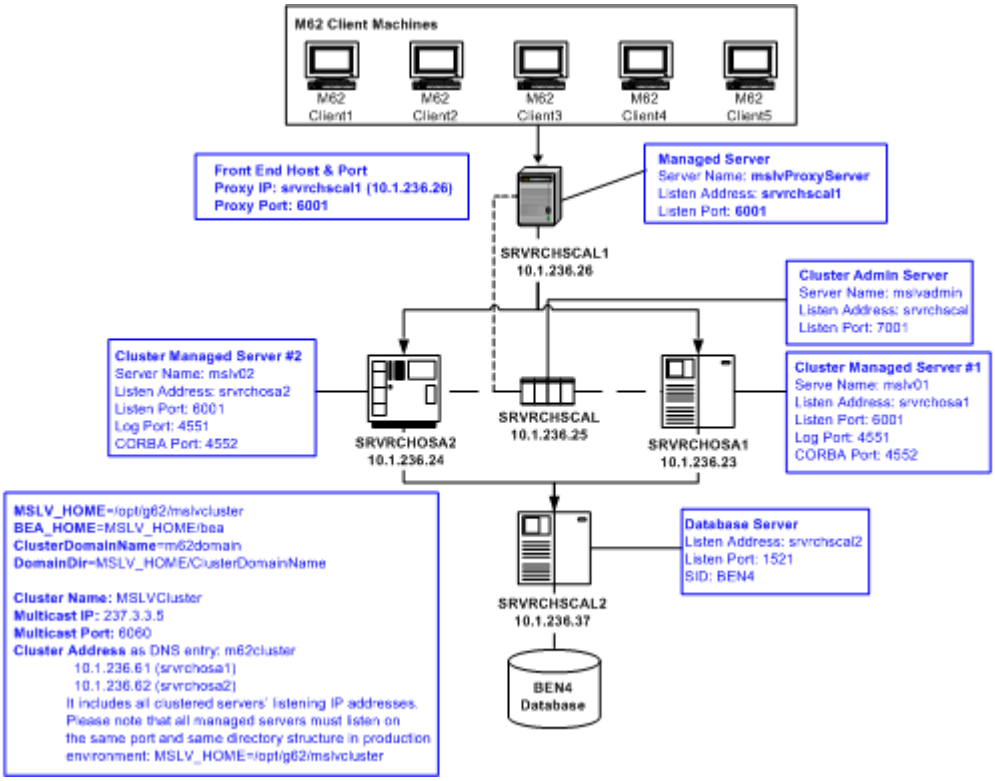
Proxy Server Setup

In a clustered environment, you typically have multiple servers running on different machines. To transparently connect to one of the servers, a central routing server is required to direct the client to one of the clustered servers. The routing server can be a hardware-based (load balancer) or software-based (proxy server) solution. This appendix describes how to configure and set up the optional Oracle-provided proxy server.

The Oracle proxy server is not recommended because it cannot support more than 150 concurrent user sessions.

Figure A–1 shows a proxy server in a clustered environment. The proxy server directs the data traffic between the clustered servers, mslv01 and mslv02.

Figure A–1 Proxy Server



Proxy Server Files

The following files (**web.xml** and **weblogic.xml**) are necessary for the proxy server setup. Refer to "Setting up the Proxy Server" for the steps required to create the files.

- **web.xml**

```
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
"http://java.sun.com/dtd/web-app_2_3.dtd">
<web-app>
<servlet>
  <servlet-name>HttpClusterServlet</servlet-name>
    <servlet-class>
      weblogic.servlet.proxy.HttpClusterServlet
    </servlet-class>
<init-param>
    <param-name>WebLogicCluster</param-name>
    <param-value>
       srvrchosa1:6001|srvrchosa2:6001
    </param-value>
  </init-param>
</servlet>
<servlet-mapping>
  <servlet-name>HttpClusterServlet</servlet-name>
  <url-pattern>/</url-pattern>
</servlet-mapping>
<servlet-mapping>
  <servlet-name>HttpClusterServlet</servlet-name>
  <url-pattern>*.jsp</url-pattern>
</servlet-mapping>
<servlet-mapping>
  <servlet-name>HttpClusterServlet</servlet-name>
  <url-pattern>*.htm</url-pattern>
</servlet-mapping>
<servlet-mapping>
  <servlet-name>HttpClusterServlet</servlet-name>
  <url-pattern>*.html</url-pattern>
</servlet-mapping>
</web-app>
```

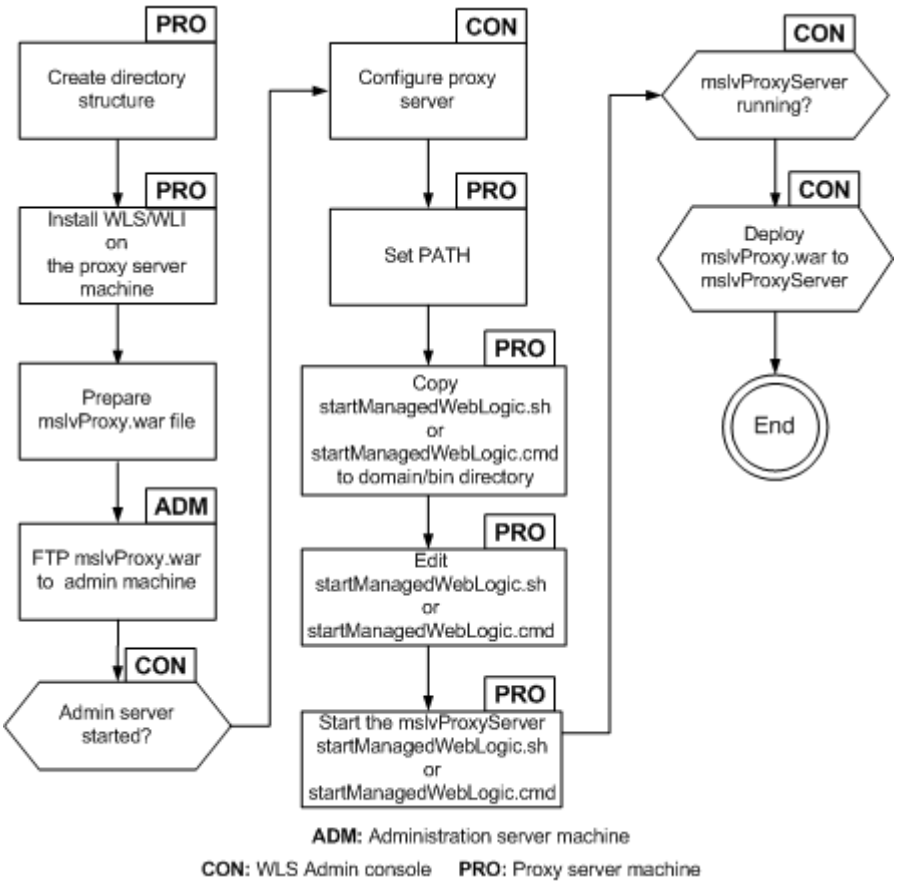
- **weblogic.xml**

```
<!DOCTYPE weblogic-web-app PUBLIC "-//BEA Systems, Inc.//DTD Web Application
8.1//EN" "http://www.bea.com/servers/wls810/dtd/weblogic810-web-jar.dtd">
  <weblogic-web-app>
    <context-root>/</context-root>
  </weblogic-web-app>
```

Setting up the Proxy Server

Figure A–2 shows the procedure for setting up the proxy server.

Figure A–2 Setting Up a Proxy Server



To set up a proxy server:

1. Create the directory structure.

   For example: **/opt/g62/mslvcluster/m62domain**.

2. Install Oracle WebLogic Server on the proxy server machine.

   For example: **srvrchscal1**

3. Prepare the **mslvProxy.war** file

   a. Create a **WEB-INF** directory under the proxy directory.

   b. On the proxy server machine, create a file named **web.xml** and copy the contents as shown previously, in "Proxy Server Files".

   c. Copy the file into the **WEB-INF** directory.

      – For Windows, enter the following command:

      ```
      notepad web.xml
      ```

      – For UNIX/Linux, enter the following command:

      ```
      touch web.xml
      ```

   d. On the proxy server machine, create a file named **weblogic.xml** and copy the contents as shown previously, in "Proxy Server Files".

   e. Copy the file into the **WEB-INF** directory.

– For Windows, enter the following command:

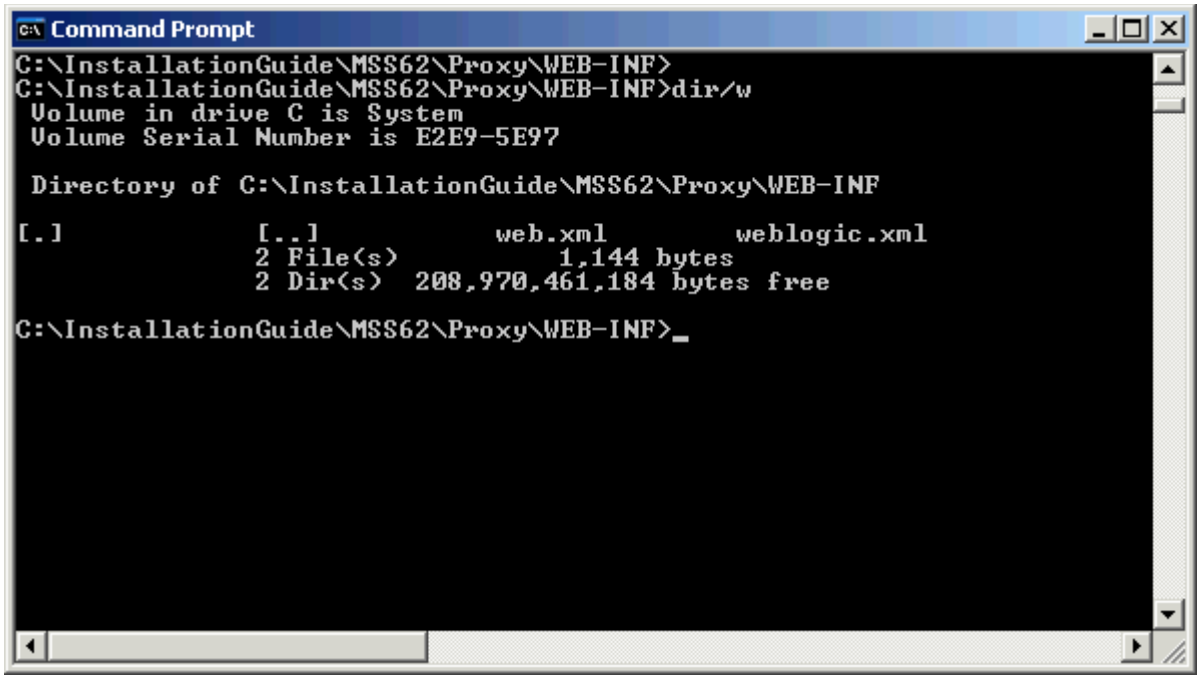
```
notepad weblogic.xml
```

– For UNIX/Linux, enter the following command:

```
touch weblogic.xml
```

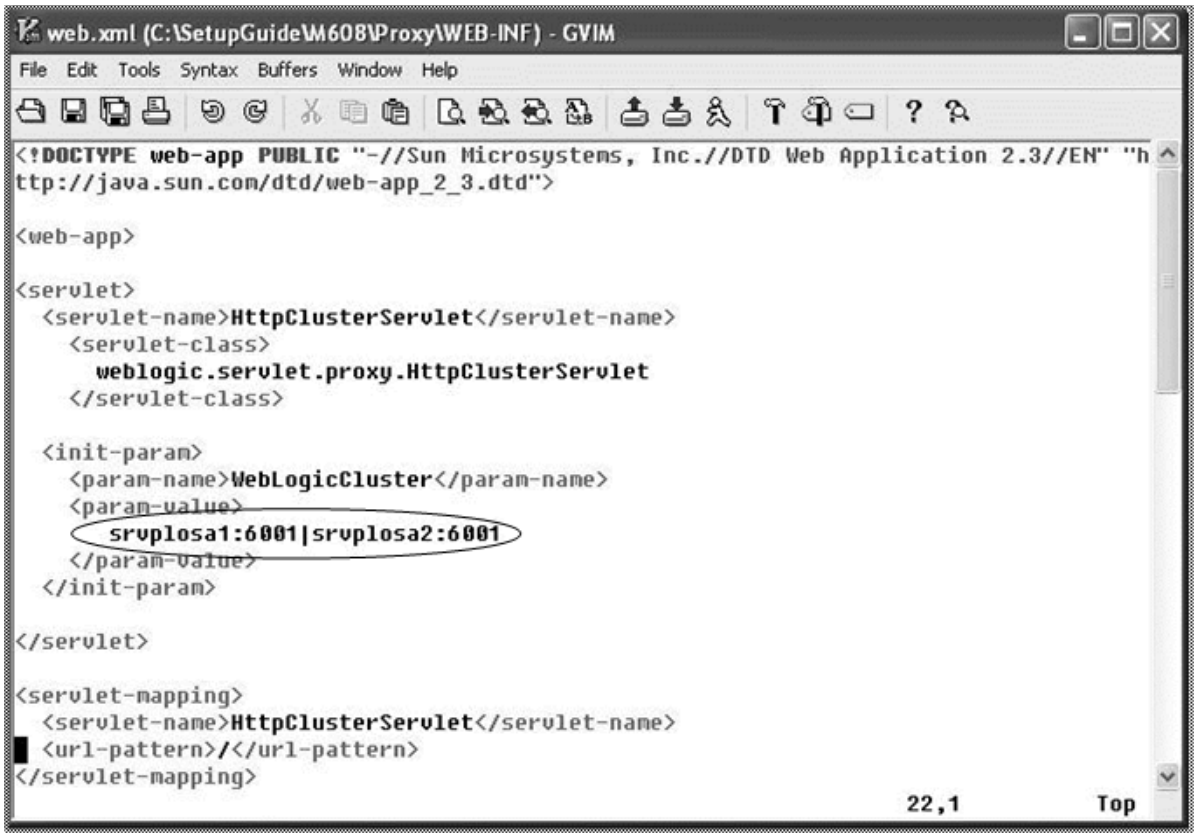
Figure A–3 shows the files copied into the newly created **WEB-INF** directory.

Figure A–3 Command Prompt Window Showing WEB-INF Directory



f. In the **web.xml** file, add all managed server host machine names and ports in the manner shown in the bold text in Figure A–4.

Figure A–4 web.xml File

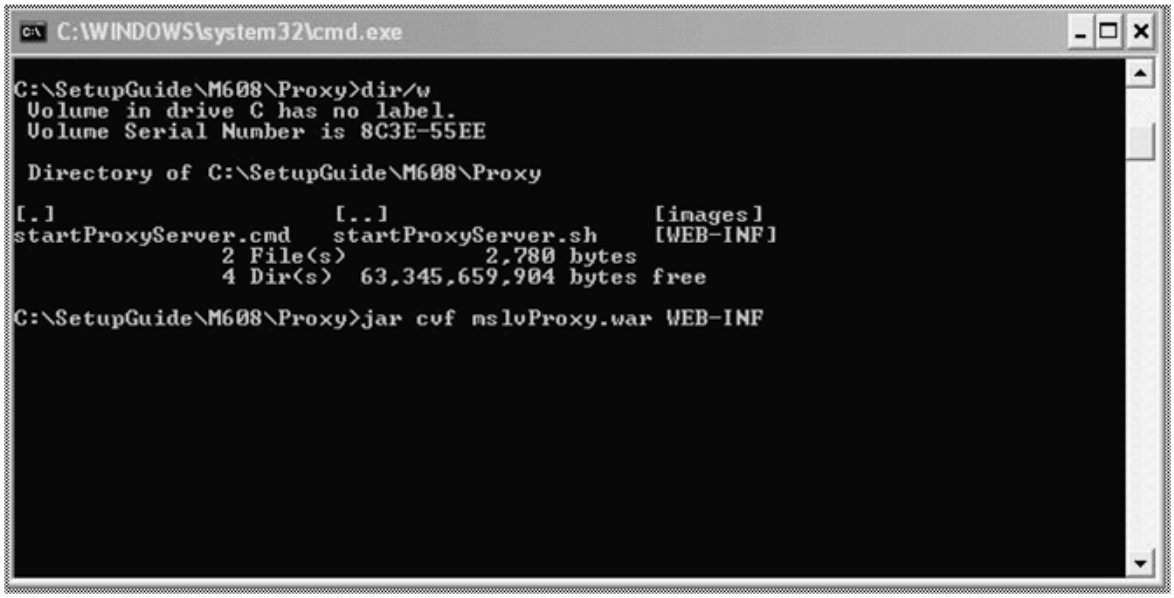


g. Go to the parent of the **WEB-INF** directory and type the following command and press ENTER:

```
jar cvf mslvProxy.war WEB-INF
```

Figure A–5 shows the command typed at the command line.

Figure A–5 Command Prompt Window



4. FTP the **proxy.war** file to the administration server.
5. Start the administration server if it is not running.
6. Create a WebLogic machine for the proxy server by completing the following tasks:
   a. Log on to the WebLogic Server Administration Console.
   b. In the Domain Structure tree, expand **Environment** and then select **Machines**.
   c. In the Summary of Machines pane, click **New**.
   d. In the Create a New Machine pane, enter the name of the machine that will host the proxy server in the **Name** field, select the **Machine OS** type, and click **Ok**.
   e. In the Change Center pane, click **Activate Changes**.
7. To configure the proxy server, in the left pane, select **Environment**, select **Servers**, and then select **New** in the right pane.

   The Create a New Server pane appears.
8. In the Create a New Server pane, enter the following information into the appropriate fields for the proxy server: **Name**, **Machine**, **Listen Address**, and **Listen Port** and click **Finish**.

   Worksheet references and example values:

Field Name	Worksheet Reference Number	Example Value
Name	Proxy-0610	mslvProxyServer
Machine	Proxy-0620	srvplscal1
Listen Address	Proxy-0620	srvplscal1
Listen Port	Proxy-0630	6001

9. Copy the **startManagedWeblogic** file to the **domain/bin** directory. (This script will be used to start the proxy server.)

   Figure A–6 shows the s the srvplscal1_g608 window.

Figure A–6 srvplscal1_g608 Window

10. Edit the **startManagedWebLogic** file, including new values for the parameters in the following list.

    Example values from the proxy worksheet are included in the list.

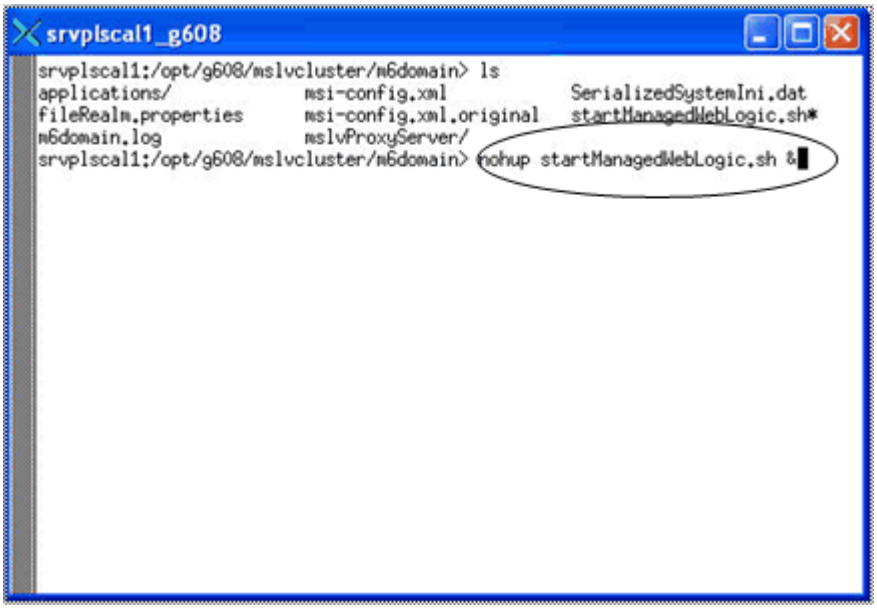
    ```
    ADMIN_URL=http://srvrchscal:7001
    ```

```
SERVER_NAME=mslvProxyServer
WLS_USER=weblogic
WLS_PW=web_logic
JAVA_VM=-server
MEM_ARGS=-Xms512m -Xmx512m -XX:NewRatio=4
```

11. Start the proxy server.

    Figure A–7 shows the command for starting the proxy server.

Figure A–7 Command for Starting the Proxy Server



12. From the WebLogic Server Administration Console, under the Domain Structure tree, expand **Environment** and then select **Servers** to see the updated list of servers and to view the state of the proxy server.
13. Configure the server and deploy the **proxy.war** file by completing the following tasks
    a. In the Change Center pane, click **Lock and Edit**.
    b. Expand the **Domain Structure** tree and click **Deployments**.

       The Summary of Deployments pane appears.
    c. On the **Control** tab, click **Install**.

       The Install Application Assistant pane appears.
    d. Under **Current Location**, navigate to the **deploy** directory and select **mslvProxy.war**, then click **Next**.

       The Choose targeting style pane appears.
    e. Select **Install this deployment** as an application and click **Next**.

       The Select deployment targets pane appears.
    f. Under **Clusters**, select the proxy server that was created in step 7.
    g. Under **Source accessibility**, select **I will make the deployment accessible from the following location**.

h. Click **Finish**.

i. In the Change Center pane, click **Activate Changes**.

j. Expand the **Domain Structure** tree and click **Deployments**.

   The Summary of Deployments pane appears.

k. Select **mslvProxy**.

l. From the **Start list**, select **Servicing all requests**.

   The Start Application Assistant pane appears.

m. Click **Yes**.

   Ensure that the state of the mslvProxy application has changed from **Prepared** to **Active**.

B

Oracle Communications MetaSolv Solution Components

Table B–1 shows which software components are included in the Oracle Communications MetaSolv Solution (MSS) core product, which are separate software options, and which are separate applications included with MSS.

Table B–1 MSS Components Included In This Release

Component	Core component, software option, or separate application	Where installed
Trouble Management	-	-
Trouble Management Subsystem	Software option	Client
Notifications	Core	Client
Work Management	-	-
Rules and Behaviors for all areas	Core	Client
Provisioning Plans	Core	Client
Work Queues	Core	Client
Service Requests	-	-
ASR	Software option	Application server
USO	Software option	Client
Product Service Request (PSR)	Software option	Client
Customer Management Module	Software option	Client
Product Catalog Module	Software option	Client
Service Request Worksheet Module	Software option	Client
LSR	Software option	Application server
Generate ASR (PSR to ASR mapping)	Software option	Client
Internal Service Request (ISR)	Software option	Client
Engineering Work Order (EWO)	Software option	Client
PSR to LSR mapping	Core	Client
ASR and ISR using templates	Core	Client
Engineering	-	-
Plant Administration Module	Software option	Client

Table B–1 (Cont.) MSS Components Included In This Release

Component	Core component, software option, or separate application	Where installed
AutoDesign	Software option	Client
Diversity	Software option	Client
Maps/GCD	Core	Client
Equipment	Core	Client
Network Design Canvas	Core	Client
Provisioning Assistant	Core	Client
Path Analysis	Core	Client
Groom Tool	Core	Client
Ownership of inventory	Core	Client
Technology Modules	-	-
Digital Loop Carrier Technology Module	Software option	Client
IP Technology Module	Software option	Client
ATM/Frame Relay Technology Module	Software option	Client
DSL Technology Module	Software option	Client
MPLS Technology Module	Software option	Client
Ethernet Technology Module	Software option	Client
Optical/TDM Technology Module	Software option	Client
SONET Technology Module	Software option	Client
Wireless Technology Module	Software option	Client
OSS Gateways and APIs	-	-
LSR Interconnection API	Software option	Application server
PSR End User Order Entry API	Software option	Application server
End User Billing API	Software option	Application server
Switch Provisioning Activation API	Software option	Application server
Transportation Provisioning Activation API	Software option	Application server
Plant API	Software option	Application server
Inventory and Capacity Management API	Software option	Application server
Trouble Management API	Software option	Application server
Internet Services API	Software option	Application server
Work Management API	Software option	Application server
ASR API	Software option	Application server
Utilities	-	-
Location and Routing Gateway	Software option Separate application	Application server
NPA Split Utility	Software option	Client

Table B–1 (Cont.) MSS Components Included In This Release

Component	Core component, software option, or separate application	Where installed
Background Processor	Core Separate application	Separate machine
MetaSolv Solution Utilities	Core Separate application	Client
Operational Reports	-	-
Ordering Objects Universe	Software option Separate application	Client
Customer Objects Universe	Software option Separate application	Client
Engineering Objects Universe	Software option Separate application	Client

C

Planning Worksheets

This appendix contains worksheets to help you determine the values you need to complete an installation of:

- Oracle Communications MetaSolv Solution (MSS)
- MSS with the XML API Option

Each worksheet contains columns for the following information:

- **R/O**: This field indicates whether a value for the item is required or optional.
- **Reference number**: This is a number used in the installation procedures in "Installing and Deploying MetaSolv Solution on a Single Server" or "Installing and Deploying MetaSolv Solution on a Clustered Server" to identify a value and show where the value is used. When the number is referred to in a procedure, you can look it up on a worksheet to see an example and a definition.

  Note: Some items apply only to the XML API option or non-XML API option. These items are annotated as *XML API only* or *non-XML API* only and the annotations can be found in the **Reference number** column.

- **Item name**: This field indicates the item you must identify for your system, for example, a name for the administration server or an HTTP port for a managed server.
- **Example value in Windows/UNIX/Linux**: Examples are provided for all items on the worksheet.
- **Your value**: This is the installation value you must provide on the worksheet for an item.
- **Item description**: A description of the item you are being asked to provide an installation value for.

MSS Installation (XML API and non-XML API options)

This section lists the worksheets that help you determine the values you need to complete the installation of MSS with XML API and non-XML API options.

Application Server Common Installation Worksheet

Table C–1 shows the worksheet that applies to all MSS installations (both XML API and non-XML API options). Complete the values and use the worksheet as you install required software and MSS 6.2.*x*.

Table C–1 Application Server Common Installation Worksheet

R/O	Reference number	Item name	Example value	Your value	Item description
R	COMM-0010	Application server domain name	m62domain		WebLogic domain name
R	COMM-0020	Application server username	weblogic		WebLogic server logon username
R	COMM-0030	Application server password	web_logic		WebLogic server logon password
R	COMM-0040	APP_MSLV passwd	mss6mslv		APP_MSLV database password
R	COMM-0050	APP_API passwd	mss6api		APP_API database password
R	COMM-0055	APP_INT passwd	mss6int		APP_INT database password
R	COMM-0057 (XML API only)	XML API integration user id	APP_INT		DB user id for WLI
R	COMM-0059 (XML API only)	XML API integration password	mss6int		DB password for WLI
R	COMM-0090	MetaSolv Home	/opt/m62Single/single or /opt/m62Cluster/cluster		MetaSolv home directory
R	COMM-0100	BEA_HOME	/opt/m62Single/single/bea or /opt/m62Cluster/cluster/bea		BEA home directory
R	COMM-0110	WebLogic domain directory	/opt/m62Single/single/ or /opt/m62Cluster/cluster/		Directory that holds the files for the WebLogic domain.
R	COMM-0115	Application directory	/opt/m62Single/single/application or /opt/m6Cluster/cluster/application		Directory that holds the files for the Application server.

Table C–1 (Cont.) Application Server Common Installation Worksheet

R/O	Reference number	Item name	Example value	Your value	Item description
R	COMM-0120	PATH	WIN: %BEA_ HOME%\jdk160_ 05\bin;%PATH% UNI/Linux: %PATH%:$BEA_ HOME/jdk160_ 11/bin:$PATH		Directory where BEA jre\bin is located. Must be part of the PATH environment variable.
R	COMM-0130	Oracle Database Server Name	srvrchscal2		The name of the server where the Oracle database resides.
R	COMM-0140	Oracle Database Port	1521		Port used to communicate with the Oracle database.
R	COMM-0150	Oracle Database Service Name	BEN6		Not applicable
R	COMM-0160	Oracle Database Server Name1	srvrchscal1		The name of the server where the Oracle RAC database resides.
R	COMM-0165	Oracle Database Port#1	1521		Port used to communicate with the Oracle RAC database.
R	COMM-0170	Oracle Instance Name1	drac1		The name of the Oracle RAC database instance.
R	COMM-0175	Oracle Database Server Name2	srvrchscal2		The name of the server where the Oracle RAC database resides.
R	COMM-0180	Oracle Database Port#2	1521		Port used to communicate with the Oracle RAC database.
R	COMM-0185	Oracle Instance Name2	drac2		The name of the Oracle RAC database instance.

Single Server Installation Worksheet

Table C–2 shows the worksheet for single server installation.

Table C–2 Single Server Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
R	Single-0150	Application server name	mslv01		Logical name for theWebLogic application server instance.
R	Single-0160	Application server DNS hostname	srvrchosa1		Name of the host machine on which theWebLogic application server resides.
R	Single-0170	Application server HTTP port	7070		Application server HTTP port.
R	Single-0180	Application server HTTPS port	7071		Application server SSL port.
R	Single-0190	Application server log port	4501		Used for MSS application server logging purposes. This value must be unique across all MSS application servers running on the same host machine.
R	Single-0200	Application server CORBA port	2507		CORBA initialPort. This value must be unique across all MSS application servers running on the same host machine.
R	Single-0205	Single server DEBUG_PORT	8453		Single server debug port. This value must be unique for each machine.
O	Single-0210	Proxy URL	http://srvrchosa1:7070 (default to http://Single-0160/Single-0170)		Proxy/Load balancer URL

Admin Server Installation Worksheet

Table C–3 shows the worksheet for administration server installation.

Table C–3 Admin Server Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
R	Admin-0240	Admin server name	mslvadmin		Logical name for a WebLogic admin server instance.
R	Admin-0250	Admin server DNS hostname	srvrchscal		The name of the host machine on which the admin server resides.
R	Admin-0260	Admin server HTTP port	7001		Admin server HTTP port. It is unique for each machine.
R	Admin-0270	Admin server HTTPS port	7002		Admin server SSL port. It is unique for each machine.

Clustered Server General Installation Worksheet

Table C–4 shows the worksheet for clustered server general installation.

Table C–4 Clustered Server General Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
R	Cluster-0410	Cluster Name	MSLVCluster		Logical name for the WebLogic cluster.
R	Cluster-0420	Cluster Address	Test/development environment: srvrchosa1:6001 (HTTP port), srvrchosa1:6002 (HTTPS port) srvrchosa2:6001 (HTTP port), srvrchosa2:6002 (HTTPS port) (2-node cluster) Production environment requires a DNS entry: m62cluster: 10.1.236.23 (srvrchosa1), 10.1.236.24 (srvrchosa2)		Comma separated list of single address host machine names or IP addresses and ports for each server in this cluster.
R	Cluster-0430	Multicast Address	237.3.3.5		Valid Range: 224.0.0.0 - 239.255.255.255 (Class D address)
R	Cluster-0440	Multicast Port	6060		Valid range: 1 - 65535
R	Cluster-0450	Front End Host	http://10.1.245.57:6001		For a cluster, you must provide this value for a proxy server or a load balancer URL. See LB-0100 and LB-0200.

Clustered Server Installation Worksheet

Table C–5 shows the worksheet for clustered server installation.

Table C–5 Clustered Server Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
R	Cluster-0520	Managed server name	(1) mslv01 (2) mslv02		Logical name for the WebLogic managed server instance.
R	Cluster-0550	Cluster managed server listen address	(1) srvrchosa1:10.1.236.23 (2) srvrchosa2:10.1.236.24		The name of the host machine on which the WebLogic managed server resides.
R	Cluster-0570	Cluster managed server listen port	(1) 6001 (2) 6001 This must be the same port in a production environment.		Managed server HTTP port. It is unique for each machine.
R	Cluster-0580	Cluster-managed server SSL listen port	(1) 6002 (2) 6002		Managed server SSL port.This value is unique for each machine.
R	Cluster-0590	Cluster-managed server log port	(1) 4551 (2) 4551		Used for MSS clustered server logging purposes. This value must be unique for each machine.
R	Cluster-0600	Cluster server CORBA port	(1) 4552 (2) 4552		CORBA initialPort. This value must be unique for each machine.
R	Cluster-0610 (XML API only)	Cluster server DEBUG_PORT	(1) 8444 (2) 8444		Managed server debug port. This value must be unique for each machine.

WebLogic Proxy Server Installation Worksheet

Table C–6 shows the worksheet for WebLogic proxy server installation.

Table C–6 WebLogic Proxy Server Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
O	Proxy-0610	Proxy managed server name	M62Proxy		Logical name for the WebLogic proxy server instance.
O	Proxy-0615 (non-XML API only)	Machine name	wplwchang		The name of the host machine on which theWebLogic proxy managed server resides.
O	Proxy-0620	Proxy managed server listen address	wplwchang		The name of the host machine on which thWebLogic proxy managed server resides.
O	Proxy-0630	Proxy managed server listen port	7001		Proxy managed server HTTP port. This value is unique for each machine.
O	Proxy-0640 (non-XML API only)	Proxy managed server SSL listen port	7002		Proxy managed server SSL port. This value is unique for each machine.

Hardware Load Balancer Installation Worksheet

Table C–7 shows the worksheet for hardware load balancer installation.

Table C–7 Hardware Load Balancer Installation Worksheet

R/O	Reference number	Item Name	Example value	Your value	Item description
O	LB-0100	Front end host virtual IP address	10.1.245.57		The virtual IP address for a load balancer machine.
O	LB-0200	Front end HTTP port	6001		The HTTP port used by the load balancer machine.

D

Configuration Values

The installer sets certain configuration values for the domain automatically during the installation process. You can change these values through the WebLogic Server Administration Console, but the values are recommended by Oracle. The location in the console are enclosed in parentheses.

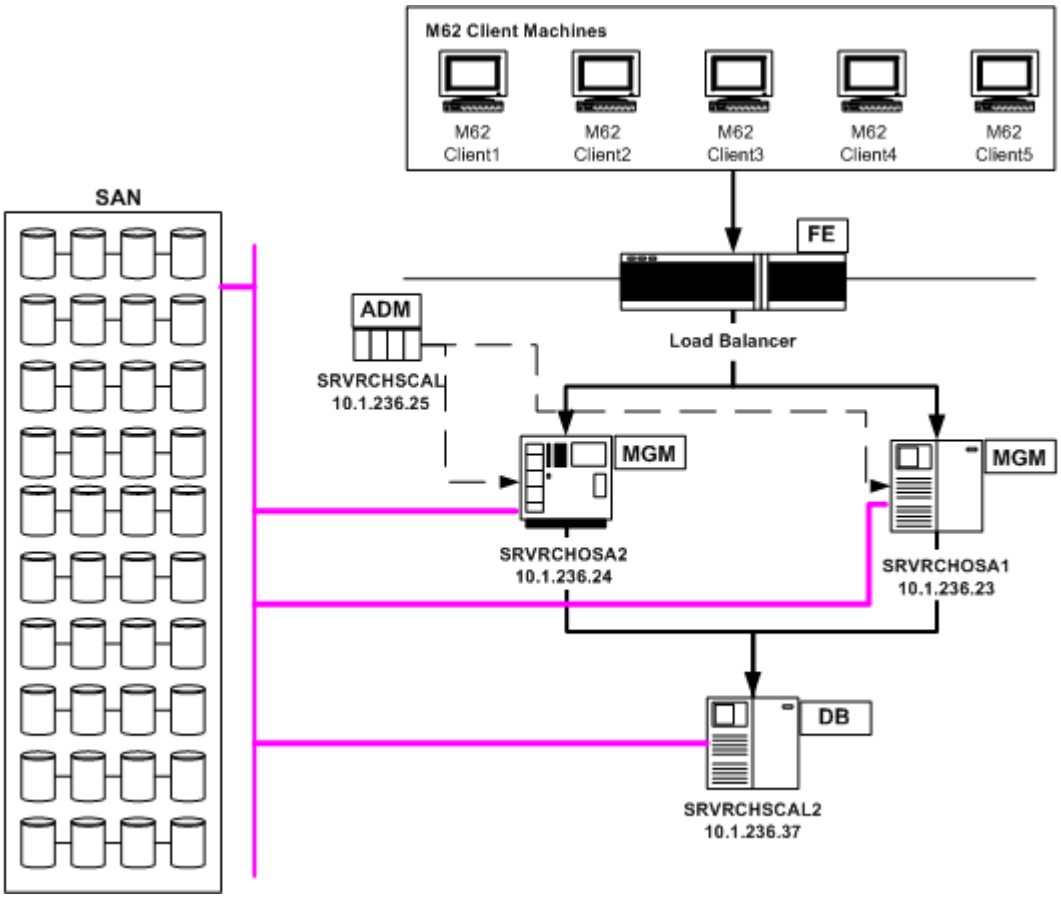
- Disable SSL (**Environment** > **Servers** > *servername* > **Configuration** tab > **General** tab)
- Memory GC (**Environment** > **Servers** > *servername* > **Configuration** tab >**Tuning** tab)
  - memory.GCThreshold=20
  - memory.GranularityLevel=5
  - memory.SampleSize=10
  - memory.TimeInterval=600
- Bridging: 1 (**Services** > **Messaging** > **Bridges**)
- Domain Logging (*Domain*> **Logging** tab)
  - Files to retain: 10
  - Rotation file Size: 65535
  - Rotation Type: By Size
  - Limit number of retained files: Selected
- Server Logging (**Environment** > **Servers** > *servername* >**Logging** tab >**General** tab)
  - Files to retain: 10
  - Rotation file Size: 65535
  - Rotation Type: By Size
  - Limit number of retained files: Selected
- HTTP Logging (**Environment** > **Servers**> *servername*> **Logging** tab> **HTTP** tab)
  - HTTP access log file enabled: Un-selected

E

Load Balancer Configuration Example

Figure E–1 shows a configuration that includes a load balancer for the M62 cluster used in the scenario in this document.

Figure E–1 Example of a Load Balancer Used With the M62 Cluster



Contact your network engineering team or other IT support to set up the load balancer. One requirement for the load balancer service is server affinity, also known as Sticky session.

See the following link for hardware load balancer requirements:

http://docs.oracle.com/cd/E12840_01/wls/docs103/sitemap.html

Configuration example for Cisco CSS 11503 for M62 Cluster

```
service M6Installer1
port 6001
protocol tcp
st
keepalive type http
keepalive maxfailure 2
keepalive retryperiod 2
keepalive uri "/main/buildInfoPage.html"
ip address 10.1.236.23
active
service M6Installer2
port 6001
protocol tcp
string srvplosa2
keepalive type http
keepalive maxfailure 2
keepalive retryperiod 2
keepalive uri "/main/buildInfoPage.html"
ip address 10.1.236.24
active
Owner test
content m6cluster
vip address 10.1.245.57
protocol tcp
port 6001
add service M6Installer1
add service M6Installer2
advanced-balance arrowpoint-cookie
balance leastconn
param-bypass enable
no persistent
active
```

F

Tuning Servers For Performance

This appendix provides recommended configurations to tune your servers for performance.

Information on Tuning the Application Server

The configuration information given in this document is for a baseline setup.To achieve optimum performance for individual business needs, load and performance testing in a test environment that represents your true production environment is required. The test environment should mimic how you use your production system, including the transaction mix, number of users, hardware and software infrastructures, database, network usage, and all other relevant factors. Setting up a test environment will allow you to determine the settings that you should have for your production environment for:

- Connection pool sizing
- Java memory management

For information on setting parameters for execute queues, connection pools, timeouts, and so on, see the following Web site:

http://docs.oracle.com/cd/E12840_01/wls/docs103/sitemap.html

Connection Pool Settings

For the **MSLVPool,** set the Maximum Capacity = **Threads Maximum**

1. From the WebLogic Server Administration Console, select **Services**.
2. Select **JDBC**.
3. Select **Data Sources**.
4. Select **mslvDataSource**.
5. Select the **Configuration** tab.
6. Select the **Connection Pool** tab.
7. Set the Maximum Capacity field to **100**.
8. Click **Save**.
9. Under the Change Center pane, click **Activate Changes**.

JVM Settings

In the MSS 6.2.*x* startup script under the *MSLV_Home*/**domain** directory, the following settings can be configured:

```
MEM_INIT=1024m
MEM_MAX=1024m
PERMSIZE=192m (for non-XML) and 256m (for XML)
MAXPERMSIZE= 384m (for non-XML) and 512m (for XML)
Set the MEM_INT value equal to the MEM_MAX value.
```

Note that in a Windows environment, JVM cannot take advantage of memory more than 1.2 GB. the value of (MEM_MAX + MAXPERMSIZE). The memory needs to be in a continuous block.

For other operating systems, the JVM limitation is 4GB in a continuous memory block. In some cases to date, a system had 2GB free memory but the java process was not able to start. This is because the machine was up for some time and due to the memory fragmentation, JVM was not able to obtain a continuous memory block of 2GB. The only way to resolve this is to reboot the server machine. Then, immediately restart the application server.

G

Configuration Files

This appendix provides additional information about the configuration files involved in the Oracle Communication MetaSolv Solution (MSS) installation process.

> **Note:** After making changes to any of the configuration files, be sure to restart each server or clustered server. Changes made to these files do not take effect until the server(s) are restarted.

Loggingconfig.xml

Not all windows in the application allow you to limit the number of rows that are retrieved when performing a query. If you are not able to specify a limit and your query retrieves a large number of rows, the application server may display a java.lang.OutOfMemory error or a 500 server error. If this occurs, you must restart the application server. To eliminate this problem, you can edit the **jdbc-trace** query parameters of the **loggingconfig.xml** file. See *MetaSolv Solution System Administrator's Guide* for more information.

Gateway.ini

See "Gateway Events" for more information.

Compare the new **gateway.ini** file against your original **gateway.ini** file for the following sections:

- [Servers]: For API servers
- [ThreadProcs]: For event servers
- [System]: For URLNamingServicePort
- [CA]: For Custom attribute refresh interval