Oracle® Financial Services Analytical Applications Infrastructure

Upgrade Manual - UNIX

Release 7.3

Part No. E38060-01

October 2012

ORACLE

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Contents

Preface

Intended Audience

Welcome to Release 7.3 of the *Oracle Financial Services Analytical Applications Infrastructure Upgrade Manual - UNIX.*

This guide is intended for System Administrators (SA) who are instrumental in upgrading the Infrastructure version and configuring the same to make it operational.

Getting Started

Oracle Financial Services Analytical Applications Infrastructure (OFSAAI) is a general purpose Analytics Applications infrastructure that provides the tooling platform necessary to rapidly configure and develop analytic applications for the financial services domain. It is built with Open- Systems Compliant architecture providing interfaces to support business definitions at various levels of granularity.

Applications are built using OFSAAI by assembling business definitions or business metadata starting from data-model to lower grain objects like Dimensions, Metrics, Security Maps, and User Profile to higher order objects like Rules, Models, and Analytic Query Templates which are assembled using the lower grain ones. In addition to application definition tools, it provides the entire gamut of services required for Application Management including Security Service, Workflow Service, Metadata Management, Operations, Life-cycle Management, public API's and Web Services that are exposed to extend and enrich the tooling capabilities within the applications.

OFSAAI provides the framework for building, running, and managing applications along with out of the box support for various Deployment Models, Compliance to Technology standards, and supporting a host of OS, Middleware, Database, and Integration with enterprise standard infrastructure.

About this Manual

This manual includes step-by-step instructions necessary to upgrade OFSAAI version

from **7.2.10** / **7.2.11** / **7.2.12** to **7.3**. The contents of this document detail the scope of OFSAAI version upgrade to **7.3**. The information contained in the document is intended only for Infrastructure upgrade and is *not specific to the applications installed and configured on existing OFSAAI installation*. The last section of this document consists of references and feedback information pertaining to any issues noticed within the document. You can contact Oracle Support if you face any errors during the upgrade and also for applications specific upgrade queries.

Conventions and Acronyms

Conventions	Description
AAI	Advanced Analytics Infrastructure
AES	Advanced Encryption Standard
DBA	Database Administrator
EPM	Enterprise Performance Management
ERM	Enterprise Risk Management
LDAP	Lightweight Directory Access Protocol
LHS	Left Hand Side
OFSAAI	Oracle Financial Services Analytical Applications Infrastructure
SA	System Administrator
SQL	Structured Query Language
UDP	User Defined Properties
UMM	Unified Metadata Manager
XML	Extensible Markup Language

TIER	The terminology "tier" referenced in this document refers to the different components of AAI installed on any box. For example, DB tier would mean the box on which the "ficdb" components of AAI are installed, and does not mean the physical DB engine. Similarly, the WEB tier would mean the box on which the " ficweb" component resides and does not mean the physical web server/ J2EE engine. APP tier would mean the box on which the "ficapp" components reside.

See Related Information Sources on page vii for more Oracle product information.

Documentation Accessibility

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Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Structure

Related Information Sources

- Oracle Financial Services Analytical Applications Infrastructure User Guide - Release 7.3
- Oracle Financial Services Analytical Applications Infrastructure Upgrade Kit Release Notes - Release 7.3

1

New Modules and Features in OFSAAI 7.3

What's New

Following are the list of new modules / features and limitations in 7.3 version of OFSAAI:

New Modules

- **Oracle Cubes** - This module facilitates to define cubes using Business Metadata objects such as Dimensions, Hierarchies, and Measures. The generated Rule and data files can be used to load data and build cubes.
- **Object Migration** - This module facilitates to migrate all the registered objects along with their dependencies across information domains, within the same or different database or server.
- **SQL Rule** - This module facilitates to directly manipulate the database using SQL Statements and Procedures.
- **Data Quality Framework** - This module facilitates to define rules and execute them to query, validate, and correct the transformed data existing in an information domain.

  Note: The existing Data Quality feature from LHS menu of "Data Integrator Framework > Data Quality" has been removed and these Data Quality Rule definitions have to be re- defined post upgrade using the new Data Quality Framework.

  The existing DQ definitions created in ERM applications will be migrated and available in the new Data Quality section.

New Features

- **AES** (Advanced Encryption Standard) Encryption algorithm using JAVA has been implemented replacing the existing CPP implementation of the Triple DES algorithm.
- Enhancements in **Data Integrator** framework which include:
  - **SQL RULE** enables users to directly manipulate the database using SQL statements and procedures.
    - Create, Edit, Copy, and Delete SQL Rules with support for both SQL statements and procedures.
    - Validate the defined SQL statement/procedure.
    - Execute SQL Rules through OFSAAI ICC Framework (Launch from SQL Rule summary page or Operations Batches).
    - View the execution logs and status through LogViewer.
  - Pagination functionality in Data grids.
  - Configuration of DI Supported Data Source Locales.
  - Populate Extraction functions from DATABASE_ABSTRACT_LAYER.
  - Modified Expression Text to now represent as Derived Column.
- Enhancements in **Advanced Analytics Infrastructure**:
  - **Modeling Framework** enhancements include:
    - **Transition Matrix**, a new Statistical Technique with different types of methods such as EWMA, Linear Regression, Multi Factor, Stepwise Regression, and Time Series.
    - Reuse and multipurpose Sandbox definitions.
    - Allow Transformations to be defined for a Variable Definition.
    - Model Execution and Stress Testing in Sandbox Information Domain.
    - Regression Technique changes with the ability to predict multiple periods using iterative process.
    - Variable instance name editing.

        - Output history and model deployment changes which includes nomenclature changes for Table, column, and configuration files.

        - **Optimizer** and **Pooling** features from **Advanced Analytics Infrastructure** have been made available as a part of *Analytical Applications for Enterprise Risk Management* and are not part of this upgrade. If these components are being used currently, contact Oracle support for further information.

    - Stress Testing enhancements include:

        - Creating multiple versions of Variable Shocks and Scenarios.

        - Enhancement of Stress Testing with the capability to include Variable Shocks as tasks, to add/replace/delete tasks and change their precedence in the Stress Run.

        - Change in Scenario definition by removing Rule Shocks from Scenario definition.

- **Forms Framework** enhancements include:

    - Performance improvement in List Control to reduce the time taken to display multiple list controls when used in a container.

    - Performance improvement in Field Chooser to ensure that the DB query uses only the columns chosen for display and defined as mandatory excluding the other columns. This in turn will fire the query whenever the field chooser selection changes. There is no impact to the child grids display on selection/de-selection of columns in the parent grid as long as the parameters/controls passed to the child are either marked as mandatory or selected in the grid. Field Chooser works for the Read-Only Grids, Single Select Grids, Multi Select Grids, and Editable Grids.

    - Internationalization of History Table Action which facilitates the application to pick up the history action from the **messages_locale** table based on the locale the user has currently logged-in, and not from the XML.

    - Support of Dynamic Breadcrumbs helping to users to navigate to the adjacent page(s) by clicking on the respective links.

    - Enhancements in Grid Pagination to record the history of all the actions such as Page navigation, Check box Selection Record highlight, Sort Order, Group By, Filed/Record Level Rules/Validations without a screen refresh.

    - Audit History for Multi-select Hierarchies which facilitates an insert action into the history table on add/delete from main table, even when there are multiple

nodes with the same node description.

- Hierarchy Browser enhancements to include UI changes to *Hierarchy Browser* and *Hierarchy Maintenance* screens along with performance Improvements to handle highly structured and high volume hierarchies, concurrent access to hierarchies, and multiple dependant hierarchies in a container.

- In addition to the existing **Essbase Cube**, the system also supports **Oracle Cube**.
- Support of **MS Excel 2007** in Excel Upload which facilitates upload of Excel files along with all the embedded sheets defined within the Excel file.
- **View Log** enhancements in Operations module which include:
  - UI changes to display *As of date* column, *Log Information* (corresponding to selected log tables), and *Status & User Information* pertaining to a particular process.
  - Search options have been added for User and Batch Run ID.
  - Depending on the selected Component Type, the results in the Task ID grid may now include additional details such as current Process Step, number of Records Processed, Number of Errors, Start & End Dates, and Elapsed Time.
- **Administration > Security Management > User Group Authorization** feature facilitating System Authorizers to Approve/Reject all the User Group changes which include Mapping / Unmapping of a new user to a group, or a role to a group, or even a user domain to a group.
- **Append Type** feature in Model Upload has been introduced to eliminate the need for manual merging of data model with 7.x Erwin XMLs which are of huge size causing memory and Java heap issues during upload. Append Type upload facilitates incremental upload of model with the true Incremental functionality so that each application can add their slice of model instead of uploading it as a fully merged entity.
- **Object Migration** functionality to helps users to select and migrate the various objects such as Unified Metadata objects (Alias, Business Processor, Essbase Cube, Data Sets, Business Measures, Business Hierarchy, and Business Dimension) and Financial Services Application objects (Dimension, Hierarchy, Filter, Expression Rule, and SQL Rule) along with their registered dependencies. Migration may occur across information domains, within the same or different OFSAAI Installations.
- **Data Quality Framework** for validation of data and optional assignment of new values.

  Features include:

- Nine Specific Check types to validate the selected column. Check types can be based on Range, Data Length, Column Reference/Specific Value, List of Value/Code, Null Value, Blank Value, Referential Integrity, Duplicity, and Custom Check/Business queries.
- Data may also be corrected by defining a Generic Check, using one or more conditions based on values within the selected table.
- Optional value assignment (data correction) based on the above validation queries.
- Role-based and rule-level security.
- Execution of groups of rules through Data Quality Groups, as well as through ICC (Operations) Batch.
- View Logs summarizing the processing results.

- **Financial Services Applications Dimension Management**: Users can now add new dimension members through the Hierarchy Add and Edit flows.
- **Sliced Model Upload** feature in **UMM > Model Upload**.

Features Not Available

- **Information Delivery** link consisting of Insight and Active Portal features.
- **Pass Number Maintenance** feature link in **Operations** module.
- **Erwin Option** in Generate Source Model dialog of *Unified Metadata Manager > Data Integrator > Data Sources*.
- **Rule Shocks** feature links from *Advanced Analytics Infrastructure > Stress Testing*.
- **Parameter Modification** feature links from *Advanced Analytics Infrastructure > Modeling*.
- **ISMEMORYLOAD** property in *Properties* dialog of *Database Extracts* (Table to File) and *File Extracts* screens in *Unified Metadata Manager > Data Integrator > Warehouse Designer*.
- **File Sort Property** in Properties dialog of *Database Extracts* (Table to File) screen in *Unified Metadata Manager > Data Integrator > Warehouse Designer*.
- Authentication Type **LDAP Authentication and Authorization** in *System Configuration > Configuration* screen.

- **Export to pdf** option from **Forms Framework** module. This has to be achieved through the use of BI-Publisher with templates created in BIP, attaching the same to Form and exporting based on the attached template.

- **Replicating the existing Information Domain** option during configuring of new Information Domain in *System Configuration* > *Information Domain*.

- Phase out of earlier **Data Quality** feature link from *Unified Metadata Manager* > *Data Integrator* to accommodate enhanced **Data Quality Framework**.

- **OFSAAI Server Administrative Console utility** to enable management of OFSAAI servers (.sh file). The same is distributed over administrative interfaces of the core-platform.

Limitations

Following are the limitations of the OFSAAI v7.3 Upgrade:

- Existing Stress definitions in v7.2 of Advanced Analytics Infrastructure > Stress Testing > Stress Definition have to be re-defined post v7.3 upgrade. (Bug: 13700972)

- Object Migration requires the Infrastructure version in your source to be the same as the version in your target. Similarly, the deployed OFSAA applications must be the same version in the source and target. This ensures that the source and target data structures are compatible for objects you wish to migrate. Refer to "OFSAAI 7.3 User Manual" - *Administration* > *Utilities* > *Object Migration* section, for additional prerequisites on Object Migration.

- When you have an Information Domain created in existing 7.2 Infrastructure setup and the same has been deleted post the upgrade, the associated "tables" are retained and the same need to be manually dropped from Atomic User. (Bug: 13639948)

2

Prerequisites

Introduction

The list of pre-configurations required for OFSAAI v7.3 upgrade is stated in this section. Ensure the following requirements before upgrade:

Guidelines to Unzip Infrastructure Upgrade Kit

Once you have downloaded the Infrastructure Upgrade Kit from https://support.oracle.com refer to the following instructions to Unzip the downloaded contents.

1. Copy the OFSAAI Upgrade Kit to your server in **Binary mode**.
2. Download the Unzip utility (with respect to specific OS) from the location https://updates.oracle.com/unzips/unzips.html and transfer it to the UNIX machine in **Binary mode** where OFSAAI needs to be upgraded.
3. Copy the **unzip_<os>.Z** file into the directory that is included in your PATH variable, typically $HOME path or Directory in which you have copied OFSAAI Upgrade Kit.
4. Uncompress the "unzip utility" file using the command uncompress unzip_<os>.Z.

> **Note:** Sometimes you may notice an error message "**uncompress: not found (No such file or directory)**" when the package is not installed. Contact your UNIX administrator to resolve this issue.

5. Make sure that the file has execution permissions set. If not, run the command **chmod 755 unzip_<os>**.

   Example
   chmod 755 unzip_linux

6. To unzip a file using this utility, run the command **unzip_<os>-a<name of the file to be unzipped>**.

   Example
   unzip_linux -a OFSAAI7.3_installer.zip

Prerequisite Software

Refer the below table and ensure that you have upgraded all the prerequisite software listed in *OFSAAI version 7.2.10* / *7.2.11* / *7.2.12* column to the versions as indicated in *OFSAAI version 7.3* column. However, you can upgrade these software post upgrade to OFSAAI 7.3.

> **Note:** OFSAAI v7.3 release is certified on Oracle 11g R2 (11.2.0.2.0) and this Upgrade Installer is not compatible for OFSAAI 7.2 with Oracle 10g R2. For more information, contact Oracle Support.

For *Linux* operating system:

Software	OFSAAI Version 7.2.10 / 7.2.11 / 7.2.12	OFSAAI Version 7.3
Operating System	Red Hat Enterprise Linux Server release 5.3 / 5.5 (Tikanga) - 64 bit	Red Hat Enterprise Linux Server release 5.3 / 5.5 (Tikanga) - 64 bit
	Oracle Enterprise Linux Server release 5.3 / 5.5 (Carthage) - 64 bit	Oracle Enterprise Linux Server release 5.3 / 5.5 (Carthage) - 64 bit
Database Server & Client	Oracle Database Enterprise Edition Release 11.2.0.1.0 - 64 bit with or without RAC	Oracle Database Enterprise Edition Release 11.2.0.2.0 - 64 bit with or without RAC
Web Server	WebSphere v7.0.0.9 -64 bit	WebSphere v7.0.0.17- 64 bit
	WebLogic v10.3.1.0 / 10.3.4.0 - 64 bi	WebLogic v10.3.5.0 - 64 bit
	Tomcat v6.0.29 - 64 bit	Tomcat v7.0.19 - 64 bit

Java	Sun Java 1.6.0_17 - 64 bit	Sun Java 1.6.0_25 - 64 bit
Internet Explorer	7 & 8	8 & 9
Java Plug-in	1.6.0_18	1.6.0_21
MS Office	2003	2003 / 2007
Client Machines	Windows XP SP3 / Windows 7	Windows XP SP3 / Windows 7
Erwin	7.1 / 7.3	7.1 / 7.3
Oracle Hyperion Essbase	11.1.1.3.0 - 64 bit	11.1.2.1.0 - 64 bit
Oracle OLAP	NA	Oracle OLAP v 11.2.0.2.0 **Note:** For Oracle OLAP, ensure that you have configured the Oracle Database server with OLAP option.

For *Solaris* operating system:

Software	**OFSAAI Version 7.2.10 / 7.2.11 / 7.2.12**	**OFSAAI Version 7.3**
Operating System	Solaris v5.10 Update 8 (10/09 s10s_u8wos_08a) sparc SUNW,Sun-Fire-V445- 64 bit	Oracle Solaris v5.10 Update 9 (9/10 s10s_u9wos_14a) SPARC sun4v - 64 bit
Database Server & Client	Oracle Database Enterprise Edition Release 11.2.0.1.0 - 64 bit	Oracle Database Enterprise Edition Release 11.2.0.2.0 - 64 bit with or without RAC
Web Server	WebSphere v7.0.0.9 - 64 bit	WebSphere v7.0.0.17 - 64 bit
	WebLogic v10.3.1.0 - 64 bit	WebLogic v10.3.5.0 - 64 bit
	Tomcat v6.0.29 - 64 bit	Tomcat v7.0.19 - 64 bit

Java	Sun Java 1.6.0_17 - 64 bit	Sun Java 1.6.0_25 - 64 bit
Internet Explorer	7 & 8	8 & 9
Java Plug-in	1.6.0_18	1.6.0_21
MS Office	2003	2003 / 2007
Client Machines	Windows XP SP3 / Windows 7	Windows XP SP3 / Windows 7
Erwin	7.1 / 7.3	7.1 / 7.3
Oracle Hyperion Essbase	9.3.1 - 64 bit	11.1.2.1.0 - 64 bit
Oracle OLAP	NA	Oracle OLAP v 11.2.0.2.0 **Note:** For Oracle OLAP, ensure that you have configured the Oracle Database server with OLAP option.

For *AIX 5.3* / *AIX 6.1* operating system:

Software	**OFSAAI Version 7.2.10 / 7.2.11 / 7.2.12**	**OFSAAI Version 7.3**
Operating System	AIX 5.3 (ML 10) - 64 bit	AIX 5.3 (ML 12) - 64 bit
	AIX 6.1 (ML 06) - 64 bit	AIX 6.1 (ML 07) - 64 bit
Database Server & Client	Oracle Database Enterprise Edition Release 11.2.0.1.0 - 64 bit	Oracle Database Enterprise Edition Release 11.2.0.2.0 - 64 bit with or without RAC
Web Server	WebSphere v7.0.0.9 - 64 bit	WebSphere v7.0.0.17 - 64 bit
	WebLogic v10.3.1.0 - 64 bit	WebLogic v10.3.5.0 - 64 bit
	Tomcat v6.0.29 - 64 bit	Tomcat v7.0.19 - 64 bit

Java	IBM AIX Runtime, Java Technology JRE / JDK 1.6.0 (SR7 / SR9) - 64 bit	IBM AIX Runtime, Java Technology JRE / JDK 1.6.0 (SR10) - 64 bit
Internet Explorer	7 & 8	8 & 9
Java Plug-in	1.6.0_18	1.6.0_21
MS Office	2003	2003 / 2007
Client Machines	Windows XP SP3 / Windows 7	Windows XP SP3 / Windows 7
Erwin	7.1 / 7.3	7.1 / 7.3
Oracle Hyperion Essbase	11.1.1.3.0 - 64 bit	11.1.2.1.0 - 64 bit
Oracle OLAP	NA	Oracle OLAP v 11.2.0.2.0 **Note:** For Oracle OLAP, ensure that you have configured the Oracle Database server with OLAP option.

Prerequisite Activities

- The upgrade process assumes that a working environment is available on which OFSAAI v7.2.10 / 7.2.11 / 7.2.12 is already running and required APPS are configured.
- It is important to take a backup of the **file system** (Installation folder), **.profile file**, and **ftpshare folder** contents on all the tiers (Application, Web, and Database) along with the **Configuration** and **Atomic DB** users configured in the current OFSAAI v7.2.10 / 7.2.11 / 7.2.12 environment.
- OFSAAI upgrade process requires a total free disc space of 2.5 GB in addition to the size of $FIC_HOME directory where OFSAAI is installed. For example, if $FIC_HOME size is 2 GB then OFSAAI upgrade process requires about 4.5 GB of free disc space.
- In case, the $HOME and $FIC_HOME are in different mount, ensure that you have

approximately 1.5 GB of free hard disk space available in **$HOME** which is required for Infrastructure upgrade.

- Ensure that you have approximately 1.5 GB of hard disk free space available in **/tmp** folder.
- Ensure that no other activity is running in background, which would consume the available disk space.
- Ensure that the *total file descriptor* value for the UNIX user account being used for upgrade must be set to a minimum of **9216** for RHEL/OEL/AIX and **5000** for Solaris, which again depends on the size of the file system. To check *total file descriptor* use the following command:

  ulimit –n

- If the INFODOM_PATCHES table of Configuration Schema contains any duplicate entries for combination of V_INFODOM and V_PATCH_NAME columns, ensure to update these records excluding the record containing latest D_APPLIED_DATE value.

  Execute the below query in Configuration schema to check if duplicate entries are present in INFODOM_PATCHES table. You should manually remove the duplicate entries from the result fetched by the following query.

```
select v_infodom, v_patch_name, count(v_patch_name)
 from infodom_patches
 group by (v_infodom, v_patch_name)
having count(v_patch_name) > 1
```

- Database cursors need to be set to minimum value of 4000 for upgrade installation. Login as DBA user or user having grant alter system privileges and use the following commands:
  - To set the OPEN_CURSORS value:

    ```
    ALTER SYSTEM SET OPEN_CURSORS=4000;
    ```

  - To check the OPEN_CURSORS value:

    ```
    Select * from v$parameter where NAME='open_cursors';
    ```

    Note: The database cursors value can be reset to the previously defined value post successful upgrade.

- Ensure that each of the Default and Temporary table space used for Configuration and Atomic Database are allocated with a minimum of 50MB free space.
- For OFSAAI v7.3, the below settings are recommended for the Database. However, these settings are not mandatory and are required only if you want to have multiple

locales supported.

  - NLS_CHARACTERSET = AL32UTF8
  - NLS_LENGTH_SEMANTICS = CHAR
  - NLS_NCHAR_CHARACTERSET = AL16UTF16

- Execute **grant olap_user** on Configuration and Atomic users using DBA user, which is a pre-requisite to create **Oracle Cubes**.
- Execute **grant select** on **SYS.V_$PARAMETER to &oracle_user** on Configuration and Atomic users using SYS user.

3

Upgrade Process

Upgrade Process

Execute the below steps in the sequence:

1. Stop all **OFSAAI services** including the WebServer services.

2. Login to the system with the UNIX user on which OFSAAI 7.2.10 / 7.2.11 / 7.2.12 is installed.

3. Navigate to the folder where you have unzipped the Upgrade Kit contents. The directory consists of the following files i.e. **Upgrade.sh**, **upgrade.bin**, **PreReqCheck.jar**, and **lib directory** under which the following files **j2ssh-core-0.2.5.jar** and **commons-logging-1.1.jar** are present.

   Note: In a multi-tier setup Upgrade Kit needs to be copied and unzipped in all the tiers. You need to first upgrade the DB tier before upgrading other layers.

4. Grant execute permission for **Upgrade.sh**, **PreReqCheck.jar**, **lib**, and the files under the **lib directory**, **j2ssh-core-0.2.5.jar** and **commons-logging-1.1.jar** using the command **chmod 755 <file name>**.

   Example
   chmod -R 755 PreReqCheck.jar upgrade.bin Upgrade.sh lib/

5. Execute **Upgrade.sh** from the Installation directory where you have unzipped the files.

   Note: During upgrade, ensure that you do not press Ctrl+C or Ctrl+Z. This would interrupt the process and can corrupt the existing setup.

The upgrade process generates **OFSAAIUpgrade.log** in the Infrastructure Installation Directory ($FIC_HOME).

> **Note:** You can ignore the following errors ORA-00955, ORA-00904, ORA-01408, ORA-01418, ORA-02260, ORA-00997, ORA-02264 and ORA-02261 if reported in the OFSAAIUpgrade.log.

Contact Oracle Support if you notice any issues in OFSAAIUpgrade.log file on completing the upgrade process. Verify if all the data is accessible by logging in to the application(s).

It is highly recommended that you install the OFSAAI 7.3.2.0.0 IR patch to be on the latest patch set level to include all the fixes made in OFSAAI 7.2.11 / 7.2.12, post v7.3 release.

You can verify the success of 7.3 version upgrade by accessing the applications data after starting the Infrastructure services.

6. If you have ERM applications installed in OFSAAI 7.2, post upgrade to 7.3 you need to download and apply the one-off patch *15915655_GENERIC* available in the Bug: **15915655**. This facilitates the removal of old Data Quality links from LHS menu.

7. To perform the necessary post upgrade configurations, refer to Post Upgrade Configurations section, page 4-1.

8. (Optional) If you want to use the Object Migration feature of OFSAAI with WebLogic as application server, perform the necessary configurations as mentioned in section Object Migration - HttpsURLConnection configuration for WebLogic, page 4-48.

9. Generate the EAR/WAR file and deploy on to your configured J2EE container. Refer section Create and Deploy EAR / WAR files, page 4-26, for deploying the application on to J2EE container. However, if the Web Server type is Tomcat, you have to perform cssparser configurations as mentioned in Create Tomcat WAR Files, page 4-38 section.

10. Ensure to clear the application cache prior to the deployment of Infrastructure or Application Service Packs / One-off patches. For more information, refer Clearing Application Cache, page 4-43 section.

11. Restart OFSAAI services. For more information, refer "Start Infrastructure" section in OFSAAI 7.3 Installation and Configuration Guide at OTN library at http://docs.oracle.com/cd/E28070_01/homepage.htm.

4

Post Upgrade Configurations

Post Upgrade Configurations

The Post Upgrade configurations that need to be performed are as indicated below:

1. To access the new modules i.e. Oracle Cubes, SQL Rule, Object Migration and Data Quality Framework in the LHS menu, the following function roles have to be mapped to the respective application user groups:

   - **Oracle Cube Administrator** to access Oracle Cubes.
   - **Object Migration Admin** to access Object Migration.
   - **SQL Rule Admin** to access SQL Rule.
   - **ETL Analyst** to access Data Quality Framework.

   > **Note:** You can refer to *Administration > Security Management > User Administrator > UserGroup Role Map* section in **OFSAAI v7.3 User Manual** to know more about mapping required roles to user groups.

   You need to Create Data Source and Connection Pool by configuring the Resource References depending on the WebServer installed to access the new modules, i.e. **Oracle Cubes**, **SQL Rule**, **Object Migration**, and **Data Quality Framework**. For more information, refer Configure Resource Reference in WebServers, page 4-2 section. Data source and connection pool configurations have to be performed for all the Information Domains, which are to be used on the above modules.

2. This configuration is applicable only for OFSAAI upgrades, which use OFSAAI v7.2 ERM Data Quality Framework.

   - Open and edit the data model and add the UDP (Data Quality correction rules

with Code 340) to entities on which Data Quality rules are to be defined.

- Save the Data Model changes.
- You would need to export the data model and perform an Incremental Model Upload. For information on Incremental model upload, refer Import Model section in v7.3 Infrastructure User Manual shared at http://docs.oracle.com/cd/E28070_01/homepage.htm.

Configure Resource Reference in WebServers

The steps mentioned in the below section is to be performed if you have installed a new Webserver of the version specified in Prerequisite Software, page 2-2 section.

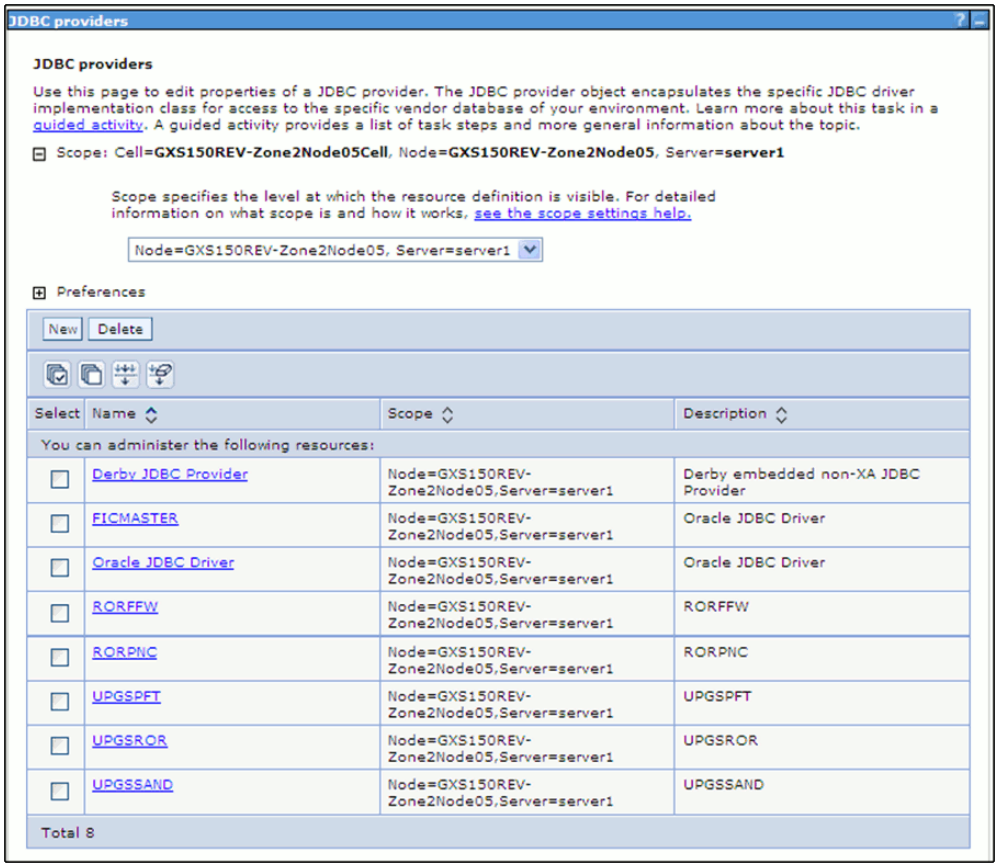
> **Note:** For a new WebServer installation (depending on your WebServer configuration i.e. WebSphere, WebLogic, or Tomcat), refer to the Configurations for new WebServer Installation, page 4-42. For more information, contact Oracle Support.

Configure Resource Reference in WebSphere Application Server

This section is applicable only when the Web Application Server type is WebSphere.

Create JDBC Provider

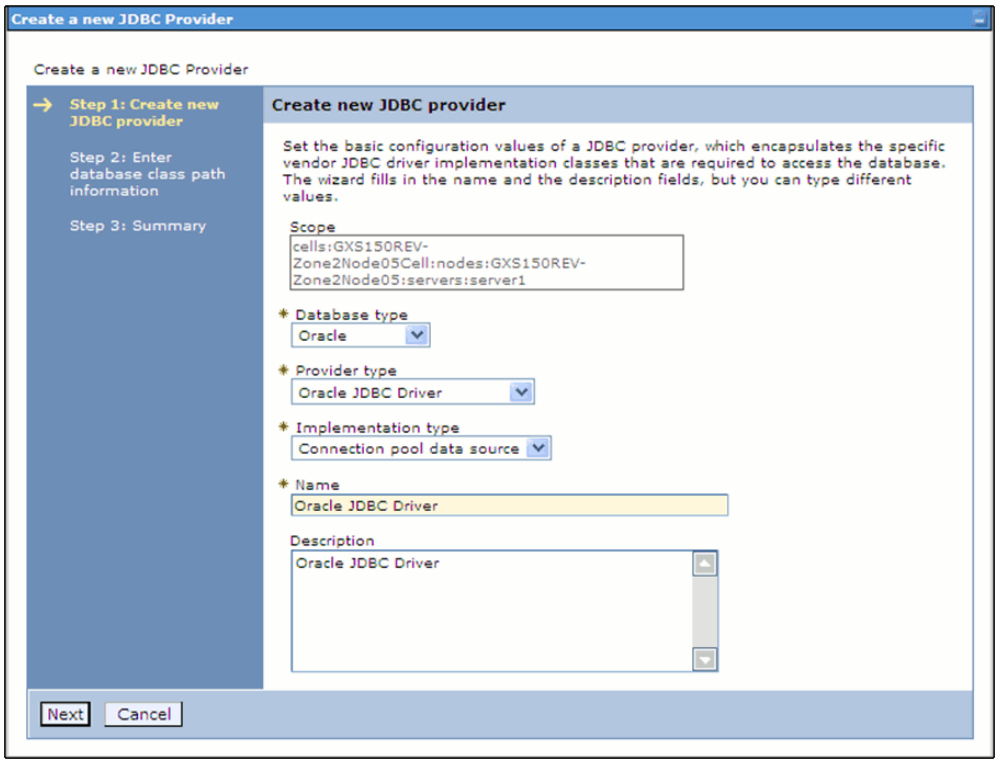
1. Open this URL in the browser window: http://<ipaddress>:<administrative console port>/ibm/console. (**https** if SSL is enabled). The *login* screen is displayed. Login with the user id that has admin rights.
2. Expand the Resources option in the LHS menu. Click on *JDBC > JDBC Providers* option. The *JDBC Providers* page is displayed.



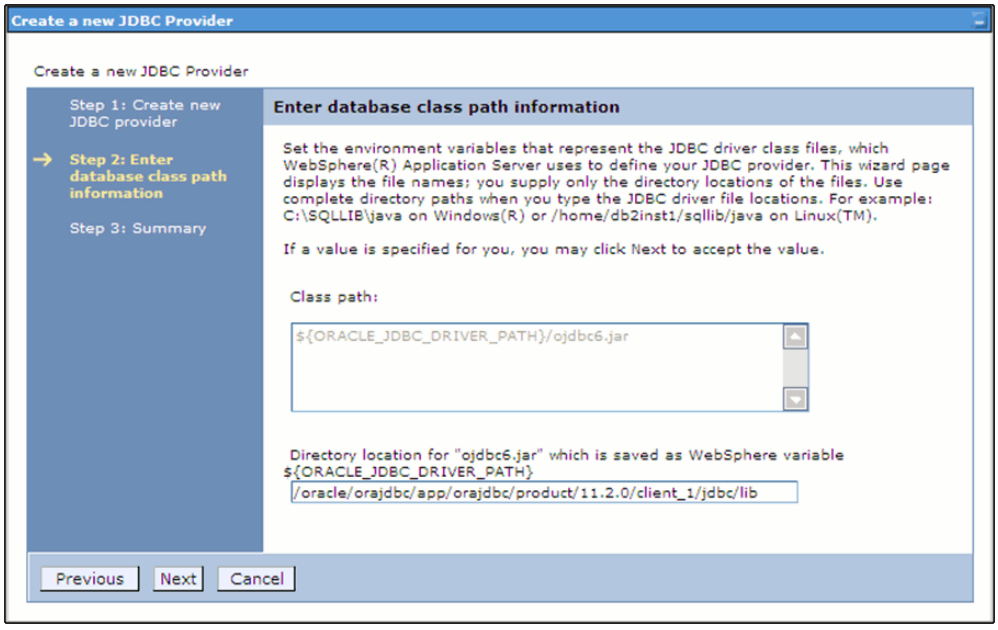
3. Select the **Scope** from the drop down list. Scope specifies the level at which the resource definition is visible.

4. Click **New** to add new JDBC Provider. The *New JDBC Provider* screen consists of the following options. Enter the below mentioned details and click **Next**.

   - **Database Type** - Oracle
   - **Provider Type** – Oracle JDBC Driver
   - **Implementation Type** – Connection pool data source
   - **Name** – The required display name for the resource
   - **Description** – The optional description for the resource



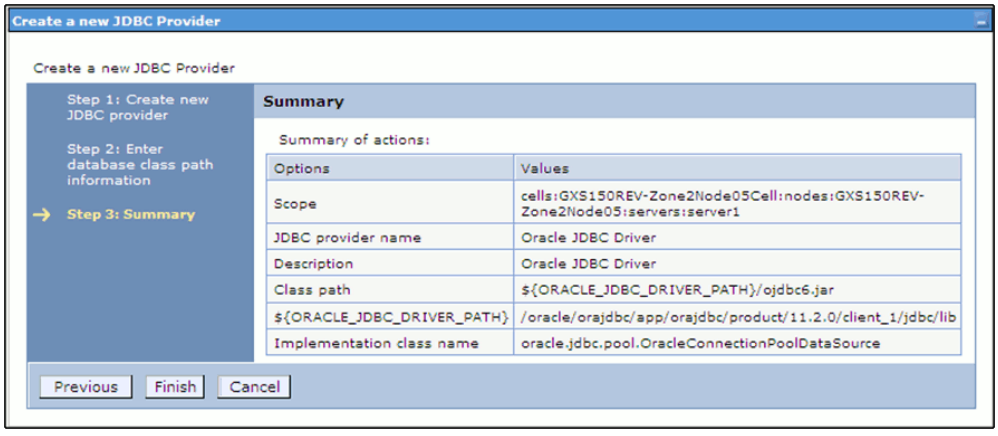
5. Specify the directory location for **ojdbc6.jar** file. Ensure that you do not use the trailing slash file separators. Click on **Next**.



The Oracle JDBC driver (Download **ojdbc6.jar** for Oracle 11g R2) file corresponding to the required version of Oracle Client can be downloaded from http://www.oracle.com/technetwork/database/enterprise-edition/jdbc-112010-090769.html.

Once downloaded, you need to place the file in required folder in your system. While creating the JDBC Provider, ensure that the path to the jar file in the folder is specified in the "Class path" field in the *Enter database class path information* screen.

6. Verify the details and click **Finish** to create the JDBC Provider.



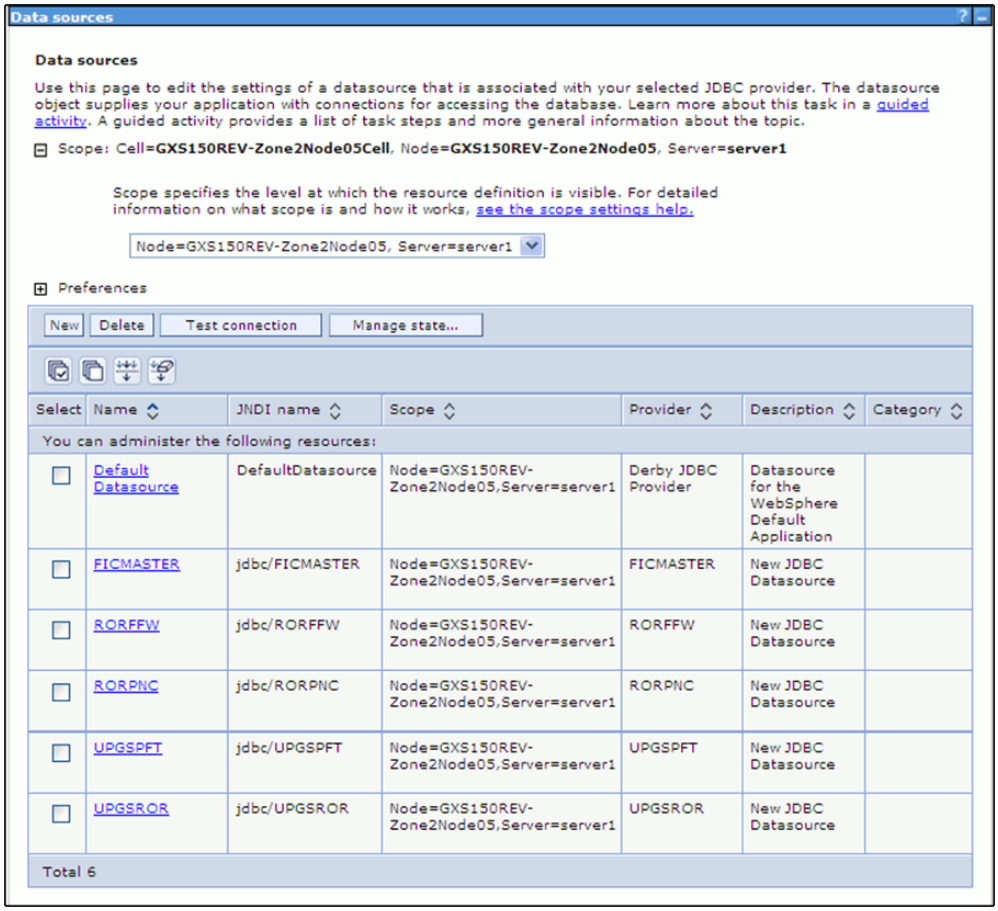
7. The options to Save and Review is displayed. Click **Save**.

Create Data Source

The steps given below are applicable for both **config** and **atomic** data source creation.

1. Open this URL in the browser window: *http://<ipaddress>:<administrative console port>/ibm/console*. (**https** if SSL is enabled). The *login* screen is displayed. Login with the user id that has admin rights.

2. Expand the Resources option in the LHS menu. Click on **JDBC > Data sources** option. The *Data sources* page is displayed.

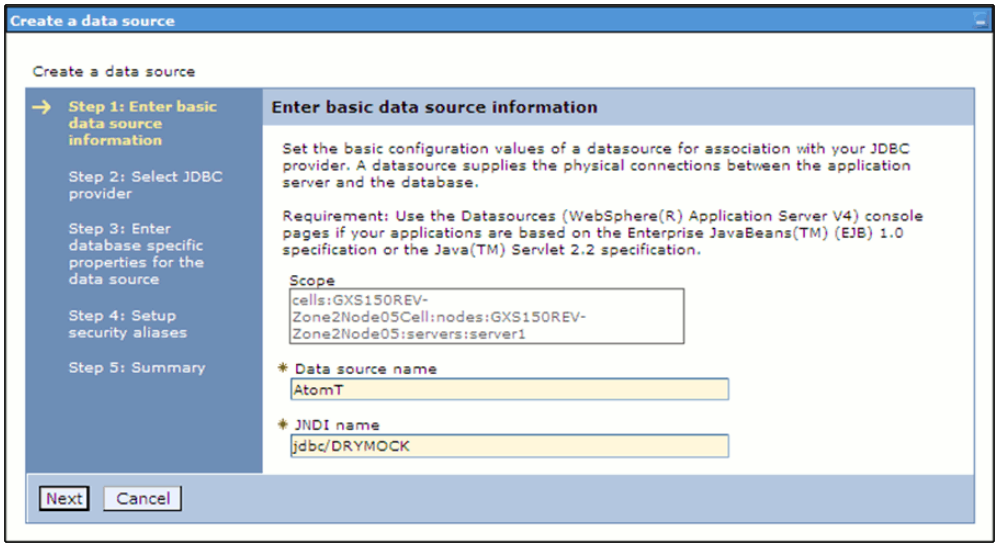


3. Select the **Scope** from the drop down list. Scope specifies the level at which the resource definition is visible.

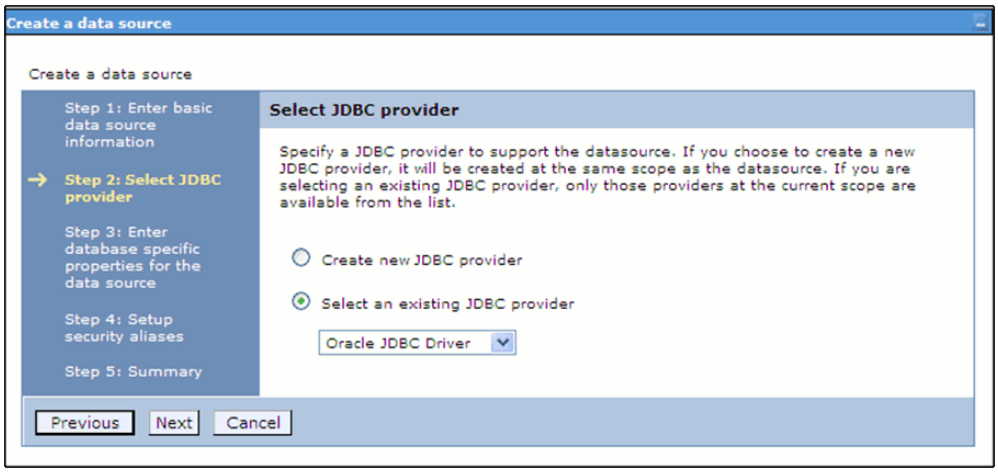
4. Click **New**. The *Create a Data Source* screen is displayed.

   Specify the **Data Source** name and **JNDI** name for the new data source.

   The **JNDI** and **Data Source** name are case sensitive and ensure that JNDI name is same as the Information Domain. Click **Next**.



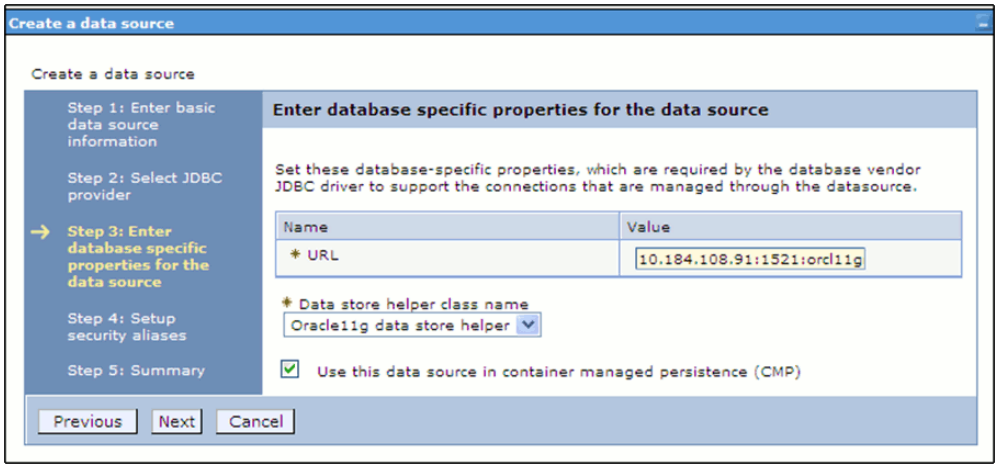
5. Select the option Select an Existing JDBC Provider and select the required JDBC provider from the drop-down list. Click **Next**.



6. Specify the database connection URL.

   URL format: *jdbc:oracle:thin:@<DB_SEREVER_IP>:<DB_SERVER_PORT>:<SID>*

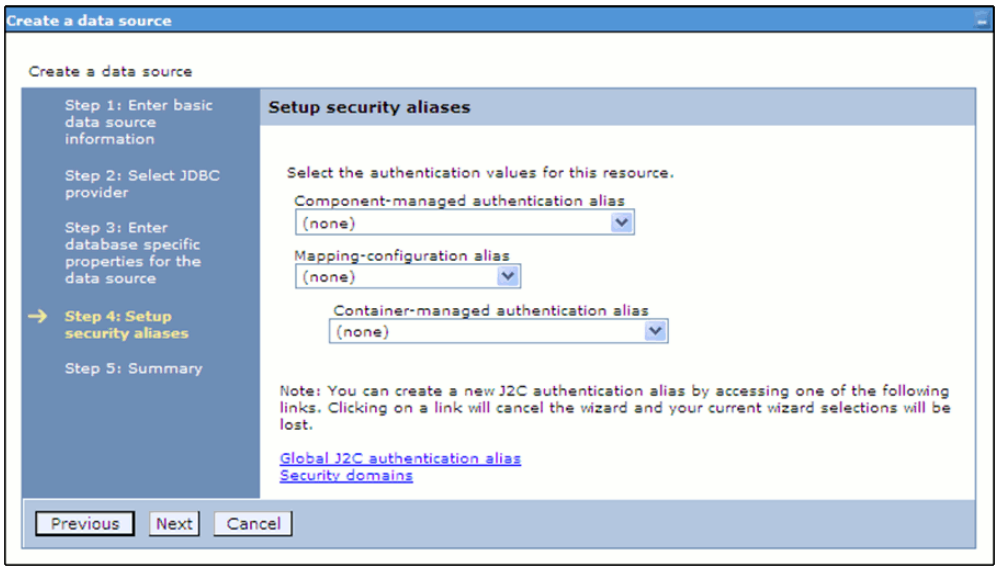
7. Select **Data Store Helper Class Name** from the drop down list and ensure that the checkbox **Use this data source in container managed persistence (CMP)** is selected. Click **Next**.



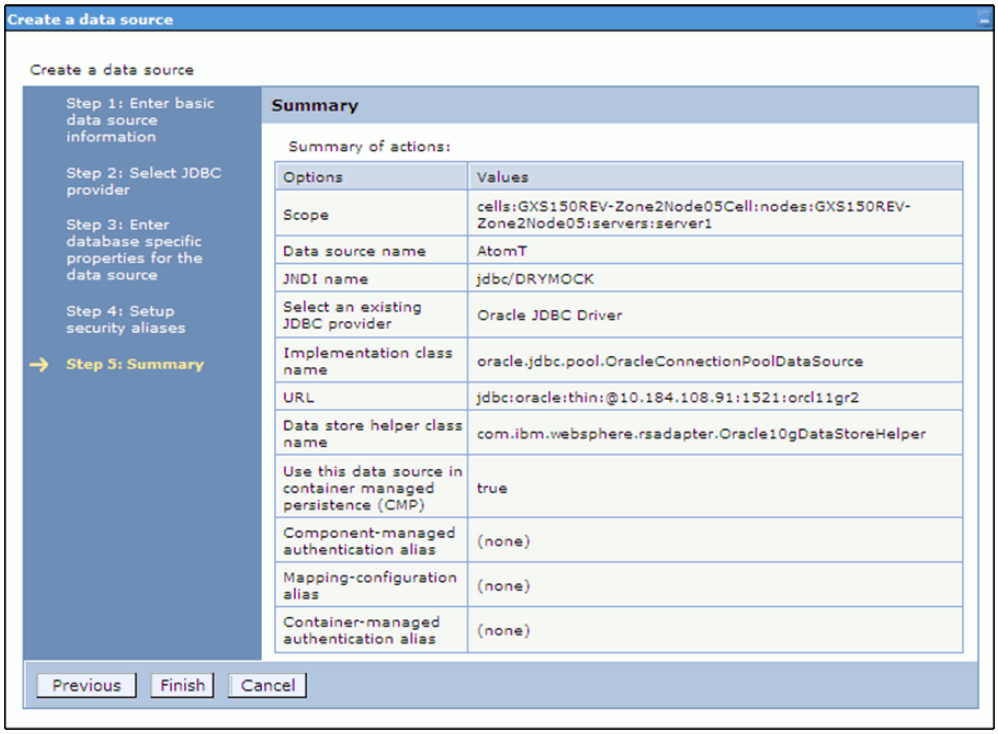
Note: For RAC configuration, provide the RAC url specified during installation.

Example:
jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=10.184.108.91)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=10.184.108.92)(PORT=1521))(LOAD_BALANCE=no)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=pqadb)))

8. Map the J2C authentication alias, if already created. If not, you can create a new J2C authentication alias by accessing the link given (Global J2C authentication alias) or you can continue with the data source creation by clicking on **Next** and then **Finish**.



9. On clicking **Next**, the *Summary* page is displayed. Click **Finish**.



You can also create and map J2C authentication alias after creating the data source.

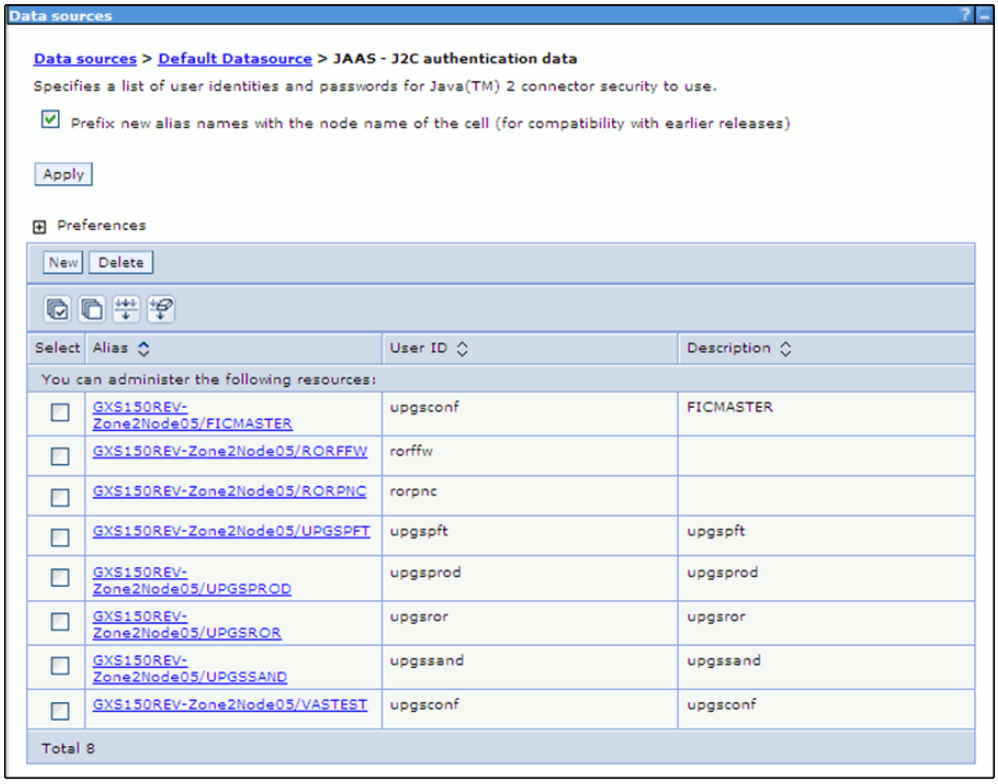
10. You must create another Data source by following the above procedure with jdbc/FICMASTER as JNDI name pointing to the configuration schema of Infrastructure.

J2C Authentication Details

The steps given below are applicable for both config and atomic data J2C Authentication.

To create J2C Authentication details:

1. Select the newly created **Data Source**. Click **JAAS – J2C authentication data** link under **Related Items** and click **New**.

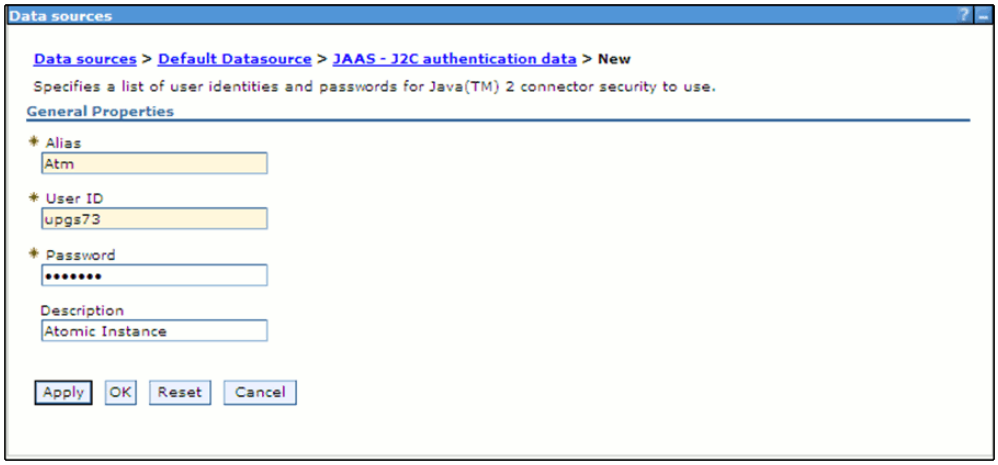


2. Specify the list of **User ID's** and **Passwords** for Java 2 Connector Security.

3. Enter the Alias, User ID, Password, and Description. Ensure the following:

   - User ID is the "Oracle user ID" created for the respective Information Domain.

   - Specify the "config" database user ID and password information for the jdbc/FICMASTER data source, and specify the "atomic" database user ID and password information for the "atomic" schema data source that you created earlier.



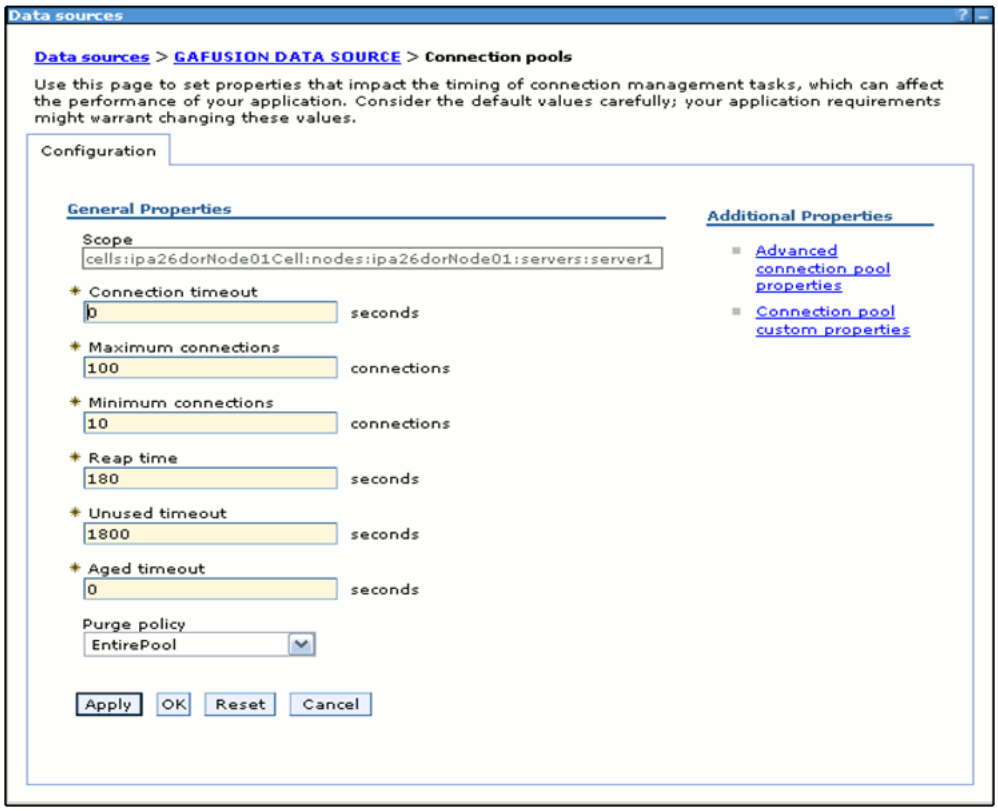
4. Click **Save** and save the details.

JDBC Connection Pooling

To define the JDBC connection pooling, ensure that you have created JDBC Provider and Data source to access the data from the database.

1. Click the newly created Data Source $DATA_SOURCE$ and navigate to the path *Data sources>$DATA_SOURCE$>Connection pools*.

2. Set the values for **Connection timeout** to 0 seconds, **Maximum connections** to 100 connections, and Minimum connections to 10 connections as shown in the following figure. You can also define *Reap Time*, *Unused Timeout*, and *Aged Timeout* as required.



Configure Resource Reference in WebLogic Application Server

This section is applicable only when the Web Application Server type is WebLogic.

WebLogic, you can create "Data Source" in the following ways:

- For a normal Database instance, Generic Data Source, page 4-12 can be created.
- When Database is RAC configured, Gridlink Data Source, page 4-17 has to be created.
- When Load Balancing/Fail over is required, Multi Data Source, page 4-18 has to be created.

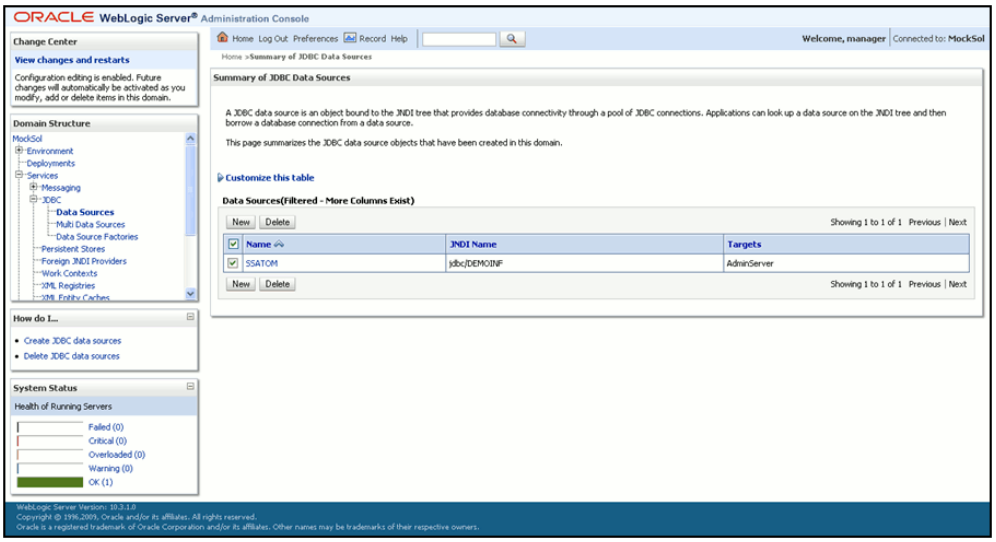
Create Data Source

The steps given below are applicable for both config and atomic data source creation.

1. Open the following URL in the browser window: http://<ipaddress>:<administrative console port>/console. (**https** if SSL is enabled). The *login* screen is displayed. Login with the User ID that has admin rights.

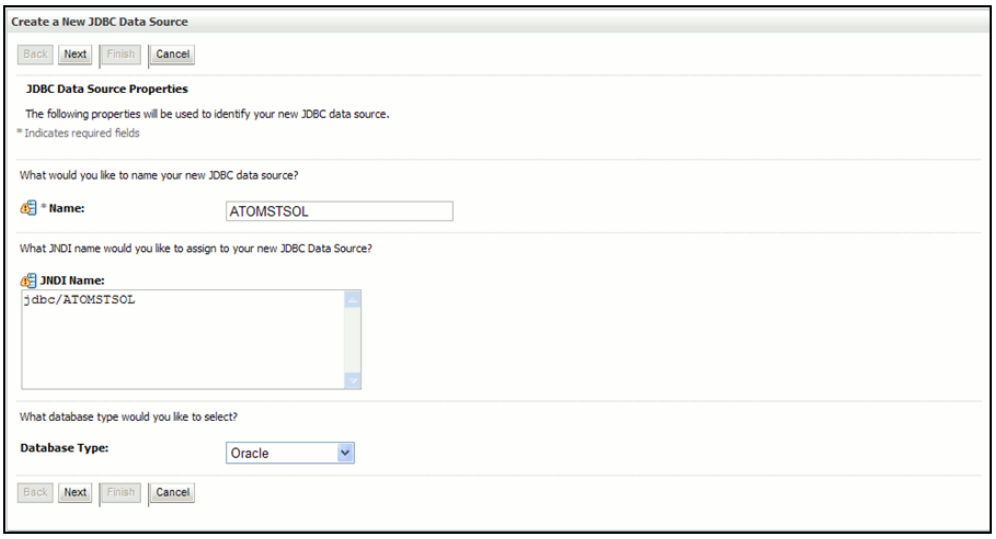
2. From the LHS menu (Domain Structure), click **Services > JDBC > Data Sources**.

   The *Summary of JDBC Data Sources* screen is displayed.



3. Click **New** and select **Generic Data Source** option. The *Create a New JDBC Data Source* screen is displayed.

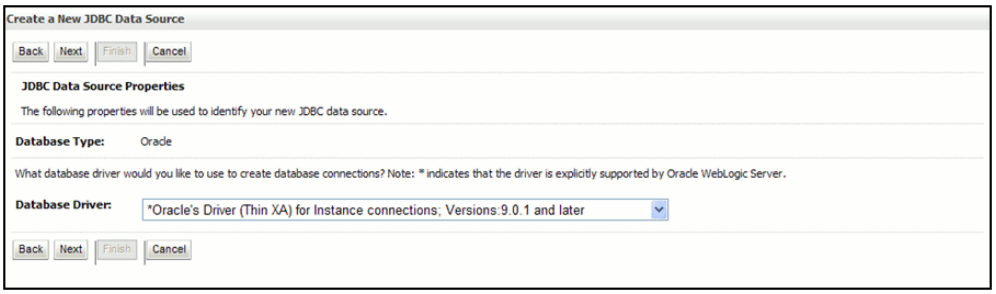
   You can also select **GridLink Data Source** or **Multi Data Source** while creating a ata Source. For more information, refer Create GridLink Data Source, page 4-17 or Configure Multi Data Sources, page 4-18.



4. Enter **JDBC data source Name**, **JNDI Name**, and select the **Database type** from the drop down list. Click **Next**.

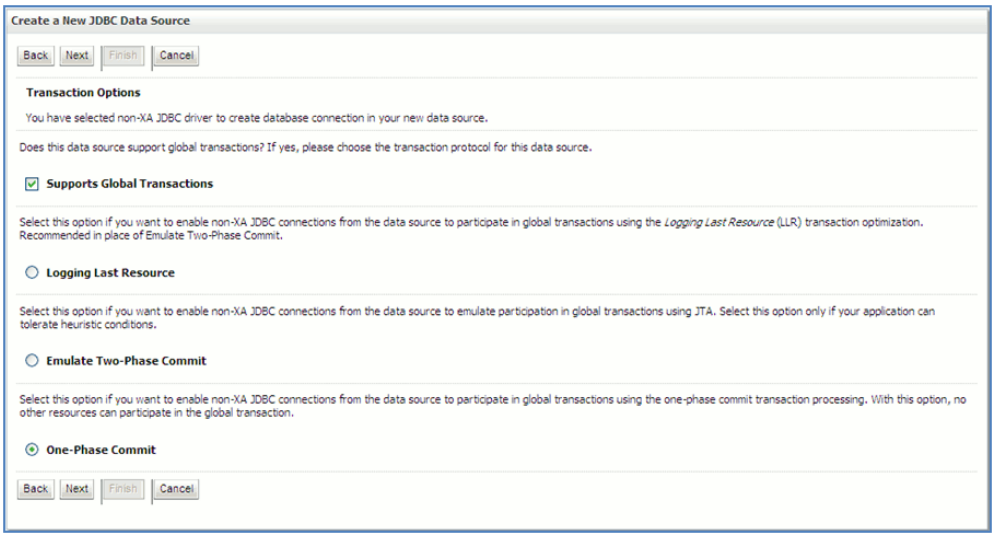
   Ensure the following:

   - The **JNDI Name** field should be in the format **jdbc/informationdomain**.
   - Same steps needs to be followed to create a mandatory data source pointing to the configuration schema of infrastructure with **jdbc/FICMASTER** as **JNDI** name.
   - **JNDI Name** is the same as mentioned in **web.xml**file of OFSAAI Application.
   - Required **Database Type** and **Database Driver** should be selected.

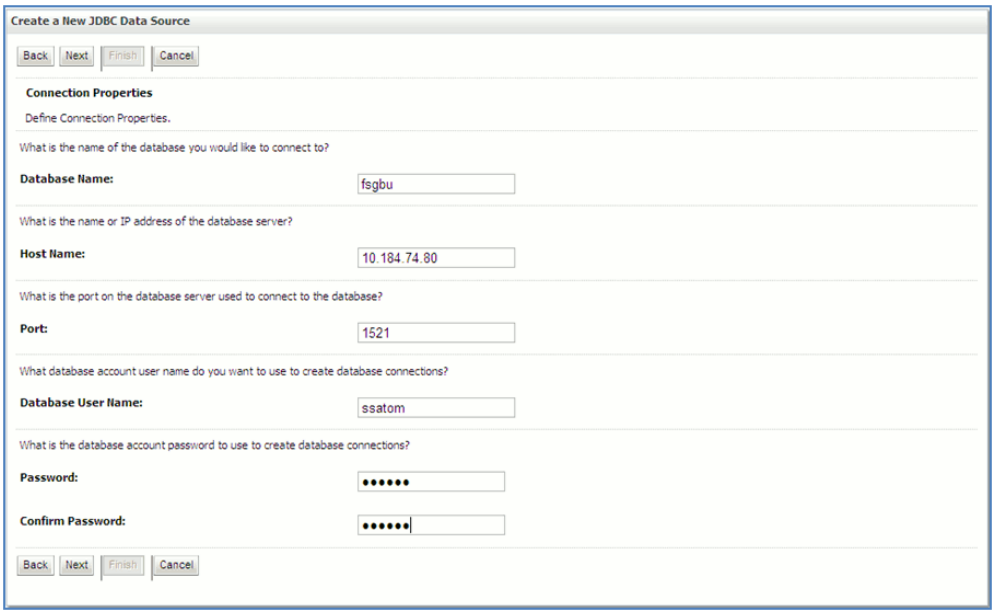


5. Select the **Database drive**r from the drop down list. Click **Next**.

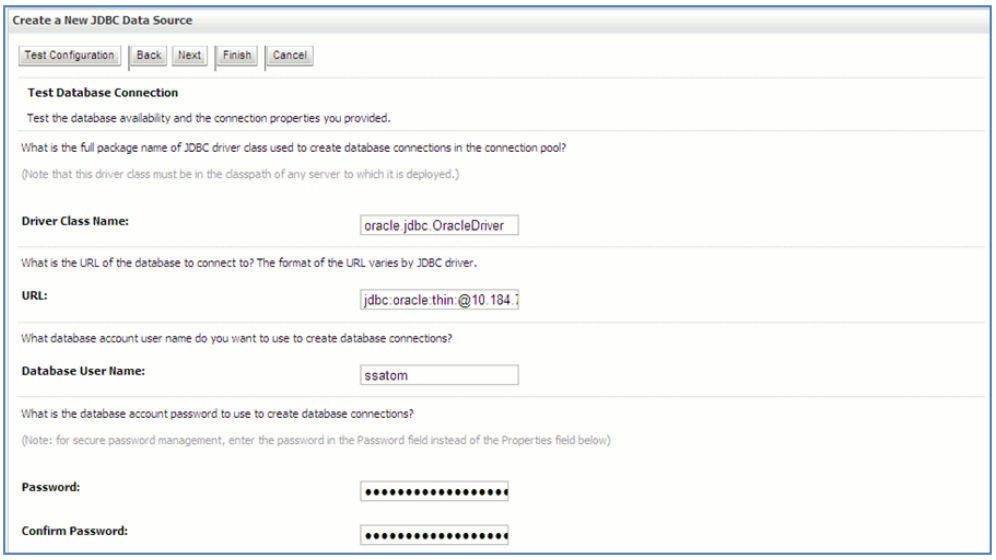
6. Select **Supports Global Transactions** check box and **One-Phase Commit** option.

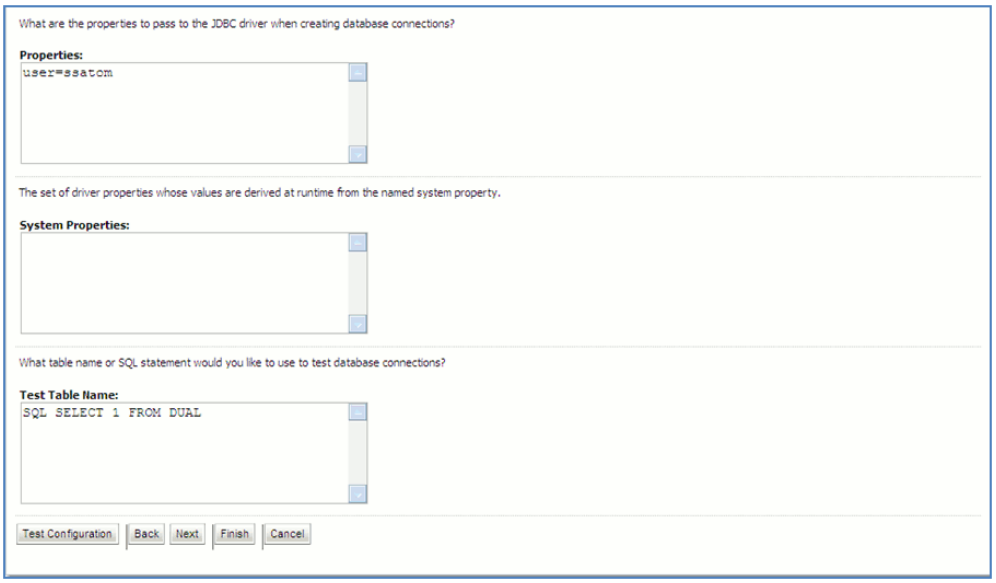


7. Click **Next**. The *Connection Properties* screen is displayed.



8. Enter the required details such as the **Database Name**, **Host Name**, **Port**, **Oracle User Name**, and **Password**. Click **Next**. The *Test Database Connection* screen is displayed.





Verify the details and click **Test Configuration** to test the configuration settings.

A confirmation message is displayed stating "Connection test succeeded."

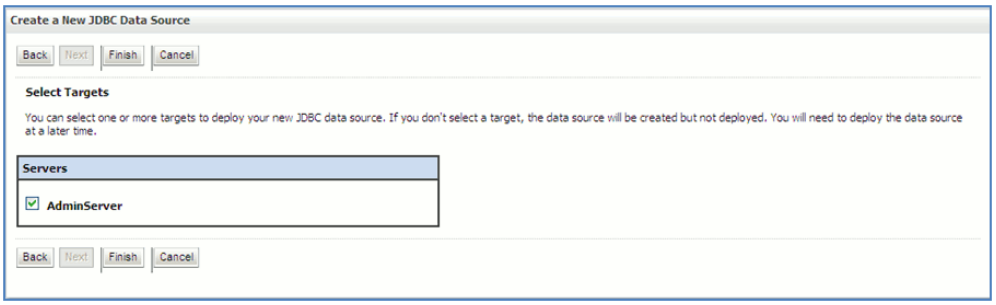
9. Click **Finish**. The created Data Source is displayed in the list of Data Sources.

    - User ID is the **Oracle user ID** that is created for the respective Information Domain.

    - User ID to be specified for Data Source with FICMASTER as JNDI name should be the Oracle user ID created for the

configuration schema.

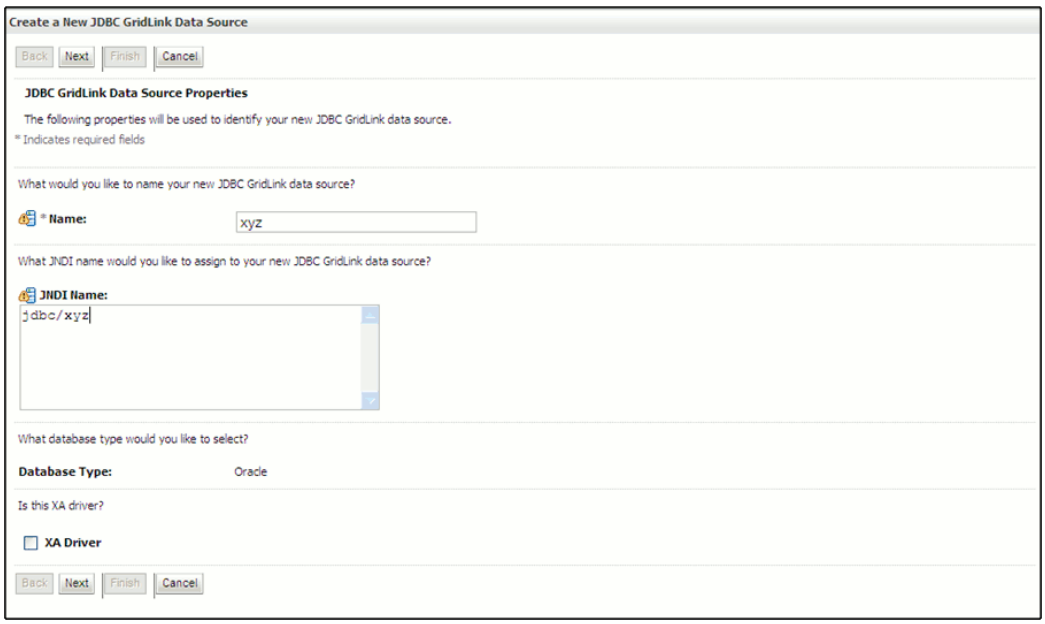
Select the new **Data Source** and click **Targets** tab. Verify **AdminServer** option and click **Save**.



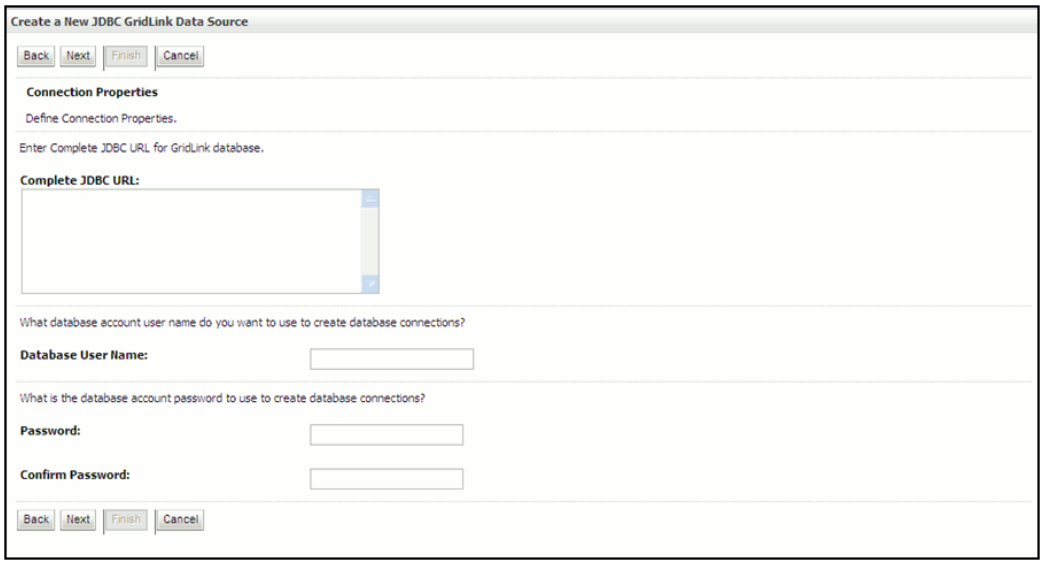
Create GridLink Data Source

If you have selected the option, **New > GridLink Data Source** while creating the Data Source, you can directly specify the JDBC URL as indicated.

You also have the option to select **Generic Data Source** or **Multi Data Source** while creating a Data Source. For more information, refer Create Data Source, page 4-12 or Configure Multi Data Sources, page 4-18.



Ensure that the JNDI Name field is specified in the format **jdbc/infodomname** and **XA Driver** check box is selected. Click **Next**.



Specify **Complete JDBC URL**, **Database User Name**, and **Password**. Click **Finish**. The created Data Source is displayed in the list of Data Sources.

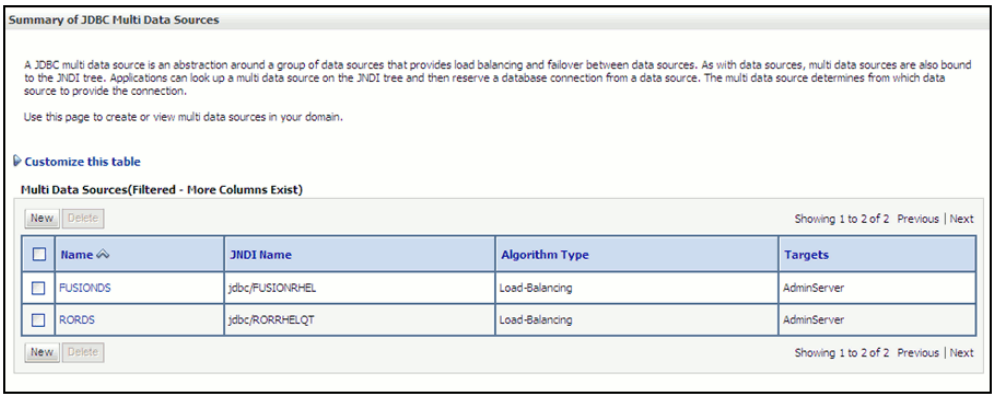
Configure Multi Data Sources

A JDBC multi data source is an abstraction around a group of data sources that provides load balancing and fail-over between data sources. As with data sources, multi data sources are also bound to the JNDI tree. Applications can look up a multi data source on the JNDI tree and then reserve a database connection from a data source. The multi data source determines from which data source to provide the connection.

When the database used is **Oracle RAC** (Real Application Clusters) which allows Oracle Database to run across a set of clustered servers, then group of Data Sources can be created for instances running on a set of clustered servers and a JDBC multi data source can be created so that applications can look up a multi data source on the JNDI tree to reserve database connection. If a clustered server fails, Oracle continues running on the remaining servers.

1. Open the following URL in the browser window:
   http://<ipaddress>:<administrative console port>/console. (**https** if SSL is enabled).
   The *login* screen is displayed. Login with the User ID that has admin rights.

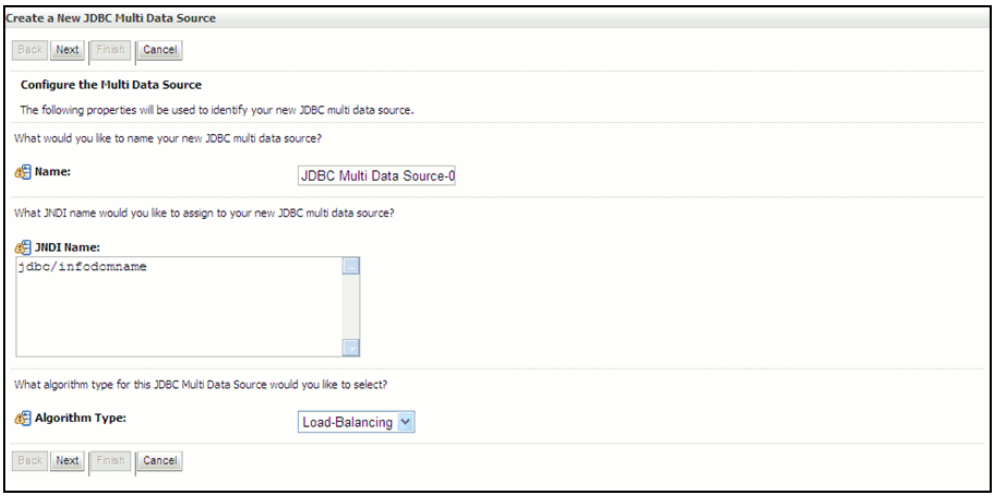
2. In the LHS menu (Domain Structure), select **Services > JDBC > Multi Data Sources**.
   The *Summary of JDBC Multi Data Sources* screen is displayed.



3. Click **New**. The *New JDBC Multi Data Source* screen is displayed.

   Note: Ensure that the Data Sources which needs to be added to new JDBC Multi Data Source has been created.

   You also have the option to select Generic Data Source or Grid Link Data Source while creating a Data Source. For more information, refer Create Data Source, page 4-12 or Create Grid Link Data Source, page 4-17.



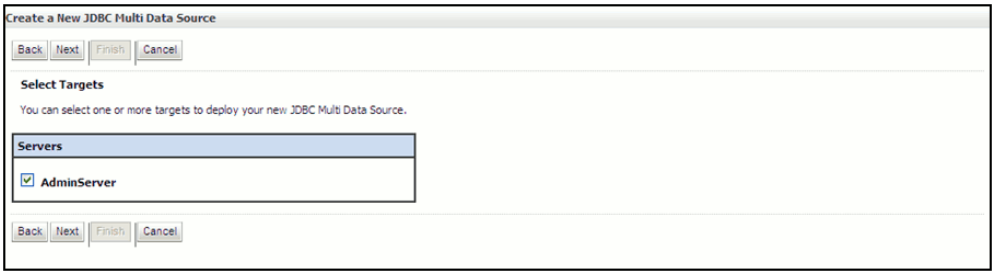
4. Enter the **JDBC Source Name**, **JNDI name**, and select the **Algorithm Type** from the drop down list. Click **Next**.

   - The JNDI Name has to be specified in the format **jdbc/infodomname**.
   - JNDI Name of the Data Sources that will be added to new

JDBC Multi data source should be different from the JNDI name specified during Multi Data Source.

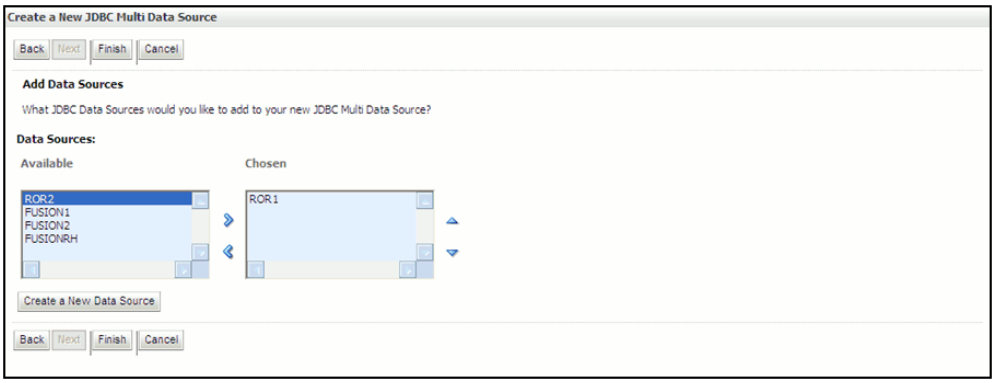
- Same steps needs to be followed to create a mandatory data source pointing to the configuration schema of infrastructure with **jdbc/FICMASTER** as JNDI name for Data Source.
- JNDI Name provided in multi data source should be the same name that will be mentioned in the **web.xml** file of OFSAAI Application.
- You can select the **Algorithm Type** as **Load-Balancing**.

5. Select the **AdminServer** check box and click **Next**.



6. In the *Select Data Source Type* screen, select the type of data source which will be added to new JDBC Multi Data Source.

7. Map the required **Data Source** from the Available Data Sources. Click **Finish**.

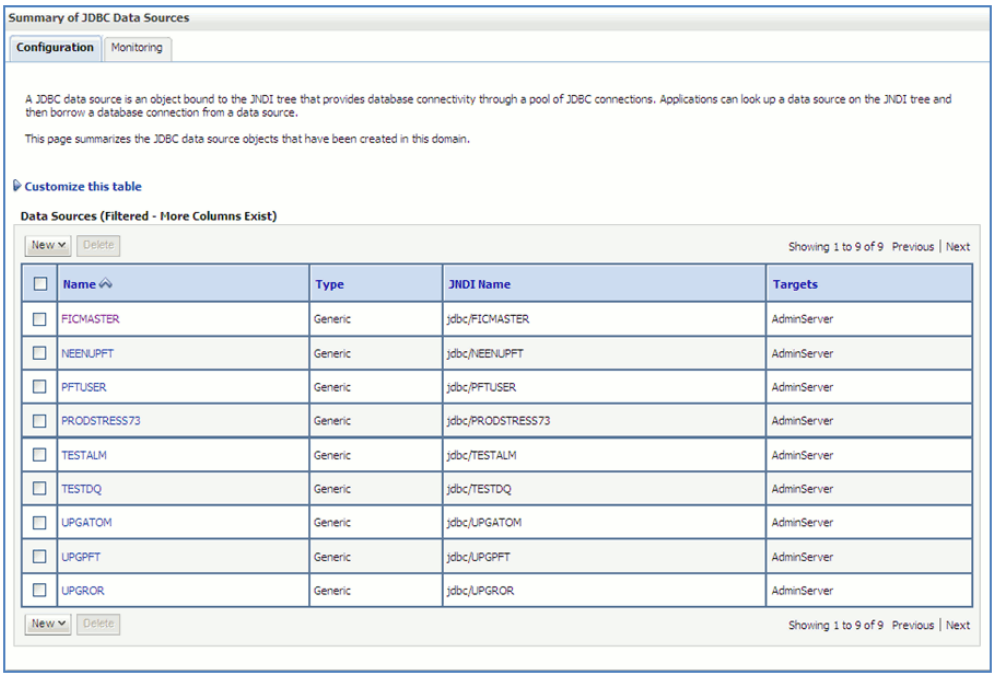


The New JDBC Multi Data Source is created with added data sources.

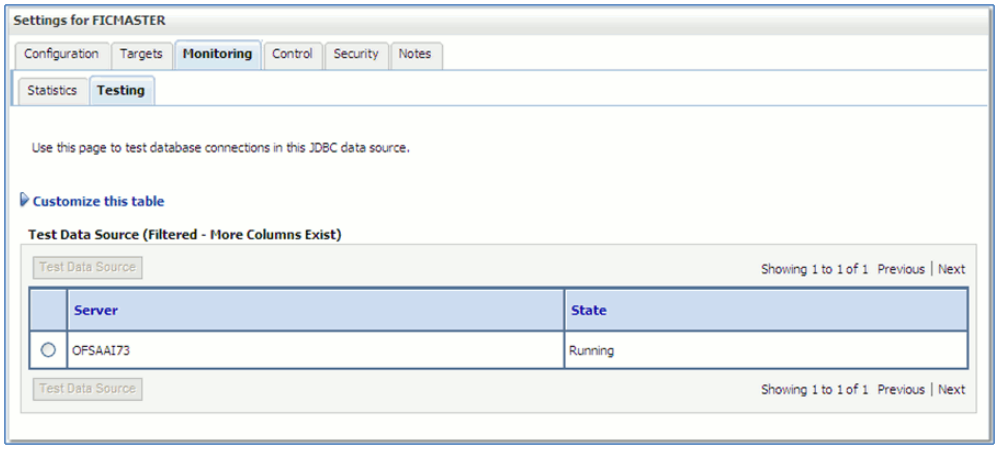
Advanced Settings for Data Source

1. Select the new Data Source. *Settings for <Data Source Name>* screen is displayed.
2. Select **Connection Pooling** tab given under Configuration.
3. Go to the **Advanced** option at the bottom of the page, and check the **Test Connection of Reserve** checkbox (Enables WebLogic Server to test a connection before giving it to a client).

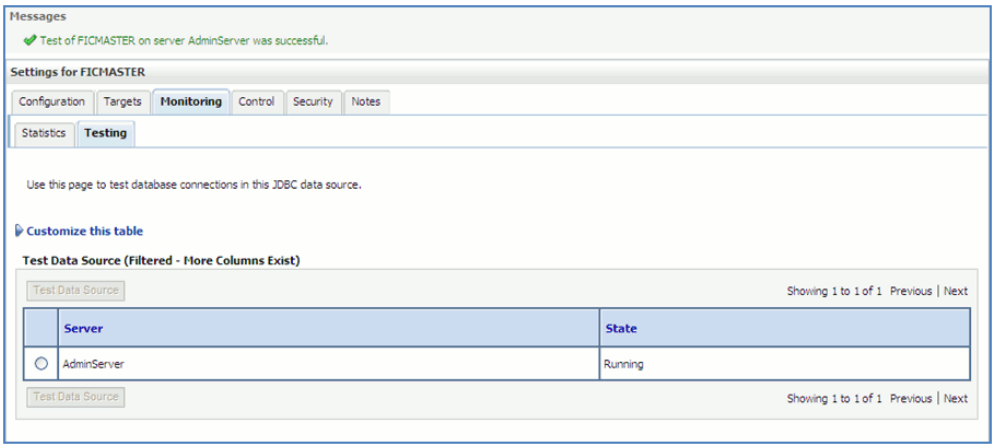
   To verify if the data source is valid, select Data Source name". Ex: FICMASTER.



4. Select the server and click **Test Data Source**.



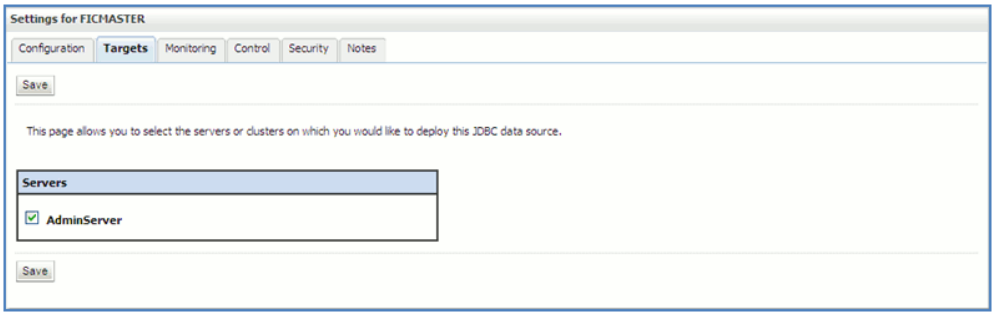
A message is displayed indicating that the test was successful.



5. Once the Data Source is created successfully, the following messages are displayed:

   - All changes have been activated. No restart is necessary.
   - Settings updated successfully.

   If not, follow the steps given above to recreate the Data Source.

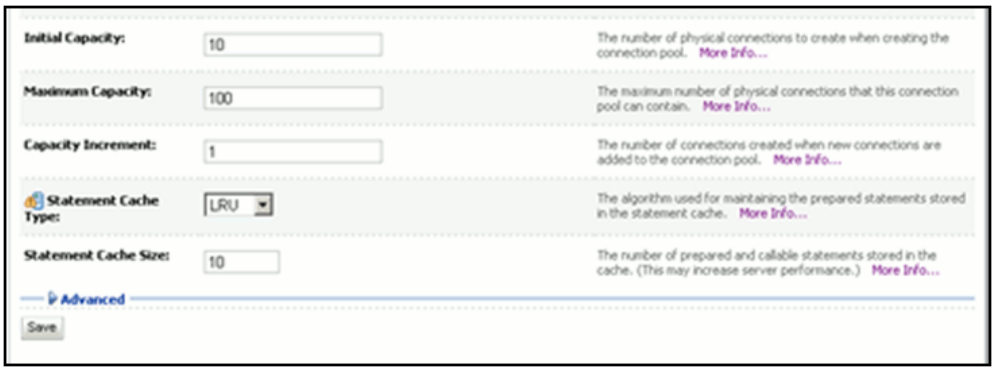


JDBC Connection Pooling

To define the JDBC connection pooling ensure that you have created JDBC Provider and Data source to access the data from the database.

1. Click the newly created Data Source $DATA_SOURCE$ and navigate to the path *Home >Summary of Services: JDBC >Summary of JDBC Data Sources >JDBC Data Source-<INFODDOM_NAME>*

2. Set the values for **Initial Capacity** to 10, **Maximum Capacity** to 100, **Capacity Increment** by 1, **Statement Cache Type** to LRU, and **Statement Cache Size** to 10 as shown in the below figure.



3. **Save** the details.

Configure Resource Reference in Tomcat Application Server

This section is applicable only when the Web Application Server type is Tomcat.

Copy the JDBC driver file depending on your Oracle database version:

- For Oracle 11gR2, copy the Oracle JDBC driver file, **ojdbc6.jar** from *<Oracle Home>/jdbc/lib* and place it in *<Tomcat Home>/lib*.

Create Data Source

To create data source for Infrastructure application, navigate to *<Tomcat Home>/conf* and edit the following block of text by replacing the actual values in **server.xml**.

```
<Context path ="/<context name>" docBase="<Tomcat Installation
Directory>/webapps/webapps/>" debug="0" reloadable="true"
crossContext="true">
<Resource auth="Container"
name="jdbc/FICMASTER"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="<user id for the configuration schema database>"
password="<password for the above user id>"
url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
maxActive="100"
maxIdle="30"
maxWait="10000"/>
<Resource auth="Container"
name="jdbc/< INFORMATION DOMAIN NAME >"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="<user id for the database>"
password="<password for the above user id>"
url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
maxActive="100"
maxIdle="30"
maxWait="10000"/>
</Context>
```

- The <Resource> tag must be repeated for each "Information Domain" created.
- After the above configuration, the **WAR file** has to be created and deployed in Tomcat.

JDBC Connection Pooling

To define the JDBC connection pooling, do the following:

1. Copy *$ORACLE_HOME/jdbc/lib/ojdbc6.jar* to the path *$TOMCAT_DIRECTORY/common/lib/*
2. Edit the **server.xml** present under the path *$TOMCAT_DIRECTORY/conf/* with the below changes, which is required for connection pooling.

```
<Context path="/ $CONTEXTNAME$" docBase=" $APP_DEPLOYED_PATH$ "
debug="0" reloadable="true" crossContext="true">
<Resource auth="Container"
name="jdbc/ $INFODOM_NAME$"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username=" $ATOMICSCHEMA_USERNAME$"
password="$ATOMICSCHEMA_PASSWORD$"
url="$JDBC_CONNECTION_URL"
maxActive="100"
maxIdle="30"
maxWait="10000"
removeAbandoned="true" removeAbandonedTimeout="60"
logAbandoned="true"/>
</Context>
```

- $TOMCAT_DIRECTORY$ should be replaced by Tomcat application installed path.
- $CONTEXTNAME$ should be replaced by OFSAAI context name.
- $APP_DEPLOYED_PATH$ should be replaced by OFSAAI application deployed path.
- $INFODOM_NAME$ should be replaced by Infodom Name.
- $ATOMICSCHEMA_USERNAME$ should be replaced by Atomic schema database user name.
- $ATOMICSCHEMA_PASSWORD$ should be replaced by Atomic schema database password.

- $JDBC_CONNECTION_URL should be replaced by JDBC connection string jdbc:Oracle:thin:<IP>:<PORT>:<SID>.

  For example: jdbc:oracle:thin 10.80.50.53:1521:soluint

Create and Deploy EAR / WAR files in WebServers

To create and deploy EAR / WAR files, refer to the following sections depending on the Webserver configured.

> **Note:** In case you have done a new WebServer installation (depending on your WebServer configuration i.e. WebSphere, WebLogic, or Tomcat), refer to the Configurations for new WebServer Installation, page 4-42. For more information, contact Oracle Support.

WebSphere

This section is applicable only when the Web Application Server type is WebSphere.

Create WebSphere EAR File

The EAR files is required to assemble servlets, .jsp files, web pages and other static content into a deployable unit. The EAR file is created to reflect the changes made to the **web.xml** file.

Refer to the following steps:

1. On the machine in which Infrastructure Web components have been installed, navigate to the *$FIC_HOME/ficweb/* directory. At the prompt enter **./ant.sh**. This triggers the creation of EAR file – **<contextname>.ear**. The <contextname> is the name given during installation.

2. On completion of the EAR files creation, the **BUILD SUCCESSFUL** and **Time taken** messages are displayed and you will be returned to the prompt.

   The EAR file - **<contextname>.ear** - is created on the machine on which Infrastructure Web components are installed under *$FIC_HOME/ficweb/* directory.

   > **Note:** This process overwrites any existing version of EAR file that exists in the path.

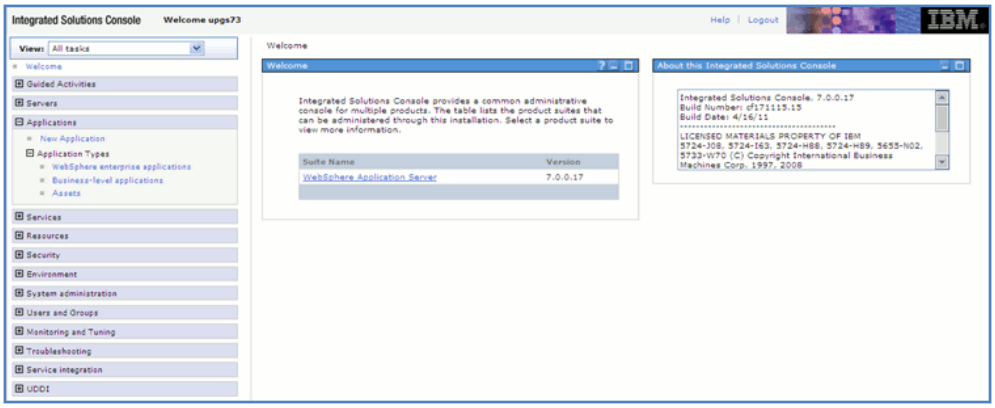
Deploy WebSphere EAR Files

To configure the WebSphere for OFSAAI v7.3, follow the below steps:

1. Start WebSphere Profile by navigating to the path /<*Websphere_Installation_Directory*>/IBM/WebSphere/AppServer/profiles/<*Profile_Name*>/*bin*/ and execute the command **./startServer.sh server1**

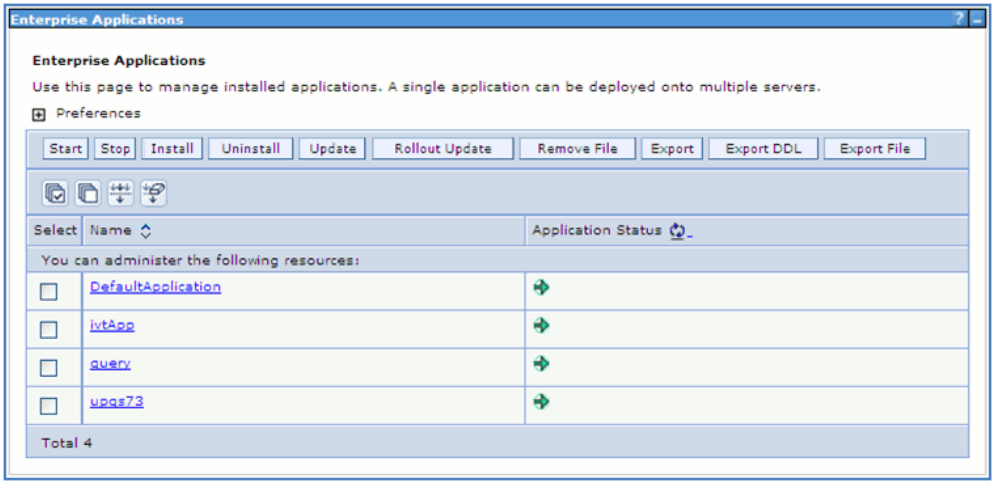
2. Open the following URL in the browser: http://<ipaddress>:<Administrative Console Port>/ibm/console. (**https** if SSL is enabled). The *login* screen is displayed.

3. Enter the **User ID** and **Password** that has admin rights. Click **Login**. The *Welcome* screen is displayed.



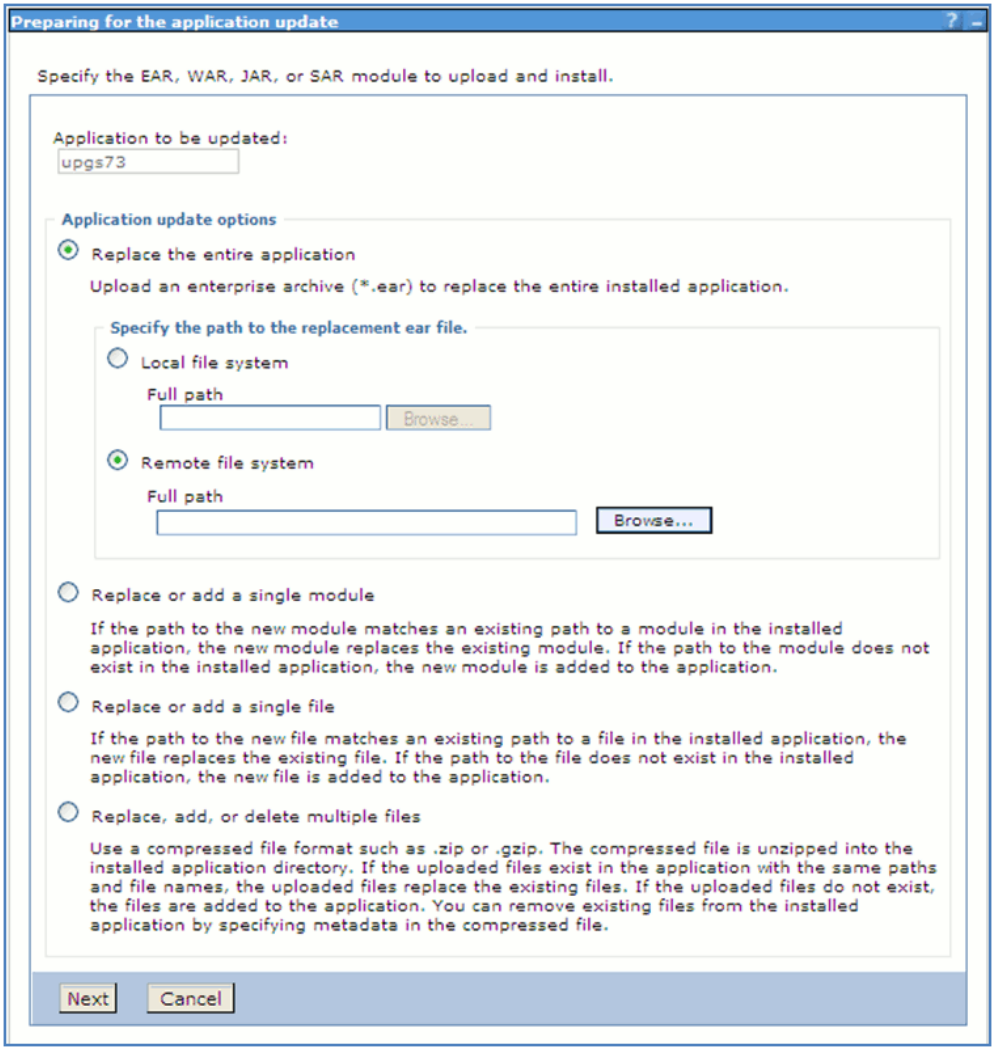
4. In the LHS menu, select **Applications > Application Types > WebSphere enterprise applications**.

   All the installed applications are listed in the *Enterprise Applications* section and which facilitates you to manage the installed applications.



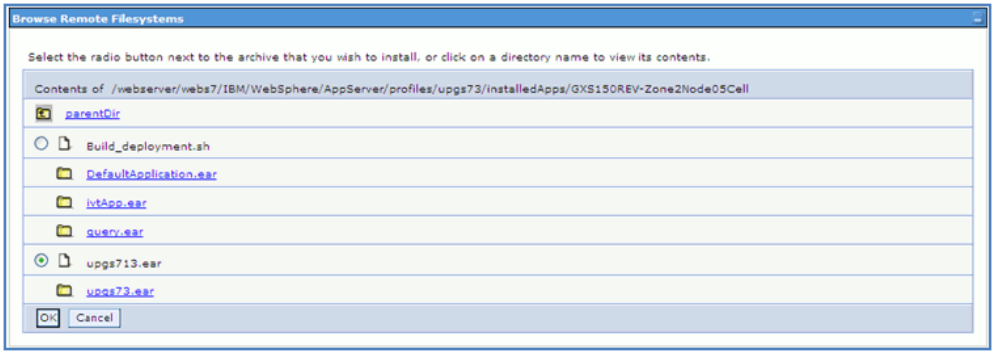
5. Select the check box adjacent to the installed application which you want to update.

6. Click **Update**. The *Preparing for the application update* screen is displayed.

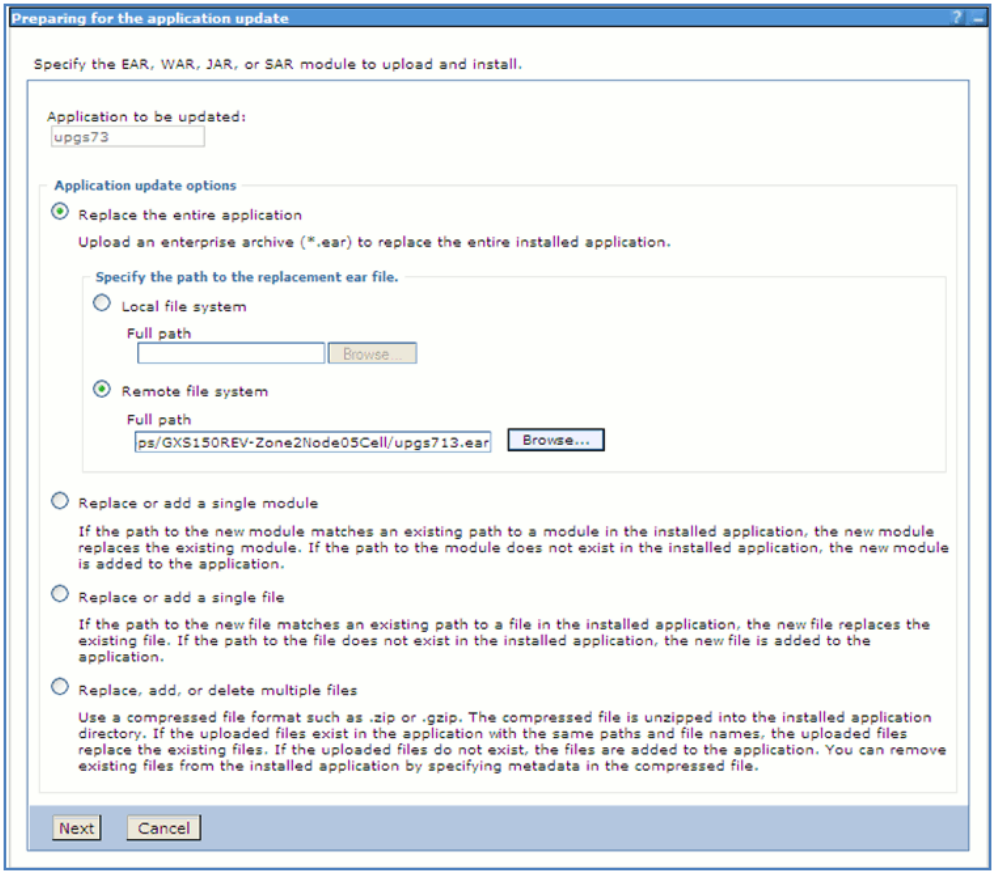


7. Select Remote file system and click **Browse**.

8. Navigate to the *$FIC_HOME/ficweb* path to locate the **.ear** file.



9. Select the required **.ear** file and click **OK**. You are returned to *Preparing for the application update* screen with the path of the selected Remote file.



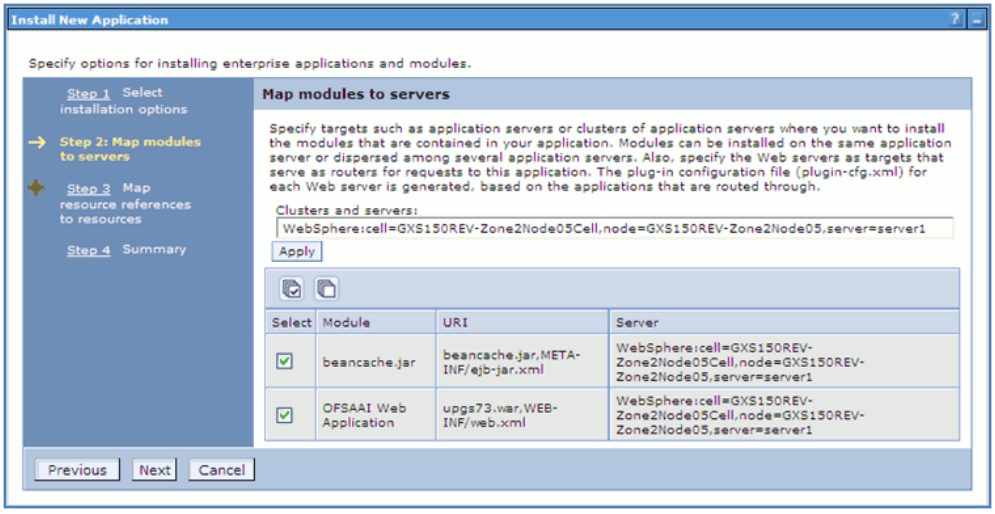
10. Click **Next**.

11. Select the **Fast Path** option.

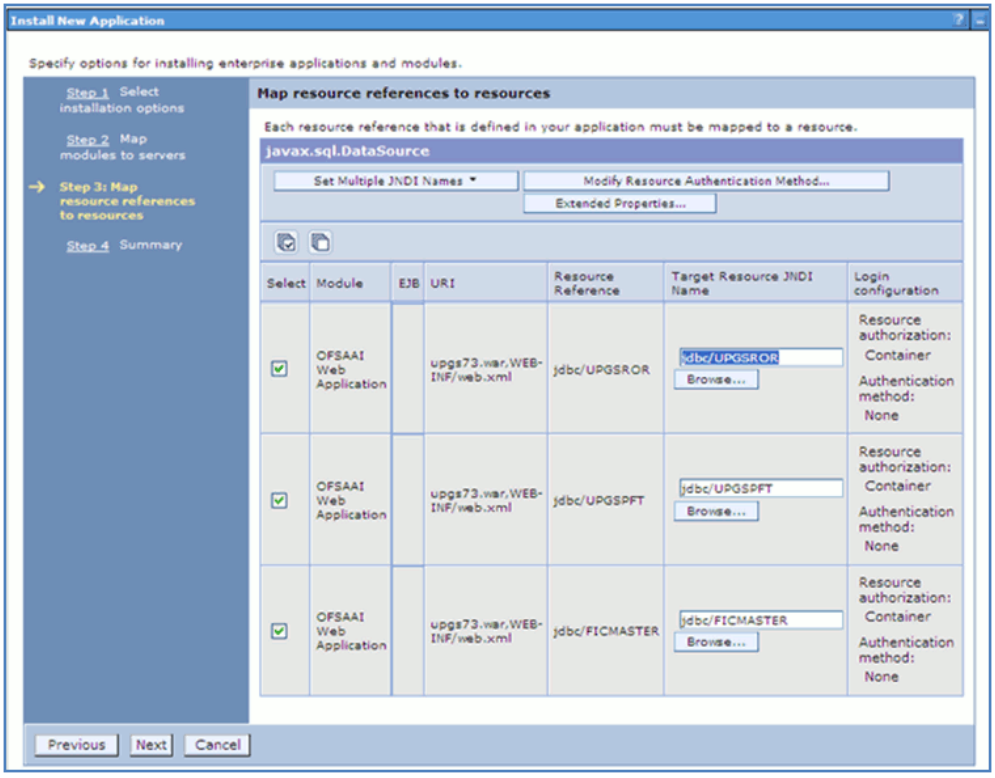
12. In the **Specify bindings to use** field, select **Merge new and existing binds** (default) option from the drop-down list.

13. Click **Next**. The *Select Installation options* screen is displayed.

    You can modify any of the details if required. Once done, click **Next**. The *Map module to servers* screen is displayed.



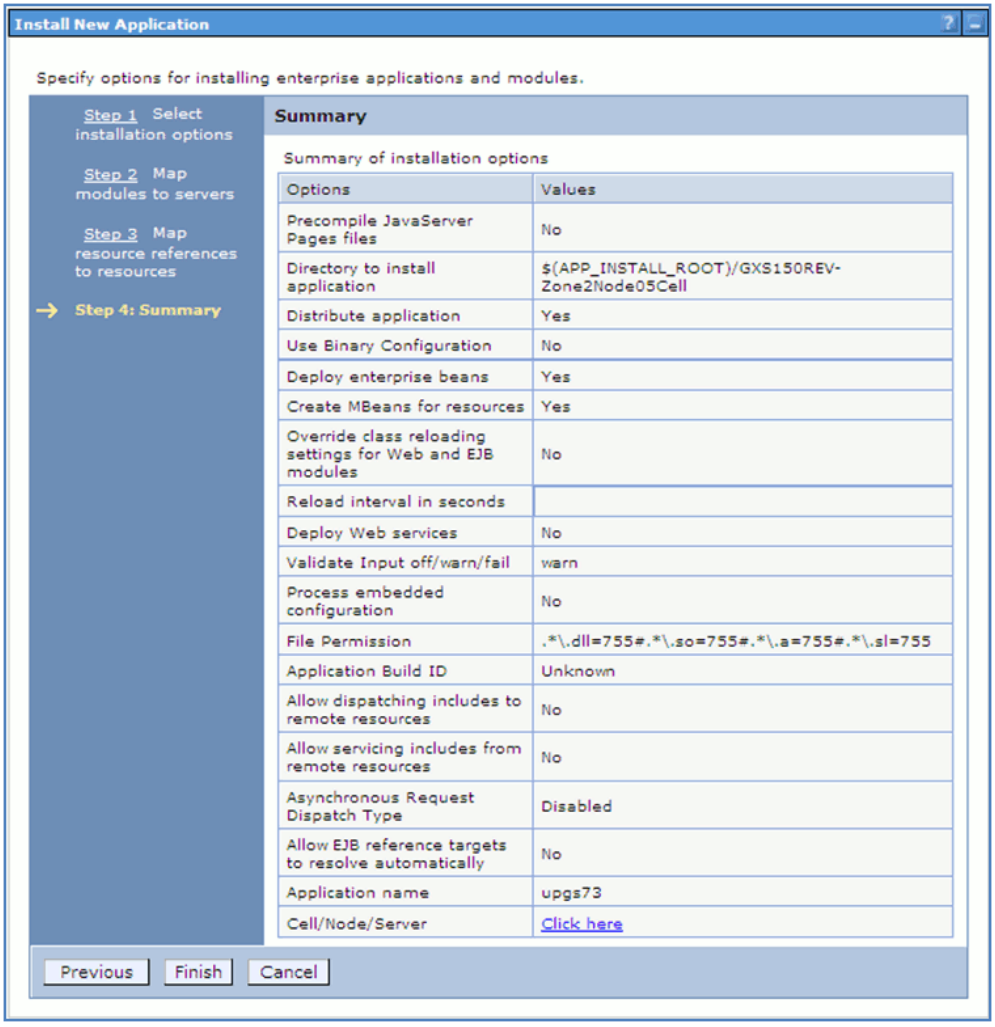
14. Select the check boxes adjacent to the module names and click **Next**. The *Map resource references to resources* screen is displayed.



15. Select the check boxes adjacent to the module names.

    Ensure that the **Target Resource JNDI Name** fields for all the selected modules are provided with correct path. You can click **Browse** button to add/update these names.

16. Click **Next**. The *Summary* screen is displayed.



In the *Summary* screen you can click on the link provided in the Cell/Node/Server field to view or change the server details in the *Map modules to servers* screen.

17. Click **Finish** and update the application with the specified details.

WebLogic

This section is applicable only when the Web Application Server type is WebLogic.

Create EAR / WAR file for WebLogic

The EAR files is required to assemble servlets, .jsp files, web pages and other static content into a deployable unit. This EAR file creation is required to reflect the changes made to the **web.xml** file. Follow the steps outlined below:

1. On the machine in which Infrastructure Web components have been installed, navigate to the *$FIC_HOME/ficweb/* directory. At the prompt type **./ant.sh**. This will

trigger the creation of EAR file - **<contextname>.ear**. <contextname> is the context name given during installation.

2. On completion of the EAR files creation, the "BUILD SUCCESSFUL" and "Time Taken" messages are displayed and you will be returned to the prompt.

3. The EAR file - **<contextname>.ear** - is created on the machine on which Infrastructure Web components are installed under *$FIC_WEB_HOME* directory.

> **Note:** This process overwrites any existing version of EAR file in the path.

Deploy EAR / WAR file for WebLogic

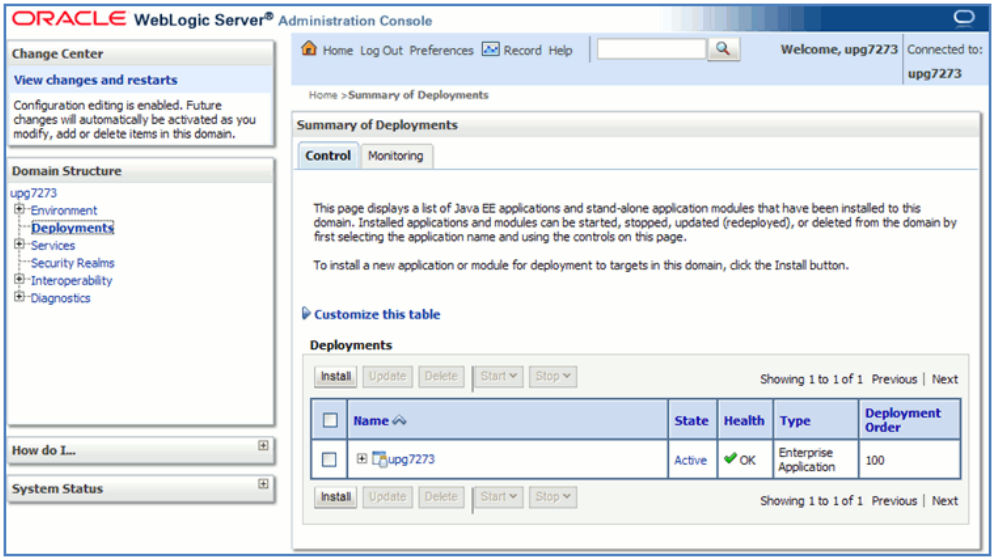
To configure the WebLogic for OFSAAI v7.3, follow the below steps:

1. Start WebLogic Domain by navigating to the path *<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/bin/* and execute the command **./startWeblogic.sh -d64**

2. Open the URL in the browser: **http://<ipaddress>:<admin server port>/console** (**https** if SSL is enabled). The *Sign in* screen of the WebLogic Server Administration Console is displayed.

3. Sign on with the WebLogic **User Name** and **Password** that has privileges to deploy the EAR file. From the LHS menu select **Deployments**.

   The *Summary of Deployments* screen is displayed.



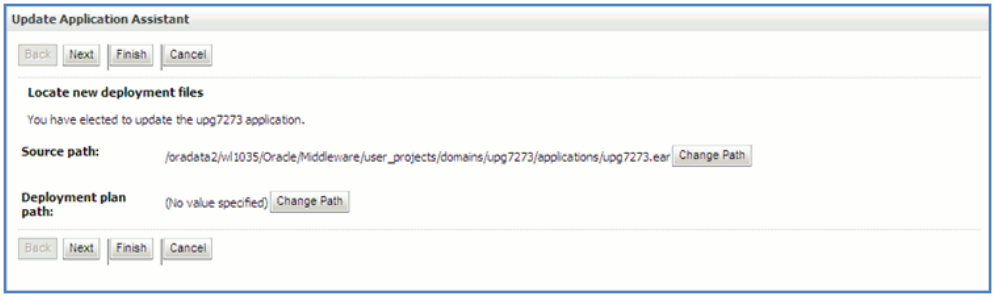
4. Delete the previously deployed folder **<context>.ear** from *<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications*

5. Create **<context>.ear** folder under applications folder.

6. Copy the **<context>.ear** file from *$FIC_HOME/ficweb/* to *<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_name>.ear* folder.

7. Select the checkbox adjacent to the deployment name you want to update.

8. Click **Update**. The *Update Application Assistant* screen is displayed.



Verify the provided Source path and click **Next**.

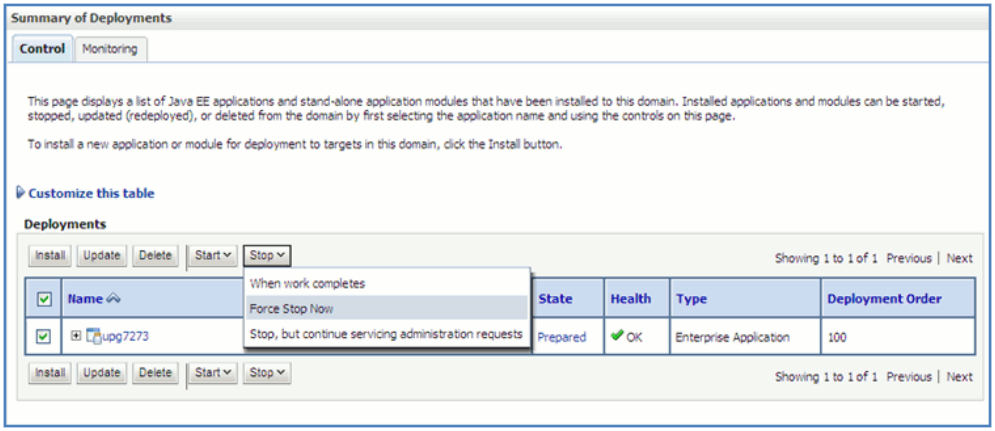
The *Update Application Assistant* screen displays the defined options. Once done, click **Finish**.

The *Summary of Deployments* screen is displayed with state as **Active**.

To Stop the WebLogic deployment services:

9. Select the checkbox adjacent to the deployment name.

10. Click **Stop** menu button and select **Force Stop Now** from the pop-down list.

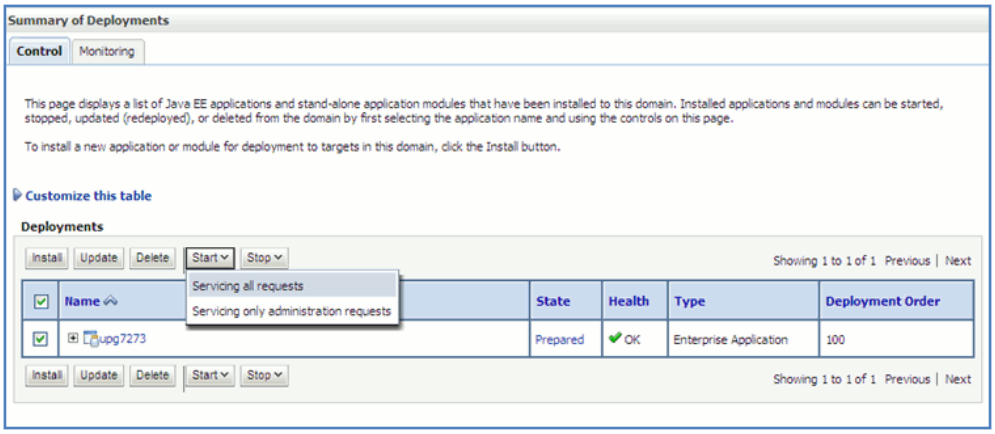


The deployment is stopped and the status is changed to **Prepared**.

To start the deployment:

11. Select the check box adjacent to the deployment name.

12. Click **Start** menu button and select **Servicing all requests** from the pop-down list.



The selected deployment is started and the status is changed to **Active**.

Tomcat

This section is applicable only when the Web Application Server type is Tomcat.

Create Tomcat WAR Files

The WAR files is required to assemble servlets, .jsp files, web pages, and other static content into a deployable unit.

Note that, if you need to access Advanced Analytics Infrastructure module using Tomcat as the WebServer, you need to do the following:

- Delete **cssparser-0-9-4-fs.jar** from *$FIC_WEB_HOME/webroot/WEB-INF/lib*.
- Copy **cssparser-0.9.5.jar** file from *$FIC_WEB_HOME/CSSPARSER* to *$FIC_WEB_HOME/webroot/WEB-INF/lib*.

  Note: If the OS is AIX, you need to copy **xerces.jar** file from *$FIC_WEB_HOME/XERCES* to *$FIC_WEB_HOME/webroot/WEB-INF/lib*.

The steps given below will guide you through the WAR files creation process.

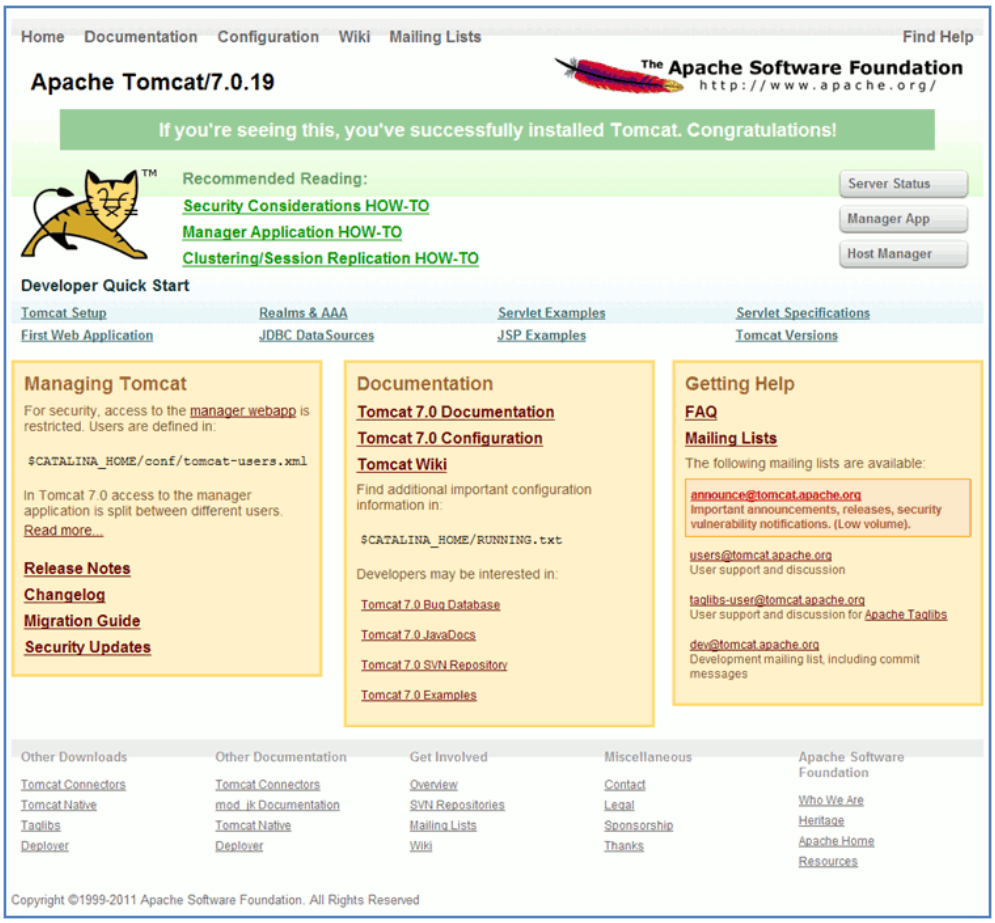
1. On the machine in which Infrastructure Web components have been installed, navigate to the path *$FIC_HOME/ficweb/*.
2. At the prompt, execute **ant.sh**. This will trigger the creation of WAR file - **<contextname>.war**. The <contextname> is the name given during installation.
3. On completion of the WAR files creation, a confirmation message will be displayed and you will be returned to the prompt.
4. The WAR file - **<contextname>.war** - is created on the machine on which Infrastructure Web components are installed under *$FIC_WEB_HOME* directory.

   - This process will not overwrite any existing version of WAR file that exists in the path. Rename/delete any existing war file.
   - Proceed with the following steps for Tomcat WAR Files Deployment, page 4-38.
   - Log on to the server in which Tomcat is installed.

Deploy Tomcat WAR Files

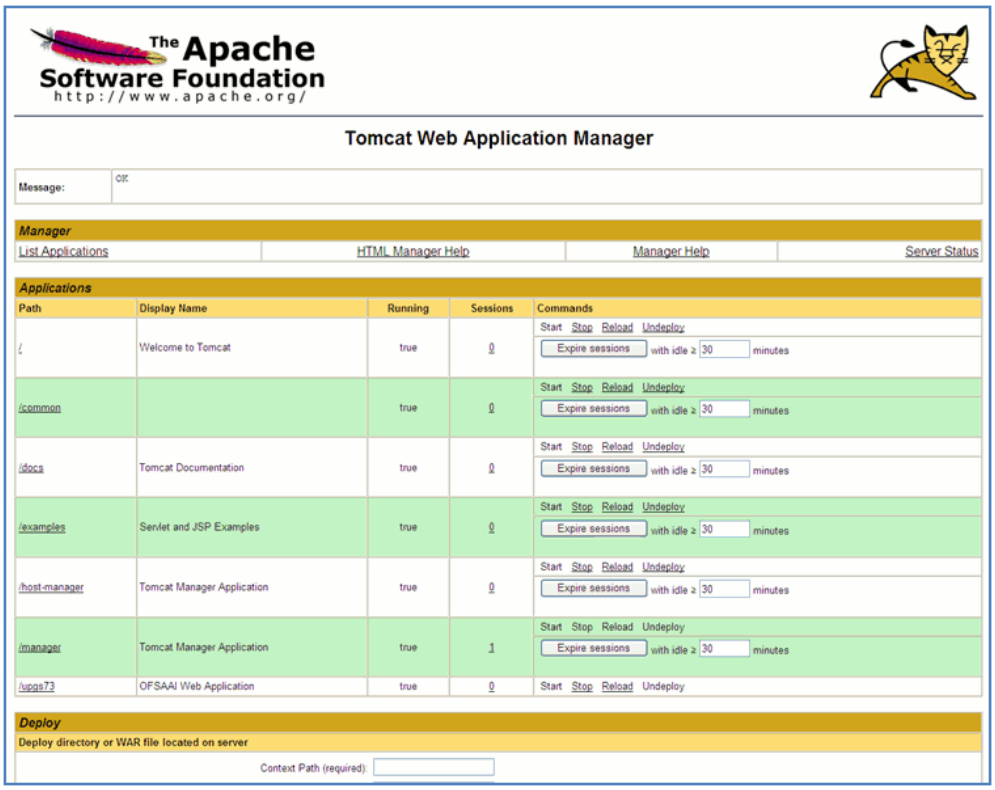
To configure the Tomcat for OFSAAI v7.3, follow the below steps:

1. Open the URL in Browser window: *http://<IP address>:<Tomcat server port>* (**https** if SSL is enabled). The *Tomcat Home* screen is displayed.



2. Click **Manager App**. The *Connect to* dialog is displayed. Enter the **User Id** and **Password** that has admin rights and click **OK**.

   The *Tomcat Web Application Manager* screen is displayed along with the deployed applications in Tomcat.



3. Locate the **server.xml** file in the Tomcat installation directory, that is. in *$CATALINA_HOME/conf*, and comment the *Context path* tag.

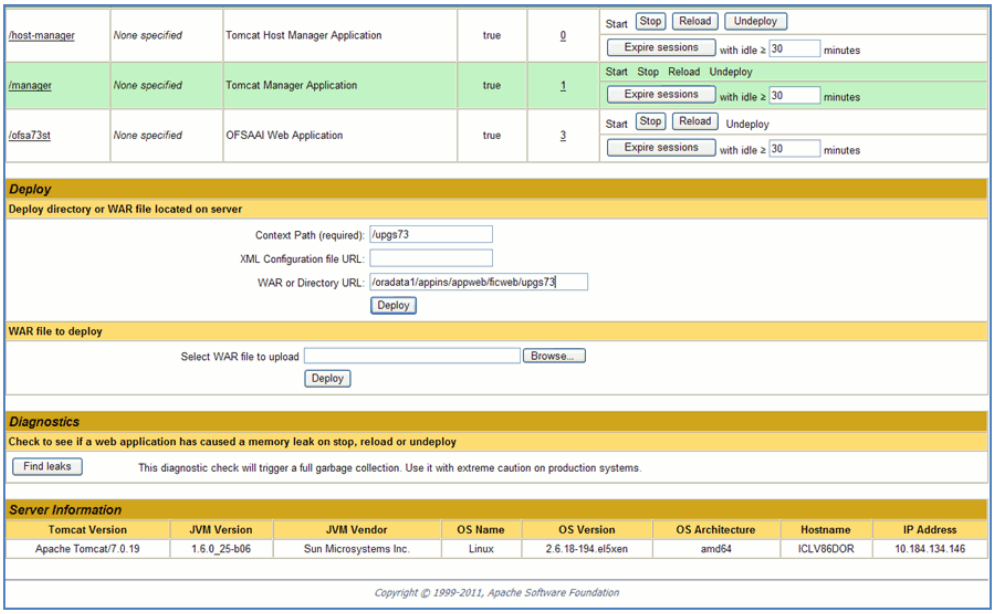
```
<!-- <Context path="/upgs73" docBase="/oradata1/appins/apache-tomcat- 7.0.19 /webapps/upgs73" debug="0" reloadable="false"
<Resource auth="Container"
      name="jdbc/FICMASTER"
      type="javax.sql.DataSource"
      driverClassName="oracle.jdbc.driver.OracleDriver"
      username="penconf"
      password="pen$conf"
      url="jdbc:oracle:thin:@10.184.134.124:1521:OFSAAI73"
      maxActive="100"
      maxIdle="30"
      maxWait="10000"/>
<Resource auth="Container"
      name="jdbc/ATOMS"
      type="javax.sql.DataSource"
      driverClassName="oracle.jdbc.driver.OracleDriver"
      username="atoms"
      password="atoms"
      url="jdbc:oracle:thin:@10.184.134.124:1521:OFSAAI73"
      maxActive="100"
      maxIdle="30"
      maxWait="10000"/>
</Context> -->
```

4. Restart the Tomcat service.

   You can restart the tomcat service as follows:

- Login to the Unix server through a terminal emulator.
- Navigate to *$catalina_home/bin* directory.
- Stop the tomcat services using the command **./shutdown.sh**.
- Start the tomcat services using the command **./startup.sh**.

5. In the Commands column, click **Undeploy** option against the application name. Click **OK** in the confirmation dialog.



6. Enter the context name given during the installation under Deploy Context Path field as /<context-name>.
7. Enter the Path where the **<context-name>.war** file resides in the WAR or Directory URL and click on **Deploy**.
8. Uncomment the Context path tag in the **server.xml** file.
9. Restart the Tomcat services.

   You can restart the tomcat service as follows:

   - Login to the **Unix server** through a terminal emulator.
   - Navigate to *$catalina_home/bi*n directory.
   - Stop the tomcat services using the command **./shutdown.sh**.

- Start the tomcat services using the command **./startup.sh**.

Additional Configurations

Refer to the following sections for detailed module specific post installation configurations.

Configurations for new WebServer Installation

This section is applicable for a new WebServer installation.

When you have installed a new Webserver during the v7.3 OFSAAI upgrade, you need to do the following:

Manually replace the existing WebServer path with the new path in the below listed files.

- $FIC_HOME/EXEWebService/<Configured Webserver>/ROOT/conf/RevLog4jConfig.xml
- $FIC_HOME/UninstallerData/installvariables.properties
- $FIC_WEB_HOME/webroot/WEB-INF/web.xml
- $FIC_WEB_HOME/webroot/conf/ExportLog4jConfig.xml

And update the following parameters in the Configuration table of **Configuration Schema** with the new path:

- REV_IMG_PATH
- DeFiHome
- EMBEDDED_JSP_JS_PATH (*Note that, this parameter will be available only if Forms Framework feature has been enable*d).

> **Note:** You may have to refer **Configure Infrastructure Ports** and **Webserver Configuration for Infrastructure Application** sections in OFSAAI v7.3 Installation and Configuration Guide for additional details.

.profile Changes

This section is applicable for a new Java, Oracle, ESSBASE installation.

When you have installed a new version of the above software during the v7.3 OFSAAI upgrade, you need to update the **./profile** with the new path.

The **JAVA_BIN**, **ORACLE_HOME**, **PATH**, **HYPERION_HOME**, **ARBORPATH**, and **ESSBASEPATH** environment variables need to be updated in the user **.profile** file, where OFSAAI components are installed.

Clearing Application Cache

This is applicable to all Web Servers (that is WebSphere, WebLogic, and Tomcat).

Prior to the deployment of Infrastructure or Application Service Packs / One-off patches, navigate to the following path depending on the WebServer configured and clear the cache:

- **Tomcat**: *<Tomcat installation folder>/work/Catalina/localhost/work/Catalina/localhost/>/org/apache/jsp*
- **WebLogic**: *<WebLogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/qaelce/jsp_servlet*
- **WebSphere**: <WebSphere installation directory>/AppServer/profiles/AppServer/profiles/<Profile name> /temp/<Node name>/server1/<Application name>/<.war file name>

IP / Host Address Related Changes

If the IP / Host Address of the machine on which OFSAAI is installed changes, the following files and database column values need to be updated with the "New Value" for the uninterrupted performance of the application.

Related Files	Place Holder	Field Updated
$FIC_HOME/conf/dynamicservices.xml	DEFAULT_CONNECTION_URL	Update the Old DB IP / Host Address with the new DB Server IP / Host Address.
	ROUTER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
	AM_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
$FIC_HOME/conf/LookupServices.xml	IP	Update the OLD IP / Host Addresses with the new WEB Server IP / Host Address
/ficapp/common/FICServer/conf/FICWeb.cfg	SERVLET_URL	Update the OLD IP / Host Addresses with the new WEB Server IP / Host Address.

	FIC_SERVER_IP	Update the OLD IP / Host Addresses with the new WEB Server IP / Host Address.
/ficapp/icc/conf/server.conf.properties	ICC_SERVER_HOST	Update the Old APP IP / Host Address with the new APP Server IP / Host Address.
	ICC_ROUTER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
	MESSAGE_SERVER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
	REVELEUS_SERVER_HOST	Update the Old IP / Host Addresses with new APP Server IP / Host Address.
/ficdb/conf/FICDB.cfg	FIC_SERVER_IP	Update the Old IP / Host Addresses with new APP Server IP / Host Address.
/ficdb/conf/am.conf	AM_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
$FIC_WEB_HOME/webroot/conf/ ficweb.cfg	ICC_SERVER_HOST	Update the Old IP / Host Addresses with new APP Server IP / Host Address.
$FIC_WEB_HOME/webroot/conf/ dynamicservices.xml	DEFAULT_CONNECTION_URL	Update the Old DB IP / Host Address with the new DB Server IP / Host Address.
	ROUTER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
	AM_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.
$FIC_WEB_HOME/webroot/conf/ LookupServices.xml	IP	Update the OLD IP / Host Addresses with the new WEB Server IP / Host Address.
$FIC_WEB_HOME/webroot/WEB-INF/web.xml	FIC_WEBSERVER_IP	Update the OLD IP / Host Addresses with the new WEB Server IP / Host Address.
<INSTALL_HOME_FOLDER>/.profile	MESSAGE_SERVER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.

	FIC_ROUTER_HOST	Update the Old DB IP / Host Address with the new DB IP / Host Address.

Below tabulated are the tables and corresponding column names that needs to be updated:

Table Name	Column Name
CONFIGURATION	Update the PARAMVALUE for "JICSHOST"
ETLSOURCEDETAILS	V_SRV_IP_ADDR
DB_MASTER	DBIPADDRESS
	JDBCCONNSTR
DSNMASTER	DBSERVER
	OLAPIPADDRESS
FICSYSMASTER	WEBIPADDRESS
	APPIPADDRESS
	DBIPADDRESS
SETUP_SERVER_INFO	AM_IP_ADDRESS
DB_SERVER_INFO	DBIPADDRESS
SETUP_PORTS	V_DBSERVERIP,V_APPSERVERIP,V_WEBSERVERIP
OLAP_MASTER	OLAPIPADDRESS
WEB_SERVER_INFO	WEBIPADDRESS
BATCH_PARAMETER	V_PARAMETER_VALUE
BATCH_PARAMETER_MASTER	V_PARAMETER_VALUE

APP_SERVER_INFO	APPIPADDRESS

Configure Information Domain Schema Privileges

As the Information Domain Schema accesses some of the tables from the Configuration Schema, ensure to execute the below file from the Infrastructure Configuration Database user before creating a new Information Domain.

<Infrastructure Database Layer Install Directory>/config_table_privileges_for_atomic_user.sql

Configure Infrastructure Server Memory

The memory settings for Infrastructure Application Server, Tomcat, WebSphere, and WebLogic can be edited for **customizing memory** settings and **garbage collector** settings depending on the available hardware configuration as explained below. These settings are base minimum which needs to be incremented and these increments are usually handled in multiples of *128 mb for heap* and *64 mb for stack*.

Infrastructure Application Server Memory Settings

You can configure the Infrastructure Application Memory settings as follows:

Locate **reveleusstartup.sh** file, which resides in the folder *<OFSAAI Installation Directory >/ficapp/common/FICServer/bin*.

Edit **X_ARGS** field in this file for customizing memory settings and garbage collector settings depends on the hardware configuration.

This has a default value **X_ARGS="-Xms200m"**

X_ARGS=" "$X_ARGS" $DELIM -Xmx200m"

X_ARGS="-Xms1024m" X_ARGS="

"$X_ARGS" $DELIM -Xmx2048m"

Tomcat Memory Settings

To configure the Tomcat Memory Settings, locate the file catalina.sh which resides in the folder *<CATALINA_HOME>/bin*.

You can edit this file for customizing the memory settings and garbage collector settings depending on the available hardware configuration.

Add the memory setting for Java Heap to **-Xms512m -Xmx1024m**.

Example

```
if [ -z "$LOGGING_MANAGER" ]; then
JAVA_OPTS="$JAVA_OPTS -Xms512m -Xmx1024m
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager"
else
JAVA_OPTS="$JAVA_OPTS -Xms512m -Xmx1024m $LOGGING_MANAGER"
fi
```

WebLogic Memory Settings

To configure the WebLogic Memory Settings, change the memory setting for Java Heap to **-Xms512m-Xmx1024m** in **setDomainEnv.s**h file which resides in the folder *<DOMAIN_HOME>/bin* and in **CommEnv.sh** file which resides in the folder *common/bin* .

You can edit this file for customizing memory settings and garbage collector settings depending on the available hardware configuration.

Example

- ```
  if [ "${JAVA_VENDOR}" = "Sun" ] ; then
  WLS_MEM_ARGS_64BIT="-Xms512m -Xmx1024m"
  export WLS_MEM_ARGS_64BIT
  WLS_MEM_ARGS_32BIT="-Xms512m -Xmx1024m"
  export WLS_MEM_ARGS_32BIT
  else
  WLS_MEM_ARGS_64BIT="-Xms512m -Xmx1024m"
  export WLS_MEM_ARGS_64BIT
  WLS_MEM_ARGS_32BIT="-Xms512m -Xmx1024m"
  export WLS_MEM_ARGS_32BIT
  ```

- ```
  JAVA_VM=
  MEM_ARGS="-Xms256m -Xmx1024m"
  ```

WebSphere Memory Settings

To configure the WebSphere Memory Settings, navigate to the following path:

Websphere applications server > Application servers > server1 > Process definition > Java Virtual Machine.

Change the memory setting for Java Heap as indicated below:

Initial heap size = 512

Maximum heap size =1024

Retrieve Patch Details

For getting details on the patches that are installed in the OFSAAI environment, query the table INFODOM_PATCHES in the Configuration Schema.

Select * from infodom_patches;

The INFODOM_PATCHES table in Configuration Schema gives the information of the patches which are already applied in OFSAAI environment.

Table Name	Description
V_INFODOM	Name of INFODOM
N_SERIAL_NO	Serial Number of patch
V_PATCH_NAME	Version of the patch applied
V_REMARKS	Remarks
D_APPLIED_DATE	Patch application date

OLAP Data Server Configuration

This section is applicable if you are using the OLAP feature of OFSAAI.

The following parameters must be set to ensure that the system limitations are not exceeded at any stage. The values for these OS parameters should be specified based on the expected load at each implementation site.

Example

- Process Memory Limit
- Max Thread Stack Size
- Max Number of Threads per Process
    - **Sort Buffer settings**: This must be set at the Essbase application level appropriate to the anticipated load.
    - **Shutdown and Restart**: During shutdown of OFSAAI Server that has an instance of Data Services that is communicating with an OLAP Data Server, it is imperative to ensure that the cleanup of the old instance is completed on the OLAP Data Server before restarting the OFSAAI Server. Pause for a period of time based on the load the system was subjected to, before restarting the Data Services subsystem.

Object Migration - HttpsURLConnection configuration for WebLogic

This section is applicable if you want to use the Object Migration feature of OFSAAI with WebLogic as application server.

The **Object Migration** feature of Infrastructure allows you to transfer data from a source database along with the schema objects, triggers, and stored procedures, to the required database in an integrated environment.

While making a HTTP(s) connection to external resource from WebLogic server, the following exception is observed:

"Caught Exception creating connection: java.lang.ClassCastException: weblogic.net.http.SOAPHttpsURLConnection"

To avoid this problem, add a java option entry **-DUseSunHttpHandler=true** in **setDomainEnv.sh** file which resides in the WebLogic server.

Example
/oracle/weblogic/Oracle/Middleware/user_projects/domains/ofsaai7212/bin

Restart WebLogic service. Navigate to <WebLogic Installation directory>/user_projects/domains/<domain name>/bin and execute the command:

startWebLogic.sh -d64

> **Note:** If WebLogic is already running, access the WebLogic Admin Console. Stop & start the application <context name>.ear

OFSAAI Setup Information Fetching Tool

Executing the **SetupInfo.jar** file available in the *FIC_HOME* path will help you retrieve the related information about the OFSAAI Set up such as Operating System Name and version, Database Type and Version, OFSAAI architecture, Log file locations and so on.

Execute SetupInfo.jar in Console

To execute **SetupInfo.jar** in console:

1. Navigate to the path *$FIC_HOME*.
2. Enter the command **java -jar SetupInfo.jar**.

After execution, the output file location is displayed in the console.

Encryption Changer

This utility helps you to regenerate the new **AESCryptKey.ext** file and encrypt all the encrypted values of the OFSAAI setup according to the new key.

Execute EncryptC.jar in Console

To execute **EncryptC.jar** in console:

1. Navigate to the path *$FIC_HOME*.
2. Enter the command **java -jar EncryptC.jar**.

A confirmation message is displayed after execution.

Once executed, you need to create and deploy the EAR / WAR file. For more information, refer Create and Deploy EAR / WAR files in WebServers, page 4-26 section.

Configure HTTPs Certificate information

Update the following section from **FICWeb.cfg** file with the HTTPs certificate related details.

File path is:

<OFSAAI DeploymentPath>/<ContextName.ear>/<ContextName.war>/conf/FICWeb.cfg

You need to change **OFSAAI DeploymentPath** in the staging area where you build the EAR file (*$FIC_WEB_HOME/webroot/conf/FICWeb.cfg*). When you deploy the EAR, this will have the change.

The following properties are to be uncommented for a HTTPS setup and the provider for **Websphere setup = "com.ibm.jsse.IBMJSSEProvider"**

```
#MDD.PROTOCOL=$PROTOCOL
#MDD.TRUSTSTORE=$TRUSTSTORE
#MDD.TRUSTSTOREPASS=$TRUSTPASSWORD
#MDD.KEYSTORE=$KEYSTORE
#MDD.KEYSTOREPASS=$KEYPASSWORD
#PROVIDER=$PROVIDER
#DATE_FORMAT = MM/dd/yyyy
```

5

Annexure

Third Party Software

OFSAAI makes use of the following software for various functionalities:

- **The Apache Software License**, Version 1.7.1

  This product includes software developed by the Apache Software Foundation (http://www.apache.org).

  Apache License

  Version 2.0, January 2004

- **Quadbase Systems, Inc.**

  Copyright © 2006 Quadbase Systems, Inc. All rights reserved

- **NAG Limited**

  NAG Limited ® 2005

  Portions utilize NAG's C library - All rights reserved

- **Gnuplot**, Version 4.2.0

  Copyright 1986 - 1993, 1998, 2004

  www.gnuplot.info [http://www.gnuplot.info/]