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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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YouTube - https://www.youtube.com/user/EvolvingBI
This guide provides procedures for additional optional deployment options. Use the procedures in this guide only after you have completed an initial installation and configuration of Oracle Enterprise Performance Management System products, using a standard or custom deployment.

Check the Oracle Documentation Library (http://www.oracle.com/technology/documentation/epm.html) on Oracle® Technology Network to see whether an updated version of this guide is available.
Most EPM System components support clustering in active-active configurations to remove single points of failure from the architecture, maintain consistent performance through load balancing, or both.

When you are deploying Java web applications on a machine other than the machine hosting Oracle Hyperion Foundation Services, WebLogic Server Administration Server must be running on the Foundation Services host machine. If you are deploying on the same machine as Foundation Services, WebLogic Server Administration Server does not need to be running.

**Vertically Scaling EPM System Components**

You can vertically scale EPM System components. When you vertically scale, you configure one or more additional instances on the machine hosting an existing instance of an EPM System component.

EPM System components support vertical scaling as follows:

- Windows-based Java web applications except for Oracle Hyperion Strategic Finance and Oracle Hyperion Financial Management Java web applications
- Oracle Essbase Server
- UNIX-based components

The following components do not support vertical scaling:

- Oracle HTTP Server
● Oracle Essbase Studio
● All Financial Management components
● Oracle Hyperion Tax Provision
● Oracle Hyperion EPM Architect Dimension Server
● Oracle Hyperion Financial Close Management
● Oracle Hyperion Tax Governance
● Oracle Hyperion Disclosure Management
● All Strategic Finance components

To vertically scale Oracle Hyperion Reporting and Analysis, see “Scaling Reporting and Analysis Framework and Interactive Reporting” on page 24.

To vertically scale Essbase, see “Vertically Scaling Essbase” on page 41.

Assumptions and Prerequisites

This procedure assumes the following:

● You have installed and configured EPM System components using the Oracle Enterprise Performance Management System Installation and Configuration Guide or the Oracle Enterprise Performance Management System Standard Deployment Guide.

● You are logged into the machine hosting the first instance of the component as the same user that deployed the first instance of the component.

● When you are deploying on a machine other than the machine hosting Foundation Services, WebLogic Server Administration Server must be running on the Foundation Services host machine. If you are deploying on the same machine as Foundation Services, WebLogic Server Administration Server does not need to be running.

Vertically Scaling

➢ To vertically scale EPM System components:

1 Launch Oracle Hyperion Enterprise Performance Management System Configurator: From the Start menu, select All Programs, then Oracle EPM System, and then EPM System Configurator (all instances).

2 In Oracle Instance, complete these steps, and then click Next.
   ● In Home Directory for EPM Oracle Instance, verify that the location is identical to that specified while configuring the first instance.
   ● In EPM Oracle Instance Name, enter a new instance name.

3 Select the required configuration tasks for the component you are scaling.
   If you are vertically scaling a set of components deployed as a single managed server, select Scale out single managed server on this machine.
For most components, the Configure Database task is needed only once per deployment. However, for Oracle Hyperion Financial Data Quality Management, Enterprise Edition, when you are configuring an additional instance, during database configuration, when you are prompted whether to drop and re-create the tables or reuse the existing database, select **Reuse the existing database**.

EPM System Configurator updates port values so they do not conflict with the first instance.

4 When the deployment process is complete, the Summary screen is displayed. Verify that all the tasks completed successfully, and then click **Finish**.

If you are configuring in silent mode, you do not need separate silent response files with unique ports if you add the following entry to the response file:

```xml
<auto_port_tick>true</auto_port_tick>
```

When you vertically scale on Windows machines, Start menus, Windows Registry entries, and Windows service names are appended with the instance name.

**Validating the Vertical Scaling**

Run a deployment report and confirm that the component was vertically scaled:

Navigate to `EPM_ORACLE_INSTANCE/bin` and execute the following command:

```bash
epmsys_registry report deployment
```

The report file (`deployment_report_YYYYMMDD_HHMMSS.html`) is stored in `EPM_ORACLE_INSTANCE/diagnostics/reports`.

You see an additional instance of the scaled component.

**Clustering Java web Applications**

This section assumes that you are familiar with WebLogic administration and clustering. If you are unfamiliar with these tasks, Oracle urges you to seek technical assistance before attempting to cluster an EPM System Java web application.

**Prerequisites**

**Note:** The information in this section assumes that you have installed your Java web applications on each node to be included in the cluster.

Complete these tasks before setting up a cluster for an EPM System Java web application:

- When you are deploying on a machine other than the machine hosting Foundation Services, WebLogic Server Administration Server must be running on the Foundation Services host.
machine. If you are deploying on the same machine as Foundation Services, WebLogic Server Administration Server does not need to be running.

- Enable either session persistence or sticky sessions (which direct all requests for a specific session to the same server) on the load balancer.
- Ensure that all the computers to be included in the cluster use either Windows or UNIX but not both.
- Install the EPM System product on each node that the cluster will include. Install to the same file system location on each machine. Using the same file system path on each physical machine in a cluster is important so that these environment variables can be set once for the entire cluster, rather than set and customized for each node in the cluster:
  - All OS—CLASSPATH and PATH
  - UNIX—LD_LIBRARY_PATH, LIBPATH, or SHLIB_PATH

### Clustering Java Web Applications Using EPM System Configurator

You can cluster EPM System Java web applications during configuration with EPM System Configurator. Use the following general configuration sequence. This procedure assumes that the Oracle HTTP Server installed by Oracle Hyperion Enterprise Performance Management System Installer is the logical host.

1. **To cluster EPM System Java web applications during configuration with EPM System Configurator:**

   1. **Install EPM System Java web applications on each machine in your environment.**
   2. **Configure the Java web application on the first machine, selecting “Deploy to Application Server” on the EPM System Configurator Task Selection page.**

      During deployment, EPM System Configurator creates a cluster for each managed server in WebLogic.
   3. **Configure the Java web application on the next machine, selecting “Deploy to Application Server” on the EPM System Configurator Task Selection page.**

      During deployment, EPM System Configurator adds the server to the cluster in WebLogic. Repeat this step for any additional machines in the deployment.
   4. **Configure the web server last, selecting “Configure Web Server” from the Foundation tasks on the EPM System Configurator Task Selection page. Then, restart the web server and Oracle Hyperion Enterprise Performance Management Workspace.**

Considerations about clustering Java web applications:

- EPM System Configurator configures a cluster for each managed server.
- You should have only one cluster for each EPM System product. Note that EPM System Configurator creates a cluster for each managed server.
If you are manually deploying Java web applications, see “Clustering Java Web Applications in a WebLogic Manual Deployment” on page 17 for information on clustering with Oracle WebLogic Server.

**Clustering Java Web Applications in a WebLogic Manual Deployment**

You can cluster a manually deployed Java web application using WebLogic. This section provides a general overview of clustering Java web applications. See the WebLogic documentation for more details on this procedure.

**Note:** If you deployed Java web applications using EPM System Configurator, EPM System Configurator creates the cluster and adds servers to the cluster. You need not perform additional tasks in WebLogic. See “Clustering Java Web Applications Using EPM System Configurator” on page 16.

➢ To cluster Java web applications:

1. **Start the WebLogic Administration Console.**

2. If you manually deployed the Java web applications, in the Domain Structures pane, click Clusters and create a cluster.

   If you deployed the Java web applications with EPM System Configurator and clicked Setup to specify the logical address for the Java web application, this step is not necessary, because EPM System Configurator created the cluster for you.

3. If you manually deployed the Java web applications, select the cluster, click the HTTP tab, and for Frontend Host, enter the host name and port of the load balancer.

   If you deployed the Java web applications with EPM System Configurator and clicked Setup to specify the logical address for the Java web application, this step is not necessary, because EPM System Configurator entered this information during configuration.

4. Click the Servers tab, click Add, and on the Add a Server to Cluster page, select a server from the list, and then click Finish.

5. Click the Deployments tab, select an EPM System Java web application, click the Targets tab, and for the cluster this Java web application is deployed to, select All Servers in the Cluster.

   Repeat this step for all EPM System Java web applications.

   In a distributed environment, the Node Manager propagates changes to all the machines in the cluster.

6. **To add another server to the cluster to scale out the deployment:**
   a. Select the server and select Clone.
   b. Select the server that you just cloned, and change the machine on which the server is running.
c. You must use the same name scheme for newly created servers. For example, all FoundationServices0 must be cloned as FoundationServices1 or FoundationServices2. This allows you to use startManagedWebLogic:* and the Administration Console to start servers.

7 Repeat step 2 - step 6 as needed.
8 Start the servers from WebLogic Administration Console.
9 Launch EPM System Configurator and perform the “Configure Web Server” task.

Scaling Out a Single Managed Server

To scale out the single managed server on subsequent machines:

1 Using EPM System Installer, install the same set of Java web applications on any additional machines in the environment. Note that you cannot add or remove Java web applications when you scale out.
2 Run EPM System Configurator from each machine to which you are scaling out.
3 On the Task Selection panel under Hyperion Foundation, select Scale out single managed server on this machine.

The Scale out single managed server on this machine option is only available when the following are true:

- The WebLogic Administration Server is not installed on the current machine.
- The single managed server is deployed on the WebLogic Administration Server.
- The single managed server is not already scaled out on the machine.
4 Click Next to scale out the server.

Clustering Foundation Services

This section provides information about configuring Oracle Hyperion Enterprise Performance Management System Lifecycle Management for Oracle Hyperion Shared Services high availability and setting up Performance Management Architect Dimension Server for failover. For information about clustering Foundation Services Java web applications through EPM System Configurator, see “Clustering Java Web Applications Using EPM System Configurator” on page 16.

Performance Management Architect Dimension Server Clustering and Failover

For information about clustering Performance Management Architect Java web application and Performance Management Architect Data Synchronizer Java web application, see “Clustering Java Web Applications Using EPM System Configurator” on page 16.

This procedure assumes that you have installed Performance Management Architect Dimension Server component in the Oracle Clusterware shared folder on a clustered disk, or in a subfolder of that folder, and configured it using EPM System Configurator.

Clustering Performance Management Architect Dimension Server for failover involves this task sequence:

1. Creating and registering a virtual Internet protocol (VIP) resource with Oracle Clusterware.
   See “VIP Resources” on page 19.

2. Creating an action script.
   See “Action Scripts” on page 21.

3. Creating and registering an application resource with Oracle Clusterware.
   See “Application Resources” on page 22.

4. Setting the Performance Management Architect Dimension Server logical web address.
   See “Editing EPMA_CreateAndStartAppResource.bat” on page 22.

**VIP Resources**

Subtopics

- Editing EPMA_CreateAndStartVIPResource.bat
- Stopping and Unregistering VIP Resources
- Checking VIP Resource Status

You run EPMA_CreateAndStartVIPResource.bat, in EPM_ORACLE_HOME/products/Foundation/BPMA/AppServer/DimensionServer/ServerEngine/Failover, to create, register, and start a VIP resource. The VIP resource is paired with an application resource to provide a single point of access. The batch file runs in a command window and pauses when finished. Pressing any key closes the command window.

Before running EPMA_CreateAndStartVIPResource.bat, you can edit it to conform with your environment. You use a different batch file to stop and delete the VIP resource after deleting the application resource.

If clients access the application through a network, and failover to another node is enabled, you must register a VIP address for the application. Oracle Clusterware provides a standard VIP agent for application VIPs. Basing any new application VIPs on the VIP type that is referenced in EPMA_CreateAndStartVIPResource.bat ensures consistent behavior among all VIPs deployed in a cluster.
**Editing EPMA_CreateAndStartVIPResource.bat**

You can edit `EPMA_CreateAndStartVIPResource.bat` to specify values for these variables, which are listed at the top of the script:

- **ACTION_SCRIPT**—Full path and file name for `usrvip.bat`, which is in the Oracle Clusterware installation folder
  
  This batch file is the action script that Oracle Clusterware uses to manage the VIP resource.

- **VIP_IP**—A cluster VIP, registered in DNS

- **START_TIMEOUT**—Number of seconds that Oracle Clusterware waits for the VIP resource to start before declaring a failed start

- **STOP_TIMEOUT**—Number of seconds that Oracle Clusterware waits for the VIP resource to stop before declaring a failed stop

- **CHECK_INTERVAL**—Number of seconds between repeated checks
  
  Shortening intervals for more-frequent checks increases resource consumption if you use the script agent. To reduce resource consumption, use an application-specific agent.

- **SCRIPT_TIMEOUT**—Maximum time in seconds for an action to run
  
  Oracle Clusterware returns an error message if the action script does not finish within the specified time. The timeout applies to all actions (start, stop, check, and clean).

- **RESTART_ATTEMPTS**—Number of times Oracle Clusterware attempts to restart a resource on the resource's current server before attempting to relocate it
  
  For example, if the value is 1, Oracle Clusterware attempts to relocate the resource after a second failure. A value of 0 indicates that there is no attempt to restart, but Oracle Clusterware always attempts to fail the resource over to another server.

- **CRS_HOME**—Full path to the `BIN` folder for your Oracle Clusterware installation

**Stopping and Unregistering VIP Resources**

After you unregister an application resource, you can stop and delete the associated VIP resource, which unregisters the resource. Deleting a VIP resource does not affect the Performance Management Architect installation.

To stop and unregister a VIP resource, run `EPMA_StopAndDeleteVIPResource.bat`, in `EPM_ORACLE_HOME/products/Foundation/BPMA/AppServer/DimensionServer/ServerEngine/Failover`. The batch file runs in a command window and pauses when finished. Pressing any key closes the command window.

**Checking VIP Resource Status**

After running `EPMA_CreateAndStartVIPResource.bat` or `EPMA_StopAndDeleteVIPResource.bat`, you can run this command from the command line to check the status of the VIP resource:

```
crsctl status resource epmavip -v
```
A status of STATE=ONLINE indicates that the resource is running correctly. After you run EPMA_StopAndDeleteVIPResource.bat, the VIP resource should no longer exist.

**Action Scripts**

Oracle Clusterware calls an action script to stop or start an application resource (for example, Performance Management Architect Dimension Server) or to check the status of the application. You can run the action script from Oracle Clusterware or from the command line. The action script logs the date, time, action being performed (start, stop, clean, or check), and action result (success or failure).

You create the action script by editing EPMA_ActionScript.bat, in EPM_ORACLE_HOME/products/Foundation/BPMA/AppServer/DimensionServer/ServerEngine/Failover, to conform to your environment.

You can edit EPMA_ActionScript.bat to specify these variables, which are listed at the top of the script:

- **LOG_PATH**—Full path to a local folder where the application resource action script logs information
  
  Example: set LOG_PATH=C:/CRS_ACTION/EPMA
  
  Assuming that you provide a path with a valid drive letter, the action script creates the path at runtime if the path does not exist.

- **LOGSCR**—A concatenation of the LOG_PATH value and a valid file name for the environment
  
  Example: set LOGSCR=%LOG_PATH%/ClusterActionEPMA.log

- **SECONDS_TO_WAIT_FOR_START**—Number of seconds that the action script waits for the application resource to start before declaring a failed start and returning a 0 to the calling process (Oracle Clusterware)
  
  Example: set SECONDS_TO_WAIT_FOR_START=180

- **SECONDS_TO_WAIT_FOR_STOP**—Number of seconds that the action script waits for the application resource to stop before declaring a failed stop and returning a 0 to the calling process (Oracle Clusterware)
  
  Example: set SECONDS_TO_WAIT_FOR_STOP=60

**Note:** If your Performance Management Architect release is 11.1.2.2, the two sections labeled EPMA pre-11.1.2.2 section should be commented out.
Application Resources

Subtopics

- Editing EPMA_CreateAndStartAppResource.bat
- Stopping and Unregistering Application Resources
- Checking Application Resource Status

You run `EPMA_CreateAndStartAppResource.bat`, in `EPM_ORACLE_HOME/products/Foundation/EPMA/AppServer/DimensionServer/ServerEngine/Failover`, to create, register, and start an application resource. The VIP resource is paired with a VIP resource to provide a single point of access.

Before running `EPMA_CreateAndStartAppResource.bat`, you can edit it to conform with your environment. You use a different batch file to stop and delete the application resource.

If you stop the application resource by running `crsctl stop resource EPMAServer -f` or by shutting down the Hyperion EPMA Server service directly using the Windows Services applet, Oracle Clusterware automatically attempts to restart it on another node in the cluster. For the application resource to stay idle, you must run `EPMA_StopAndDeleteAppResource.bat`. To restart an application resource after deleting it with `EPMA_StopAndDeleteAppResource.bat`, you must run `EPMA_CreateAndStartAppResource.bat` to recreate and start it. Deleting the VIP and application resources has no effect on the Performance Management Architect installation.

**Caution!** After running `EPMA_CreateAndStartAppResource.bat`, which registers the application with Oracle Clusterware as a resource, use Oracle Clusterware commands to start and stop the Performance Management Architect server. Do not stop or start the application resource directly (for example, in the Windows services applet).

**Editing EPMA_CreateAndStartAppResource.bat**

You can edit `EPMA_CreateAndStartAppResource.bat` to specify values for these variables, which are listed at the top of the script:

- **ACTION_SCRIPT**—Full path and file name for the `EPMA_ActionScript.bat` file provided with your Performance Management Architect installation
  
  This batch file is the action script that Oracle Clusterware uses to manage the application resource (for example, Performance Management Architect Server).

- **FAILOVER_DELAY**—Number of seconds to wait before starting the failover process after a failure is detected

- **FAILURE_THRESHOLD**—Number of failures detected within a specified failure interval for a resource before Oracle Clusterware marks the resource as unavailable and stops monitoring it
  
  If a resource fails the specified number of times, then Oracle Clusterware stops the resource. If the value is 0, then failure tracking is disabled. The maximum value is 20.
- **FAILURE_INTERVAL**—Interval, in seconds, during which Oracle Clusterware applies the **FAILURE_THRESHOLD** attribute
  
  If the value is 0, failure tracking is disabled.

- **START_TIMEOUT**—Number of seconds that Oracle Clusterware waits for the application resource to start before declaring a failed start

- **STOP_TIMEOUT**—Number of seconds that Oracle Clusterware waits for the application resource to stop before declaring a failed stop

- **CHECK_INTERVAL**—Number of seconds between repeated checks
  
  Shortening intervals for more-frequent checks increases resource consumption if you use the script agent. To reduce resource consumption, use an application-specific agent.

- **RESTART_ATTEMPTS**—Number of times Oracle Clusterware attempts to restart a resource on the resource's current server before attempting to relocate it
  
  For example, if the value is 1, Oracle Clusterware attempts to relocate the resource after a second failure. A value of 0 indicates that there is no attempt to restart, but Oracle Clusterware always attempts to fail the resource over to another server.

- **CRS_HOME**—Full path to the BIN folder for your Oracle Clusterware installation

### Stopping and Unregistering Application Resources

To stop and unregister an application resource, run `EPMA_StopAndDeleteAppResource.bat`. The batch file runs in a command window and pauses when finished. Pressing any key closes the command window.

### Checking Application Resource Status

After running `EPMA_CreateAndStartAppResource.bat`, you can run these commands from the command line one at a time, to display the status of your application resources:

- `crsctl status resource epmavip -v`
- `crsctl status resource EPMAServer -v`

**Tip:** Instead of running the commands individually, you can run `EPMA_Status.bat`, in `EPM_ORACLE_HOME/products/Foundation/BPMA/AppServer/DimensionServer/ServerEngine/Failover`, which runs both commands.

When the resources are running correctly, their status is **STATE=ONLINE**.

Oracle Clusterware runs the action script `EPMA_ActionScript.bat` with the check parameter at the check interval that is set when the application resource is created. If the action script returns a 1, indicating that the application is not running, it attempts to start the application on another node in the cluster.
After running `EPMA_StopAndDeleteAppResource.bat`, you can run this command from the command line to ensure that the resource no longer exists and that the Hyperion EPMA Server service is not running on any node in the cluster:

crsctl status resource EPMAServer -v

**Setting the Performance Management Architect Server Logical Web Address**

You use EPM System Configurator to set the Performance Management Architect Server logical web address for the Hyperion EPMA Web Tier – Web Application service to the cluster address or name.

- To set the logical web address in EPM System Configurator:
  1. Select the EPM Oracle instance to configure, and then click Next.
  2. Click Uncheck All.
  3. Expand the tree.
  4. Select Hyperion Foundation, then Configure Logical Address for Web Applications, and then click Next.
  5. For each Java web application:
     a. Select Set the logical web address.
     b. For the Product Component: DimensionServer, double-click the value in the Host column.
     c. Change the value to specify one of these items:
        - SCAN (Single Client Access Name) if your RAC is Oracle 11g Release 2 or later
        - Application VIP
        - Host name alias that points to the application VIP
     d. Click Next.
  6. Click Next to finish the configuration.
  7. Start the Hyperion EPMA Web Tier - Web Application service.
  8. Wait a few minutes, and then log on to EPM Workspace.

**Scaling Reporting and Analysis Framework and Interactive Reporting**

This section describes how to scale (cluster) service-tier components of Reporting and Analysis.

For information about clustering Reporting and Analysis Java web applications using EPM System Configurator, see “Clustering Java Web Applications Using EPM System Configurator” on page 16.
Assumptions and Prerequisites

- You have installed and configured EPM System products using the Oracle Enterprise Performance Management System Standard Deployment Guide or the Oracle Enterprise Performance Management System Installation and Configuration Guide.

- EPM System services are running.

- During configuration of Reporting and Analysis on the first host machine, on the “Configure Reporting and Analysis Framework Services” page of EPM System Configurator, you specified a repository location that is a shared file system location. On Windows machines, this must have been specified as a UNC path.

- On Windows platforms, the Oracle Hyperion Reporting and Analysis Framework Windows service is running under a user account with sufficient privileges for the network shared folder (not under a Local System account).

    You can do this in EPM System Configurator. On the Common Settings panel, select Run Windows Services as non-local system account and specify a user with access to the shared folder.

- When scaling out Reporting and Analysis Framework to two or more machines running Microsoft Windows, the SMB2 protocol must be disabled on each cluster member machine. Oracle Hyperion Financial Reporting Financial Reports might fail to execute if this operating system change is not made.

Scaling Reporting and Analysis Framework and Interactive Reporting

You can scale Reporting and Analysis service tier components to additional host machines or vertically scale on a single host machine. The steps are the same whether you are scaling horizontally or vertically. Install only one instance of Reporting and Analysis Framework services and Oracle Hyperion Interactive Reporting services on each host.

Complete this procedure on each host machine onto which Reporting and Analysis Framework or Interactive Reporting is to be scaled.

To scale Reporting and Analysis Framework and Interactive Reporting:

1. For horizontal scaling: Install Reporting and Analysis Framework or Interactive Reporting on a another host machine.

2. Launch EPM System Configurator: From the Start menu, select All Programs, then Oracle EPM System, then EPM System Configurator (all instances).

3. In Oracle Instance, complete these steps, and then click Next.
   a. In Home directory for EPM Oracle instance, verify that the location of EPM Oracle Home directory is identical to that specified while configuring Foundation Services.
   b. In EPM Oracle instance name, enter a new instance name.

4. On the Oracle Hyperion Shared Services Registry database configuration screen, complete these steps:
a. Select **Connect to a previously configured Shared Services database.**

b. Enter database connection information for Shared Services Registry and the user name and password of the database account to use for accessing the database. This information must be identical to the information you entered while deploying Foundation Services.

c. Click **Next.**

If you are scaling on the same machine as Foundation Services, or on a machine on which the Shared Services Registry is already configured, you do not see the Configure Shared Services Registry screen.

5 In **EPM System Configurator**, select **Configure Framework Services.** Additionally, if you are also configuring Interactive Reporting, select **Configure Reporting and Analysis Services**, and then click **Next.**

Do not select the **Configure Database task.** Database configuration for Reporting and Analysis is only required once for the first instance.

6 On the **Configure Reporting and Analysis Framework Services** page, make the following changes:
   - Specify the same shared file system location that you specified during configuration of the first host. If you are running this service as a Windows service, specify a UNC path instead of a mapped drive. (This prevents potential permissions errors than can occur when Windows attempts to create a mapped drive at startup.)

   You must specify this same shared file system location on all machines.

   - Specify the range of ports to use, or click **Next** to keep the default port ranges.

7 If you are configuring Oracle Hyperion Interactive Reporting, on the **Configure Reporting and Analysis Services** page, specify the range of ports to use, or click **Next** to keep the default port ranges.

8 On the **Configure Reporting and Analysis Framework Agent Ports**, specify the ports to use, or click **Next** to keep the default ports.

9 Click **Next** to configure, and then click **Finish** when configuration is complete.

### Validating the Scaling

Run a deployment report and confirm that the component was scaled:

Navigate to **EPM_ORACLE_INSTANCE/bin** and execute the following command:

`epmsys_registry report deployment`

The report file (deployment_report_YYYYMMDD_HHMMSS.html) is stored in **EPM_ORACLE_INSTANCE/diagnostics/reports**.

You see an additional instance of the scaled component.

### Clustering Financial Management Servers

The following procedure is an overview of the recommended process for adding servers to the Financial Management environment, defining clusters, and adding servers to the clusters.
To cluster servers in your Financial Management environment:

1. After you install Financial Management on a new server or servers, run EPM System Configurator on all new servers and select the “Configure Server” task and the “Configure Database” task.

2. Run EPM System Configurator on any one application server and select the “Configure Application Clusters” task to define clusters and to add servers to or remove servers from clusters.

3. Restart the Foundation Services Java web application and the web server.

4. In EPM Workspace, register each application against the preferred cluster. See “Reregistering Applications in EPM Workspace” in the Oracle Enterprise Performance Management System Installation and Configuration Guide.

Load Balancing Strategic Finance IIS Web Applications on IIS

You can configure Oracle HTTP Server to provide load balancing support to two or more Strategic Finance IIS web applications. You set up a load balancer in front of the web server using EPM System Configurator.

To set up Oracle HTTP Server as a load balancer for Strategic Finance IIS web applications:

1. Install EPM System products including Strategic Finance IIS web applications on two or more machines.

2. Configure EPM System products using EPM System Configurator.

3. Configure Strategic Finance on each machine in the environment.

4. On one machine, select Update Logical Addresses for Web Applications from the Foundation tasks and for Host, enter the URL of the load balancer or Oracle HTTP Server.

   You need to perform this task on only one machine in the environment.

5. Configure the web server last. (Select Configure Web Server from the Foundation tasks.) Then, restart the web server and EPM Workspace.

Clustering Data Management

This section discusses clustering Data Management product components outside EPM System Configurator. See “Clustering Java Web Applications Using EPM System Configurator” on page 16 for information about clustering FDMEE.

Data Relationship Management Clusters

You can cluster Oracle Data Relationship Management web applications with either Oracle HTTP Server or third-party load balancers. For instructions on clustering with Oracle HTTP Server, see “Configuring Load Balancing for Data Relationship Management Web Applications” in the Oracle Data Relationship Management Installation Guide.
With Data Relationship Management installed in a clustered database environment, you can select **Generate scripts to be run by a database administrator** when creating a database from the Repository Wizard in the Data Relationship Management Configuration Console. Two scripts are generated: one for creating the schema owner, or database, and one for creating the database schema objects. For instructions on clustering the Data Relationship Management repository, see the documentation for the database software being used.

You cannot cluster Data Relationship Management Servers.

### Configuring Essbase Clusters

This section discusses active-active and active-passive clustering of Essbase Server. For information about clustering Oracle Essbase Administration Services Java web application and Oracle Hyperion Provider Services Java web application, see “Clustering Java Web Applications Using EPM System Configurator” on page 16.

Active-passive clustering (Windows): On Windows, Oracle recommends using Microsoft Cluster Services. This is because NTFS is not a clustered file system and CIFS-based file systems can have a negative impact on Essbase performance. To configure active-passive Essbase Server clusters using Microsoft Cluster Service, see “Configuring Active-Passive Essbase Clusters (Windows)” on page 29.

Active-passive clustering (Linux/UNIX): On Linux/UNIX systems, Oracle recommends using OPMN-based failover with a shared file system. For best performance, Oracle recommends a symmetric enterprise-grade solution using a Storage Area Network. The shared storage should be accessible for read and write on both active and passive systems during the normal operations of the server. An active-passive Essbase cluster can contain only two Essbase servers. See “Configuring Active-Passive Essbase Clusters (UNIX)” on page 31.

Active-active clustering: You can configure active-active Essbase clusters using Provider Services. Active-active Essbase clusters support high availability and load balancing. An active-active Essbase cluster supports read-only operations on the databases and should be used only for reporting. Because active-active Essbase clusters do not support data write-back or outline modification, and they do not manage database replication tasks such as synchronizing the changes in one database across all databases in the cluster, they do not support Oracle Hyperion Planning. When Planning is configured to use Essbase in cluster mode as a data source, it does not support the ability to launch business rules with Oracle Hyperion Calculation Manager as the rules engine. See “Configuring Active-Active Essbase Clusters” on page 35.

You can implement active-passive failover using EPM System Configurator, or active-active failover using Provider Services, but not both.

<table>
<thead>
<tr>
<th>Capability</th>
<th>Active-Passive (Windows)</th>
<th>Active-Passive (UNIX)</th>
<th>Active-Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write-back</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Failover</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Capability</td>
<td>Active-Passive (Windows)</td>
<td>Active-Passive (UNIX)</td>
<td>Active-Active</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------</td>
<td>-----------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Load balancing</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>High availability</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Configuring Active-Passive Essbase Clusters (Windows)

Use Microsoft Cluster Service to set up an active-passive cluster in Essbase.

First, configure Essbase, then configure Microsoft Cluster Service.

To configure Essbase so that failover can be managed by an external failover mechanism:

1. On the first machine (Node1), use EPM System Configurator to set up the first Essbase instance in the cluster:
   - For **Essbase Cluster Name**, specify the name for the cluster.

2. On the second machine (Node2), use EPM System Configurator to make this Essbase Server join the cluster you created on the first machine:
   - On the “Configure Essbase Server” page, for **Full path to application location (ARBORPATH)**, the location must match the location you specified on the first machine in the cluster.
   - Click **Assign to Existing Cluster**, select the cluster, and then click **OK** to make this Essbase Server join the cluster you created on the first machine.

   During cluster setup on the second machine, EPM System Configurator updates `essbase.cfg` (in `ARBORPATH/bin`) to enable **FAILOVERMODE** setting.

3. Open `ABRORPATH/bin/essbase.cfg` on the shared drive and ensure that:
   - **FAILOVERMODE** is set to **TRUE**
   - **ESSBASESERVERHOSTNAME** is set to the virtual hostname

4. Configure the Virtual IP.

   Microsoft Cluster Service requires that virtual IPs are configured in the hardware cluster for binding to failover processes. Because Essbase does not support VIP binding directly, this has to be done indirectly:

   a. Update the Shared Services Registry to have the Essbase **HOST** property point to the VIP. Run the following command three times, once for each Essbase instance and once for the cluster:

   ```
epmsys_registry.bat updateproperty #<guid>/@host<Virtual hostname>
   ```

   where **GUID** is the unique ID of each Essbase instance in the cluster (for example, `essbasecluster-inst1` and `essbasecluster-inst2`), and the unique ID of the cluster you defined, for example `EssbaseCluster-1`.  

   

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b. Update the `hosts` file to ensure that the VIP hostname is the first name that comes up for name resolution on the machine, or that it is appropriately aliased to the primary physical IP on the box.

Perform this task on both nodes in the cluster.

5 Set up OPMN as the service to be managed by Microsoft Cluster Service. See “Configuring Microsoft Cluster Service” on page 30.

Essbase is not directly managed by Microsoft Cluster Service; it is already managed by OPMN, which starts, stops, and restarts the Essbase Agent process on the local node. Essbase application processes are not managed by OPMN and therefore are not automatically started up and shut down. These server processes are managed by the Essbase Agent.

6 Optionally, create start, stop, and check status scripts for Essbase processes.

Because Essbase is not managed directly by Microsoft Cluster Service but rather by OPMN, there may be a slight time delay during which OPMN cannot stop Essbase gracefully.

There is logic built into OPMN so that a failure to bring down the Essbase Agent normally causes OPMN to abortively stop it. Once the Essbase Agent is terminated, there is also logic in Essbase Servers while running in failover mode to terminate themselves within the lease expiration window (<= 20 seconds, by default).

This is important to know because there may be a scenario where Microsoft Cluster Service stops OPMN, which in turn stops the Essbase Agent, but there are Essbase applications still running. From a cluster services perspective, however, a failover can occur and OPMN can come up on the standby node. OPMN could also bring up the Essbase Agent on the standby node, but there may be server processes that do not start unless they have all terminated on the source node.

You can write custom status check scripts to alleviate this problem. For example, you could write custom status check scripts that could run as a post-STOP operation of OPMN to ensure that no Essbase Server processes are running after a certain time, for example, 20 seconds.

There are no client-side changes required.

Because Essbase Server is configured in `FAILOVERMODE`, it publishes active node information to the Shared Services Registry database, which stores Essbase high availability state-management tables.

Both Provider Services and the Shared Services Registry API have built-in logic to determine the active Essbase Server by querying the Essbase high availability state-management tables.

### Configuring Microsoft Cluster Service

Prerequisites to configure Microsoft Cluster Service:

- Static IP address for Node1 and Node2
- IP address for the cluster
- Virtual hostname aliased to the physical IP of the nodes
Cluster nodes exist as an object in AD
- Domain service account that will be used to manage the service
- Quorum disk available for Microsoft Cluster Service configuration
- Shared drive available to both cluster nodes

To configure Microsoft Cluster Service:

1. In the Microsoft Cluster Service Cluster Administrator (in the Microsoft cluster), select Configure Application to configure OPMN as a shared resource to be managed by Microsoft Cluster Service.

2. Create a generic service.

3. Configure the generic service with the service name. (Use the same service name configured on the cluster nodes.)

For example, ensure that the OPMN service is configured on each node of the cluster.

4. For ease of manageability, move the shared disk and the configured service to a new group.

Configuring Active-Passive Essbase Clusters (UNIX)

You can cluster Essbase Server to provide active-passive failover with write-back capability. Essbase failover clusters use the service failover functionality of the Oracle Process Manager and Notification Server server. A single Essbase installation is run in an active-passive deployment, and one host runs the Essbase agent and two servers. Oracle Process Manager and Notification Server stops, starts, and monitors the agent process.

Note the following information about Essbase clusters:

- An active-passive Essbase cluster can contain only two Essbase servers. To install additional Essbase servers, you must install an additional instance of Essbase. The ARBOPATH and application location must be the same for both servers. The application must be on a shared drive, and the cluster name must be unique within the deployment environment.

- Active-passive Essbase clusters support failover with write-back to databases.

- Active-passive Essbase clusters do not support load-balancing.

- When you set up an Essbase cluster, the application location must be a shared drive or a UNC path. Oracle recommends that you specify a UNC path if you are configuring Essbase for high availability. The location must reside on a file system that all Essbase servers in the cluster can reach.

- If you are adding the second Essbase Server to a cluster, EPM System Configurator changes its ARBOPATH application location to that of the first Essbase Server.

- For a given physical Essbase server that Administration Services is administering, Administration Services displays only the name of the cluster to which that Essbase server belongs.

- If you have been working in a nonclustered environment and want to change to a clustered environment, and the Essbase applications are not in a shared location, you must migrate
the applications to a shared location. See “Copying or Migrating Applications” in the *Oracle Essbase Database Administrator’s Guide*.

**Clustering Essbase with Oracle Process Manager and Notification (OPMN) Server**

Oracle Process Manager and Notification server (OPMN) enables you to monitor and control the Essbase Agent process. You add Essbase Agent information to *opmn.xml* to enable OPMN to start, stop, and restart the agent using the OPMN command line interface. OPMN can automatically restart the Essbase Agent when it becomes unresponsive, terminates unexpectedly, or becomes unreachable as determined by ping and notification operations. Additionally, you can use the failover functionality available in OPMN to provide high availability of Essbase clusters.

The following table describes an overview of the process of installing, configuring, and managing Essbase with OPMN.

<table>
<thead>
<tr>
<th>Task</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install EPM System products, including Essbase. Install Essbase locally on each node. During installation, EPM System Installer also installs OPMN on the Essbase Server machine. <strong>Note:</strong> Oracle recommends that the Shared Services Registry database be on a different machine than Essbase.</td>
<td>“Installing EPM System Products” in the <em>Oracle Enterprise Performance Management System Installation and Configuration Guide</em></td>
</tr>
<tr>
<td>Configure EPM System products, including Essbase. By default EPM System Configurator sets up Essbase to be managed by OPMN. If you are implementing Essbase clustering (active-passive only), during configuration with EPM System Configurator, do the following: 1. On the first machine, use EPM System Configurator to set up the cluster:  1. On the “Configure Essbase Server” page, for <strong>Full path to application location (ARBORPATH)</strong>, the location you specify must be a shared drive. The location must reside on a file system that is reachable by all Essbase servers in the cluster.  1. For <strong>Essbase Cluster Name</strong>, specify the name for the cluster. 2. On the second machine, use EPM System Configurator to make this Essbase Server join the cluster you created on the first machine:  1. On the “Configure Essbase Server” page, for <strong>Full path to application location (ARBORPATH)</strong>, the location must match the location you specified on the first machine in the cluster.  1. Click <strong>Assign to Existing Cluster</strong>, select the cluster, and then click <strong>OK</strong> to make this Essbase Server join the cluster you created on the first machine. During cluster setup on the second machine, EPM System Configurator updates <em>essbase.cfg</em> (in ARBORPATH/bin) to enable <strong>FAILOVERMODE</strong> setting.</td>
<td>“Configuring EPM System Products” in the <em>Oracle Enterprise Performance Management System Installation and Configuration Guide</em></td>
</tr>
</tbody>
</table>

If you set up an active-passive Essbase cluster using EPM System Configurator, you must perform additional steps to set up Essbase failover on both nodes of the cluster.

*Table 2 Installing, configuring, and managing Essbase with OPMN*

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<table>
<thead>
<tr>
<th>Task</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optionally, learn more about OPMN service failover and the required</td>
<td>“OPMN Service Failover for Essbase Server” on page 43</td>
</tr>
<tr>
<td>elements and attributes in opmn.xml for configuring Essbase for failover.</td>
<td></td>
</tr>
<tr>
<td>Start Essbase using OPMN.</td>
<td>“Starting and Stopping EPM System Products” in the Oracle Enterprise Performance Management System Installation and Configuration Guide</td>
</tr>
<tr>
<td>Diagnose problems by reviewing the OPMN logs.</td>
<td>The “Essbase” chapter of Oracle Enterprise Performance Management System Installation and Configuration Troubleshooting Guide</td>
</tr>
<tr>
<td>Manage Essbase using OPMN, which enables you to monitor and control</td>
<td>Oracle Essbase Database Administrator’s Guide, “Managing Essbase Using OPMN. ”</td>
</tr>
<tr>
<td>the Essbase Agent process.</td>
<td></td>
</tr>
</tbody>
</table>

**Editing OPMN.XML for Active-Passive Essbase Clusters**

If you set up an active-passive Essbase cluster using EPM System Configurator, you must perform additional steps to set up Essbase failover on both cluster nodes.

To complete the setup of the Essbase active-passive cluster:

1. Update `EPM_ORACLE_INSTANCE/config/OPMN/opmn/opmn.xml` to specify the OPMN service failover network topology. In the `<notification-server interface>` section, add the `<topology>` section. For example:

   ```xml
   <notification-server interface="any">
   <ipaddr remote="hostName" />
   <port local="portNumber" remote="portNumber" />
   <ssl enabled="true" wallet-file="\Oracle\Middleware\user_projects\epmsysteml\config\OPMN\opmn\wallet"/>
   <topology>
   <nodes list="nodeName1:nodeRemotePort1,nodeName2:nodeRemotePort2"/>
   </topology>
   </notification-server>
   ```

2. In the same section of the file, update `hostName` to match the `nodeName` for this machine.

   Oracle recommends using a fully qualified name.

3. In the same section of the file, enable or disable SSL communication as the communication mechanism between the OPMN servers in the failover nodes. By default, the `ssl enabled` parameter is `True`.

   To enable SSL, you must also recreate the wallet file on both nodes of the cluster. The wallet file parameters must be the same on both machines.

   To disable SSL communication, change the `ssl enabled` parameter to `False`. For example:
where nodePort1 and nodePort2 are the remote ports of OPMN on each machine in the cluster.

4 Update opmn.xml to enable service failover for Essbase. In the <ias-component id="Essbase"> section, add service-failover="1". For example:

```xml
<ias-component id="Essbase">
    <process-type id="EssbaseAgent" module-id="ESS" service-failover="1" service-weight="100">
```

5 In the <ias-component id="Essbase"> section of opmn.xml, for the first node, change service-weight="100" to service-weight="101". For the second node, keep the value at 100.

6 Update opmn.xml to reflect the name of the cluster. In the <ias-component id="Essbase"> section, change id="Essbase" from "Essbase" to the name of the cluster. For example, change:

```xml
<ias-component id="Essbase">
```

to

```xml
<ias-component id="EssbaseClusterName">
```

7 In opmn.xml, remove "numprocs" from the process set definition and change the restart-on-death value to "true". For example edit the following section:

```xml
<process-set id="AGENT" numprocs="1" restart-on-death="false">
```

as follows:

```xml
<process-set id="AGENT" restart-on-death="true">
```

After Essbase is up and running, OPMN periodically sends a TCP-based forward ping to the agent. If a ping attempt fails, OPMN retries up to three times to contact the agent. If all ping attempts fail, OPMN stops the agent. OPMN attempts to restart the agent for these scenarios:

- restart-on-death (in opmn.xml) is set to TRUE.

In a production environment, restart-on-death should always be set to TRUE. Oracle recommends trying to restart a process on the local node first, before attempting failover. When restart-on-death is set to TRUE, OPMN first attempts to restart Essbase on the local node for the number of restarts that are configured in opmn.xml (the first start and the number of restarts). If all restart attempts fail, then failover to the standby node occurs.

In development and test environments, you can set restart-on-death to FALSE to test failover.
In non-failover mode, which is the default mode, the default setting for restart-on-death is FALSE.

- Failover mode is on, which supersedes the restart-on-death value. If restart-on-death is FALSE and failover mode is on, OPMN may bring up Essbase on the active or passive node.

## Configuring Active-Active Essbase Clusters

Using Provider Services, you can create active-active cluster of identical databases belonging to one Essbase server, to multiple Essbase servers on the same computer, or to Essbase servers distributed across multiple computers over the network.

**Note:** Essbase servers may be subject to licensing restrictions.

Provider Services clients include Oracle Smart View for Office clients, custom Java application programming interface (API) clients, and XML for Analysis (XMLA) clients. Provider Services distributes client requests to database instances belonging to the cluster. An active-active Essbase cluster supports read-only operations on the databases; it does not support data write-back or outline modification. An active-active Essbase cluster does not manage database replication capabilities, such as synchronizing the changes in one database across all databases in the cluster.

After configuring a set of Essbase servers for active-active clustering, you must define and enable the cluster under the Provider Services node in the Enterprise View of Administration Services Console. See “Enabling Clustered Database Components” on page 37.

### Configuring Active-Active Clusters with Provider Services

If Essbase is clustered with Provider Services and no third-party tool:

- Essbase has no write-back capability and should be used for reporting only; therefore, Planning is not supported.

- Nodes must be loaded and calculated individually.

### Adding Servers to Active-Active Essbase Clusters

You must specify which servers a cluster includes.

1. **To add servers to an Essbase cluster, from Administration Services Console:**
   1. From **Enterprise View** or a custom view, select **Essbase Servers**.
   2. For each server to be added:
      a. Right-click, and select **Add Essbase Servers**.
      b. In **Add Essbase Server**, enter the Essbase server name, user name, and password.
      c. Confirm the password that you entered in the preceding step.
3 From **Enterprise View** or a custom view, under the **Provider Services** node, select a provider.

4 Right-click and select **Create**, then **Create Essbase Cluster**.

5 Select **Add Essbase Cluster**, then **Cluster name**, and then enter a name for the cluster; for example, East Coast Sales.

6 Enter a short description; for example, East Coast sales databases.

7 Click **Add** to add servers to the cluster.

8 In **Select Cluster Component Database**, specify the Essbase server, application, and database names, and then click **OK**.

The Essbase server and associated application and database names are displayed under the cluster component list; for example, localhost.Demo.Basic. A cluster component comprises the Essbase server, application, and database name.

9 Repeat step 7 and step 8 to add any other components.

10 In **Add Cluster**, click **OK**.

The new cluster name is displayed under **Essbase Clusters**.

---

**Removing Active-Active Essbase Clusters**

To remove an active-active Essbase cluster:

1 From **Enterprise View** or a custom view in Administration Services Console, under the **Provider Services** node, select a provider.

2 Under the provider node, select **Essbase Clusters**.

3 Under **Essbase Clusters**, select a cluster.

4 Right-click, and select **Remove**.

5 In **Remove Essbase Cluster**, click **Yes**.

The removal takes effect when you restart Provider Services.

---

**Adding Components to Active-Active Essbase Clusters**

When creating an Essbase cluster, specify associated Essbase servers, applications, databases.

To add components to a cluster, from Administration Services Console:

1 From **Enterprise View** or a custom view, under the **Provider Services** node, select a provider.

2 Under the provider node, select the **Essbase Clusters** node.

3 Under the **Essbase Clusters** node, select the cluster.

4 Right-click, and select **Edit**.

5 In the **Essbase Cluster** panel, click **Add**.

6 In **Select Cluster Component Database**, specify the Essbase server, application, and database names.
7 Click **OK**.
   The database component is listed in the **Essbase Cluster** panel.

8 To add more components, repeat step 5 through step 7 for each component.

9 Click **Apply**.

10 Click **Close**.

**Removing Database Components**

To remove a database component from a active-active cluster, from Administration Services Console:

1 From Enterprise View or a custom view, under the **Provider Services** node, select a provider.

2 Under the **Provider** node, select the **Analytic Clusters** node.

3 Under the **Analytic Clusters** node, select a cluster.

4 Right-click, and select **Edit**.

5 For each database component to be removed, in the **Analytic Cluster** panel, select the component, and click **Remove**.

6 Click **Apply**.

7 Click **Close**.

**Enabling Clustered Database Components**

You can re-enable a database component after disabling it.

**Note:** Components that were part of the cluster definition when Provider Services was started can be enabled and disabled dynamically with no need to restart Provider Services. However, if you add a component to a cluster or create a cluster, you must restart Provider Services for the new cluster definition to take effect. You can enable or disable the newly added components after restarting Provider Services.

To enable clustered database components, from Administration Services Console:

1 From Enterprise View or a custom view, under the **Hyperion Provider Services** node, select a provider.

2 Under the **Provider** node, select the **Analytic Clusters** node.

3 Under the **Analytic Clusters** node, select a cluster.

4 Right-click, and select **Edit**.

5 For each database component to be enabled, in the **Analytic Cluster** panel, select the component, and click **Enable**.
   The status of the database component changes to Enabled.

6 Click **Close**.
Components that were part of the cluster definition when Provider Services was started can be enabled and disabled dynamically without restarting Provider Services. However, if you add a component to an existing cluster or create a cluster, you must restart Provider Services for the new cluster definition to take effect. You cannot enable or disable the newly added cluster components until you restart Provider Services.

Disabling Cluster Components
You can disable individual database components in a cluster. For example, you can take the component offline to update the database.

To disable a database component in a cluster, from Administration Services Console:

1. From Enterprise View or a custom view, under the Hyperion Provider Services node, select a provider.
2. Under the provider node, select the Essbase Clusters node.
3. Under the Essbase Clusters node, select a cluster.
4. Right-click, and select Edit.
5. For each component to be disabled, in the Essbase Cluster panel, select the component, and click Disable.
6. Click Close.

Active-Active Essbase Clustering Examples
For simplicity, all examples in this section use Smart View.

Essbase Server Clusters
Provider Services enables you to group sets of Essbase servers running applications with identical databases and use them as one resource.

Note: When adding or deleting an Essbase server in a cluster, restart the server to reflect changes to the group. You can enable or disable components in the group without restarting the server.

Essbase Database Clusters
Clustering Essbase databases enables load balancing and failover support. Provider Services provides parallel clustering, in which a series of active, duplicate databases respond to user requests. Which database is accessed is transparent to users, who connect to and retrieve data from one data source. Provider Services facilitates the routing of connections between databases in a cluster, based on availability and precedence rules.
In Figure 1, Smart View users connect to Essbase through Provider Services. Each user connection is assigned to a server during the Essbase session. Provider Services uses session-level load balancing. For example, in Figure 1, User 1’s connection is mapped to Data Source A. User 2’s connection is mapped to Data Source B. User 3’s connection is mapped to data source C. All requests from User 1 are handled by Data Source A for the duration of the connection.

If data source A fails:
- User 1 times out at Data Source A.
- User 1 is rerouted to the next available data source, which is Data Source C in Figure 2.

Figure 2 illustrates what happens when Data Source A goes offline.
In Figure 2, the state of query 1 is maintained at the middle tier and rerouted. Provider Services also provides load balancing across servers.

Figure 3 depicts clustered databases deployed on one server.
In Figure 3, two servers contain Essbase databases. Server 1 has four processors and 8 GB of RAM. Server 2 has eight processors and 16 GB of RAM. Because Server 2 has more resources, it contains Data Sources B and C. Therefore, Server 2 can handle both connections.

Failover support also applies for database clusters on one server. In Figure 4, Server 2 goes offline. User 2 and User 3 are then rerouted to the next available server, Server 1.

Vertically Scaling Essbase

Configuring and Starting Additional Instances of Essbase Server

You can install Essbase Server once and configure multiple additional Essbase instances. Configure the first Essbase instance as usual using EPM System Configurator. For subsequent Essbase instances, specify a new EPM Oracle instance during configuration.

To configure an additional instance of Essbase Server on the same machine:

1. After you have configured the first instance of Essbase Server, launch EPM System Configurator on the same machine.
2. On the “Configure a New or Existing EPM Oracle Instance” page, specify the EPM Oracle instance location for the additional instance of Essbase Server.
   The default location for a subsequent instance is MIDDLEWARE_HOME/user_projects/epmsystemN, where N is the number of the EPM Oracle instance.
3. On the Essbase Server Configuration page, specify the following information:
A unique port range. The range of ports used by one Essbase Server instance must not overlap the range of ports used by any other products.

The port numbers for the additional instance of Essbase Server are stored in the essbase.cfg file for this installation.

For ARBORPATH: If this Essbase instance is in a cluster with another instance, this Essbase instance must have the same application location as the first Essbase instance. If this Essbase instance is not in a cluster with another Essbase instance, the ARBORPATH can be different.

4 Complete configuration with EPM System Configurator.

Each instance of Essbase Server has its own OPMN and its own startup script. To start an additional instance of Essbase Server, use the startEssbase.bat|.sh script for this Essbase instance, in EssbaseInstanceLocation/bin.

Each Essbase instance has its own log file in EssbaseInstanceLocation/diagnostics/logs/essbase.

Modifying Ports for Multiple Instances of Essbase

If you configured more than one instance of Essbase Server on a single machine, each Essbase instance has its own OPMN, its own start scripts, and its own log files. If you need to change Essbase ports, update each Essbase instance’s copy of opmn.xml so that each OPMN has unique ports for communication.

- To modify OPMN for an additional instance of Essbase:
  1. Open EPM_ORACLE_INSTANCE/config/OPMN/opmn/opmn.xml in a text editor.
  2. In the <notification-server interface> section of the file, update the two port values (port local="portNumber" and remote="portNumber") for this instance of OPMN so it does not conflict with other instances of OPMN, and then save the file. For example:

     <notification-server interface="any">
     <ipaddr remote="hostName" />
     <port local="portNumber" remote="portNumber" />
     <ssl enabled="false" wallet-file="\Oracle\Middleware\user_projects \epmsystem1\config\OPMN\opmn\wallet"/>
     </notification-server>

  3. Perform this step on each instance of opmn.xml.

Connections to Essbase Clusters

Essbase clients and servers can connect to an Essbase cluster by way of a URL in this format:

http(s)://host:port/aps/Essbase?ClusterName=clusterName.

You can also connect to an Essbase cluster using only the cluster name, but you must first enable this by modifying a configuration file to specify the Provider Services server that resolves the cluster name in the URL. The Provider Services server is specified in these configuration files:
For server-to-server communication—essbase.cfg

Use this format:

ApsResolver http(s)://host:port/aps

You can specify several Provider Services servers in essbase.cfg, using a semicolon (;) between server names.

For client-to-server communication—essbase.properties

Use this format:

ApsResolver=http(s)://host:port/aps

Restart Essbase after updating these files.

To connect to a Provider Services active-active Essbase cluster using Financial Reporting or Oracle Hyperion Web Analysis, you must configure Financial Reporting or Web Analysis for three-tier mode.

To configure Financial Reporting for three-tier mode:

2. Select the MBeans tab and browse to com.hyperion/Financial Reporting/Attributes/EssbaseJAPIServer.
3. Confirm that EssbaseJAPIServer is set as the Provider Services server.
4. Enter the Provider Services cluster name as the Server Name in the Attribute value Value box and then click Refresh.

To configure Web Analysis for three-tier mode:

1. Log on to EPM Workspace as an admin user.
2. Select Navigate, then Administer, then Reporting and Analysis, and then Web Applications.
4. On the Essbase Configuration tab, set these properties and then click OK:
   - EESEmbeddedMode=false (The default setting is true.)
   - EESServerName=Provider Services server name (The default setting is localhost.)
   - Click OK.
5. Restart the Web Analysis server to put the changes into effect.

**OPMN Service Failover for Essbase Server**

This section provides an overview of OPMN service failover concepts and lists the elements and attributes in the opmn.xml file that are required for configuring Essbase for failover. This file
contains many other elements and attributes; see the Oracle Process Manager and Notification Server Administrator's Guide.

**Service Failover**

Service failover is a mechanism to specify a critical process that must be run somewhere in an Essbase cluster if service is disrupted on a processing server. This enables you to preferentially select which processes must be kept running. Any process-type `opmn.xml` file element may be configured as a service failover such that, once started, OPMN ensures that the configured number of processes for the service are running on Essbase instances somewhere in the cluster. You can configure which Essbase instances participate in the service failover on an instance-by-instance basis. You can configure each Essbase instance for preferential selection of running the process on available Essbase instances. Only one `process-set` may be defined for each `process-type` configured as a service failover. Only one process is run for each service failover instance.

In the following diagram, a service failover process has been started in a cluster where all Essbase instances are configured to participate in the service failover.

As shown in the diagram below, if the Essbase instance on which the service failover process is running goes down, such as for maintenance or an unprotected power outage or network failure, OPMN selects another participating Essbase instance on which to run the process. All of the Essbase instances shown in the diagram are participating in the service failover.
**opmn.xml Common Configuration**

Subtopics
- `<port>`
- `<topology>`
- `<nodes>`
- `service-failover="num"`
- `service-weight="value"`
- `restart-on-death`
- `start/stop/restart timeout`

This section provides descriptions of elements and attributes in the `opmn.xml` file that are required to configure Essbase for failover. In the `opmn.xml` file, all elements are within the `<ias_component>` configuration element. (This entry represents the system component.)

**<port>**

Parents: `notification-server`

Attributes: local, remote, request

The port element contains configuration information for ONS listener threads host and port bindings.

Example:
```
<ias-component id="<Essbase-Cluster-Name>">
    <process-type id="EssbaseAgent" module-id="ESS" service-failover="1" service-weight="101">
        <environment>
            ...
        </environment>
        <port id="essbase-port-range" range="32768-33768"/>
    </process-type>
</ias-component>
```

**<topology>**

Parents: `notification-server`

Attributes: none

The topology element contains the configuration information for the ONS topology within a cluster.

Example:
```
<topology>
    <nodes list="adc2170731:6712,dadvmn0429:6712"/>
</topology>
```
<nodes>
Parents: topology
Attributes: list

The nodes element provides a list of specific addresses for OPMN servers in the same cluster as the local OPMN server. The local OPMN server is included in the list. Multiple nodes elements may be configured.

Example:

```xml
<topology>
  <nodes list="adc2170731:6712,dadvmn0429:6712"/>
</topology>
```

**service-failover="num"**

Valid Values: An integer value > 0

A process-type may be configured as a service-failover (if num is not zero), which represents a process that exists num times somewhere in the cluster when it is up. The implementation is limited such that only one process of this type runs on a single service instance, and so the maximum number of processes for a specific service-failover in the cluster can never be more than the number of participating service instances in the cluster. If the value of num is greater than the number of service instances participating in this service-failover in the cluster and the service-failover is active (it has been started), then each participant added to the cluster automatically starts its service-failover process until the total number cluster wide is num.

A service-failover process can run on any instance participating in the service, which means each instance must have the service configured with the same ias-component id, process-type id and process-set id. To target the service itself, a request must specify both the ias-component and the process-type (it can also include the process-set).

A service-failover process-type can have only one process-set. Because the number of processes for a failover service is always 1, this process-set cannot specify numprocs, minprocs, or maxprocs.

A service-failover can be specified as a dependency (like any managed-process) or can specify dependencies. If specified as a dependency, the dependency check for a service-failover evaluates true as soon as one process of this type is active anywhere in the cluster, regardless of the configured value for num.

Example:

```xml
<ias-component id="<Essbase-Cluster-Name>">
  <process-type id="EssbaseAgent" module-id="ESS" service-failover="1" service-weight="101">
    <environment>
      <variable id="EPM_ORACLE_HOME" value="<Oracle Home-Location>"/>
    </environment>
    ...
  </process-type>
</ias-component>
```
**service-weight**="value"

Default: 100

Valid Values: An integer value > 0

The service instances that run the actual service-failover processes are selected based upon the configured (or default) service-weight value. Service instances with higher weights are selected over service instances with lower weights. If a set of service instances have the same weight for a service, then the configured number of service instances are selected from the set to run the processes.

The service-weight attribute can only be specified if the service-failover attribute is set to a nonzero value.

Example:

```xml
<ias-component id="<Essbase-Cluster-Name>">
  <process-type id="EssbaseAgent" module-id="ESS" service-failover="1"
              service-weight="101">
    <environment>
      <variable id="EPM_ORACLE_HOME" value="<Oracle Home-Location>"/>
    </environment>
    ...
  </process-type>
</ias-component>
```

**restart-on-death**

Parents: <process-set>

Valid Values: true or false

If a managed process terminates unexpectedly, that is, is not stopped by a request, then OPMN does not automatically restart it.

Example:

```xml
<ias-component id="<Essbase-Cluster-Name>">
  <process-type id="EssbaseAgent" module-id="ESS" service-failover="1"
              service-weight="101">
    <environment>
      ...
    </environment>
    <process-set id="AGENT" restart-on-death="true">
      <module-data>
        <category id="start-parameters">
          <data id="start-executable" value="$ESSBASEEXE"/>
          <data id="agent-port" value="1423"/>
          <data id="start-args" value="-b"/>
        </category>
        ...
      </module-data>
    </process-set>
  </process-type>
</ias-component>
```
start/stop/restart timeout

Parents: <process-set>

Valid Values: An integer > 0 and < 3600

A timeout value can be configured for each action.

Example:

```xml
<ias-component id="<Essbase-Cluster-Name>">
  <process-type id="EssbaseAgent" module-id="ESS" service-failover="1" service-weight="101">
    <environment>
      ...
    </environment>
    <start timeout="600" retry="2"/>
    <stop timeout="600"/>
    <restart timeout="600" retry="2"/>
  </process-type>
</ias-component>
```

Configuring Financial Close Management or Tax Governance to work with SOA Clusters

Subtopics

- Assumptions and Prerequisites
- Setting up the Load Balancer
- Configuring Financial Close Management or Tax Governance
- Validating the Financial Close Management or Tax Governance Setup for SOA High Availability

If you have installed and configured Oracle SOA Suite and Financial Close Management or Tax Governance, and if you have configured SOA clusters, you must configure Financial Close Management or Tax Governance to work with the SOA clusters. See “Configuring High Availability for Oracle Fusion Middleware SOA Suite” in the Oracle® Fusion Middleware High Availability Guide for information about configuring SOA clusters.

Assumptions and Prerequisites

- Oracle SOA Suite and Financial Close Management or Tax Governance are installed and configured as described in the Oracle Enterprise Performance Management System Installation and Configuration Guide.
- Oracle SOA Suite is configured for high availability.
- You are using the Oracle HTTP Server installed with EPM System Installer, and this web server is used for both EPM System and Oracle SOA Suite.
Setting up the Load Balancer

To configure Financial Close Management or Tax Governance to work with SOA Clusters, you enable load balancing for SOA clusters using the Oracle HTTP Server installed with EPM System Installer.

1. Open `EPM_ORACLE_INSTANCE\httpConfig\ohs\config\OHS\ohs_component/mod_wl_ohs.conf` in a text editor and add the following entries:

   ```
   # The admin URLs should only be accessible via the admin virtual host
   <Location /console>
     SetHandler weblogic-handler
     WebLogicHost <ADMIN Server Virtual DNS name >
     WeblogicPort 7001
   </Location>

   <Location /consolehelp>
     SetHandler weblogic-handler
     WebLogicHost <ADMIN Server Virtual DNS name >
     WeblogicPort 7001
   </Location>

   <Location /em>
     SetHandler weblogic-handler
     WebLogicHost <ADMIN Server Virtual DNS name >
     WeblogicPort 7001
   </Location>

   # Virtual host entry for external https URL configured at the Load Balancer
   # WSM-PM
   <Location /wsm-pm>
     SetHandler weblogic-handler
     WebLogicCluster <SOASERVER1>:<WSM_PORT>,<SOASERVER2>:<WSM_PORT>
       WLProxySSL ON
       WLProxySSLPassThrough ON
   </Location>

   <Location /soa-infra>
     SetHandler weblogic-handler
     WebLogicCluster <SOASERVER1>:<SOA_PORT>,<SOASERVER2>:<SOA_PORT>
       WLProxySSL ON
       WLProxySSLPassThrough ON
   </Location>
   ```

2. Restart Oracle HTTP Server.

Configuring Financial Close Management or Tax Governance

After setting up the load balancer, run EPM System Configurator again to finish the configuration with the SOA clusters.
To complete the Financial Close Management or Tax Governance configuration with the SOA cluster:

1. Launch EPM System Configurator and in the Task Selection panel, select Uncheck All, expand Hyperion Foundation, and then select Configure Logical Address for Web Applications.

2. In Update the logical address for the Java web applications, specify the web server fronting SOA and EPM System.

3. Complete the configuration, and then, on the Summary panel, click Task Panel.

4. On the Task Selection panel, select Deploy to SOA.

5. When the deployment process is complete, the Summary screen is displayed. Verify that all the tasks completed successfully, and then click Finish.

Validating the Financial Close Management or Tax Governance Setup for SOA High Availability

To validate the high availability setup, open the following URLs in a browser:

http://<Admin Virtual Host name>:<OHS_PORT>/console
http://<Admin Server Virtual Host name>:<OHS_PORT>/em
http://<SOA Server1 Virtual Host name>:<OHS_PORT>/wsm-pm/validator
http://<SOA Server2 Virtual Host name>:<OHS_PORT>/wms-pm/validator
http://<SOA Server1 Virtual Host name>:<OHS_PORT>/soa-infra
http://<SOA Server2 Virtual Host name>:<OHS_PORT>/soa-infra
If you will be using Oracle Web Services Manager for use with Financial Close Management, Tax Governance, Oracle Hyperion Profitability and Cost Management, FDMEE, Financial Management, Oracle Hyperion Tax Provision, Provider Services, or Data Relationship Management, perform the following steps, in order:

- Configure Oracle Web Services Manager (OWSM).
  
  This step is not required for Financial Close Management or Tax Governance; it is performed during configuration. If you have previously configured Financial Close Management or Tax Governance, these steps have already been performed automatically, and you can skip this section.

- Set up the keystore for message protection.

- Set up the Oracle Web Services Policy Manager to service requests.
  
  This step is performed automatically for Financial Close Management and Tax Governance during Oracle SOA Suite configuration and during configuration with EPM System Configurator.

- Configure the WebLogic domain, or for Financial Close Management and Tax Governance, the SOA Server, to connect to Oracle Internet Directory, Microsoft Active Directory (MSAD), or SunOne.

After performing these steps, restart managed servers.
Configuring Oracle Web Services Manager

Oracle Web Services Manager is automatically installed, but not configured, with EPM Workspace.

You must configure OWSM before you can use Web Services. Ensure that you have already installed the Repository Creation Utility before you perform this step. See “Creating Infrastructure Schemas Using Repository Creation Utility” in the Oracle Enterprise Performance Management System Installation and Configuration Guide.

**Note:** This step is not required for Financial Close Management or Tax Governance; it is performed during configuration. If you have previously configured Financial Close Management or Tax Governance, these steps have already been performed automatically and you can skip this section.

To configure OWSM:

1. From the WebLogic Administration Services machine, select All Programs, then Oracle WebLogic, then WebLogic Server 11gR1, then Tools, and then Configuration Wizard.
2. On the Welcome page, select Extend an Existing WebLogic domain to add new components to the existing EPM domain, and modify configuration settings.
3. Click Next.
4. On the Select a WebLogic Domain Directory page, select user_projects, then domains, and then EPMSystem, and then click Next.
   
   If you specified a different domain name when you configured EPM System products, select that domain.
5. On the Select Extension Source page, select Extend my domain automatically to support the following products, select Oracle WSM Policy Manager, and then click Next.
6. On the Configure JDBC Data Sources page, modify the details for the JDBC data sources, as required, providing the password that you entered during RCU configuration, and then click Next.
7. On the Test Data Sources page, select the data sources to be tested, and then click Test Connections.
   
   If the connections are working, a check mark is displayed under Status. If the connections are not working, go back to correct the JDBC data source details, and rerun the test.
8. Click Next.
9. On the Configure the JDBC Component Schema page, enter details for the OWSM _mds schema, and then click Next.
10. On the Test JDBC Component Schema page, select the component schema to be tested, and then click Test Connections.
   
   If the connections are working, a check mark is displayed under Status. If the connections are not working, go back to correct the JDBC data source details, and rerun the test.
11. Click Next through the remaining pages.
12 Restart the server machine, stop all EPM System services, and then start WebLogic Administration Server Console.

**Enabling Oracle Web Services Policy Manager to Service Requests**

This step is not required for Financial Close Management or Tax Governance; it is performed during configuration.

➤ To set up Oracle Web Services Policy Manager to service requests:

1. Log in to the WebLogic Administration Console using WebLogic administrator credentials. ([http://WebLogic_Admin_Host:WebLogic_Admin_Port/console](http://WebLogic_Admin_Host:WebLogic_Admin_Port/console)).
2. Navigate to Servers, then FoundationServices0, then Deployments, then wsm-pm, and then Control.
3. Under Start/Stop, select wsm-pm and select Start - Servicing All Requests and then select Yes.

**Setting Up the Keystore for Message Protection**

➤ To set up the keystore for message protection:

1. First, create a keystore using the keytool command:

   Go to `/Oracle/Middleware/user_projects/$DOMAIN_HOME/config/fmwconfig` in the server running the WebLogic Administration Server hosting your EPM System domain and execute the following command:

   ```bash
   keytool -genkeypair -keyalg RSA -alias aliasName -keypass password -keystore keystoreName.jks -storepass password -validity 3600
   ```

   **Note:** If the `keytool` command is not recognized, the `Path` environmental variable might not include JDK. Add the JDK to the `Path` variable using the following command: `set PATH=%PATH%;C:\Oracle\Middleware\JDK160_35\bin\;.;`


2. Next, set up message protection for Web Services:
   b. Expand **WebLogic Domain**, and then select **EPMSys**tem (or the domain name used for the EPM System deployment).
   c. Right-click **EPMSys**tem, select **Security**, and then select **Security Provider Configuration**.
d. Scroll to the **Keystore** section, expand the section, and then click **Configure**.

e. For **Keystore Path**, enter the path and name for the keystore that you created; for example `.EPMKeystore.jks`.

f. Enter the keystore password that you used when creating the keystore and confirm it.

g. Enter an alias and password for both **Signature Key** and **Encryption Key**, using the alias and password that you used when creating the keystore. Confirm the passwords, and then click **OK**. The alias and password for the signature and encryption keys define the string alias and password used to store and retrieve the keys.

3. Log out and restart Oracle Enterprise Manager Fusion Middleware Control so the changes take effect, and then restart EPM System managed servers.

**Note:**


### Configuring the WebLogic Domain to OID, MSAD, SunOne

This procedure is required to configure the WebLogic domain, or in the case of Financial Close Management or Tax Governance, the SOA Server, to communicate with an external provider, such as OID, MSAD, or SunOne. Shared Services must also be configured to work with this external provider. Follow the sections specific to your provider.


To connect OID, MSAD, or SunOne to the SOA Server:

1. Log in to the WebLogic Administration Console if you are not already logged in.
2. Select **Security Realms** on the left, then **myrealm**, and then select the **Providers** tab.
3. Click **Add**, enter the following details, and then click **OK**.

   For OID:
   - Name — OID
   - Type — OracleIntenetDirectoryAuthenticator

   For MSAD:
- Name — MSAD
- Type — ActiveDirectoryAuthenticator

For SunOne:

Name - SunOne

You can ignore the prompt to restart the server; you will be restarting at the end of this procedure.

4 Select the provider you just added, then select the Provider Specific tab, then enter the following details for your provider, and then click OK.

- Host
- Port
- Principal
- Credential
- User Base DB
- Group Base DB
- User from Name Filter (MSAD only)
- User Name Attribute (MSAD only)

You can leave the rest of the default values unchanged.

5 Select OID, MSAD, or SunOne, and, for Control Flag, select SUFFICIENT.

6 Restart WebLogic Server.

Financial Close Management and Tax Governance Configuration Options

Subtopics
- Configuring Financial Close Management or Tax Governance for OAM
- Specifying the Language for Email Notifications
- Configuring JMS Event Monitoring

Configuring Financial Close Management or Tax Governance for OAM

- If you are using Microsoft SQL Server or Oracle Database and OAM for single sign-on, perform the following procedure:

1 Log in to the WebLogic Administration Console using WebLogic administrator credentials. (http://WebLogic_Admin_Host:WebLogic_Admin_Port/console).
In the Domain Structure portlet, click **Security Realms**.

From the available realms, click the realm name with **Default Realm status True**.

**Tip:** Click the realm name, not the check box.

Select the **Providers** tab to list all configured Authentication/Assertion providers.

Under Authentication Providers, click **New**.

Select **OAMIdentityAsserter** from the list of supported Authentication/Assertion providers, and then in the **Create a New Authentication Provider** panel, specify a name for the provider, such as **OAMIdentityAsserter**, and then click **OK**.

**OAMIdentityAsserter** is now listed in the list of configured providers.

Reorder the providers in the following order:
- MSAD, OID, or SunOne, depending on which provider you are using
- OAM IdentityAsserter
- Default Authenticator
- Default IdentityAsserter

### Specifying the Language for Email Notifications

To receive email notifications in a language different from the default language specified on the SOA server, specify the user’s language preference in the identity store.

For example, with an LDAP-based identity store:

1. Connect to the identity store.
2. Navigate to the user entry.
3. Add or set the `preferredLanguage` attribute.

### Configuring JMS Event Monitoring

You can use Financial Close Management or Tax Governance to monitor JMS-based events in external applications. The Financial Close Management and Tax Governance JMS Event Monitoring uses a Java Connection Architecture (JCA) based adapter called Oracle JMS Adapter. This adapter supports both Oracle-based message queuing providers as well as third-party queuing providers such as TIBCO JMS.

To configure the JMS Adapter:

1. Stop all managed servers.
2. From a command prompt, navigate to `MIDDLEWARE_HOME/wls_server_10.3/server/bin` and run `setWLSEnv.cmd` | `setWLSEnv.sh`.
3. Execute the following command:
For Windows:
java weblogic.WLST %EPM_ORACLE_HOME%/products/FinancialClose/wlscripts/FCM_JMSConfig_WLS_Script.py

For Linux:
java weblogic.WLST $EPM_ORACLE_HOME/products/FinancialClose/wlscripts/FCM_JMSConfig_WLS_Script.py

4 When prompted, provide the following details:

Table 3 Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue name</td>
<td>&lt;QUEUE_NAME&gt;</td>
</tr>
<tr>
<td>Queue JNDI name</td>
<td>&lt;QUEUE_JNDI_NAME&gt;</td>
</tr>
<tr>
<td>Connection Factory name</td>
<td>&lt;CONNECTION_FACTORY_NAME&gt;</td>
</tr>
<tr>
<td>Connection Factory JNDI name</td>
<td>&lt;CONNECTON_FACTORY_JNDI_NAME&gt;</td>
</tr>
</tbody>
</table>

5 Verify the entries in WebLogic after configuring the JMS Adapter:
   a. Log on to the WebLogic console.
   b. Navigate to Services, then Messaging, and then Modules.
   c. Under JMS Modules table, click SOAJMSModule to see all the resources.

   The Summary of Resources table contains the Queue and Connection Factory entries.

If you have not already configured the database adapter, perform the following steps.

To configure the database adapter:

1 Ensure that all managed servers are started.

2 From a command prompt, navigate to MIDDLEWARE_HOME/wlserver_10.3/server/bin and run setWLSEnv.cmd\.sh.

3 Execute the following command:

For Windows:
java weblogic.Deployer -adminurl t3://adminURL:adminServerPort -user adminUser -password password -update -name DbAdapter -plan dbPlanLocation/FCM_DbAdapter_Plan.xml

For Linux:
java weblogic.Deployer -adminurl t3://adminURL:adminServerPort -user adminUser -password password -update -name DbAdapter -plan dbPlanLocation/FCM_DbAdapter_Plan.xml

This command creates the DbAdapter connection factory "eis/DB/financialclose" in the DbAdapter deployment.
FDMEE Configuration Options

Configuring an Initial Security Policy

FDMEE provides scripts to configure Web Services with a set of default policies. If PeopleSoft or Fusion Financials use a different set of policies, use Enterprise Manager to configure the policies.

Before you run the scripts, ensure the following:

- You performed the steps to configure Oracle Web Services Manager.
- FDMEE and WebLogic Administration Server are running.

To configure security policies:

1. For all products except Account Reconciliation Manager:
   a. Open `EPM_ORACLE_HOME/products/FinancialDataQuality/bin/wls-infra.properties` in a text editor, and then update the properties that are required for your environment. Leave all other properties as is, and then save the file. See Table 4 on page 59 for a list of properties.
   b. Run `wlsConfigMDS.bat` or `wlsConfigMDS.sh` and ensure that the script completes successfully and displays no errors.
   c. Restart FDMEE.
   d. When FDMEE is running, run `wlsConfigOWSM.bat` or `wlsConfigOWSM.sh` and ensure that the script completes successfully and displays no errors.
   e. Restart FDMEE.

2. For integration with Account Reconciliation Manager:
   a. Open `EPM_ORACLE_HOME/products/FinancialDataQuality/bin/wls-ARM.properties` in a text editor, and update the properties that are required for your environment. Leave all other properties as is, and then save the file. See Table 5 on page 60 for a list of properties.
   b. From a command prompt, navigate to `EPM_ORACLE_HOME/products/FinancialDataQuality/bin`, run `wlsConfigARM.bat` or `wlsConfigARM.sh` and ensure that the script runs successfully.
   c. Restart FDMEE and the Oracle WebLogic Server.

Note: You must rerun `wlsConfigMDS.bat` or `wlsConfigMDS.sh` script whenever you patch or redeploy `aif.ear` if you are using FDMEE with Peoplesoft or Fusion Financials.
<table>
<thead>
<tr>
<th>Property Name</th>
<th>Update the Property?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>Yes</td>
<td>The user name to connect to WebLogic Administration Server. Change the user name to a valid WebLogic Administration Server user.</td>
</tr>
<tr>
<td>Password</td>
<td>Yes</td>
<td>The password to connect to WebLogic Administration Server. Change the password to a valid WebLogic Administration Server password.</td>
</tr>
<tr>
<td>adminServerURL</td>
<td>Yes</td>
<td>The URL for WebLogic Administration Server. Update the host and port accordingly. For a multi-node setup, use the host on which Administration Server is installed.</td>
</tr>
<tr>
<td>partitionName</td>
<td>Update if needed</td>
<td>Represents the partition that would be created in the repository. All connection configuration details would be stored in this partition.</td>
</tr>
<tr>
<td>schemaUserName</td>
<td>Yes</td>
<td>The user name for MDS schema.</td>
</tr>
<tr>
<td>schemaPassword</td>
<td>Yes</td>
<td>The password for the MDS schema user.</td>
</tr>
<tr>
<td>databaseType</td>
<td>Yes</td>
<td>The database type that is used for configuring MDS. Valid values are ORACLE or MSSQL.</td>
</tr>
<tr>
<td>Hostname</td>
<td>Yes</td>
<td>The hostname for the database server.</td>
</tr>
<tr>
<td>Port</td>
<td>Yes</td>
<td>The port for the database server listener.</td>
</tr>
<tr>
<td>dbName</td>
<td>Yes</td>
<td>The service name/db name of the MDS schema user.</td>
</tr>
<tr>
<td>dataLoadServiceWSDL</td>
<td>Yes</td>
<td>The URL on which dataLoadAMService is running. The URL must be updated when FDMEE is configured to integrate with Account Reconciliation Management (ARM) application. Update the host and port details accordingly.</td>
</tr>
<tr>
<td>clientSecPolicyForARM</td>
<td>No</td>
<td>ARM dataLoadAMService is secured using a SAML token with message protection service policy. To contact ARM, we should be using the corresponding client policy.</td>
</tr>
<tr>
<td>hypBudgetCheckWSDL</td>
<td>Yes</td>
<td>The URL on which PeopleSoft Budget check service is running. This must be changed when configuring integration with PeopleSoft for commitment control. Change the host and port details accordingly.</td>
</tr>
<tr>
<td>ClientSecPolicyForPSFT</td>
<td>Update if needed</td>
<td>PeopleSoft uses only wss10 SAML token policies. The default policy is specified in the properties file. Check with PeopleSoft configuration before updating the policy details</td>
</tr>
<tr>
<td>PSFTAlias</td>
<td>Yes</td>
<td>This property represents the PeopleSoft LocalNode. This is required so that communication between FDMEE and PeopleSoft goes through without any errors. Update the property accordingly.</td>
</tr>
<tr>
<td>fusionWriteBackWSDL</td>
<td>Yes</td>
<td>The URL on which Fusion LedgerEssbaseAPI service is running. This URL must be changed when configuring integration between FDMEE and Fusion for Write-Back. Change the host and port details accordingly.</td>
</tr>
<tr>
<td>ClientSecPolicyForFusion</td>
<td>Update if needed</td>
<td>Fusion systems generally use user name/password protection policy. The default policy mentioned in the properties file corresponds to a user name/password protection policy.</td>
</tr>
<tr>
<td>Property Name</td>
<td>Update the Property?</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FusionUserName</td>
<td>Yes</td>
<td>The user name that the service should use to connect to Fusion systems. The user must be a valid Fusion Financials user with access to the Fusion General Ledger application.</td>
</tr>
<tr>
<td>FusionUserPassword</td>
<td>Yes</td>
<td>The password for the Fusion Financial user.</td>
</tr>
<tr>
<td>ServiceEndPointSecPolicy</td>
<td>Update if needed</td>
<td>FDMEE exposes public RuleService and SetupService. To secure these services, we use a default SAML token with message protection service policy. Change the policy if the service needs to be secured with a different policy.</td>
</tr>
</tbody>
</table>

Table 5  Properties in wls-ARM.properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Update the Property?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>userName=adminUserName</td>
<td>Yes</td>
<td>Replace adminUserName with the WebLogic Administrator user name.</td>
</tr>
<tr>
<td>passWord=adminPassword</td>
<td>Yes</td>
<td>Replace adminPassword with the WebLogic Administrator password.</td>
</tr>
<tr>
<td>adminServerURL=t3://localhost:7001</td>
<td>Yes</td>
<td>Replace localhost with the WebLogic Administration Server host name.</td>
</tr>
<tr>
<td>ServiceEndPointSecPolicy</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>ServiceCallBackSecPolicy</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Using FDMEE with PeopleSoft

If you are using FDMEE for use with PeopleSoft, ensure that keystore certificates are imported in both the PeopleSoft and EPM domains so that the domain trust is established.

See:

- Note ID 1432843 in My Oracle Support
- PeopleSoft General Ledger 9.1 Documentation Update: Hyperion Planning and Budgeting Integration with PeopleSoft Commitment Control
EPM System Configurator enables you to reconfigure products to incorporate changes in your environment.

To reconfigure, launch EPM System Configurator on the computer hosting the product, and follow the procedures in “Configuring EPM System Products” in the *Oracle Enterprise Performance Management System Installation and Configuration Guide*.

If you are reconfiguring the Java web application server for Foundation Services, you must also reconfigure the relational database.

### Changing Ports

For most EPM System components, you change the port using EPM System Configurator. See the “Ports” appendix in *Oracle Enterprise Performance Management System Installation and Configuration Guide* for details.

If you reconfigure to change a port or server, you must also reconfigure the web server (under the Foundation Services tasks in EPM System Configurator).
Changing Database Passwords

Subtopics

- Assumptions and Prerequisites
- Changing the Shared Services Registry Database Password
- Changing EPM System Component Repository Database Passwords
- Changing the Planning Applications Repository Password
- Changing the Performance Management Architect Interface Data Source Password
- Changing the Data Relationship Management Repository Password
- Validating the Database Password Changes

For EPM System products that require a database repository, when you change a database password, for example to comply with your company’s password change policy, you must update the Shared Services Registry so that EPM System components can connect to the database using the new password.

Assumptions and Prerequisites

- You made a backup of the database.
- Using the database administration console, you changed the password of the user account that was used to configure the Shared Services Registry or product repository database.
- In a single-machine deployment, or in a distributed deployment in which you run EPM System Configurator from the Foundation Services machine, WebLogic Administration Server must be stopped.
- In a distributed environment, when you run EPM System Configurator from a machine other than the Foundation Services machine, WebLogic Administration Server must be running.
- In a mixed deployment of UNIX and Windows, when you run EPM System Configurator from a Windows machine, WebLogic Administration Server must be running on the UNIX machine. When you run EPM System Configurator from the UNIX machine, WebLogic Administration Server must be running on the Windows machine.

Changing the Shared Services Registry Database Password

To update the database password for the Shared Services Registry database:

1. Stop EPM System Java web applications, services, and processes.
2. On the machine hosting Shared Services, change to EPM_ORACLE_INSTANCE/bin and launch configtool.bat|.sh.
3 On the “Shared Services and Registry Database Configuration” page, select Connect to a previously configured Shared Services database and enter the new database password.

4 On the Task Selection page, if other products use the Shared Services database, select the Configure Database tasks for those products.

5 If you selected any other products, on the “Database Configuration” page, enter the new database password.

6 If you are prompted to choose whether to Drop and recreate tables or Reuse the existing database, select Reuse the existing database.

7 Continue the configuration, and click Finish when you are done.

8 Restart WebLogic Administration Server if it is down, the Java web applications, services, and processes.

9 If you are working in a distributed environment, repeat the steps to configure the Shared Services Registry database on each machine in the deployment.

Changing EPM System Component Repository Database Passwords

To change the database password for EPM System components other than Shared Services:

1 Stop EPM System Java web applications, services, and processes.

2 From the machine hosting the component whose database password changed, change to EPM_ORACLE_INSTANCE/bin and launch configtool.bat|.sh.

3 On the Task Selection page, select Configure Database for all the products in this instance whose database password has changed.

Note: If you change the password for the Financial Management database schema, you must run the Financial Management configure application server task in addition to the database configuration task.

4 Enter the new password.

5 When you are prompted to choose whether to Drop and recreate tables or Reuse the existing database, select Reuse the existing database.

6 Continue the configuration, and click Finish when you are done.

7 Restart WebLogic Administration Server if it is down, the database, the Java web applications, services, and processes.

Note: For FDMEE registered with Performance Management Architect, if you change the password for the FDMEE database schema, then do the same for the FDMEE data source.
Changing the Planning Applications Repository Password

Use Edit Datasource in the Planning Application wizard to change the Applications repository password. You can also use the “Update Data Sources” page in the Planning Upgrade Wizard. See the Oracle Hyperion Planning Administrator’s Guide.

Changing the Performance Management Architect Interface Data Source Password

Perform the following procedure if you are using the Interface Data Source configuration with Performance Management Architect applications.

➢ To change the Performance Management Architect Interface Data Source password:

1. In the database, change the password.
2. Log in to EPM Workspace and select Navigate, then Administer, and then Configure Interface Data Source.
3. Right-click the required Interface Data Source definition, and then select Edit.
4. On the Database Details page of the Interface Data Source Wizard, enter the new password, click Test to ensure that the connection is successful, and then click Next.
5. On the Data Source Details page, clear Create Tables, and then click Finish.
6. On the Database Details page of the Interface Data Source Wizard, enter the new password, and then click Test to ensure that the connection is successful.

Changing the Data Relationship Management Repository Password

➢ To change the Data Relationship Management repository password for an application:

1. Stop Data Relationship Management.
2. In the database, change the password.
3. Open the Data Relationship Management console.
4. Go to Configuration.
5. Select the appropriate application using the arrow controls.
6. In Repository Configuration, enter the new password.
7. To test the new password, click Test Connection.
   You should see the message “Connection Succeeded!”
8. Click Save Configuration to commit the new password, in encrypted form, to the configuration file.
9. Restart the application or the Oracle Data Relationship Management service.
Validating the Database Password Changes

To validate the database configuration changes:

1. Launch Oracle Hyperion Enterprise Performance Management System Diagnostics using one of the following methods:
   - (Windows) In EPM_ORACLE_INSTANCE/bin, double-click validate.bat.
   - From the Start Menu, choose Programs, then Oracle EPM System, then Foundation Services, then instanceName, and then EPM System Diagnostics.
   - (UNIX) From a console, change to EPM_ORACLE_INSTANCE/bin, and then enter validate.sh.

Progress is shown in the command window.

2. To view results, navigate to EPM_ORACLE_INSTANCE/diagnostics/reports and open validation_report_date_time.html.

Rehosting a Database

Subtopics

- Assumptions and Prerequisites
- Updating the Connection to a Rehosted Shared Services Database
- Updating the Connection to a Rehosted EPM System Database
- Validating the Rehosted Database

For EPM System products that require a database repository, when a database has been rehosted on another server, make changes in EPM System to recognize the rehosted database.

Assumptions and Prerequisites

- After shutting down EPM System components, you made a backup of the database, and then restored the database on the target machine.
- In a single-machine deployment, or in a distributed deployment in which you run EPM System Configurator from the Foundation Services machine, WebLogic Administration Server must be stopped.
- In a distributed environment, when you run EPM System Configurator from a machine other than the Foundation Services machine, WebLogic Administration Server must be running.
- In a mixed deployment of UNIX and Windows, when you run EPM System Configurator from a Windows machine, WebLogic Administration Server must be running on the UNIX
machine. When you run EPM System Configurator from the UNIX machine, WebLogic Administration Server must be running on the Windows machine.

**Updating the Connection to a Rehosted Shared Services Database**

To update the database connection information for the Shared Services Registry database:

1. Stop EPM System Java web applications, services, and processes, and stop the database.
2. On the machine hosting Shared Services, change to `EPM_ORACLE_INSTANCE/bin` and launch `configtool.bat|sh`.
3. On the “Shared Services and Registry Database Configuration” page, select *Connect to a previously configured Shared Services database* and enter the new database connection information.
4. On the Task Selection page, if other products use the Shared Services database, select the *Configure Database* tasks for those products.
5. If you selected any other products, on the “Database Configuration” page, enter the new database connection information.
6. If you are prompted to choose whether to *Drop and recreate tables* or *Reuse the existing database*, select *Reuse the existing database*.
7. Continue the configuration, and then click **Finish** when you are done.
8. Restart WebLogic Administration Server if it is down, the database, the Java web applications, services, and processes.
9. If you are working in a distributed environment, repeat the steps to configure the Shared Services Registry database on each machine in the deployment.

**Updating the Connection to a Rehosted EPM System Database**

To update the database connection information for EPM System components other than Shared Services:

1. Stop EPM System Java web applications, services and processes, and stop the database.
2. From the machine hosting the component whose database connection information changed, change to `EPM_ORACLE_INSTANCE/bin` and launch `configtool.bat|sh`.
3. On the Task Selection page, select *Configure Database* for all the products in this instance whose database connection information has changed.
4. Enter the new database connection information.
5. When you are prompted to choose whether to *Drop and recreate tables* or *Reuse the existing database*, select *Reuse the existing database*.
6. Continue the configuration, and click **Finish** when you are done.
7 Restart WebLogic Administration Server if it is down, the database, the Java web applications, services, and processes.

**Validating the Rehosted Database**

➢ To validate the database configuration changes:

1 **Launch EPM System Diagnostics using one of the following methods:**
   - (Windows) In `EPM_ORACLE_INSTANCE/bin`, double-click `validate.bat`.
   - From the Start Menu, choose Programs, then Oracle EPM System, then Foundation Services, then `instanceName`, and then EPM System Diagnostics.
   - (UNIX) From a console, change to `EPM_ORACLE_INSTANCE/bin`, and then enter `validate.sh`.

Progress is shown in the command window.

2 **To view results, navigate to `EPM_ORACLE_INSTANCE/diagnostics/reports` and open validation_report_date_time.html.**

**Rehosting Foundation Services**

To rehost the Foundation Services Java web application on a new machine, you use EPM System Configurator to create a cluster, update the web server, then update the logical Java web application for Foundation Services to point to the web server, relying on the Oracle HTTP Server clustering.

This procedure assumes that you have already installed and configured Foundation Services on Node 1. During configuration with EPM System Configurator, you have already created a new Shared Services database, created a new WebLogic domain, and configured the web server.

➢ To rehost the Foundation Services Java web application on Node 2:

1 **Start the WebLogic Administration Server on Node 1.**

2 **Install and configure Foundation Services on Node 2. During configuration with EPM System Configurator:**
   - Create a new `EPM_ORACLE_INSTANCE`.
   - During database configuration for Shared Services, select **Connect to a previously configured Shared Services database**, and specify the Shared Services database that you configured for Node 1.
   - Deploy to the same WebLogic domain.
   - Configure the web server.

3 **Reconfigure the web server again on Node 1 using EPM System Configurator.**

4 **Stop WebLogic Administration Server on Node 1.**
5 Start WebLogic Node Manager on both Node 1 and Node 2. For example, run `startNodeManager.cmd` in `MIDDLEWARE_HOME/wlserver_10.3/server/bin`.

6 Start WebLogic Administration Server on Node 1.

7 From the WebLogic Administration Server Console, start the Shared Services managed server on Node 1 and Node 2.

   **Note:** Oracle recommends that you start and stop Shared Services on Node 2 using the WebLogic Administration Server Console to avoid Shared Services startup failures on Node 2.

8 Start the web server on Node 1 only.

9 Access Shared Services using the following URL: `http://Node1:19000/interop/index.jsp`.

10 To test that high availability is working, stop Shared Services on Node 1 and launch Shared Services again using the following URL: `http://Node1:19000/interop/index.jsp`.

   WebLogic redirects and launches Shared Services from Node 2.

**Changing Hosts**

If a host name has changed, you must update the host value in the Shared Services Registry.

1 To update the host name value in the Shared Services Registry:
   - From `EPM_ORACLE_INSTANCE/bin`, run `epmsys_registry.bat|.sh updatehost oldHostName newHostName`.
   - Restart all EPM System components on all machines.

**Changing the Ownership ofInstalled and Configured EPM System Products to a Different User**

Subtopics

- Assumptions and Prerequisites
- Changing the Ownership of Installed and Configured Products to a Different User
- Validating the Changed User

You must install and configure all EPM System products using the same user, typically an account that does not belong to a specific user. You can change the ownership of installed and configured products to a different user using the procedure in this section.
Assumptions and Prerequisites

- You ran EPM System Installer and EPM System Configurator as the same user with administrator rights for all EPM System products.
- (UNIX) Ensure that the new user has read/execute permissions to MIDDLEWARE_HOME and all the directories and files within the directory.
- (UNIX) Ensure that the new user has read/write/execute permissions to EPM_ORACLE_INSTANCE and all the directories and files within the directory.

Changing the Ownership of Installed and Configured Products to a Different User

To change the ownership of installed and configured EPM System products:

1. Navigate to the central Oracle inventory, for example, (Windows): C:/Program Files/Oracle/Inventory/ContentsXML/inventory.xml or (UNIX): oraInventory/ContentsXML.inventory.xml.

2. Update ContentsXML/inventory.xml to change the user associated with EPM_ORACLE_HOME. For example, in this sample, change user1 to the new user name.

3. (Windows only) For Windows machines, if you specified a named user for services on the Common Settings panel in EPM System Configurator, update the Windows services to start using the new user account:
   a. Navigate to the Windows Services Microsoft Management Console page.
   b. For each EPM System service: Right-click the service, select Properties, click the Log On tab, and then specify the new user name and password.

Validating the Changed User

Log in as the new user and launch EPM System services from the Windows Services Control Panel.
Reconfiguring EPM System Components to Use Separate Database Schemas

Subtopics

- Assumptions and Prerequisites
- Reconfiguring EPM System Components to Use Separate Database Schemas
- Validating the Database Configuration Changes

If all EPM System components are configured to use a single database schema, you can reconfigure so that each component uses a separate database schema. Consider performance, roll-back procedures for a single application or product, and disaster recovery plans in making the decision.

**Note:** The following products MUST be configured to use the same database schema:

- Financial Close Management
- Tax Governance
- Account Reconciliation Manager
- Supplemental Data Manager
- Tax Supplemental Schedules

Assumptions and Prerequisites

- You have installed and configured EPM System products using the *Oracle Enterprise Performance Management System Standard Deployment Guide* or the *Oracle Enterprise Performance Management System Installation and Configuration Guide*.

- EPM System components are configured to use a single database schema.

Reconfiguring EPM System Components to Use Separate Database Schemas

To reconfigure EPM System components to use separate database schemas:

1. **Stop all processes running on the Foundation Services machine (where the WebLogic Administration Server is running) and on all machines hosting a component whose database you want to reconfigure.**

2. **Use standard database vendor mechanisms to extract the database tables for each component.**
   
   For example, with an Oracle database, use the Export Utility.
   
   Extract the tables for each component using the patterns in Table 6:
<table>
<thead>
<tr>
<th>Products</th>
<th>Prefixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Hyperion Financial Data Quality Management, Enterprise Edition</td>
<td>AIF%</td>
</tr>
<tr>
<td>Oracle Hyperion Calculation Manager</td>
<td>CALC%</td>
</tr>
<tr>
<td>Disclosure Management</td>
<td>DISCMAN%</td>
</tr>
<tr>
<td>EPM Workspace</td>
<td>WKS%</td>
</tr>
<tr>
<td>Essbase Server</td>
<td>ESS%</td>
</tr>
<tr>
<td><strong>Note:</strong> These products must be configured to use the same database schema:</td>
<td></td>
</tr>
<tr>
<td>● Financial Close Management and Tax Governance</td>
<td></td>
</tr>
<tr>
<td>● Supplemental Data Manager</td>
<td></td>
</tr>
<tr>
<td>● Account Reconciliation Management</td>
<td></td>
</tr>
<tr>
<td>● Tax Supplemental Schedules</td>
<td></td>
</tr>
<tr>
<td>Financial Management</td>
<td>HFM%, HSV%, LINSCRIPT%</td>
</tr>
<tr>
<td>Financial Reporting</td>
<td>FR%</td>
</tr>
<tr>
<td>Performance Management Architect</td>
<td>DS%, JM%, OR%, SM% and a single table named PRODUCT</td>
</tr>
<tr>
<td>Planning</td>
<td>HSPSYS%, HSP% for applications</td>
</tr>
<tr>
<td>Oracle Hyperion Profitability and Cost Management</td>
<td>HPM%</td>
</tr>
<tr>
<td>Oracle Hyperion Reporting and Analysis Framework</td>
<td>V8% + ANNOT% for annotations, BRIOSECG%, BRIOSECP%, BRIOSECR%</td>
</tr>
<tr>
<td>Shared Services</td>
<td>CSS%, CES%, QRTZ%, LCM%, HSS%, SMA%, HDB%</td>
</tr>
<tr>
<td>Web Analysis</td>
<td>ATF%, HYA%, OJB%</td>
</tr>
</tbody>
</table>

3. Use standard database vendor mechanisms to create a new database schema for each component and then import the tables for each component into the new, separate database schemas.

For example, with an Oracle database, use the Import Utility.

4. Start EPM System Configurator on one of the machines hosting a component whose database you are reconfiguring, select the “Configure Database” and “Deploy to Application Server” tasks for one of the components, and then click Next.

5. On the Configure Database panel, enter the credentials for the new separate database, and then select Reuse the existing database.

6. Click Next on the remaining panels, and then, on the Summary panel, click Finish.

7. Exit EPM System Configurator.

8. Repeat step 4 through step 7 for each component whose database you want to reconfigure.

9. Restart all processes on all machines.
Run a query tool against the Shared Services Registry database and delete the tables for the components that were separated.

Drop tables, views, procedures, and sequences that have the prefixes noted in Table 6.

Validating the Database Configuration Changes

To validate the database configuration changes:

1. Launch EPM System Diagnostics using one of the following methods:
   - (Windows) In $EPM_ORACLE_INSTANCE/bin, double-click validate.bat.
   - From the Start Menu, choose Programs, then Oracle EPM System, then Foundation Services, then $instanceName, and then EPM System Diagnostics.
   - (UNIX) From a console, change to $EPM_ORACLE_INSTANCE/bin, and then enter validate.sh.

   Progress is shown in the command window.

2. To view results, navigate to $EPM_ORACLE_INSTANCE/diagnostics/reports and open validation_report_date_time.html.

Reconfiguring EPM System Components to Use a Single Database Schema

Subtopics

- Assumptions and Prerequisites
- Reconfiguring EPM System Components to Use a Single Database Schema
- Validating the Database Configuration Changes

When EPM System components are configured to use separate database schemas, you can simplify by reconfiguring so that the tables for all components are consolidated in a single database schema.

Note: The following products must all use the same database schema. If you installed any of these products using different database schemas in a previous release, before you apply a maintenance release, use this procedure to reconfigure the products to use a single database schema. You must also merge the FCM% and S_ROW_ID tables.

- Financial Close Management
- Tax Governance
- Account Reconciliation Manager
- Supplemental Data Manager
Assumptions and Prerequisites

- You have installed and configured EPM System products using the *Oracle Enterprise Performance Management System Installation and Configuration Guide*.
- EPM System components are configured to use separate database schemas.

Reconfiguring EPM System Components to Use a Single Database Schema

To reconfigure EPM System components to use a single database schema:

1. Stop all processes running on the Foundation Services machine (where the WebLogic Administration Server is running) and on all machines hosting a component whose database you want to reconfigure.
2. For each database, use standard database vendor mechanisms to extract the database tables for each component.
   - For example, with an Oracle database, use the Export Utility.
3. Use standard database vendor mechanisms to import the tables into the database.
   - For example, with an Oracle database, use the Import Utility.
4. Start EPM System Configurator on one of the machines hosting a component whose database you are reconfiguring, select the “Configure Database” and “Deploy to Application Server” tasks for one of the components, and then click **Next**.
5. On the **Configure Database** panel, enter the credentials for the database, and select **Reuse the existing database**.
6. Click **Next** on the remaining panels, and, on the **Summary** panel, click **Finish**.
7. Exit EPM System Configurator.
8. Repeat step 4 through step 7 for each component whose database you want to reconfigure.
9. Restart all processes on all machines.

Validating the Database Configuration Changes

To validate the database configuration changes:

1. Launch EPM System Diagnostics using one of the following methods:
   - (Windows) In `EPM_ORACLE_INSTANCE/bin`, double-click `validate.bat`.
   - From the Start Menu, choose Programs, then Oracle EPM System, then Foundation Services, then `instanceName`, and then EPM System Diagnostics.
(UNIX) From a console, change to $EPM_ORACLE_INSTANCE/bin$, and then enter validate.sh.

Progress is shown in the command window.

2 To view results, navigate to $EPM_ORACLE_INSTANCE/diagnostics/reports$ and open validation_report_date_time.html.

**Reconfiguring for SSL**

If you deployed to a non-SSL enabled environment and want to enable SSL, you can reconfigure and redeploy the web server. See the Oracle Enterprise Performance Management System Security Configuration Guide.
You can edit the Shared Services Registry using a command line utility. Use this utility only if you are unable to make the required changes to the Shared Services Registry using EPM System Configurator.

Tip: You can make most changes using EPM System Configurator. For example, to make changes to a deployed Java web application, you can select the “Configure Logical Address for Web Applications” task in EPM System Configurator to make changes without having to redeploy the Java web application. See the Oracle Enterprise Performance Management System Installation and Configuration Guide.

You use the `epmsys_registry.bat` utility (`epmsys_registry.sh` on UNIX) to make any required changes to the Shared Services Registry.

### Understanding the Shared Services Registry Component Hierarchy

To make corrections to the Shared Services Registry, you have to understand its structure. During configuration of 11.1.x products, EPM System Configurator automatically updates the Shared Services Registry with components for each product. Components also have child components, creating a hierarchy. Each component of the hierarchy has its own component properties. You need to know both the component names and the component property names to update the Shared Services Registry.

For example, the `ESSBASE_PRODUCT` component includes the following component properties:

- `host`
- `agent_PortNumber`
To find the component property names and child components for any component, you can use a command to view the component in the Shared Services Registry. See “Viewing the Components in the Shared Services Registry” on page 76.

Editing the Shared Services Registry

To edit the Shared Services Registry:

1. Back up the Shared Services Registry.
2. On a machine hosting the 11.1.x EPM System software, go to \EPM_ORACLE_INSTANCE\bin and run the following command:
   ```shell
   epmsys_registry view componentType
   ```

   You need to view the component hierarchy to get the component property names that required to delete a component or update a component property.

   For information see “Viewing the Components in the Shared Services Registry” on page 76.

3. Depending on the required changes, refer to the following commands:
   - To delete a component, see “Deleting a Component Instance” on page 77.
   - To update a component property, see “Updating a Component Property” on page 77.

   **Note:** When you run `epmsys_registry` commands on UNIX platforms, all `#` must be preceded by `\`.

4. If you changed the LOGICAL_WEB_APP property for any product, run EPM System Configurator and configure the web server again. (On the Task Selection page, select the Foundation Services Web Server Configuration task.)

Viewing the Components in the Shared Services Registry

Before you can delete a component or update a component property, you need to view the component hierarchy to get the component property names and values.

To view the component hierarchy:

1. Go to \EPM_ORACLE_INSTANCE\bin and use the following command:
   ```shell
   epmsys_registry view componentType
   ```

   where `componentType` is the name of the component in the Shared Services Registry.

   This command displays all the components in the specified hierarchy, displaying only the immediate children of the component. The information is displayed in the console.

   For example, to view all the components in the PLANNING_PRODUCT hierarchy, run:
   ```shell
   epmsys_registry view SYSTEM9/PLANNING_PRODUCT
   ```
2 If needed, repeat the command to get the property names for a subcomponent.

For example, LOGICAL_WEB_APP is a child of PLANNING_PRODUCT. To view the properties for LOGICAL_WEB_APP for Planning, enter the following command:
epmsys_registry view SYSTEM9/PLANNING_PRODUCT/LOGICAL_WEB_APP

3 From the display, note the following information about components you want to delete or update:

- Component ID for any components you want to delete or update
- Component property names and values for any components you want to update

For example, the LOGICAL_WEB_APP for Planning has several properties, including context, port, and host.

### Deleting a Component Instance

You delete a component instance by referring to the component’s ID that is displayed when you view the component hierarchy.

To delete a component from the component hierarchy, go to `EPM_ORACLE_INSTANCE/bin` and run the following command:

```
epmsys_registry deletecomponent #componentID
```

where `componentID` is the component’s ID that you found when you viewed the component hierarchy.

On UNIX, run:

```
epmsys_registry.sh deletecomponent #componentID
```

Deleting a node does not delete its children.

**Tip:** If you are deleting a product node, first delete all the children of the node and then delete the product node.

**Caution!** Ensure that you delete the correct component.

### Updating a Component Property

You update a component property by referring to the component ID and the component property name that are displayed when you view the component hierarchy.

To update a component property, go to `EPM_ORACLE_INSTANCE/bin` and run the following command:

```
epmsys_registry updateproperty #componentID/@componentProperty value
```
where componentID is the component's ID you found when you viewed the component hierarchy, componentProperty is the component property name you want to update, and value is the new value for the component property.

On UNIX, run:

epmsys_registry.sh updateproperty \#componentID/@componentProperty value

Component property names are case sensitive.

**Tip:** Look for the component property names in the section called “Properties” when you view the component hierarchy. In addition, you can update the host a component is running on using the property name “host.”

For example, to change the port number for the Essbase Server with the component ID 99999 to port number 1425, enter the following command:

epmsys_registry updateproperty #99999/@agent_PortNumber 1425

**Viewing Host Entries in the Shared Services Registry**

You can view the host entries in the Shared Services Registry.

You can use this command for a number of purposes. For example, use the command to:

- Simplify the rehosting process
- Simplify the process of changing server names to alias names
- Debug server communication issues

**Tip:** To view the host entries in the Shared Services Registry, go to EPM_ORACLE_INSTANCE/bin and run the following command:

epmsys_registry viewhosts

The displays shows the server names for this machine as they are stored in the Shared Services Registry in one column and the hostname as resolved by the DNS in another column

**Tip:** If the names in the columns do not match, either resolve the DNS entries or create a hosts file to match the resolved names.
EPM System Configurator deploys Oracle Enterprise Manager automatically when it deploys the first Java web application.

Oracle Enterprise Manager Fusion Middleware Control can be used to manage the WebLogic domain. You can use this embedded Enterprise Manager to manage all the Java web applications in EPM System out of the box. The full version of Enterprise Manager with Grid Control adds functionality on top of the Fusion Middleware Control, including historical information of the metrics.

- Status of the servers and Java web applications running
- Servers the Java web applications are running on and the ports they are listening on
- Health and performance of Java web applications and managed servers (select the server you want to monitor and navigate to WebLogic Server and then Performance Summary to view the available categories of metrics)

To launch Oracle Enterprise Manager, go to http://WebLogicAdminServerHost:port/em.
To uninstall this release of EPM System products, follow this workflow:

1. Remove any instances related to the deployment. See “Removing an Instance” on page 82.

2. Use EPM System Uninstaller to remove binaries. “Uninstalling EPM System Products” on page 84. You can also silently uninstall EPM System components.

3. Uninstall EPM System clients. See “Uninstalling EPM System Clients” on page 86.

4. If you are not using the remaining content in Middleware Home for other products, run the uninstallers for Oracle HTTP Server, WebLogic Server, oracle_common, and Oracle Database clients by using Add/Remove programs, or use the product uninstallation shortcuts.

**Removing an EPM Oracle Instance**

You use EPM System Configurator to remove an EPM Oracle instance as part of uninstalling an EPM System component or deployment.

Additionally, you can remove an instance for the following reasons (in these cases you remove the instance but do not uninstall):

- You have scaled out the deployment by configuring an additional EPM Oracle instance, and now you want to scale down the deployment by removing the instance.

- You incorrectly configured an EPM Oracle instance and want to remove the instance from the deployment.
Assumptions and Prerequisites

- You have installed and configured EPM System products using the *Oracle Enterprise Performance Management System Standard Deployment Guide* or the *Oracle Enterprise Performance Management System Installation and Configuration Guide*.
- You have run a deployment report to confirm the instance to be removed.
- WebLogic Administration Server must be stopped if you are removing an instance from the machine hosting the WebLogic Administration Server. WebLogic Administration Server must be running if you are removing an instance from a machine other than the one hosting the WebLogic Administration Server.
- For products that work with Oracle SOA Suite, the SOA Server must be running.

Removing an Instance

1. **Launch EPM System Configurator** from the machine hosting the instance to be removed using one of these methods:
   - Change to `EPM_ORACLE_INSTANCE/bin` and then launch:
     ```
     configtool.bat (.sh) -remove
     ```
   - From the **Start** menu, select **Programs**, then **Oracle EPM System**, then **EPM Oracle instance name**, then **Foundation Services**, and then **EPM System Configurator Remove Instance**.

   EPM System Configurator stops required services.

2. **At the warning prompt, click Yes to proceed.**

   If you are removing the last remaining instance of Foundation Services, all other EPM System products will no longer work, because the Shared Services Registry is removed.

3. **Review the progress and completion of the removal tasks on the console.**

   EPM System Configurator performs the following tasks during instance removal for the components in this instance:
   - Removes the Java web applications from the cluster. If it is the last Java web application in the cluster, removes the cluster.
   - Removes the configuration for IIS web applications.
   - Removes files from `EPM_ORACLE_INSTANCE`.
   - Removes Oracle Hyperion Shared Services Registry entries.
   - Removes Windows Start Menu entries.
   - Removes Windows Services entries.
   - Removes Windows Registry entries.
For Oracle Hyperion Financial Close Management or Oracle Hyperion Tax Governance, removes composites.

EPM System Configurator retains the following information during instance removal for the components in this instance:

- Binary files in `EPM_ORACLE_HOME`.
- The contents of `EPM_ORACLE_INSTANCE/diagnostics`.
- Product data.
- Product repositories.

If you are removing an instance where you deployed to a single managed server, remove the instance on the Administration Server machine (where the single managed server was first deployed) last.

**Validating the Instance Removal**

After removing an EPM Oracle instance, if there are instances remaining in the deployment, perform the following validation steps.

1. **To validate that an instance was successfully removed:**
   
   a. Run a deployment report and confirm that the instance was removed:
      
      Navigate to `EPM_ORACLE_INSTANCE/bin` and execute the following command:
      
      ```
      epmsys_registry report deployment
      ```
      
      The report file (`deployment_report_YYYYMMDD_HHmmss.html`) is stored in `EPM_ORACLE_INSTANCE/diagnostics/reports`.

   b. Launch Oracle Hyperion Enterprise Performance Management System Diagnostics using one of the following methods:
      
      - (Windows) In `EPM_ORACLE_INSTANCE/bin`, double-click `validate.bat`.
      - From the Start Menu, choose `Programs`, then `Oracle EPM System`, then `Foundation Services`, then `instanceName`, and then `EPM System Diagnostics`.
      - (UNIX) From a console, change to `EPM_ORACLE_INSTANCE/bin`, and then enter `validate.sh`.
      
      Progress is shown in the command window.

2. **To view results:**
   
   navigate to `EPM_ORACLE_INSTANCE/diagnostics/reports` and open `validation_report_date_time.html`. 

---

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Uninstalling EPM System Products

When you uninstall EPM System products, EPM System Uninstaller removes the binaries from the installation location. Use uninstall when you want to completely remove components that are not in use any more in any instance in the deployment.

---

Caution! When you uninstall EPM System products, EPM System Uninstaller removes everything from the installation directory. Before you uninstall, be sure to back up any files you want to keep. For information about backing up files, see Oracle Enterprise Performance Management System Backup and Recovery Guide.

---

To uninstall EPM System products:

1. Ensure that no EPM System processes are running.

2. Choose a method to launch the uninstaller:
   - (Windows) In EPM_ORACLE_HOME/uninstall, double-click uninstall.cmd.
   - (Windows) In the Windows Control Panel, select Oracle EPM System to remove/uninstall.
   - (Windows) From a Windows console, change to EPM_ORACLE_HOME/uninstall/, and then enter uninstall.cmd.
   - From the Start menu, select Programs, then Oracle EPM System, and then Uninstall EPM System.
   - (UNIX) Change to the EPM_ORACLE_HOME/uninstall directory and enter ./uninstall.sh.
   - (UNIX) Change to the EPM_ORACLE_HOME/uninstall directory and enter ./uninstall.sh —console.

3. Exit other programs before you continue, and then click or select Next.

4. Select the products to uninstall, and then click or select Next. All components on the same tier of the selected products are uninstalled.

   For example, if you uninstall any Financial Management web component, EPM System Uninstaller uninstalls all Financial Management web components.

   All installed products are selected by default. Select “Uncheck all” to clear the selections for all products, and then select only the products you want to uninstall.

   If you uninstall any Reporting and Analysis component, all other Oracle Hyperion Reporting and Analysis components are disabled.

5. Specify whether you want to delete all the files and directories in the EPM Oracle Home directory.

   If you select this option, data and customized files are deleted.

6. Confirm the products to uninstall, and then click or select Next.

   EPM System Uninstaller displays progress incrementally as each assembly's uninstallation is complete.
Note: To cancel the uninstallation, click or select Cancel. When you select Cancel, EPM System Uninstaller stops the uninstallation of the current assembly and rolls that assembly back to an installed state. It does not undo uninstallations for assemblies that were already uninstalled.

EPM System Uninstaller indicates the success or failure of the uninstallation. If any part of the uninstallation failed, EPM System Uninstaller notes which assembly failed to uninstall. Check the log files for more information about the errors. You can find the log files in EPM/ORACLE_HOME/diagnostics/logs/install. There is a log file for each assembly, named product-install.log; for example, hss-install.log.

7 Click or select Finish to close EPM System Uninstaller.

8 On Windows, if you uninstalled Oracle HTTP Server, you must reboot to completely remove the installation. This step is required if you plan to reinstall.

9 Reboot after uninstalling EPM System products.

When uninstalling a client, select Delete common components in the Setup Type window only if you are deleting all EPM System clients that are installed on a machine. If multiple EPM System clients are installed on the same machine and you are deleting only one client, deselect Delete common components.

Performing a Silent Product Uninstallation

Silent uninstallations automate the process so that you can uninstall EPM System products on multiple computers without manually specifying uninstallation settings on each machine.

To uninstall EPM System products on multiple computers using the same uninstallation options, record a response file during installation. You can then run a silent uninstallation from the command line, using the options that were saved in the response file.

➢ To run a silent uninstallation:

1 Copy the response file that you created during installation to the machine on which you want to run the uninstallation. You can also copy the file to a network drive that is accessible from the machines on which you want to uninstall.

   For information about recording a response file during installation, see “Performing Silent Installations” in the Oracle Enterprise Performance Management System Installation and Configuration Guide.

2 From the command line, enter a command:

   uninstall.cmd -silent filename
   for Windows or
   uninstall.sh -silent filename
   for UNIX.

   The uninstallation runs in the background.
Uninstalling EPM System Clients

You can uninstall EPM System clients using the uninstall option in the client installers.

To uninstall EPM System clients:

1. From the client installer folder, open the subfolder for the client installer and then double-click the client installer file name. See “Default Installation Directories and Notes” on page 86.

2. Proceed through the installation wizard, selecting Remove, and then click Finish when the uninstallation is complete.

Note: If you are uninstalling multiple clients that are installed on the same machine, or if a client is installed on the same machine as an EPM System server product, launch the uninstaller using the DELETE_COMMONS=false command line parameter. See “Performing a Silent Client Uninstallation” on page 86.

Default Installation Directories and Notes

The information in the following table applies to installations performed from EPM Workspace or with EPM System client installers and to silent installations.

<table>
<thead>
<tr>
<th>Client</th>
<th>Default Installation Directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration Services Console</td>
<td>EPM_ORACLE_HOME/products/Essbase/eas/console</td>
</tr>
<tr>
<td>Essbase Client</td>
<td>EPM_ORACLE_HOME/products/Essbase/EssbaseClient</td>
</tr>
<tr>
<td>Essbase Studio Console</td>
<td>EPM_ORACLE_HOME/products/Essbase/EssbaseStudio/console</td>
</tr>
<tr>
<td>Financial Management</td>
<td>EPM_ORACLE_HOME/products/FinancialManagement/Client/Client32/HFM.exe</td>
</tr>
<tr>
<td>Financial Reporting Studio</td>
<td>EPM_ORACLE_HOME/products/FinancialReportingStudio</td>
</tr>
<tr>
<td>Oracle Hyperion EPM Architect</td>
<td>EPM_ORACLE_HOME/products/Foundation/BPMA/EPMAFileGenerator</td>
</tr>
<tr>
<td>Planning Offline</td>
<td>EPM_ORACLE_HOME/products/OfflinePlanning.</td>
</tr>
<tr>
<td>Predictive Planning</td>
<td>C:/Program Files/Oracle/Crystal Ball</td>
</tr>
<tr>
<td>Smart View</td>
<td>C:/Oracle/SmartView</td>
</tr>
<tr>
<td>Strategic Finance</td>
<td>EPM_ORACLE_HOME/products/hsf/Client</td>
</tr>
<tr>
<td>Disclosure Management</td>
<td>c:/Program Files/Oracle Hyperion Disclosure Management</td>
</tr>
</tbody>
</table>

Performing a Silent Client Uninstallation

You use the EPM System client installers with the command line parameter /x to uninstall EPM System clients other than Disclosure Management.
To perform silent uninstallation of an EPM System client other than Essbase Client, Essbase Studio Console, Administration Services Console, or Disclosure Management, use this command:

```
installer file name /x /s /v"/qn /l*v log file path and name"
```

For example, this command uninstalls Smart View and creates the log c:/temp/SilentInstall.log:

```
SmartView.exe /x /s /v"/qn /l*v c:/temp/SilentInstall.log"
```

To perform a silent uninstallation of Essbase Client, Essbase Studio Console, Administration Services Console, or Strategic Finance Client, use this command:

```
installer file name /x /s /v"/qn DELETE_COMMONS=value /l*v log file path and name"
```

where `value` is true or false.

Essbase Client, Essbase Studio Console, Oracle Essbase Administration Services Console, and Strategic Finance share some common components. With the parameter `DELETE_COMMONS=true`, the uninstaller removes these common components. If multiple clients are installed on the same machine, or if the client is installed on the same machine as an EPM System server product, you must use `DELETE_COMMONS=false` if you want to delete only one of the clients.

To perform a silent uninstallation of Disclosure Management, run this command from the folder that contains `DiscManSetup.msi`:

```
msiexec /uninstall DiscManSetup.msi /qn /l*v log file path and name"
```

### Removing Smart View Extensions

Smart View supports provider extensions for the following EPM System products:

- Oracle Hyperion Disclosure Management
- Financial Reporting
- Oracle Hyperion Strategic Finance
- The Predictive Planning extension for Planning
- The Planning Admin extension for Planning

For information about removing Oracle Smart View for Office Extensions, see the *Oracle Smart View for Office User’s Guide*.

If you are an administrator, see the *Oracle Smart View for Office User’s Guide* for information about administering extensions.
In This Chapter

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- Installing and Configuring Online Help ................................................................. 92
- Customizing Essbase Configurations ................................................................. 93
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This chapter describes additional custom configurations you can make to your EPM System deployment.

**Optimizing Performance by Changing the Heap Size**

**Subtopics**

- Assumptions and Prerequisites
- Changing the Heap Size
- Validating the Heap Size

Depending on your environment, you might need to change the heap size for your Java web application server. For example, if you see “OutOfMemory” errors in WebLogic, increase the heap size. If you need to reduce the memory requirement of the WebLogic Server, decrease the heap size.

By default, if you deploy Java web applications to a single managed server, EPM System Configurator sets the default heap size for the single managed server based on the machine's memory:

- 12 GB or more on machine, sets heap size at 8 GB
- 6 GB or more, up to but not including 12 GB, sets heap size at 4 GB
- Under 6 GB on a 32-bit machine, sets heap size at 750 MB
- Under 6 GB on a 64-bit machine, sets heap size at 1.536 MB
Assumptions and Prerequisites

This procedure assumes the following:

- You have installed and configured EPM System products using the Oracle Enterprise Performance Management System Standard Deployment Guide or the Oracle Enterprise Performance Management System Installation and Configuration Guide.
- If you manually deployed the Java web application, the managed server must be running.

Changing the Heap Size

To change the heap size of a managed server:

1. For Windows machines, use Windows Registry Editor to change the heap size of the Windows service:
   a. On the machine hosting the product whose managed server you want to modify, open Windows Registry Editor: Select Start and then Run, enter regedit, and then click OK.
   b. In Registry Editor, select HKEY_LOCAL_MACHINE, then SOFTWARE, then Hyperion Solutions, then ManagedServerName, and then WindowsServiceName_InstanceName.
      For example, if you deployed a single managed server, select HKEY_LOCAL_MACHINE, then SOFTWARE, then Hyperion Solutions, then EPMServer0, and then HyS9EPMServer_InstanceName.
      If you scaled out a single managed server, on the scaleout machine, select HKEY_LOCAL_MACHINE, then SOFTWARE, then Hyperion Solutions, then EPMServer1, and then HyS9EPMServer_InstanceName.
      For example, if you deployed Oracle Hyperion Planning, select HKEY_LOCAL_MACHINE, then SOFTWARE, then Hyperion Solutions, then Planning0, and then HyS9Planning_InstanceName.
   c. Right-click JVMOptionX (where X is 1, 2, ...) whose value starts with -Xmx, and then select Modify.
   d. In Value data, change the value to a value appropriate for your environment.
      -XmxValue
      For example, to set the heap size to 8 GB, enter the following:
      -Xmx8000m
e. Click **OK**.

f. Close Registry Editor.

g. Start EPM System by selecting **Start**, then **All Programs**, then **Oracle EPM System**, then **Foundation Services**, and then **Start EPM System**.

h. Complete these steps for each managed server on each machine in the deployment.

2 For UNIX machines or as an alternate method for Windows machine, change the heap size of a managed server in the product start script:

a. On the machine hosting the product whose managed server you want to modify, open the product’s custom start script in a text editor:

```
EPM_ORACLE_INSTANCE/bin/deploymentScripts/
setCustomParamsManagedServerName.bat|.sh
```

For example, to change the heap size for the Foundation Services managed server, open

```
EPM_ORACLE_INSTANCE/bin/deploymentScripts/
setCustomParamsFoundationServices.bat|.sh
```

b. Modify the entry that looks like this:

```
set USER_MEM_ARGS=-Xms128m -XX:PermSize=64m -XX:MaxPermSize=256m -Xmx512m
```

and edit the value for `-XmxValue` to a value appropriate for your environment.

c. Save the file.

d. Rerun the script for the product after making changes.

e. Complete these steps for each managed server on each machine in the deployment.

### Validating the Heap Size

To validate that the heap size is set correctly:

1. Log in to the WebLogic Administration Console using WebLogic administrator credentials. ([http://WebLogic_Admin_Host:WebLogic_Admin_Port/console](http://WebLogic_Admin_Host:WebLogic_Admin_Port/console), for example: [http://FNDHOST1:7001/console](http://FNDHOST1:7001/console) (or select **Start**, then **All Programs**, then **Oracle WebLogic**, then **User Projects**, then **EPMSystem**, and then **Admin Server Console**).

2. In the Domain Structure, expand **Environment**, and then select **Servers**.

3. In **Summary of Servers**, select **ManagedServerName**.

4. Click the **Monitoring** tab, and then the **Performance** tab.

5. In **Java Virtual Machine Memory Utilization Statistics**, review the **Heap Size Max** setting.
Installing and Configuring Online Help

Subtopics

- Assumptions and Prerequisites
- Configuring Online Help to Run Locally

Online Help content for EPM System products is served from a central Oracle download location, which reduces the download and installation time for EPM System. You can access online Help automatically after configuring the web server with EPM System Configurator if you are using Oracle HTTP Server or the embedded WebLogic HTTP Server installed with Foundation Services. Launch online Help in one of the following ways:

- From EPM Workspace.
- From a web-based product. In this case, the URL that you use to launch the product must be through the web server. For example: launch Oracle Hyperion Web Analysis using http://webServerHost:webServerPort/WebAnalysis.
- Directly from a desktop client product such as Financial Reporting Studio.

Online Help served from the central Oracle download location is not supported if you are using IIS as your web server.

You can also install and configure online Help to run locally.

Note: If you require accessible online Help that is Section 508 compliant, or if you are using Oracle User Productivity Kit (UPK), you must install and configure Help to run locally.

Note: If you reconfigure the web server for any reason, restore epm_online_help.conf.

Assumptions and Prerequisites

If you plan to configure online Help to run locally, ensure that you have installed and configured EPM System components.

Configuring Online Help to Run Locally

To install and configure online Help to run locally instead of from the hosted Oracle server:


2. On the machine hosting the HTTP server, extract the epmstatic folder under EPM_ORACLE_HOME/common. (If you are using the embedded WebLogic HTTP Server, the HTTP server is hosted on the machine on which you deployed Oracle Hyperion Foundation Services.) The folder structure should look as follows, for example, with a folder for each product:
If you have a load-balanced environment, unzip epml1124.zip on each machine on which you installed an HTTP server.

If you are using Oracle HTTP Server or IBM HTTP Server, after configuring the web server with EPM System Configurator, open httpd.conf (or ssl.conf if you are using SSL) in EPM_ORACLE_INSTANCE/httpdConfig/ohs/config/OHS/ohs_component/, search for Include conf/epm_online_help.conf, and then comment it by preceding it with #. For example:

```
#include ./epm_online_help.conf
```

In addition, ensure that the following line is in httpd.conf:

```
Alias /epmstatic "EPM_ORACLE_HOME/common/epmstatic"
```

If you are using the embedded WebLogic HTTP Server, after configuring the web server with EPM System Configurator, open EPM_ORACLE_HOME/common/epmstatic/WEB-INF/web.xml and comment the filter and filter-mapping sections. For example:

```
<!--
<filter>
 ...
</filter>
<filter-mapping>
 ...
</filter-mapping>
-->
```

Restart the FoundationServices managed server (WebLogic) and the HTTP Server.

Customizing Essbase Configurations

This section describes additional configuration settings you might need for Essbase.

Designating a Specific Installation of JRE for use with Essbase

To designate a specific installation of JRE for use with Essbase, update the JVMODULELOCATION setting in essbase.cfg.

The JVMODULELOCATION setting in the essbase.cfg file (in ARBORPATH/bin) enables you to designate a specific installation of JRE for use with Essbase, and is required to enable Data Mining, Shared Services, custom defined functions, triggers, and external authentication.

This setting is particularly useful if you have multiple versions of Java installed on the Essbase Server computer.

During Essbase Server configuration, the correct setting for JVMODULELOCATION is automatically added to essbase.cfg.
To change the JVM MODULE LOCATION parameters, you must specify the full path and file name of the Java Virtual Machine (JVM) library. The location and name of the library varies, depending on the operating system that you are using. EPM System Installer installs JRE in EPM ORACLE_HOME/JDK160_35/jre.

Note: To run 64–bit Essbase on any 64–bit operating system requires a 64–bit JVM.

Managing Memory with JvmModuleLocation

If you are not using Data Mining, Shared Services, custom defined functions, triggers, or external authentication, you can reduce the amount of memory used by editing essbase.cfg and setting JvmModuleLocation to null (empty).

If you are using these features, and need to reduce the amount of memory used, then you can reduce the JVM heap size by setting the following environment variables:

```
ESS_JVM_OPTION1=-Xmx16m
```

Because the default minimum and maximum for JVM heap size are different for different platforms and versions, set the correct value for your environment.

Configuring the 32-bit Runtime Client on a 64-bit Windows Platform

EPM System Installer installs both 32-bit and 64-bit Essbase Client on a machine with a 64-bit operating system.

If you want to use 32-bit and 64-bit client applications on the same machine, and you don’t want to have to recompile applications, use the following procedure.

To use the 32-bit Runtime Client on a 64-bit Microsoft Windows machine:

On the 64-bit machine, run the precompiled 32-bit client program from a command prompt or from a shell window on which ESSBASEPATH is set to the installation directory of the 32-bit Runtime Client and PATH is set to include the bin subdirectory under the ESSBASEPATH directory.

For example, on Windows AMD64 set the following:

```
ESSBASEPATH=%EPM_ORACLE_HOME%/common\EssbaseRTC\11.1.2.0
PATH=%ESSBASEPATH%/bin;%PATH%
```

For information on Application Programming Interface and Runtime Client, see the Oracle Essbase API Reference.
Changing the Default Location for Temporary Files on Solaris Platforms

On Solaris platforms, Essbase uses /var/tmp as the default location for creating temporary files. To create temporary files in a different location, you must set the TMPDIR environment variable in opmn.xml or setEssbaseEnv.sh.

To set the TMPDIR environment variable in opmn.xml:

1. In opmn.xml, look for "ESSLANG", for example: <variable id="ESSLANG" value="English_UnitedStates.Latin1@Binary"/>

2. Below the ESSLANG entry, add the following: <variable id="TMPDIR" value="desired location for temporary files"/>
   For example: <variable id="TMPDIR" value="/vol1/test"/>

To set TMPDIR in setEssbaseEnv.sh, add the following entry: TMPDIR=desired location for temporary files. For example: TMPDIR=/vol1/test.

(UNIX) Configuring the Environment for Essbase and Oracle BI EE Integration

If you are using Oracle Business Intelligence Enterprise Edition as the data source for Essbase, you must set additional environment variables for the Oracle BI EE driver before launching Essbase.

Note: Essbase Release 11.1.2 integrates with Oracle BI EE Release 10g (10.1.3.4 and later) on UNIX.

To configure the environment for Essbase and Oracle BI EE integration:

1. Install the Oracle BI EE ODBC driver.

   Oracle BI EE ODBC driver components are installed in their own Home directory. Ensure that the UNIX users who have access/execute privileges to Essbase have the same privileges to the Oracle BI EE ODBC driver components.

2. Modify odbc.ini (for Essbase) and odbcinst.ini (for Oracle Essbase Studio) to add the Oracle BI EE ODBC driver. These files are in EPM_ORACLE_HOME/common/ODBC/Merant/7.1. Modify the files by editing the DSN (for odbc.ini) or the driver descriptor (for odbcinst.ini) to include the absolute path for the Oracle BI EE ODBC driver.

   Use the following example for the DSN entry for odbc.ini:

   [ODBC Data Sources]
   :
   OBI Paint=Oracle BI Server [DSN for OBI driver]
   
   [ODBC]
Integrating Oracle BI EE and BI Publisher with EPM Workspace

Subtopics

- Integrating EPM Workspace with Oracle BI EE Release 10g
- Integrating EPM Workspace with Oracle BI EE Release 11g

Integrating EPM Workspace with Oracle BI EE Release 10g

To integrate Oracle BI EE and Oracle Business Intelligence Publisher Release with 10.1.3.4.2+ EPM Workspace, perform the following tasks:
1. Meet prerequisites. See “Prerequisites for Integrating Oracle BI EE and BI Publisher Release 10.1.3.4.2+ with EPM Workspace Release 11.1.2.4” on page 97.

2. Use EPM System Configurator to set up the connection between Oracle BI EE and EPM Workspace. Then, configure the web server. See “Set Up Connection to Oracle BI EE and Publisher” on page 98.

3. Perform manual configuration tasks. See “Manual Configuration for Integrating Oracle BI EE and BI Publisher Release 10.1.3.4.2+ with EPM Workspace Release 11.1.2.4” on page 98.

Prerequisites for Integrating Oracle BI EE and BI Publisher Release 10.1.3.4.2+ with EPM Workspace Release 11.1.2.4

Before you can integrate Oracle BI EE and BI Publisher Release 10.1.3.4.2+ with EPM Workspace Release 11.1.2.4, you must install and configure Shared Services Release 11.1.1.4 on a machine other than the machine used for EPM System Release 11.1.2.4. Then, perform the following steps:

- Before you can integrate BI Publisher Release 10.1.3.4.2+ with EPM Workspace 11.1.2.4, you must complete the prerequisite steps described in the Oracle Business Intelligence Publisher Administrator’s and Developer’s Guide Release 10.1.3.4.2, available at http://download.oracle.com/docs/cd/E10415_01/doc/index.htm. Note the following caveats:
  - In the section “Configuring Oracle BI Publisher with EPM Workspace,” the step “Configure the EPM Workspace Web Server” is not required, because web server is configured during configuration of EPM System Release 11.1.2.4.
  - All references to the Registry Properties file (reg.properties) in the “Prerequisites for Integration with EPM Workspace” refer to the Registry Properties file (reg.properties) that was created during the installation and configuration of Shared Services Release 11.1.1.4.

- Before you can integrate Oracle BI EE Release 10.1.3.4.2+ with EPM Workspace 11.1.2.4, you must complete the prerequisite steps described in the Oracle Business Intelligence Publisher New Features Guide Release 10.1.3.4.2+, available at http://download.oracle.com/docs/cd/E10415_01/doc/index.htm. Note the following caveats:
  - In the section “Installing and Configuring Oracle BI Presentation Services with EPM Workspace,” the steps “Configuring the Web Server for EPM Workspace” and “Verifying the Web Server Configuration” are not carried out using EPM Workspace Release 11.1.1.4 but on EPM System Release 11.1.2.4.
  - All references in the document to the Registry Properties file (reg.properties) refer to the Registry Properties file (reg.properties) that is created during the installation and configuration of Shared Services Release 11.1.1.4.

Next, proceed with configuration of EPM System Release 11.1.2.4 using EPM System Configurator, selecting the task “Set up Connection to Oracle BI EE and Publisher.” Configure the web server last.
In this scenario, you must have an installation of Shared Services Release 11.1.1.4 along with the installation of EPM System Release 11.1.2.4.

Caveats for working in this environment:

- Native users are not supported.
- You must install and configure EPM System Release 11.1.2.4 and EPM System Release 11.1.1.4 on different servers. Configuration on a single server is not supported.

### Set Up Connection to Oracle BI EE and Publisher

Specify the configuration information for EPM Workspace to work with Oracle BI EE and BI Publisher.

You must reconfigure the web server after you perform this task. If the web server is on this machine, select **Configure Web Server** at the same time that you select **Set up Connection to Oracle BI EE and Publisher**.

The following table describes options for configuring EPM Workspace to work with Oracle BI EE and BI Publisher.

<table>
<thead>
<tr>
<th><strong>EPM System Configurator Fields</strong></th>
<th><strong>Description</strong></th>
<th><strong>Your Information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set up Oracle BI EE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host</td>
<td>Specify the host where Oracle BI EE is installed.</td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td>Specify the port on which Oracle BI EE listens.</td>
<td></td>
</tr>
<tr>
<td>SSL Port</td>
<td>If you are using SSL, specify the SSL port.</td>
<td></td>
</tr>
<tr>
<td>URL Context</td>
<td>Review or update the context path. The context path is the part of the URL that accesses the deployed Java web application. The default value is /analytics.</td>
<td></td>
</tr>
<tr>
<td><strong>Set up Oracle BI Publisher</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host</td>
<td>Specify the host where BI Publisher is installed.</td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td>Specify the port on which BI Publisher listens.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>URL Context</td>
<td>Review or update the context path. The context path is the part of the URL that accesses the deployed Java web application. The default value is /xmlpserver.</td>
<td></td>
</tr>
</tbody>
</table>

### Manual Configuration for Integrating Oracle BI EE and BI Publisher Release 10.1.3.4.2+ with EPM Workspace Release 11.1.2.4

If you are integrating EPM Workspace with Oracle BI EE or BI Publisher, perform an additional task to create compatible single sign-on tokens. Because Shared Services Release 11.1.1.3 and
11.1.1.4 use a different encryption method than Release 11.1.2.x, you must generate a new single sign-on token encryption key.

You can select either **Reset to default** or **Generate a new key**. If you generate a new key, you need to replace `css-9_5_0.jar` in `oraclebi/web/javahostt/lib/obiscustomauth` on the Oracle BI EE machine with the same file from the 11.1.1.3 or 11.1.1.4 installation, which is in `HYPERION_HOME/common/css/9.5.0.0/lib`.

1. If Oracle BI EE or BI Publisher Release 10.1.3.4.1 is installed on a machine other than the machine hosting Shared Services Release 11.1.1.3.00 or 11.1.1.4, perform the following additional steps:

   - On the machine hosting Oracle BI EE or BI Publisher, create a folder for `HYPERION_HOME`, and then create a new environment variable, `HYPERION_HOME`, pointing to this location.
   - Create the following directory structure under `HYPERION_HOME`: `/common/CSS`.

2. Copy `ssHandlerTK` key to `HYPERION_HOME/common/CSS`.


3. Restart Oracle BI EE and Oracle Business Intelligence Publisher services.

**Integrating EPM Workspace with Oracle BI EE Release 11g**

To integrate EPM Workspace Release 11.1.2.4 with Oracle BI EE Release 11.1.1.7, see “Configuring for Integration with EPM Workspace” in the *Oracle® Fusion Middleware System Administrator’s Guide for Oracle Business Intelligence Enterprise Edition* (http://docs.oracle.com/cd/E28280_01/bi.1111/e10541/toc.htm). If you used the EPM Workspace integration with Oracle BI EE Release 10g, then you can upgrade to Oracle BI EE Release 11.1.1.7, but the integration with EPM Workspace is not upgraded. You must reconfigure for the integration using the procedures that are described in *Oracle® Fusion Middleware System Administrator’s Guide for Oracle Business Intelligence Enterprise Edition*.

**Configuring the Environment for Financial Management and Oracle BI EE Integration**

For Oracle BI EE integration with Financial Management, after installing Oracle BI EE, before you can import from or set up a connection to Financial Management data sources, you must ensure that the Financial Management SDK is installed on the system running the Oracle BI JavaHost process.

Perform the following tasks:

1. Using EPM System Installer, install the Financial Management SDK on the machine running the Oracle BI JavaHost process.

3. After configuration, edit `opmn.xml` on each system running the Oracle BI JavaHost process to include environment variables required by Financial Management. See the following procedure.

Note that the JavaHost process must be running to import from Financial Management data sources, for both offline and online imports. You can use Financial Management data sources with Oracle BI EE only when Oracle Business Intelligence Enterprise Edition is running in a Windows-only deployment.

➢ To configure the environment for Financial Management and Oracle BI EE integration:

1. Open `ORACLE_INSTANCE/config/OPMN/opmn/opmn.xml` in a text editor.

2. Locate the `ias-component` tag for the JavaHost process. For example:
   ```
   <ias-component id="coreapplication_obijh1">
   ``

3. Within the environment tag, add new variables required for Financial Management, using the following example as a guide. Update the actual values as appropriate for your installation.
   ```
   <variable id="EPM_ORACLE_HOME" value="C:/Oracle/Middleware/EPMSystem11R1"/>
   <variable id="EPM_ORACLE_INSTANCE" value="C:/Oracle/Middleware/user_projects/epmsystem1"/>
   ``

4. Locate the `data id="start-args"` tag and update the `classpath` attribute to include the location of required `.jar` files. For example:
   ```
   ```
5 Save and close the file.

6 Go to ORACLE_HOME/bifoundation/javahost/lib/obisintegration/adm and delete all .jar files except for admintegration.jar and admimport.jar.

7 Restart the JavaHost process.

8 Repeat these steps on each computer that runs the Oracle BI JavaHost process. If you are running multiple JavaHost instances on the same computer, be sure to update the iascomponent tag appropriately for each instance in opmn.xml (for example, ias-component id="coreapplication_obijh1", ias-component id="coreapplication_obijh2", and so on).

You should run more than one JavaHost process to ensure that JavaHost is not a single point of failure for Oracle Hyperion Financial Management access. To do this, scale out the JavaHost process using Fusion Middleware Control. See "Scaling Your Deployment" in Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition (http://docs.oracle.com/cd/E28280_01/bi.1111/e10541/toc.htm) for more information about scaling out processes.

**Configuring Fonts for Financial Reporting Studio**

Use the Financial Reporting Print Server Utility if you have added fonts after your initial installation and configuration of Financial Reporting, to prepare fonts for use in reports.

**Assumptions and Prerequisites**

- You have installed and configured EPM System components.
- You have downloaded fonts that you want to use. For Windows, the fonts should be in C:/ WINDOWS/Fonts (system fonts) or %JAVA_HOME%/jre/lib/fonts (Java runtime fonts). For UNIX, fonts can be in any location.
- Only True Type fonts are supported; open source fonts are not supported.
- Ensure that EPM_ORACLE_INSTANCE is set as system variable.
- For Turkish lira symbol support, see “Downloading the Turkish Lira Symbol” on page 103. Download the font before you run the Print Server Utility.

**Configuring Fonts Using the Print Server Utility**

The Print Server Utility provides an easy way to update xdo.cfg (Windows) and px.cfg (UNIX), which Financial Reporting Studio uses for font information. If you have added any fonts since your initial deployment of Oracle Hyperion Financial Reporting, use this utility to use the fonts in reports.
To configure fonts for Financial Reporting Studio:

1. From a command window, launch `EPM_ORACLE_INSTANCE/FinancialReporting/bin/FRPrintServerUtility.cmd|.sh -gui`.

2. In the Oracle Financial Reports Print Server Utility, review the default location of `xdo.cfg`, and change it if necessary.

   By default, EPM System Installer installs `xdo.cfg` in `EPM_ORACLE_INSTANCE/FinancialReporting/lib/FOProcessor`.

3. Specify the location to search for fonts.

   By default, for Windows, the utility scans for fonts in `C:/WINDOWS/Fonts` (system fonts) and `JAVA_HOME/jre/lib/fonts` (Java runtime fonts).

   To remove a directory from Searching Font Directories, select the directory in the list and click delete or click Delete All.

4. Select Delete Previous Fonts if you want the new font list to override the existing list of fonts in `xdo.cfg`. Clear Delete Previous Fonts (the default setting) to add new font settings to the end of the existing list of files in `xdo.cfg`.

5. Click Update File.

   The utility scans fonts in the specified location, updates `xdo.cfg` (Windows) and `px.cfg` (UNIX), and displays the fonts in the Found Fonts box.

Alternatively, you can run the Print Server Utility in command line mode.

To configure fonts for Financial Reporting Studio using a command line:

1. From a command window, launch `EPM_ORACLE_INSTANCE/FinancialReporting/bin/FRPrintServerUtility.cmd|.sh -console`.

2. Review the default location of `xdo.cfg`. If the location is not correct, enter 1 and then specify the correct location. If the default location is correct, enter 2.

   By default, EPM System Installer installs `xdo.cfg` in `EPM_ORACLE_INSTANCE/FinancialReporting/lib/FOProcessor`.

3. Review the location to search for fonts, modify it if necessary, and then enter 4 when you are done.

   By default, for Windows, the utility scans for fonts in `C:/WINDOWS/Fonts` (system fonts) and `JAVA_HOME/jre/lib/fonts` (Java runtime fonts).

   To add a directory, enter 1 and then specify the new location.

   To remove a directory, enter 2 and then specify the location to delete.

   To remove all directories, enter 3.

4. Enter 1 if you want the new font list to override the existing list of fonts in `xdo.cfg`. Enter 2 to add new font settings to the end of the existing list of files in `xdo.cfg`.

5. Enter 1 to run the utility.

   The utility scans fonts in the specified location, updates `xdo.cfg` (Windows) and `px.cfg` (UNIX).
When completed, the utility displays “Done, EPM_ORACLE_INSTANCE\FinancialReporting\lib\FOPProcessor\pdo.cfg is updated!”

**Downloading the Turkish Lira Symbol**

You must download software to support the Turkish lira symbol to your installation. Perform these steps before running the Print Server Utility.

- To add the Turkish lira symbol to your installation:
  2. Click the Turkish lira symbol software link (TLSimg.exe) and download it.
     - This software supports Lira symbol insertion.
  3. Run TLSimg.exe, and make sure it is running before creating a report and inserting the Lira symbol.
  4. Download and install the Turkish font AbakuTLSymSans.ttf from the web.
     - The font must be installed on both the server and client machine.

For information about including the Turkish Lira symbol in a report, see the *Oracle Hyperion Financial Reporting Studio User’s Guide*.

**Configuring Fonts for Interactive Reporting (UNIX)**

Perform these procedures if you want to improve the quality of the fonts.

Interactive Reporting Service must be configured with appropriate fonts to ensure that BQY documents in Oracle Hyperion Enterprise Performance Management Workspace have a consistent look and feel with the web client. You must make Type1, TrueType, or OpenType fonts available to Interactive Reporting Service. The configured fonts must support characters for all intended languages.

Oracle Hyperion Enterprise Performance Management System Installer installs Andale WT font in `EPM_ORACLE_HOME/products/biplus/fonts` directory and configures Interactive Reporting Service to use it. This font supports most characters from Western European languages, as well as Chinese, Japanese, and Korean.

Customers must use fonts appropriate for their usage. For example, when using Western European languages, for a Windows-like look and feel, you could download Microsoft’s TrueType web fonts and configure as below:

- To make Microsoft’s TrueType web fonts available to EPM Workspace:
  1. Download the Microsoft TrueType web fonts from: [http://sourceforge.net/projects/corefonts/](http://sourceforge.net/projects/corefonts/) or other source.
  2. Create a directory for the font files.
If you are using downloaded Microsoft fonts, extract each file (*.exe) into the newly created directory using the cabextract utility:

```
downloadLocation/cabextract -d directory CAB file
```

**Tip:** Cabextract is an open-source tool that enables you to extract font files. You can download it from the web.

Using the ttmkfdir utility, create a fonts.dir file in the directory containing the font files.

**Tip:** You can download the ttmkfdir utility from the following URL: http://packages.debian.org/stable/x11/ ttmkfdir.

Add the fonts.dir directory to environment variable FONT_PATH, or add it to the \BQ_FONT_PATH\ environment variable inside \EPM_ORACLE_HOME\common/raframeworkrt/11.1.2.0/bin/set_common_env.sh.

Restart Interactive Reporting Service.
In This Chapter

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General Information About Disaster Recovery

This chapter contains information that is specific to EPM System Disaster Recovery configurations. The Oracle Fusion Middleware Disaster Recovery Guide (http://download.oracle.com/docs/cd/E14571_01/doc.1111/e15250/toc.htm) is the primary reference for design considerations, recommendations, setup procedures, troubleshooting steps, and other information that you need to deploy and manage the Oracle Fusion Middleware Disaster Recovery solution.
Disaster Recovery Architecture

Figure 5  EPM System Disaster Recovery Architecture

Note: Although the deployment shown in Figure 5 uses symmetric topology, with the same number of servers at the production and standby sites, deployment using asymmetric topology (with fewer servers at the standby site than at the production site) is also possible. Deployment with asymmetric topology requires a server at the standby site for each logical server cluster at the production site.

Use of a shared or replicated disk requires a common share across machines; for example, the share can be under /user_projects/data.
Disaster Recovery for EPM System Components

Subtopics

- Environment Configuration
- Host Name Requirements
- Database Recommendations

Environment Configuration

Configuring a Disaster-Recovery environment requires these steps:

1. Install and configure EPM System at the production site.
   - Runtime executables and data should be on a replicatable partition.
   - Distributed services must be clustered to form a logical service.
2. If the host names at the standby site differ from the host names at the production site, set up host name aliases at the standby site. See “Host Name Requirements” on page 107.
3. When the EPM System configuration at the production site is complete, install and configure EPM System at the standby site.
4. Set up database replication.

   Note: You can use a backup and restoration procedure for replication.

5. Enable the standby site.
   - Disable mirroring between the production and standby sites.
   - Run the crash-recovery procedure for each application to recover Oracle Essbase. See Chapter 4, “Essbase Components,” in the Oracle Enterprise Performance Management System Backup and Recovery Guide.
   - Start the services on the standby hosts.

Host Name Requirements

An Oracle Enterprise Performance Management System Disaster Recovery deployment requires a means of resolving host references between the production and standby sites. Ensure that your configuration uses one of these options, listed in order of preference:

- Production and standby sites are on separate networks.
  - The fully qualified host names can be the same in both sites.
- Production and standby sites have different DNS that resolve the host names to the correct IP address in their network.
  - The standby site can have a standby DNS that is activated when a disaster occurs.
- Production host names are resolved to a local IP address at the standby site by means of an /etc/hosts file.
If the host names must differ between the production and standby sites and there is no separate DNS for the standby site, set up an alias for the production site servers in the standby site as shown below, so that the main server is the first entry in the alias.

Figure 6  Host Name Alias Setup

Database Recommendations

Database recommendations for a Disaster Recovery environment:

- Use the database host name alias on the standby site.
- Use Oracle Data Guard configuration for data repositories.
- For planned configuration changes, force database synchronization with Oracle Data Guard.

Disaster Recovery Without File System and Database Replication

You can set up Disaster Recovery using backup instead of file system and database replication. With replication, any changes made on the production site are also applied to the standby site. Backup is less costly than replication but enables you to recover only backed-up data. For example, if data was last backed up on Friday and the production site is damaged on the following Thursday, data changes that occurred between the two dates are lost. More-frequent backups enable you to recover more data.

/etc/hosts entries in standby site:

10.2.1.111  server1 drserver1
10.2.1.112  server2 drserver2
10.2.1.113  server3 drserver3
10.2.1.114  dbserver drdbserver
...

Note: The order of the entries is important.
The file system backup and the database backup must be synchronized. Backing up the file system and the database at approximately the same time, when there is relatively little activity, ensures that they are synchronized.

For Disaster Recovery without file systems and database replication, take one of these steps:

- Replicate the installation image to ensure that all patches applied to the production site after the initial setup are also applied to the standby site.
- Promptly manually apply all patches at the production site to the standby site.

Additional Information

For more information about setting up a Disaster Recovery environment, see these documents:

- The Oracle Fusion Middleware Disaster Recovery Guide (http://download.oracle.com/docs/cd/E14571_01/doc.1111/e15250/intro.htm#BABHCEJ)
- The Disaster Recovery guide for the RDBMS that you use