

Oracle Financial Services Inline Processing Engine

Configuration Guide

Release 8.0.5.0.0



DOCUMENT CONTROL

| Version Number | Revision Date | Changes Done |
|------------------------------|--|---|
| 1.0 | Created: August 2017 | Added 8.0.5.0.0 Minor Release installation procedure and configuration details. |
| 2.0 | Modified: January 2018 | Added details for the following issues for 8.0.5.0.1: <ul style="list-style-type: none">▪ Doc 27292140▪ Doc 27204649▪ Doc 27204684▪ Doc 27204712 |
| 3.0 | Updated: September 2018 | Updated for OFSAAAAI-16488 for instructions on posting JSON request for REST services. |
| 4.0 | Updated: November 2018 | Updated for Doc 28952819. |
| 5.0 | Updated: January 2019 | Updated for Doc 29243430. |
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| Created by: Vibha/Brijesh | Reviewed by: Abhirami/Swetha/Abhishek | Approved by: Swetha/Arup/Virupaksha |

Executive Summary

This document includes the necessary instructions to apply 8.0.5.0.0 Minor Release for OFS Advanced Analytical Applications Infrastructure Application Pack and perform the required post install configurations. You can find the latest copy of this document in the [OHC Documentation Library](#).

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PREFACE

This Preface provides supporting information for the *Oracle Financial Services Analytical Applications Infrastructure Inline Processing Configuration (OFSAAI IPE) Guide* and includes the following topics:

- [Summary](#)
- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

Summary

You can find the latest copy of this document in the [OHC library](#) which includes all the recent additions/revisions (if any) done till date.

Before you begin the installation, ensure that you have an access to the Oracle Support Portal with the required login credentials to quickly notify us of any issues at any stage. You can obtain the login credentials by contacting Oracle Support.

Audience

Oracle Financial Services Analytical Applications Infrastructure Inline Processing Application Configuration Guide is intended for administrators and implementation consultants who are responsible for installing and maintaining the application pack components.

Prerequisites for the Audience

Following are the expected preparations before starting the actual installation:

The document assumes you have experience in installing Enterprise components. Basic knowledge about the Oracle Financial Services Analytical Applications Infrastructure Applications Pack components, Inline Processing Sample Application, OFSAA Architecture, UNIX commands, Database concepts and Web Server/ Web Application Server is recommended.

Related Documents

This section identifies additional documents related to OFSAA Infrastructure. You can access Oracle documentation online from the Documentation Library for OFSAAI 8.0.5.0.0 ([OHC](#)).

- *Oracle Financial Services Analytical Applications Infrastructure Inline Processing User Guide*

- *Oracle Financial Services Analytical Applications Infrastructure Inline Processing Sample Application Installation Guide*
- *Release Notes*

Conventions and Acronyms

The following conventions are used in this guide.

| Conventions | Description |
|------------------|----------------------------|
| Bold. | Indicates Actions |
| Courier New font | Indicates Command or Query |

Acronyms

This guide contains the following acronyms.

| Acronyms | Description |
|----------|---|
| IPE | Inline Processing Engine |
| Infodom | Information Domain |
| OFS AAI | Oracle Financial Services Analytical Application Infrastructure. |
| OFS AAAI | Oracle Financial Services Advanced Analytical Application Infrastructure. |
| OHC | Oracle Help Center |

1 About OFSAAI IPE

This chapter includes the following topics:

- [About OFSAA](#)
- [About IPE](#)

1.1 About OFSAA

In today's turbulent markets, financial institutions require a better understanding of their risk-return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications (OFSAA) enable financial institutions to measure and meet risk adjusted performance objectives, cultivate a risk management culture through transparency, lower the costs of compliance and regulation, and improve insight into customer behavior.

OFSAA uses industry-leading analytical methods, shared data model and applications architecture to enable integrated risk management, performance management, customer insight, and compliance management. OFSAA actively incorporates risk into decision making, enables to achieve a consistent view of performance, promote a transparent risk management culture, and provide pervasive intelligence.

Oracle Financial Services Analytical Applications delivers a comprehensive, integrated suite of financial services analytical applications for both banking and insurance domain.

1.2 About IPE

This guide provides step by step instructions for performing Inline Processing Configuration process actions. Inline Processing builds a scoring mechanism for activity data like transactions in real time or batch mode. For example, this capability enables you to identify fraud events earlier, avert more losses, and minimize customer service and retention issues.

2 Configuring IPE

This chapter discusses the prerequisite instructions required to configure IPE.

2.1 Prerequisites

The following prerequisite configurations must be verified before installation:

- A user must be created and mapped with the IPEADMN (Inline Processing Admin Group) user group. To create a user, refer *Oracle Financial Services Advanced Analytics Applications Infrastructure User Guide* on [OHC](#).
- The IPEADMIN user group must be mapped with Infodom.
- Connection Pooling and Data Source must be created for the following schemas:
 - Config Schema with Data Source name as jdbc/FICMASTER
 - IPE Atomic Schema with Data Source name as jdbc/<INFODOM NAME>

NOTE: jdbc/<INFODOM NAME> should be pointed to metadom. For more information, refer the section on **Information Domain** in *Oracle Financial Services Advanced Analytics Applications Infrastructure User Guide* on [OHC](#).

- IPE Atomic schema with Data Source name as jdbc/<INFODOM NAME>CNF

NOTE: jdbc/<INFODOM NAME>CNF is required only for real time processing

For more information, refer to section *Configuring Resource Reference* of the *OFS AAI Application Pack Installation and Configuration Guide*.

- **Oracle Database Patches:** Ensure that the patches mentioned in the section *Hardware and Software Properties* of the *OFS AAI Application Pack Installation and Configuration Guide 8.0.2.0.0* are applied.

The Websphere JDBC Providers should point to the oracle driver file path where the patch is installed.

3 Configuring IPE in Web Application Servers for Real Time Mode

This section explains the details about configuring the Web Application Servers.

This section includes the following topics:

- [Configuring IPE in WebLogic](#)
- [Configuring IPE in WebSphere](#)
- [Configuring IPE in Tomcat](#)
- [Configuring IPE in Kafka](#)

3.1 Configuring IPE in WebLogic

To configure IPE in WebLogic, follow these topics:

- [Login to WebLogic Administrative console](#)
- [Configuring JMS Servers](#)
- [Configuring JMS Modules](#)
- [Creating Subdeployments](#)
- [Creating JMS Connection Factory](#)
- [Creating JMS Topic](#)
- [Creating JMS Queues](#)

3.1.1 Login to WebLogic Administrative Console

To login to the WebLogic Administrative Console, follow these steps:

1. Open the following URL in the browser window:
`http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The Welcome window is displayed.
2. Login with the **Administrator Username** and **Password**.

3.1.2 Configuring JMS Servers

To configure JMS Servers, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**. The *WebLogic Server Administration Console* page is displayed.
3. Select **JMS Servers**. The *Summary of JMS Servers* page is displayed.

Configuring IPE in Web Application Servers for Real Time Mode

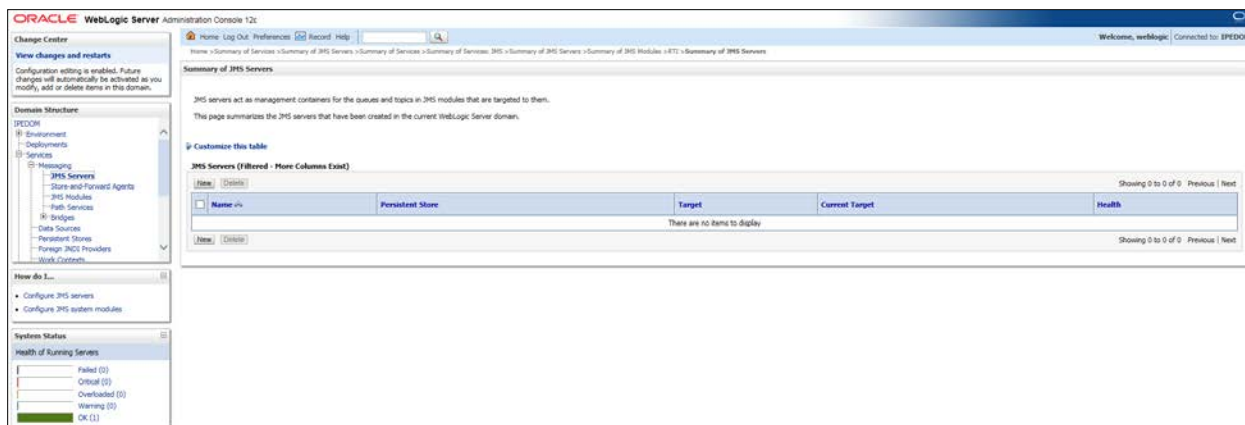


Figure 1: Summary of JMS Server

4. Click **New**. The *Create a New JMS Server* page is displayed.

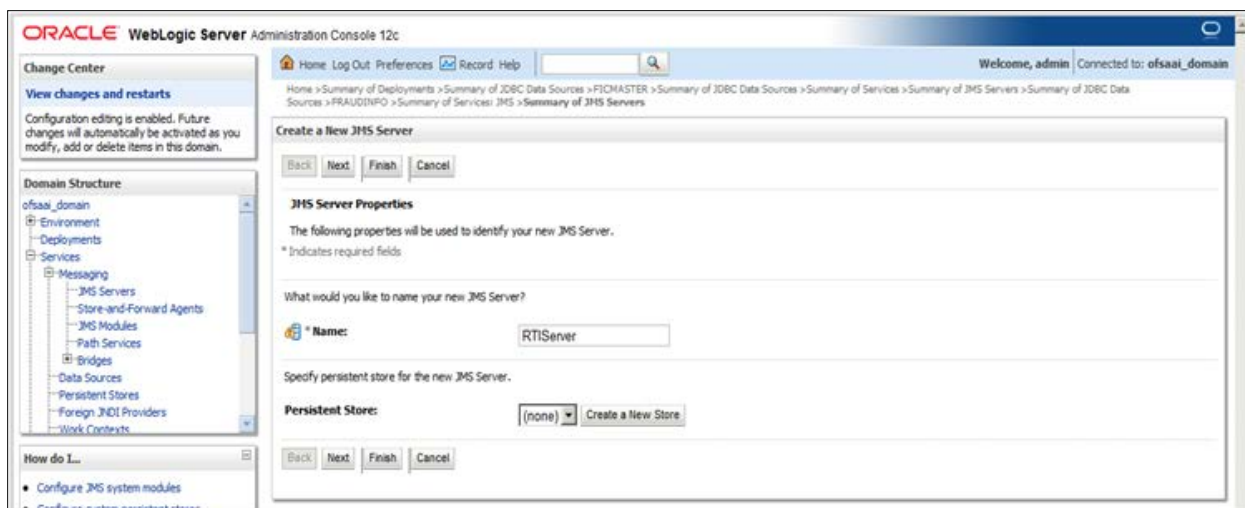


Figure 2: Create a New JMS Server

5. Enter the name as **RTIServer** under JMS Server Properties.
6. Click **Next**. The *Select Targets* section is displayed.

Configuring IPE in Web Application Servers for Real Time Mode

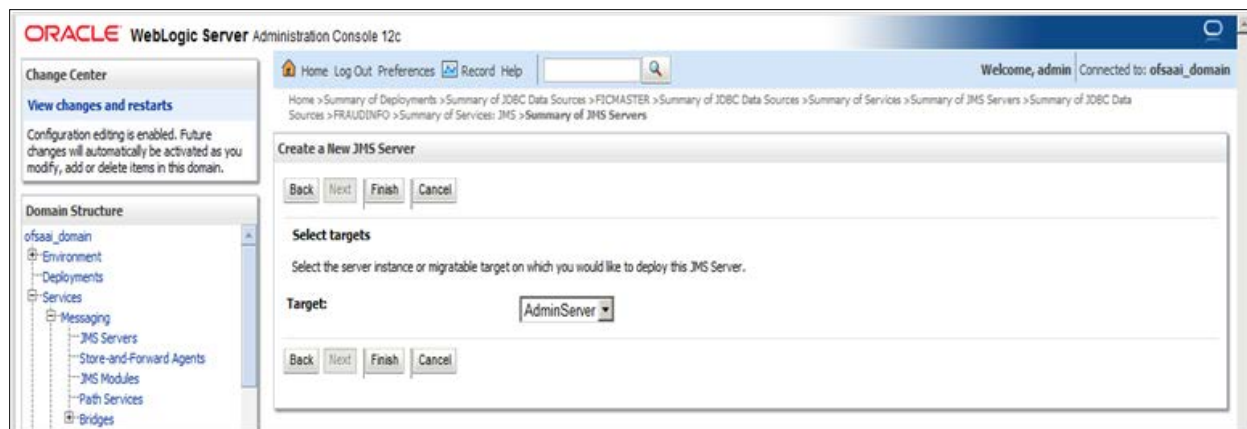


Figure 3: Create a New JMS Server – Select Targets

7. Select the Target as **AdminServer**.
8. Click **Finish**.

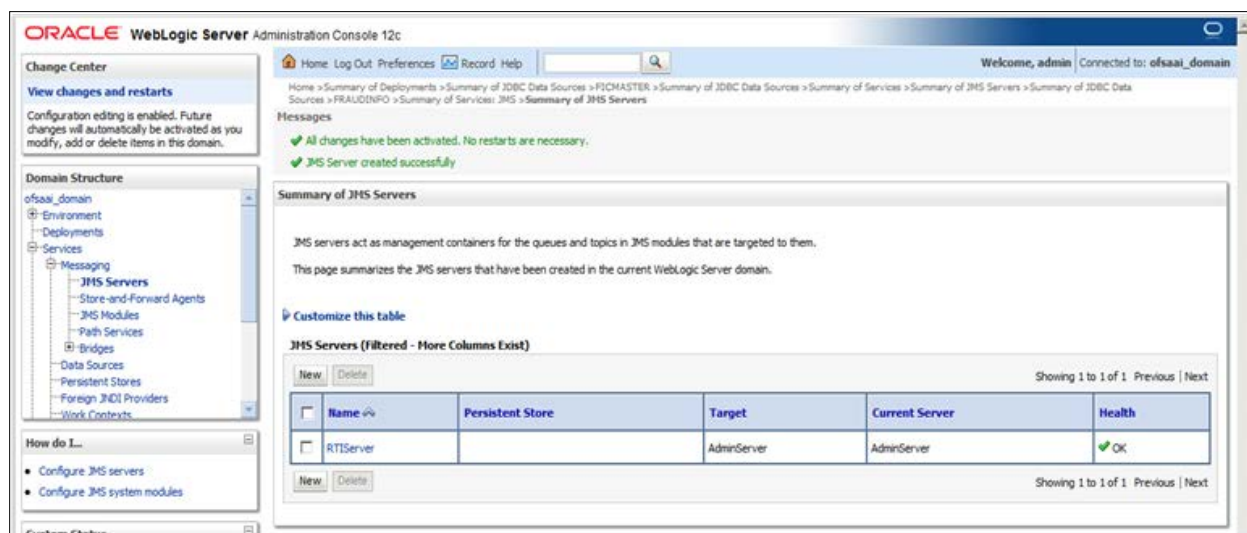


Figure 4: Summary of JMS Servers

9. The following confirmation message is displayed
JMS Server is created successfully.

3.1.3 Configuring JMS Modules

To configure JMS Modules, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**.
3. Click **JMS Modules**. The *JMS Module* screen is displayed.

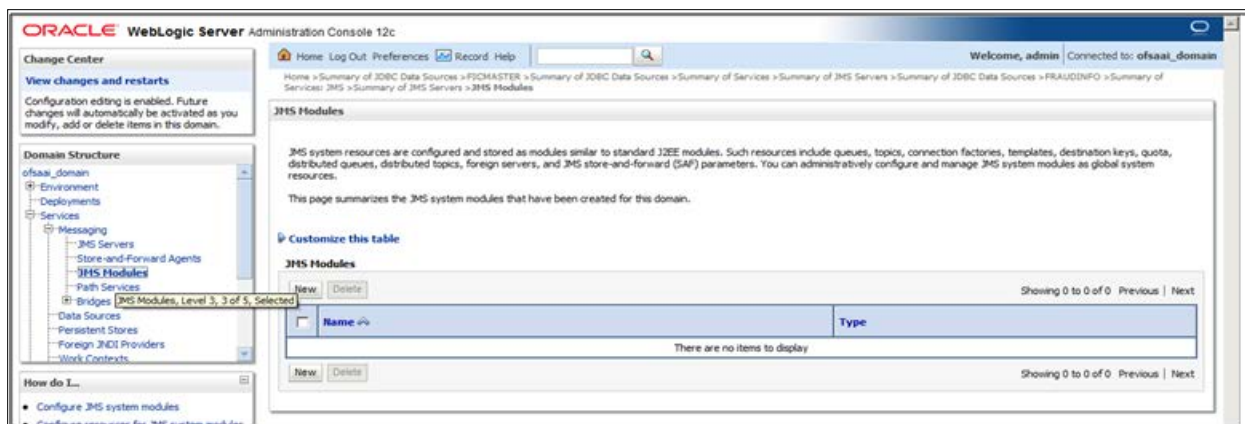
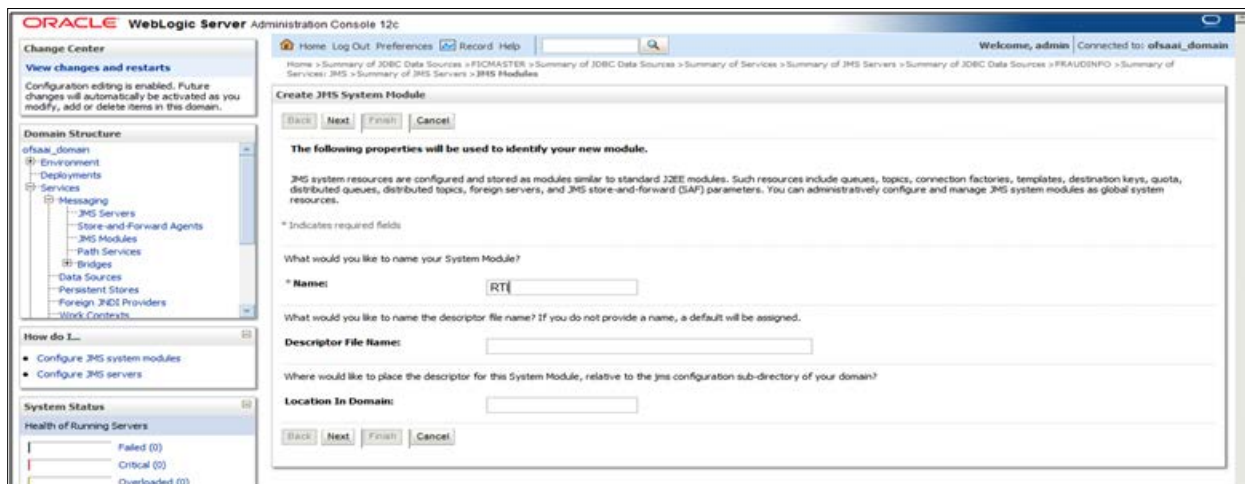


Figure 5: JMS Module

4. Click **New**. The *Create JMS System Module* page is displayed.



5. Enter the name as **RTI**.
6. Click **Next**. The *Create JMS System Module* page is displayed.

Configuring IPE in Web Application Servers for Real Time Mode

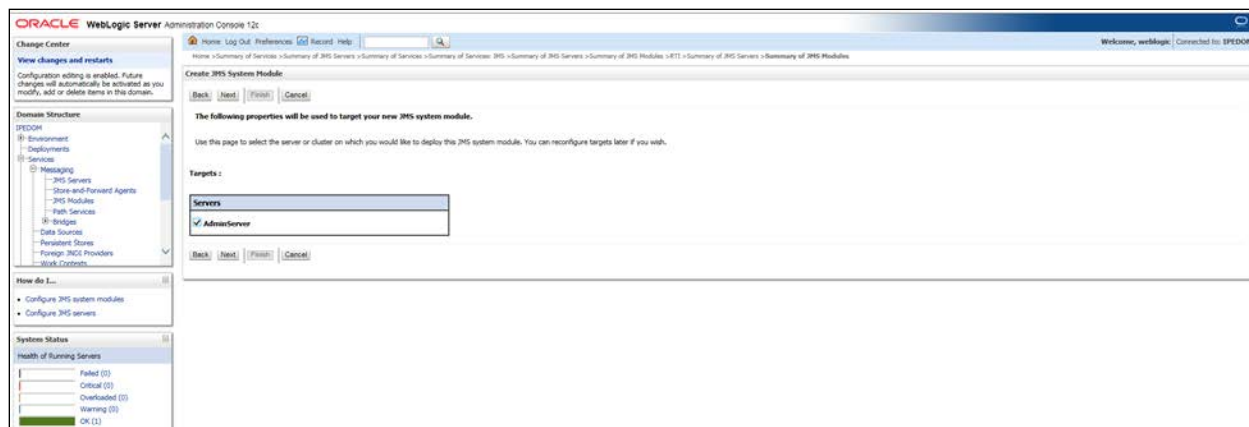


Figure 6: Create JMS System Module

7. Check the **AdminServer** in the *Servers* section.
8. Click **Next**.

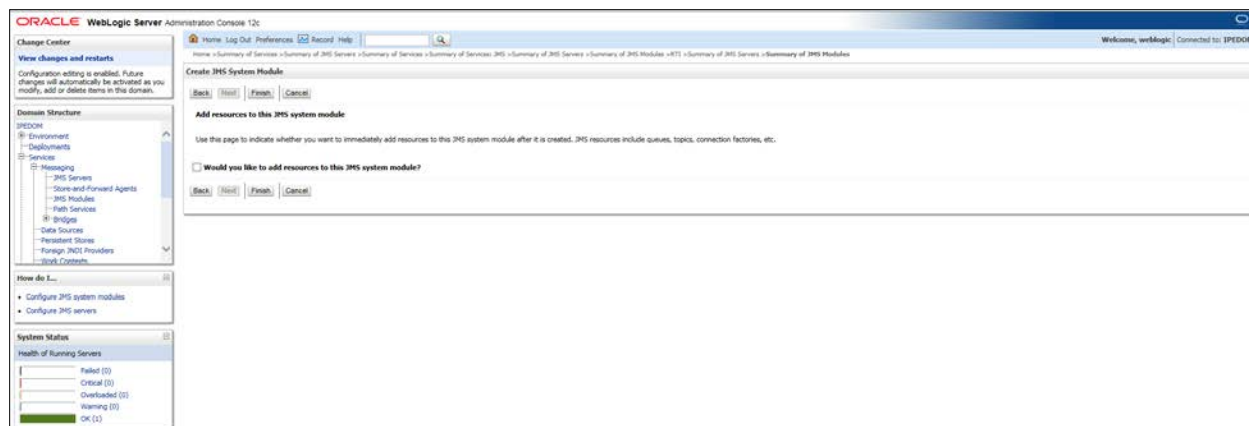


Figure 7: Create JMS System Module

9. Click **Finish**.

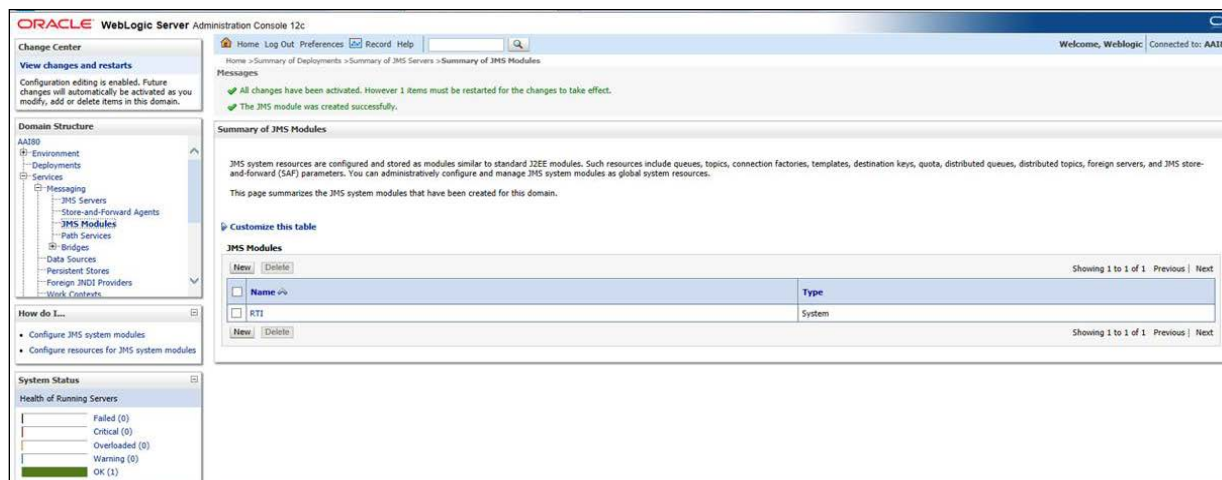


Figure 8: Summary of JMS Modules

10. The following confirmation message is displayed: *JMS Module is created successfully.*

3.1.4 Creating Subdeployments

This section discusses the following Subdeployments which are to be created

- [Creating RTI Deploy](#)
- [Creating RTISubdeploy](#)

3.1.4.1 Creating RTI Deploy

To create **RTI Deploy** subdeployment, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**.
3. Click **JMS Modules**. The *JMS Module* screen is displayed.
4. Click JMS Module **RTI**. The *Settings for RTI* screen is displayed.
5. Click the **Subdeployments** tab.

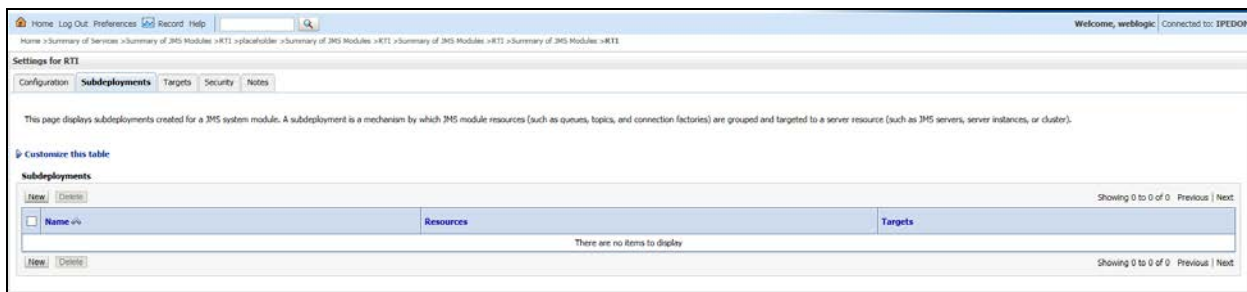


Figure 9: Setting for RTI

Configuring IPE in Web Application Servers for Real Time Mode

- Click **New**. The *Create a New Subdeployment* screen is displayed.



Figure 10: Create a New Subdeployment

- Enter the Subdeployment Name as **RTI Deploy**.
- Click **Next**.

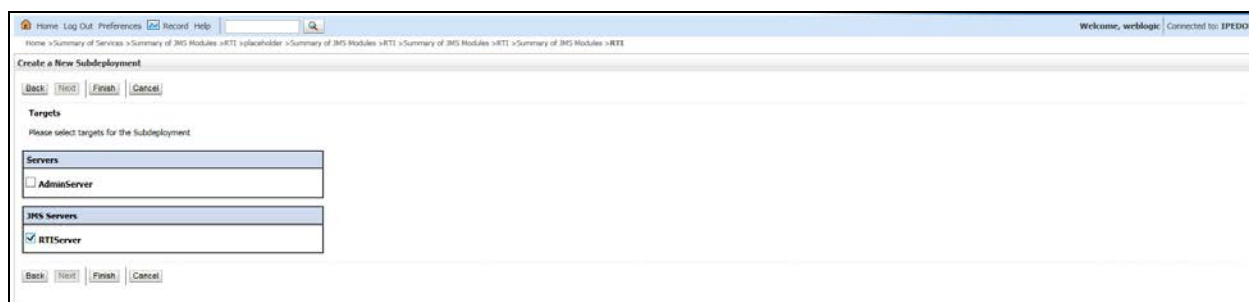


Figure 11: Create a New Subdeployment

- Select the JMS Servers as **RTIServer**.
- Click **Finish**.

The following confirmation message is displayed: *Subdeployment is created successfully*.



Figure 12: Settings for RTI

3.1.4.2 Creating RTISubdeploy

To create **RTISubdeploy** subdeployment, follow these steps:

- Repeat Steps 1 - 7 from section [Create RTI Deploy](#).

Configuring IPE in Web Application Servers for Real Time Mode

2. Enter the following details:

Table 1: Subdeployment - Field Values

| Field | Value |
|--------------------|-------------------------------------|
| Subdeployment Name | Enter RTISubdeploy as the name. |
| JMS Servers | Select RTIServer as the JMS Server. |

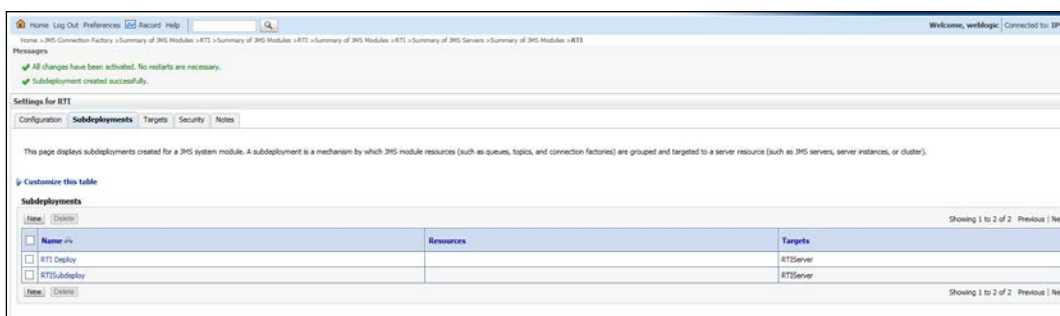


Figure 13: Subdeployments

3. The following confirmation message is displayed: *Subdeployment is created successfully.*

3.1.5 Creating JMS Connection Factory

To create JMS Connection Factories, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**.
3. Click **JMS Modules**. The *JMS Modules* screen is displayed.

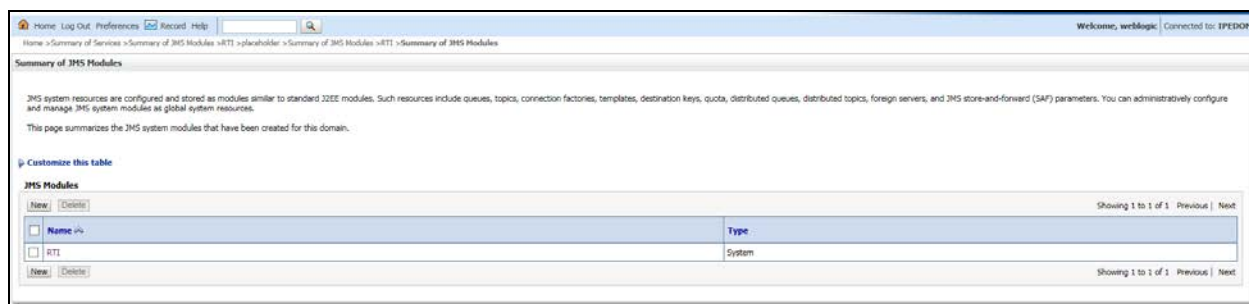


Figure 14: JMS Modules

4. Click **RTI**. The *Settings for RTI* screen is displayed.

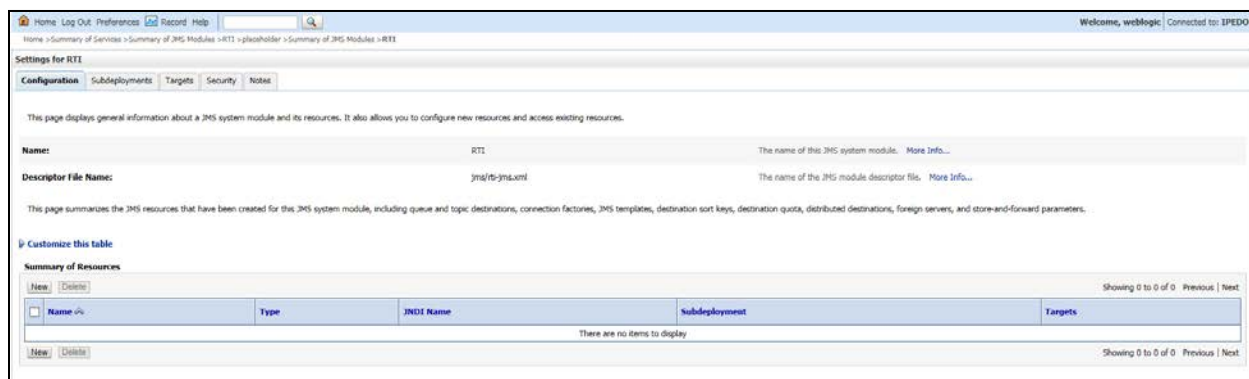


Figure 15: Settings for RTI

5. Click **New**. The *Create a New JMS System Module* screen is displayed.

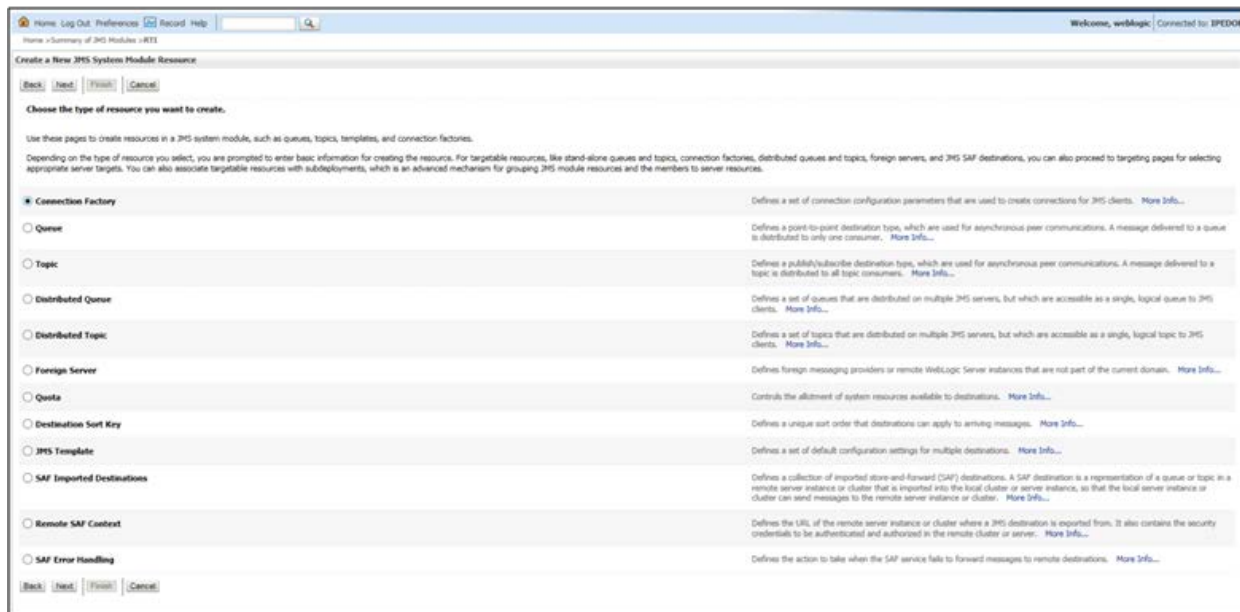


Figure 16: Create a New JMS System Module Resource

6. Select **Connection Factory**.

7. Click **Next**. The *Create a New JMS System Module Resource* screen is displayed.

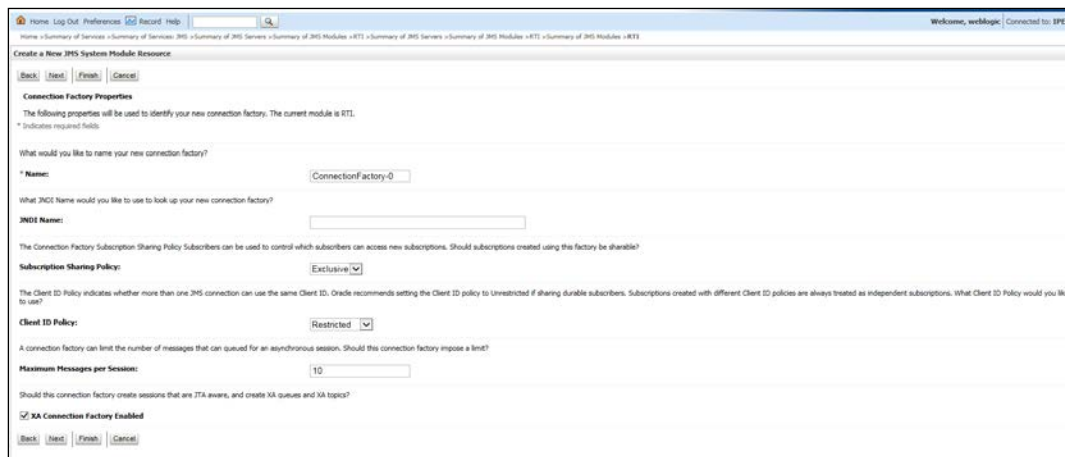


Figure 17: Create a New JMS System Module Resource

8. Enter the Name as **JMS Connection Factory**.

Configuring IPE in Web Application Servers for Real Time Mode

9. Click **Next**. The *Create a New JMS System Module Resource* screen with the Target section is displayed.



Figure 18: Create a New JMS System Module Resource - Targets

10. Select **AdminServer**.
11. Click **Finish**.

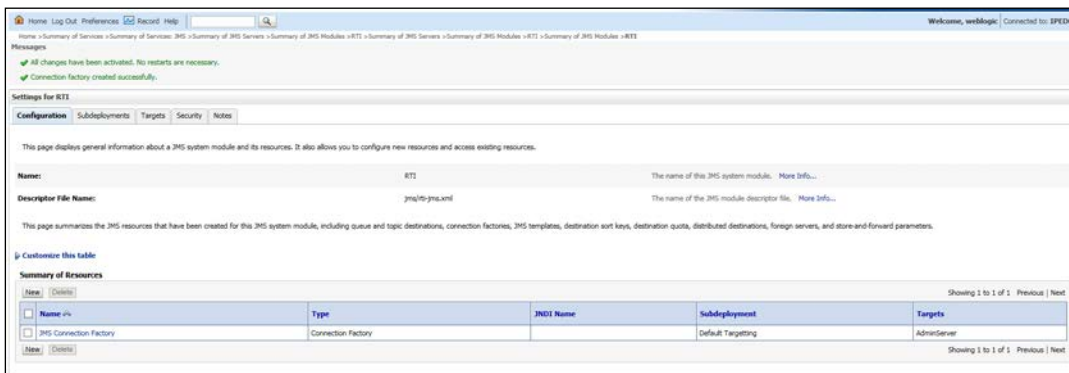


Figure 19: Settings for RTI - JMS connection Factory

Configuring IPE in Web Application Servers for Real Time Mode

- Click **JMS Connection Factory**. The *Settings for JMS Connection Factory* screen is displayed.

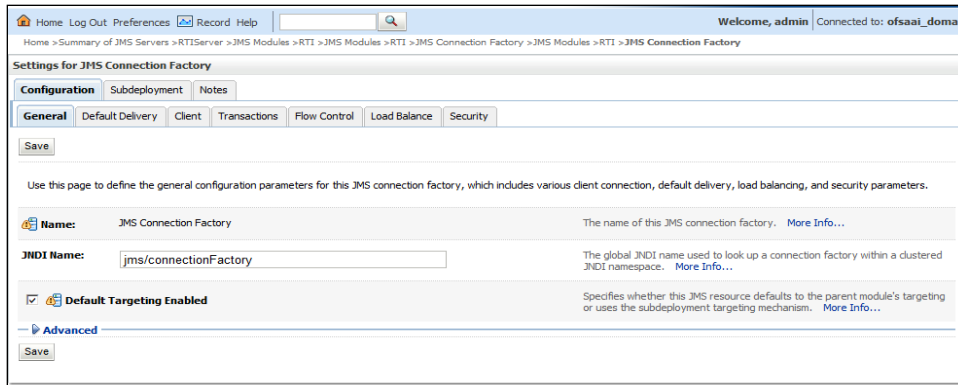


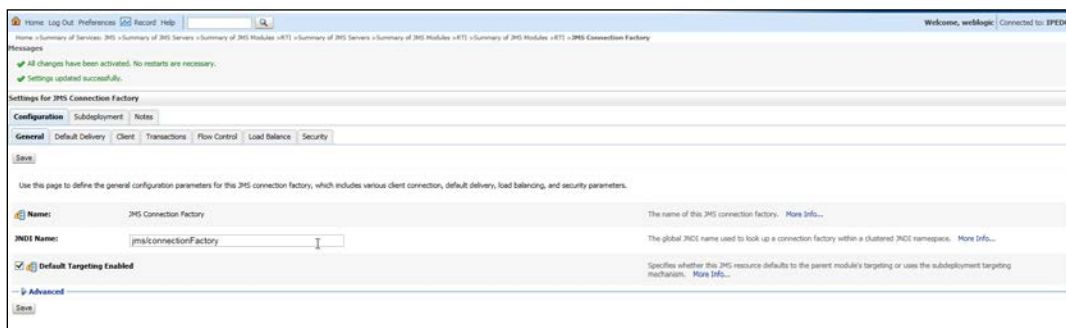
Figure 20: settings for JMS Connection Factory

- Enter the following details:

| Field | Value |
|---------------------------|--|
| Name | The name of the JMS connection factory is displayed as JMS Connection Factory. |
| JNDI Name | jms/connectionFactory |
| Default Targeting Enabled | Select the check-box to enable Default Targeting. |

- Click **Save**.

The following confirmation message is displayed.
JMS Connection Factory is created successfully.



3.1.6 Creating JMS Topic

This section discusses the following JMS Topics to be created:

- [Creating RTI Assessment Response Destination Topic](#)
- [Creating Cache Operation Message Destination Topic](#)

3.1.6.1 Creating RTI Assessment Response Destination Topic

To create JMS Topic, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**.
3. Click **JMS Modules**. The *JMS Modules* screen is displayed.

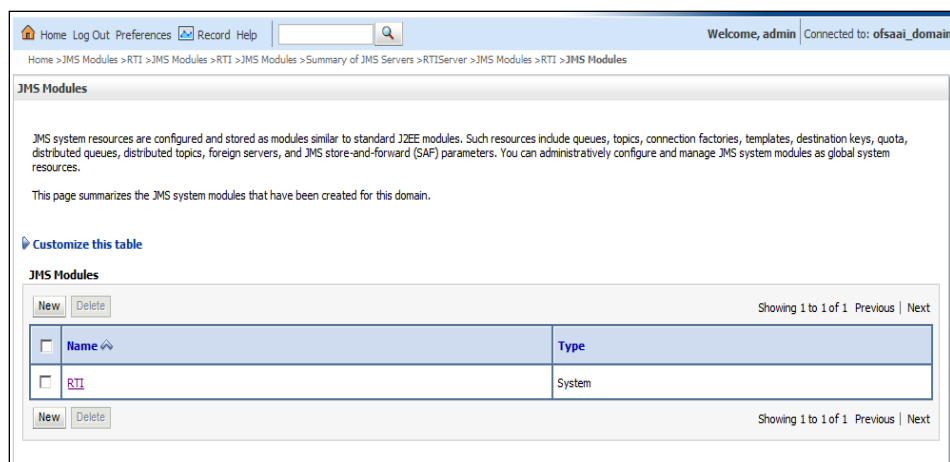


Figure 21: JMS Modules

Configuring IPE in Web Application Servers for Real Time Mode

4. Click **RTI**. The *Settings for RTI* screen is displayed.



Figure 22: Settings for RTI - JMS topic

5. Click **New**. The *Settings for JMS Connection Factory* screen is displayed.

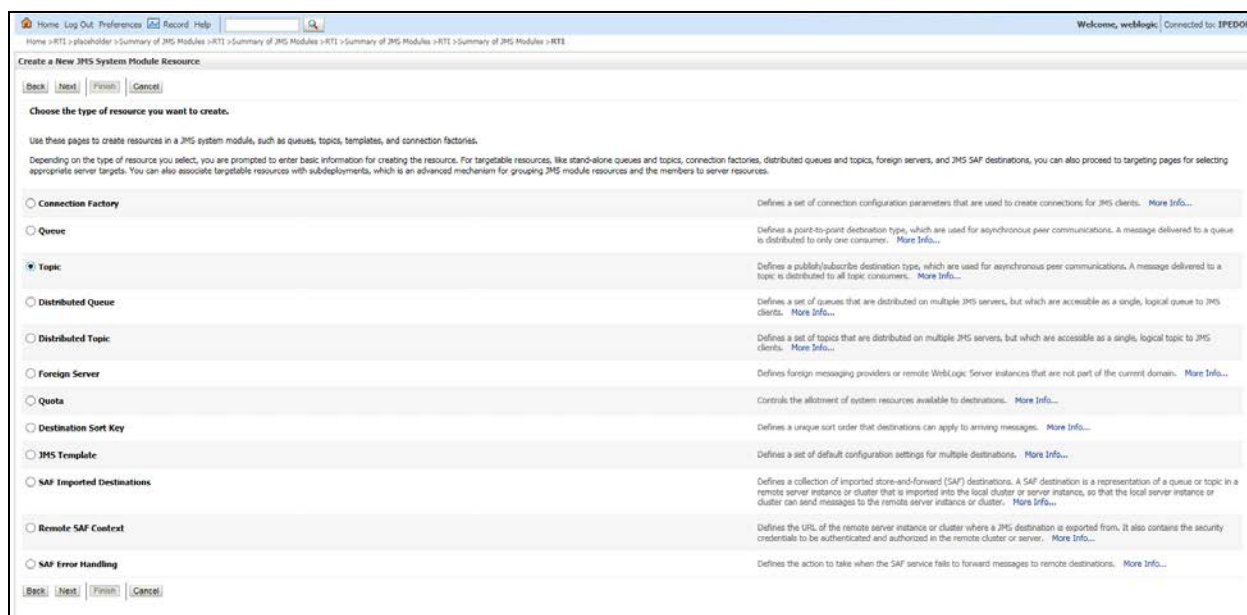


Figure 23: Select type of resource

6. Select **Topic** from the list.

Configuring IPE in Web Application Servers for Real Time Mode

7. Click **Next**. The *Create a New JMS System Module Resource* screen is displayed.

Figure 24: Create a New JMS System Module Resource

8. Enter the following details:

Table 2: JMS Topic - Field Values

| Field | Value |
|-----------|---|
| Name | RTI Assessment Response Destination Topic |
| JNDI Name | jms/assessmentResponseDestination |

9. Click **Next**. The *Create a New JMS System Module Resource* screen is displayed.

Figure 25: Create a New JMS System Module Resource

10. Select the Subdeployments as **RTISubDeploy**.
11. Select **RTIServer**.
12. Click **Finish**.
13. The following confirmation message is displayed.
JMS Topic is created successfully.

Configuring IPE in Web Application Servers for Real Time Mode

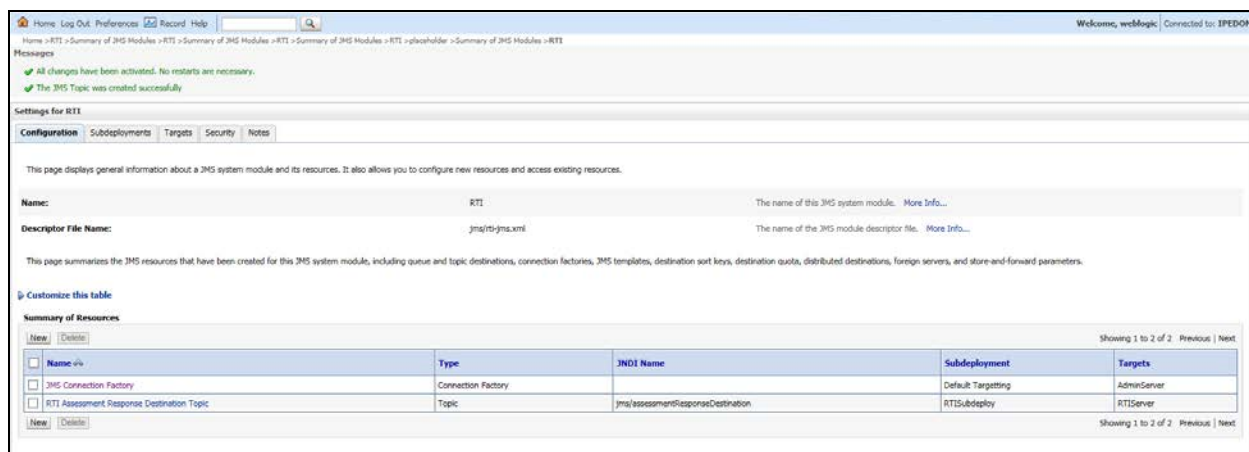


Figure 26: JMS Topic created successfully

3.1.6.2 Creating Cache Operation Message Destination Topic

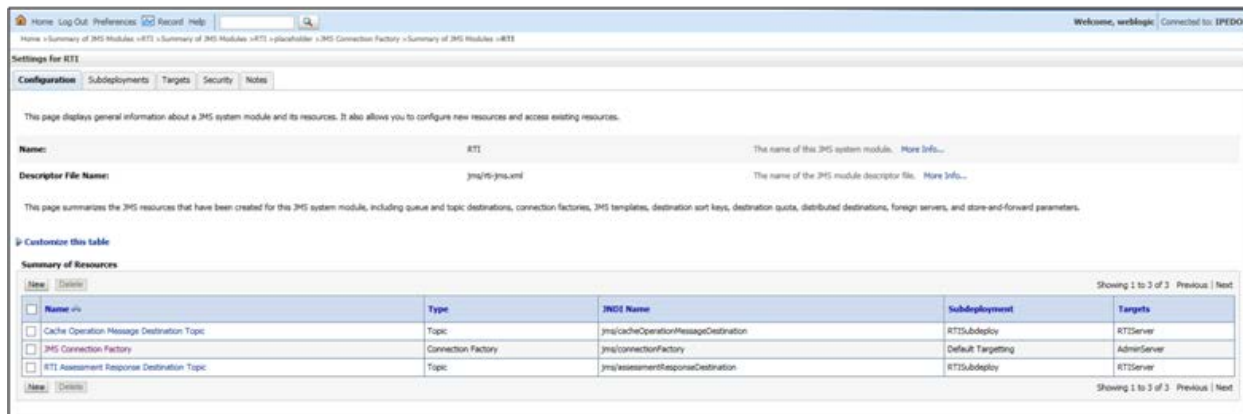
To create **Cache Operation Message Destination Topic**, follow these steps:

1. Repeat Steps 1 - 13 from section [Creating RTI Assessment Response Destination Topic](#).
2. Enter the following details:

Table 3: JMS Topic - Field Values

| Field | Value |
|-----------|---|
| Name | Cache Operation Message Destination Topic |
| JNDI Name | jms/cacheOperationMessageDestination |

- The following confirmation message is displayed.
JMS Topic is created successfully.



The screenshot shows the Oracle JMS configuration interface. The page title is "Settings for RTI". The "Configuration" tab is selected. The page displays general information about the JMS system module and its resources. The "Name" is "RTI" and the "Descriptor File Name" is "jms16jms.xml". Below this, there is a "Summary of Resources" table with the following data:

| Name | Type | JMS Name | Subdeployment | Targets |
|---|--------------------|--------------------------------------|-------------------|-------------|
| Cache Operation Message Destination Topic | Topic | jms/cacheOperationMessageDestination | RTI2Subdeploy | RTIServer |
| JMS Connection Factory | Connection Factory | jms/connectionFactory | Default Targeting | AdminServer |
| RTI Assessment Response Destination Topic | Topic | jms/assessmentResponseDestination | RTI2Subdeploy | RTIServer |

Figure 27: JMS Topic created

3.1.7 Creating JMS Queues

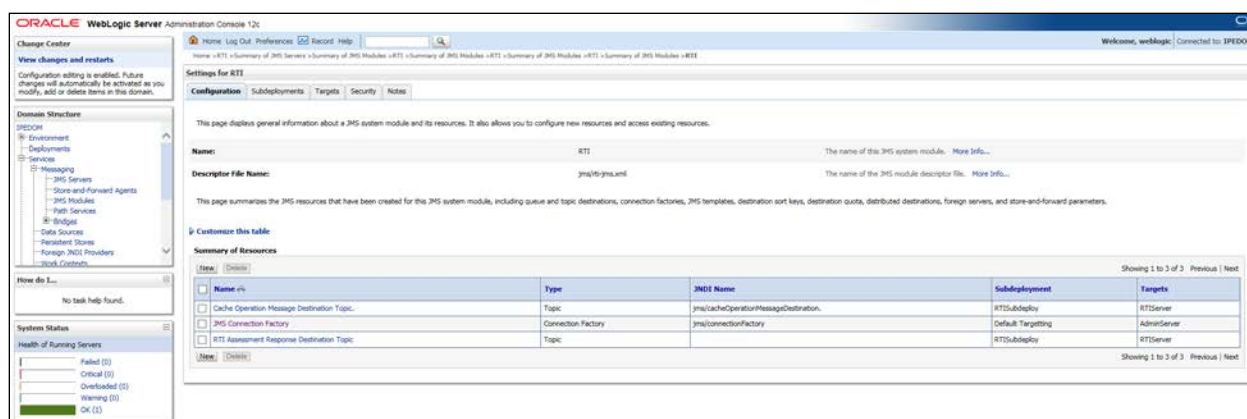
This section discusses the following queues to be created:

- RTI Feedback Queue
- RTI Source Entity Queue
- Wire Transaction Source Entity Queue
- RTI Hold JMS Queue

3.1.7.1 RTI Feedback Queue

To create the RTI Feedback Queue, follow these steps:

1. In the Domain Structure LHS menu, click **+** to expand **Services**.
2. Click **+** to expand **Messaging**.
3. Click **JMS Modules**.
4. Click **RTI**. The *Settings for RTI* screen is displayed.



The screenshot shows the Oracle WebLogic Server Administration Console interface. The left-hand side contains a navigation tree with 'Services' expanded to 'Messaging' and 'JMS Modules'. The main content area is titled 'Settings for RTI' and includes a 'Configuration' tab. Below the configuration details, there is a 'Summary of Resources' table.

| Name | Type | JNDI Name | Subdeployment | Targets |
|--|--------------------|--------------------------------------|-------------------|-------------|
| <input type="checkbox"/> Cache Operation Message Destination Topic | Topic | jms/cacheOperationMessageDestination | RTISubDeploy | RTIServer |
| <input type="checkbox"/> JMS Connection Factory | Connection Factory | jms/connectionFactory | Default Targeting | AdminServer |
| <input type="checkbox"/> RTI Assessment Response Destination Topic | Topic | | RTISubDeploy | RTIServer |

Configuring IPE in Web Application Servers for Real Time Mode

5. Click **New**. The *Create a New JMS System Module Resource* screen is displayed.

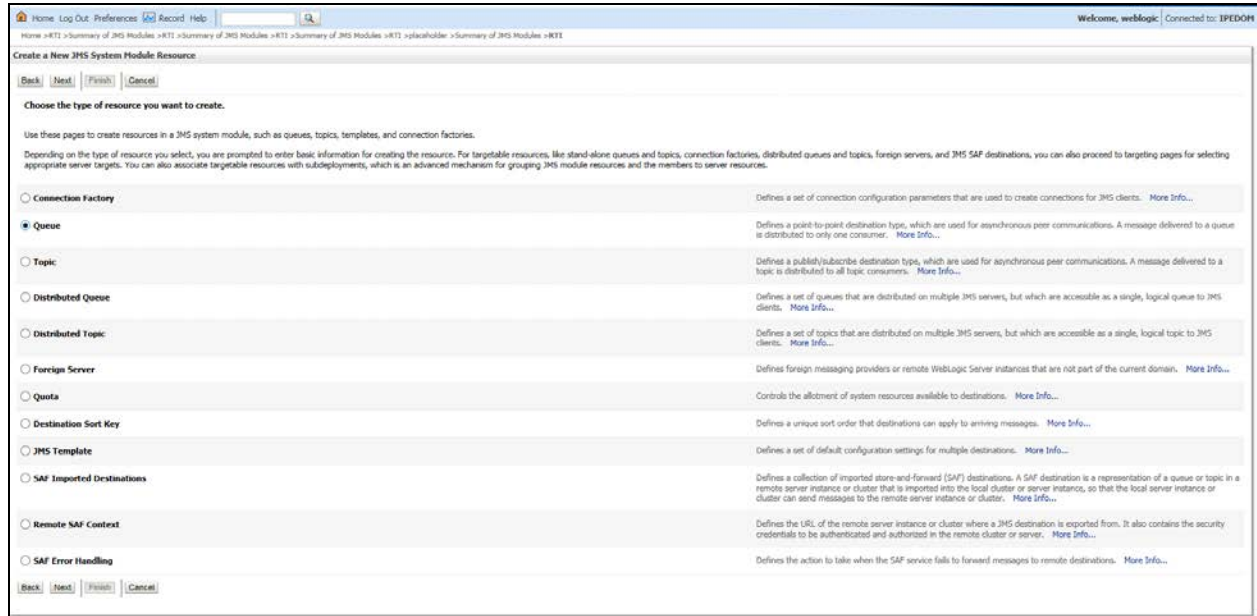


Figure 28: JMS Queue - Create a New JMS system Module

6. Select **Queue** from the list.

7. Click **Next**. The *Create a New JMS System Module Resource* screen is displayed.

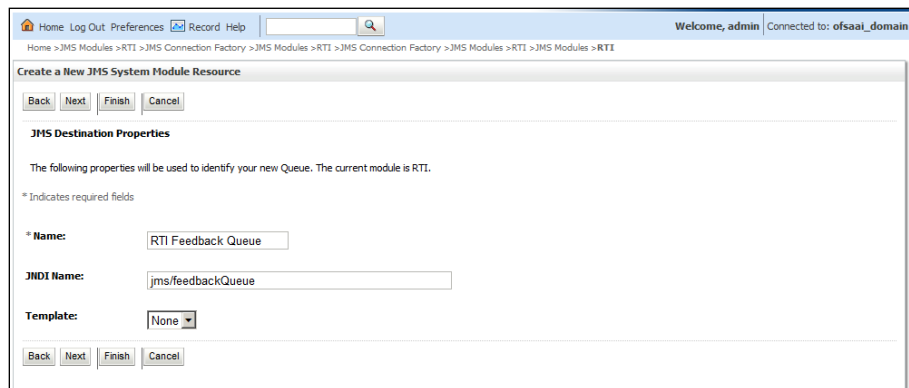


Figure 29: JMS Queue - Create a New JMS system Module

8. Enter the following details:

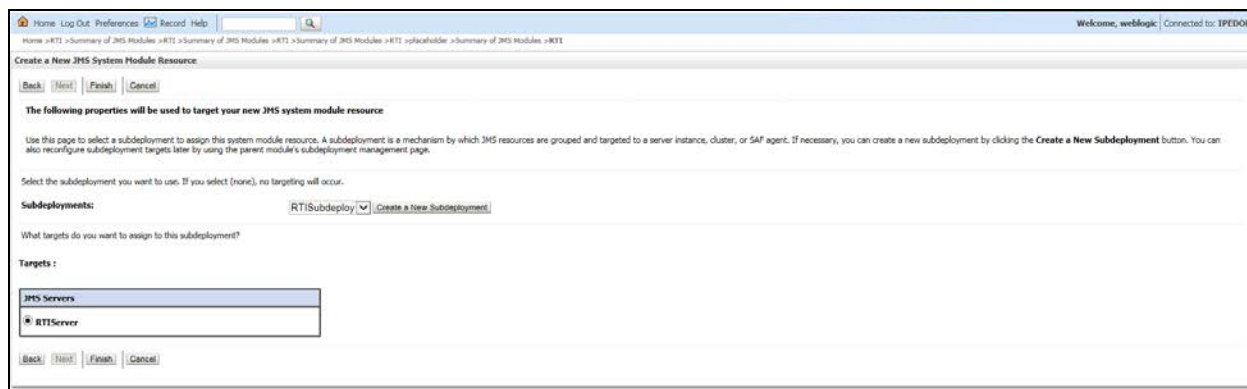
Table 4: JMS Queue - Field Values

| Field | Value |
|-----------|--------------------|
| Name | RTI Feedback Queue |
| JNDI Name | jms/feedbackQueue |

Configuring IPE in Web Application Servers for Real Time Mode

9. Click **Next**.

10. Select the Subdeployments as **RTISubDeploy**.



Home Log Out Preferences Record Help

Welcome, weblogic | Connected to: IPEDOH

Home > RTI > Summary of JMS Modules > RTI > Summary of JMS Modules > RTI > Create a New JMS System Module Resource

Create a New JMS System Module Resource

Back | Next | Finish | Cancel

The following properties will be used to target your new JMS system module resource:

Use this page to select a subdeployment to assign this system module resource. A subdeployment is a mechanism by which JMS resources are grouped and targeted to a server instance, cluster, or SAF agent. If necessary, you can create a new subdeployment by clicking the **Create a New Subdeployment** button. You can also reconfigure subdeployment targets later by using the parent module's subdeployment management page.

Select the subdeployment you want to use. If you select (none), no targeting will occur.

Subdeployments: RTISubDeploy | Create a New Subdeployment

What targets do you want to assign to this subdeployment?

Targets:

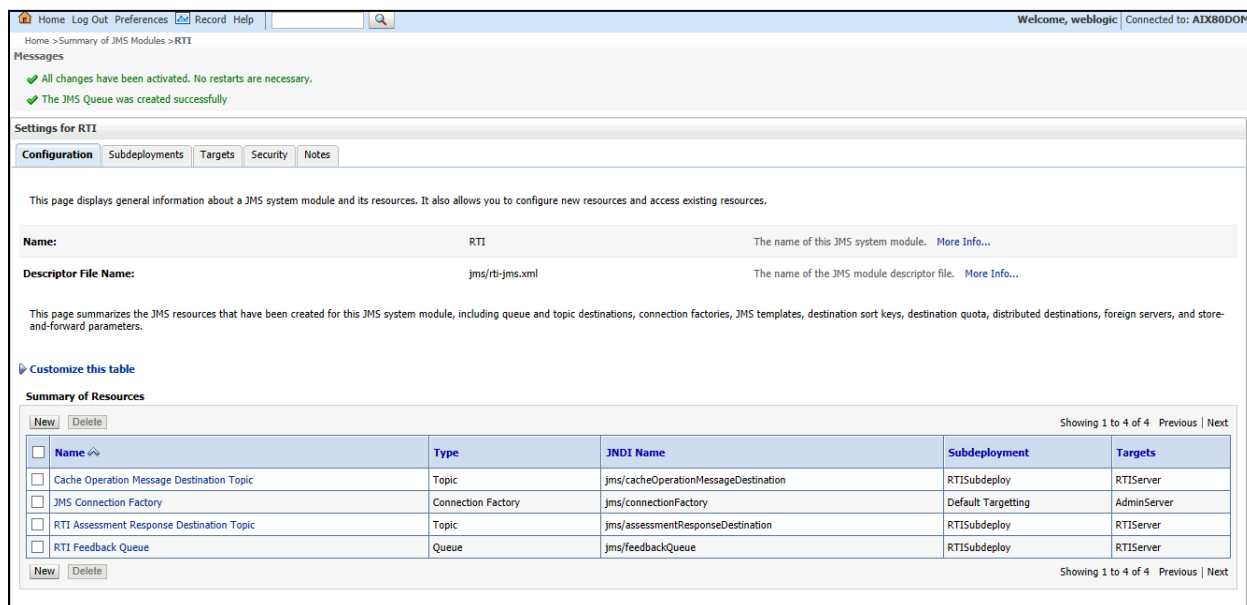
| JMS Servers |
|--|
| <input checked="" type="radio"/> RTIServer |

Back | Next | Finish | Cancel

Figure 30: JMS Queue - Create a New JMS System Module Resource

11. Click **Finish**.

12. The following confirmation message is displayed.
RTI Feedback Queue is created *successfully*.



Home Log Out Preferences Record Help

Welcome, weblogic | Connected to: AIX80DM

Home > Summary of JMS Modules > RTI

Messages

- ✓ All changes have been activated. No restarts are necessary.
- ✓ The JMS Queue was created successfully

Settings for RTI

Configuration | Subdeployments | Targets | Security | Notes

This page displays general information about a JMS system module and its resources. It also allows you to configure new resources and access existing resources.

Name: RTI The name of this JMS system module. [More Info...](#)

Descriptor File Name: jms/rti-jms.xml The name of the JMS module descriptor file. [More Info...](#)

This page summarizes the JMS resources that have been created for this JMS system module, including queue and topic destinations, connection factories, JMS templates, destination sort keys, destination quota, distributed destinations, foreign servers, and store-and-forward parameters.

Customize this table

Summary of Resources

| Name | Type | JNDI Name | Subdeployment | Targets |
|--|--------------------|--------------------------------------|--------------------|-------------|
| <input type="checkbox"/> Cache Operation Message Destination Topic | Topic | jms/cacheOperationMessageDestination | RTISubdeploy | RTIServer |
| <input type="checkbox"/> JMS Connection Factory | Connection Factory | jms/connectionFactory | Default Targetting | AdminServer |
| <input type="checkbox"/> RTI Assessment Response Destination Topic | Topic | jms/assessmentResponseDestination | RTISubdeploy | RTIServer |
| <input type="checkbox"/> RTI Feedback Queue | Queue | jms/feedbackQueue | RTISubdeploy | RTIServer |

New | Delete

Showing 1 to 4 of 4 Previous | Next

Figure 31: JMS Queue created successfully

3.1.7.2 Creating Remaining JMS Queues

To create the remaining JMS Queues, follow these steps:

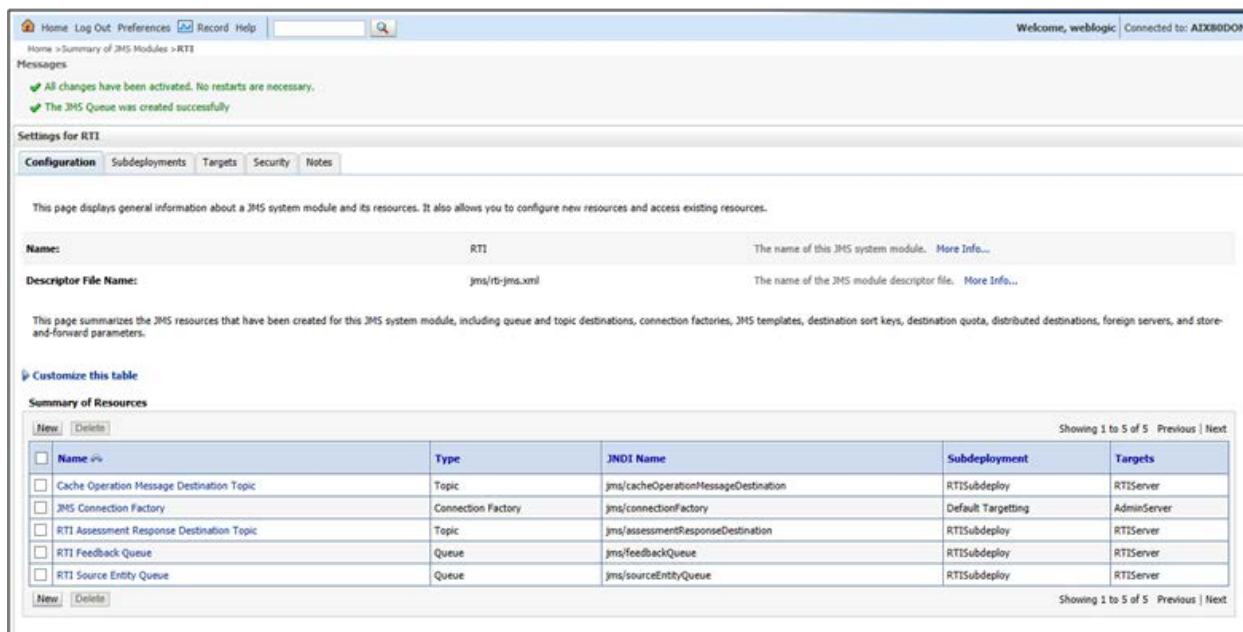
1. Repeat Steps 1 - 11 as in section [RTI feedback Queue](#).
2. Enter the values given in the following table.

Table 5: WebLogic JMS Queues - Field Values

| Queue Name | Fields | | |
|--------------------------------------|---|--|---|
| | Name | JNDI name | Subdeployment |
| RTI Hold JMS Queue | Enter the name as RTI Hold JMS Queue | Enter the JNDI name as jms/TransactionActionQueue | Select the Subdeployment as RTISubDeploy |
| RTI Source Entity Queue | Enter the name as RTI Source Entity Queue | Enter the JNDI name as jms/sourceEntityQueue | Select the Subdeployment as RTISubDeploy |
| Wire Transaction Source Entity Queue | Enter the name as Wire Transaction Source Entity Queue | Enter the JNDI name as jms/wireTrxnQueue | Select the Subdeployment as RTISubDeploy |

3. The following confirmation message is displayed.
The JMS Queue was created successfully.

Configuring IPE in Web Application Servers for Real Time Mode



The screenshot displays the Oracle WebLogic Administration Console interface. At the top, there is a navigation bar with 'Home', 'Log Out', 'Preferences', 'Record', and 'Help'. The user is logged in as 'weblogic' and connected to 'ADX80DOM'. The main content area shows the 'Settings for RTI' page, which includes a 'Configuration' tab and a 'Summary of Resources' table. The table lists various JMS resources such as 'Cache Operation Message Destination Topic', 'JMS Connection Factory', 'RTI Assessment Response Destination Topic', 'RTI Feedback Queue', and 'RTI Source Entity Queue', along with their types, JNDI names, subdeployments, and targets.

| Name | Type | JNDI Name | Subdeployment | Targets |
|---|--------------------|--------------------------------------|--------------------|-------------|
| Cache Operation Message Destination Topic | Topic | jms/cacheOperationMessageDestination | RTISubdeploy | RTIServer |
| JMS Connection Factory | Connection Factory | jms/connectionFactory | Default Targetting | AdminServer |
| RTI Assessment Response Destination Topic | Topic | jms/assessmentResponseDestination | RTISubdeploy | RTIServer |
| RTI Feedback Queue | Queue | jms/feedbackQueue | RTISubdeploy | RTIServer |
| RTI Source Entity Queue | Queue | jms/sourceEntityQueue | RTISubdeploy | RTIServer |

Figure 32: JMS Queues

3.1.8 Restart Weblogic Domain

For more information, refer to the **Start/Stop Infrastructure Services** section in the *Oracle Financial Services Analytical Applications Infrastructure Installation and Configuration Guide* available on the [OHC](#) page.

3.2 Configuring IPE in WebSphere

This section explains the WebSphere configuration for IPE and includes the following topics:

- [Login to WebSphere](#)
- [JMS Providers](#)
- [JMS Connection Factories](#)
- [JMS Queues](#)
- [JMS Topics](#)

3.2.1 Login to WebSphere

To configure IPE on WebSphere follow these steps:

1. Open the following URL in the browser window:
`http://<ipaddress>:<administrative console port>/ibm/console.` (https if SSL is enabled). The Login window is displayed.
2. Login with the Administrator **Username** and **Password**.

3.2.2 Bus Creation

1. Click + to expand **Service Integration** in the LHS menu.
2. Click **Buses**. The Buses page is displayed.



Figure 33: Buses

Configuring IPE in Web Application Servers for Real Time Mode

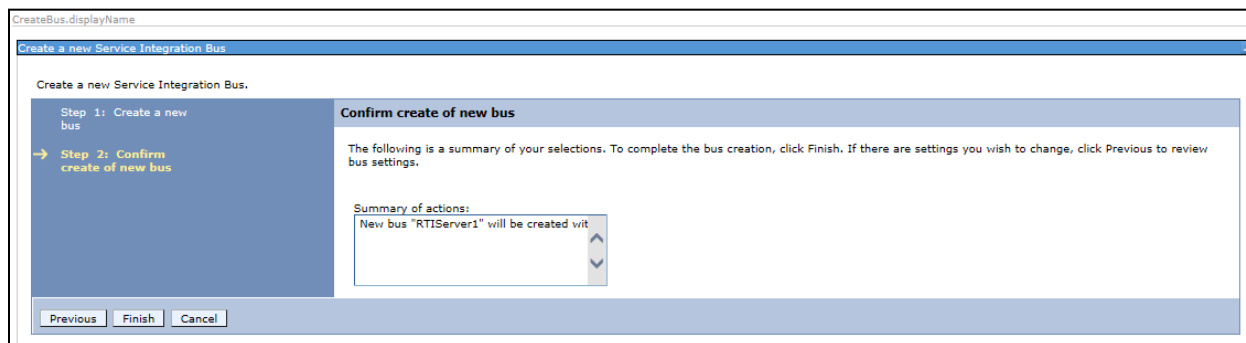
3. Click **New**. The *Create a New Service Integration Bus* screen is displayed



The screenshot shows a wizard window titled "Create a new Service Integration Bus". The left sidebar indicates "Step 1: Create a new bus" is active, with a note that the next step depends on current decisions. The main area is titled "Create a new bus" and contains the instruction "Configure the attributes of your new bus." Below this, there is a required field "Enter the name for your new bus." with the text "RTIServer" entered. A checkbox labeled "Bus security" is checked. At the bottom, there are "Next" and "Cancel" buttons.

Figure 34: Create a New Service Integration Bus

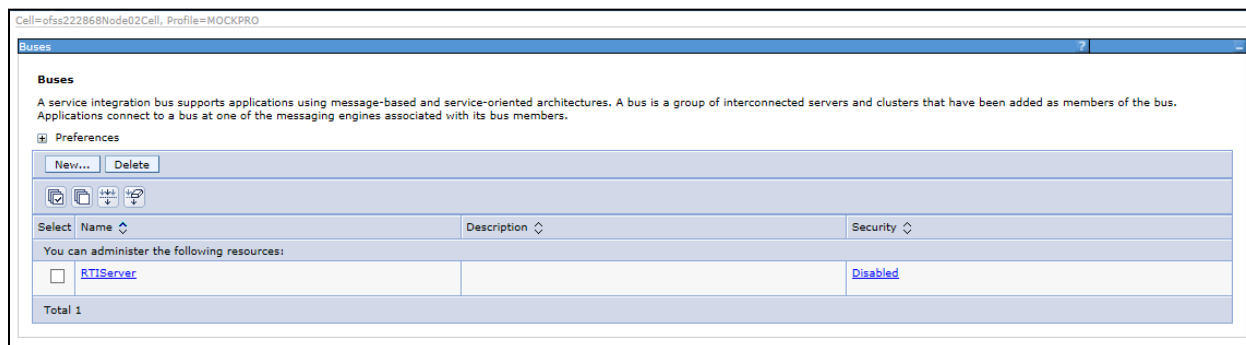
4. Enter the name as **RTIServer**.
5. Un-check **Bus security**.
6. Click **Next**.



The screenshot shows the second step of the wizard, "Confirm create of new bus". The left sidebar indicates "Step 2: Confirm create of new bus" is active. The main area provides a summary of selections: "The following is a summary of your selections. To complete the bus creation, click Finish. If there are settings you wish to change, click Previous to review bus settings." Below this is a "Summary of actions:" section with a scrollable text box containing "New bus 'RTIServer1' will be created wit". At the bottom, there are "Previous", "Finish", and "Cancel" buttons.

Figure 35: Create a New Service Integration Bus

7. Click **Finish**.
8. Click **Save**.



The screenshot shows the "Buses" configuration page. It includes a description of a service integration bus and a "Preferences" section with "New..." and "Delete" buttons. Below is a table with columns "Name", "Description", and "Security".

| Select | Name | Description | Security |
|--------------------------|-----------|-------------|----------|
| <input type="checkbox"/> | RTIServer | | Disabled |

Total 1

Figure 36: Buses

3.2.3 Bus Member Creation

To create a Bus Member follow these steps:

1. Click + to expand **Service Integration** in the LHS menu.
2. Click **Buses**.
3. Click **RTIServer**. The RTI Server screen is displayed.

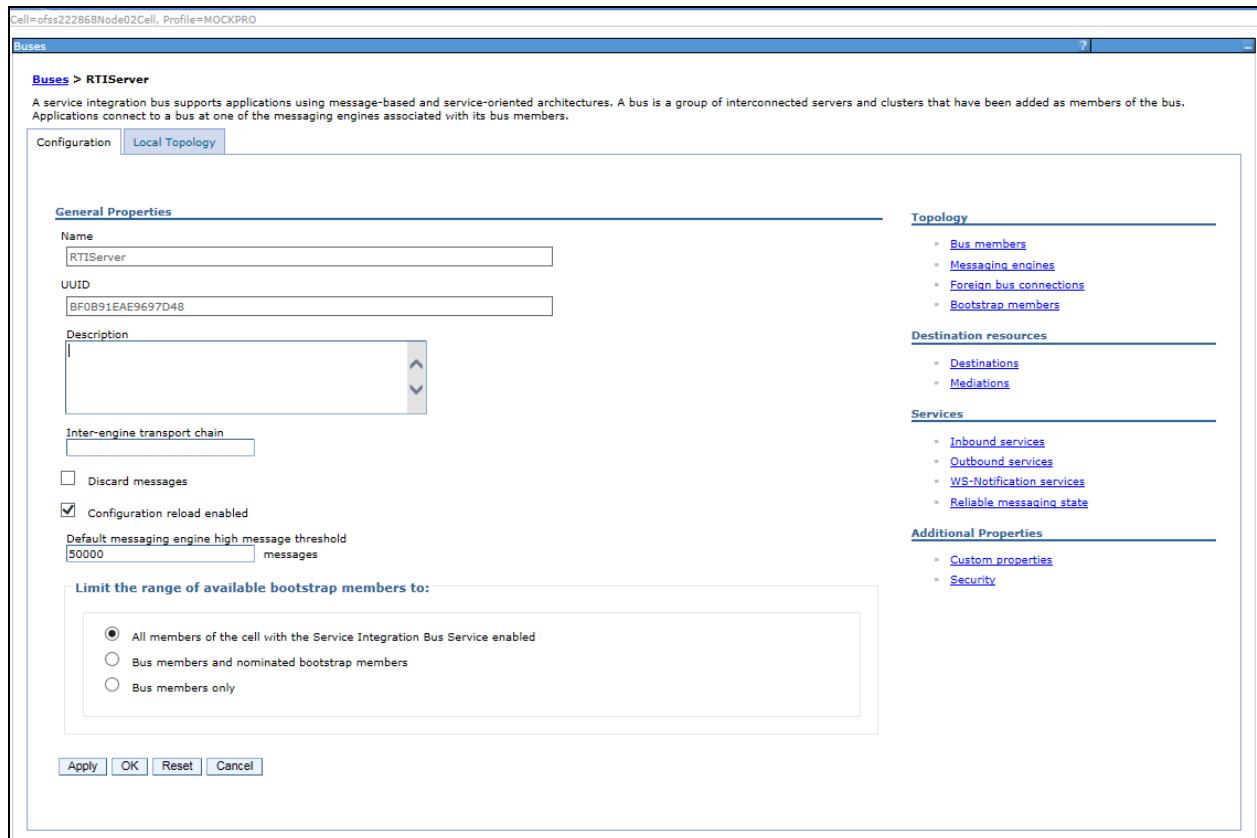


Figure 37: RTI Server

4. In the Topology section, click **Bus members**. The Bus members screen is displayed.

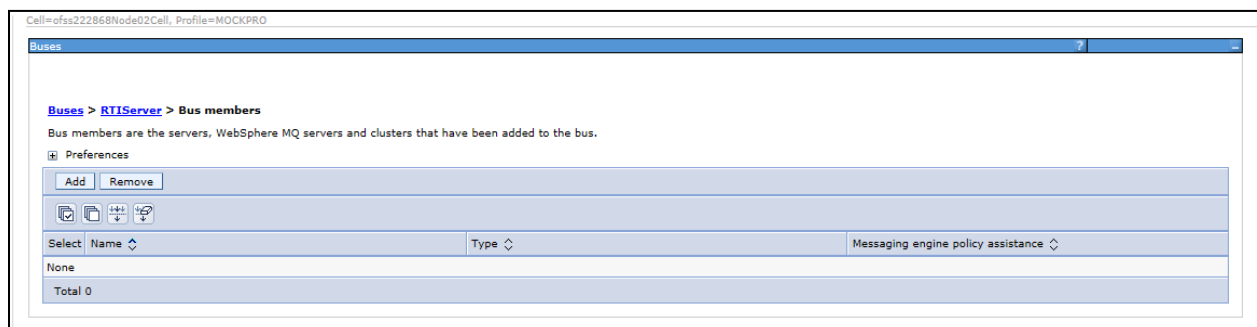


Figure 38: Bus members

Configuring IPE in Web Application Servers for Real Time Mode

5. Click **Add**. The Add a New Bus Member screen is displayed.
6. Select **Server**.

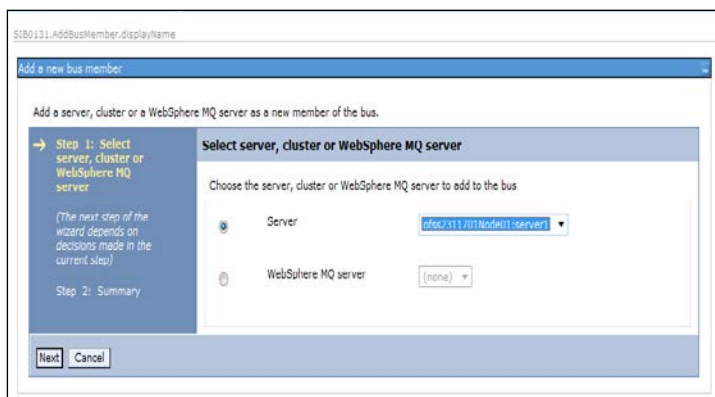


Figure 39: Add a New Bus Member

7. Click **Next**.



8. Select **File Store**.

Configuring IPE in Web Application Servers for Real Time Mode

9. Click Next.

SIB0131.ConfigureFileStore.displayName

Specify file store properties

Provide the properties for the file store

Step 1: Select server, cluster or WebSphere MQ server

Step 1.1: Select the type of message store

→ Step 1.2: Configure file store

Step 1.3: Tune performance parameters

Step 2: Summary

Configure file store

Specify the properties for the file store

Log

* Log size MB

Default log directory path

Log directory path

Store

Same settings for permanent and temporary stores

Permanent and temporary stores

* Minimum permanent store size MB

Unlimited permanent store size

* Maximum permanent store size MB

Default permanent store directory path

Permanent store directory path

Previous Next Cancel

10. Click Next.

JVMSettings.displayName

Improve messaging performance

Tune application server for messaging performance.

Step 1: Select server, cluster or WebSphere MQ server

Step 1.1: Select the type of message store

Step 1.2: Configure file store

→ Step 1.3: Tune performance parameters

Step 2: Summary

Tune performance parameters

To improve performance of messaging within the application server, the proposed Java Virtual Machine settings are advised. By default the initial and maximum JVM settings will remain unchanged, select the 'Change heap sizes' checkbox to modify the settings to the proposed values. On machines with low amounts of physical memory size or large numbers of application server instances, it may be necessary to reduce the proposed values accordingly.

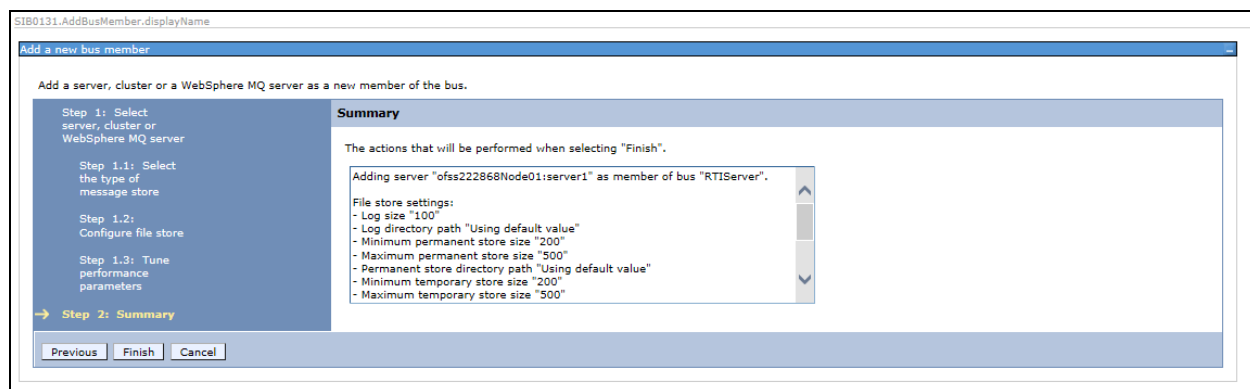
Change heap sizes

| | Current heap sizes | Proposed heap sizes |
|-----------------------|-----------------------------------|-------------------------------------|
| Initial JVM heap size | <input type="text" value="0"/> MB | <input type="text" value="768"/> MB |
| Maximum JVM heap size | <input type="text" value="0"/> MB | <input type="text" value="768"/> MB |

Previous Next Cancel

11. Click Next.

Configuring IPE in Web Application Servers for Real Time Mode



12. Click **Finish**. The Buses screen is displayed.

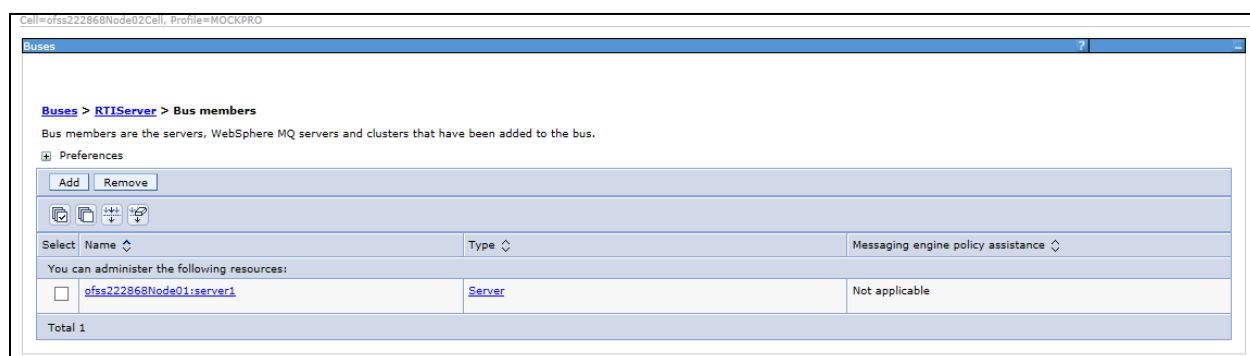


Figure 40: Bus Members created successfully

13. Click **Save**.

3.2.4 Configuring JMS Providers

This section discusses the configuration of JMS providers.

To navigate to JMS Providers sections, follow these steps:

1. Click **+** to expand **Resources**.
2. Click **+** to expand **JMS**.
3. Click **JMS Providers**. The JMS Providers screen is displayed.
4. Select **Cell** as Scope. (for example, Cell=OFSA80Node02Cell)
5. Verify that the Default messaging provider exists.

Configuring IPE in Web Application Servers for Real Time Mode



Figure 41: JMS Providers

3.2.5 Configuring JMS Connection Factory

This section explains about configuring JMS Connection Factory.

NOTE: For information about the ports used, refer to section [Check Ports in WebSphere](#).

To configure JMS Connection Factory, follow these steps:

1. Click **+** to expand **Resources**.
1. Click **+** to expand **JMS**.
2. Click **Connection Factories**. The Connection Factories screen is displayed.

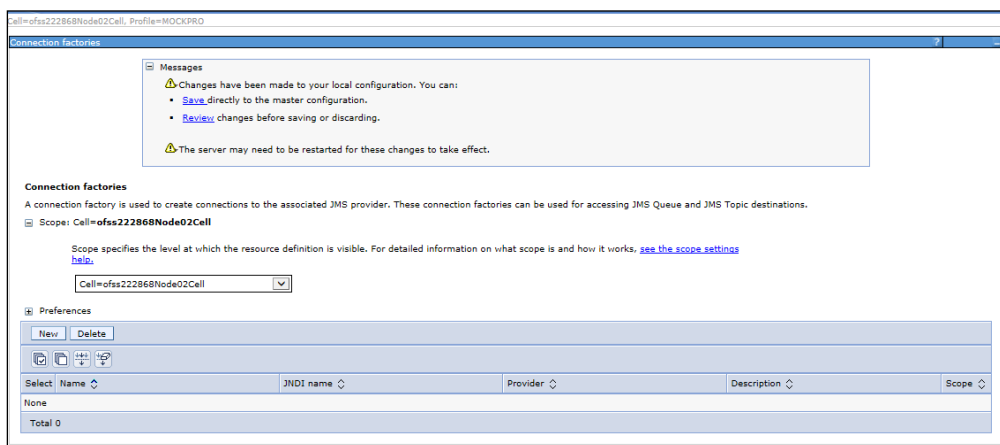


Figure 42: Connection Factories

3. Select the Scope as **Cell**. (for example, Cell=OFSA80Node02Cell)
4. Click **New**.
5. Select **Default Messaging Provider** option.
6. Click **OK**. The *JMS Connection Factory* screen is displayed.

Configuring IPE in Web Application Servers for Real Time Mode

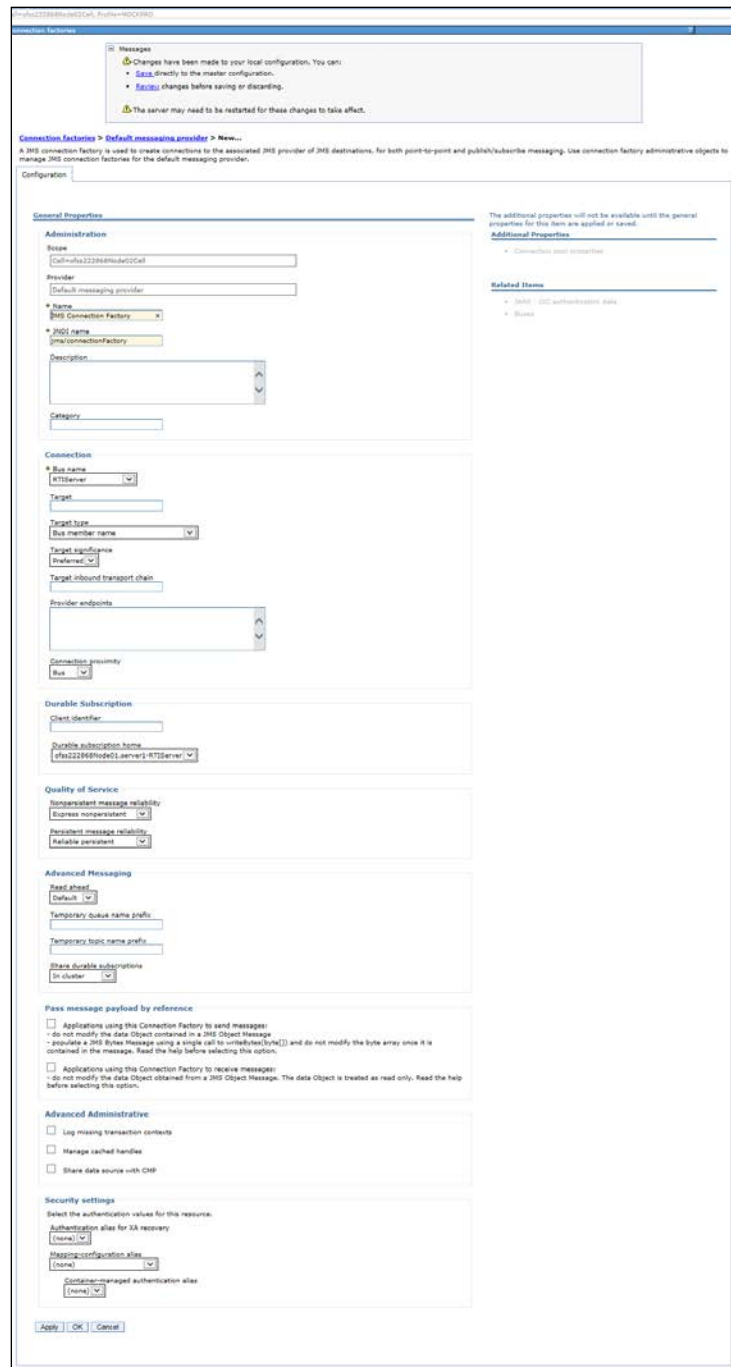


Figure 43: JMS Connection Factory

Configuring IPE in Web Application Servers for Real Time Mode

7. Enter the following details:

Table 6: JMS Connection Factory: Field Values

| Field | Value | Description |
|--------------------------------|--|--|
| Name | JMS Connection Factory | Enter the name of JMS Connection Factory |
| JNDI name | jms/connectionFactory | Enter the JNDI name for the JMS connection factory |
| Bus Name | RTIServer | Select the bus name. |
| Target Inbound Transport Chain | <Transport Chain Name> | Enter the transport chain name. Refer Appendix C for Transport chain name. For example: <i>InboundBasicMessaging</i> |
| Provider endpoints | <HOSTNAME> : <SIB_ENDPOINT_ADDRESS port>: <Transport Chain Name> | Enter the transport chain name. Refer Appendix C for Provider endpoints. For example: ofss222868.in.oracle.com:7280:InboundBasic Messaging |

Configuring IPE in Web Application Servers for Real Time Mode

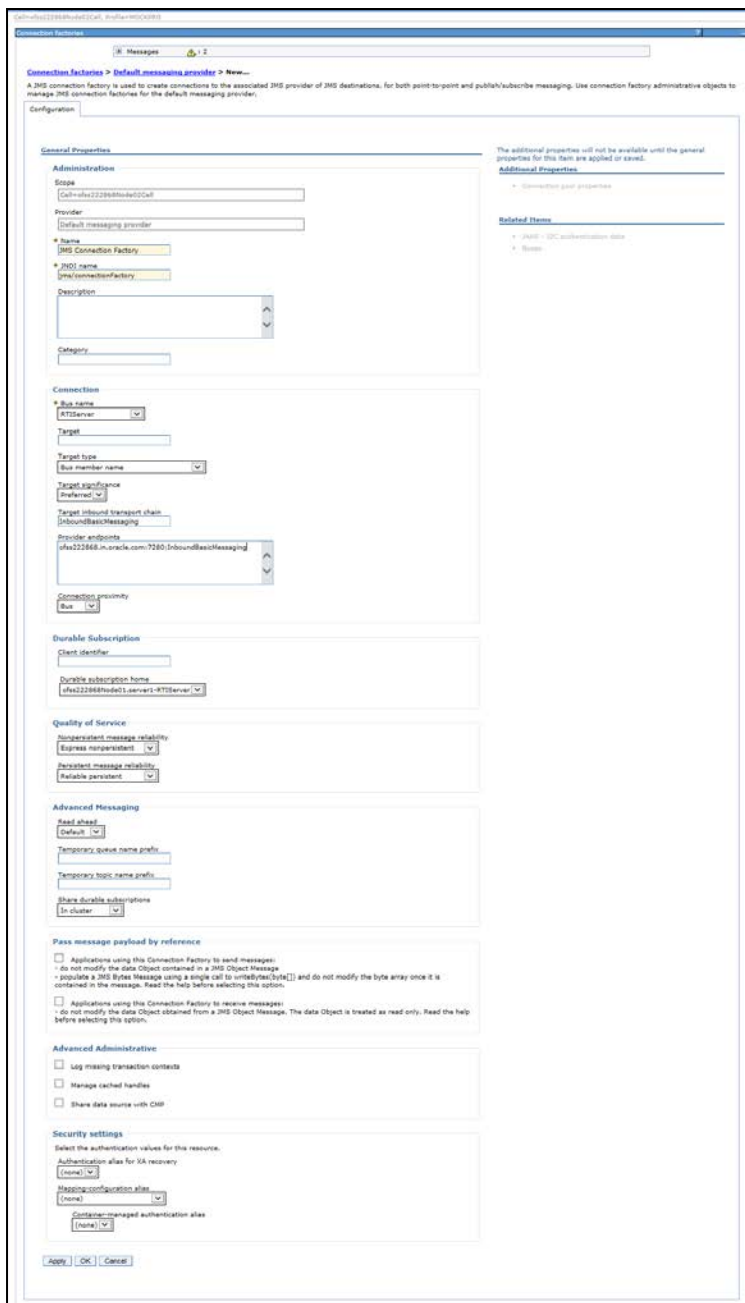


Figure 44: JMS Connection Factory – Not default port

8. Click **Apply** and save the details.

3.2.6 Configuring JMS Queues

This section discusses the following JMS Queues which are to be created:

- RTI Source Entity Queue
- RTI Hold JMS Queue
- RTI Feedback Queue
- Wire Transaction Source Entity Queue

3.2.6.1 Configuring RTI Source Entity Queue

To create RTI Source Entity Queue, follow these steps:

1. Click **+** to expand **Resources** in the LHS menu.
2. Click **+** to expand **JMS**.
3. Click **Queues**.



Figure 45: Queues

4. Select Scope as **Cell**. (For example, cell=OFSA80Node02Cell).

5. Click **New**. The *Select JMS resource provider* screen is displayed.

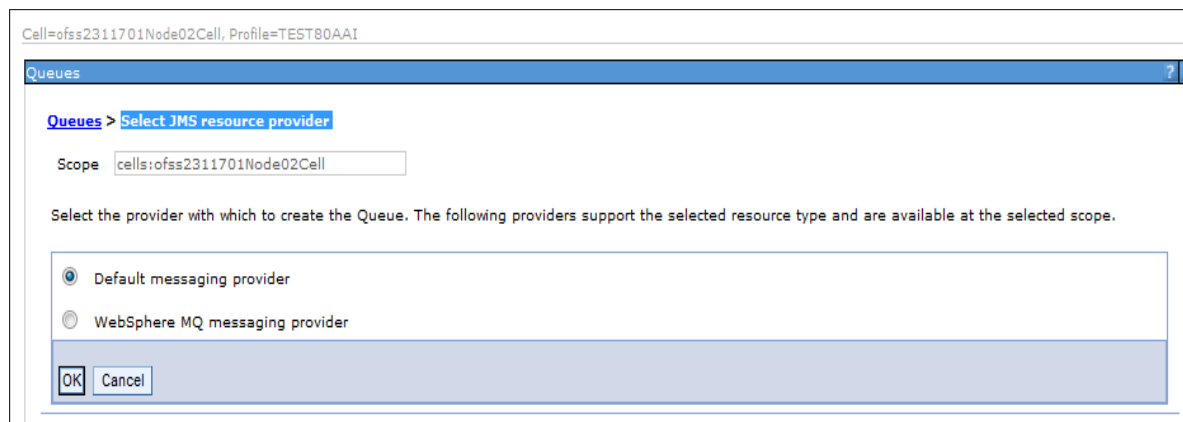


Figure 46: Select JMS resource provider

6. Select Default Messaging Provider.
7. Click **OK**. The General Properties section is displayed.

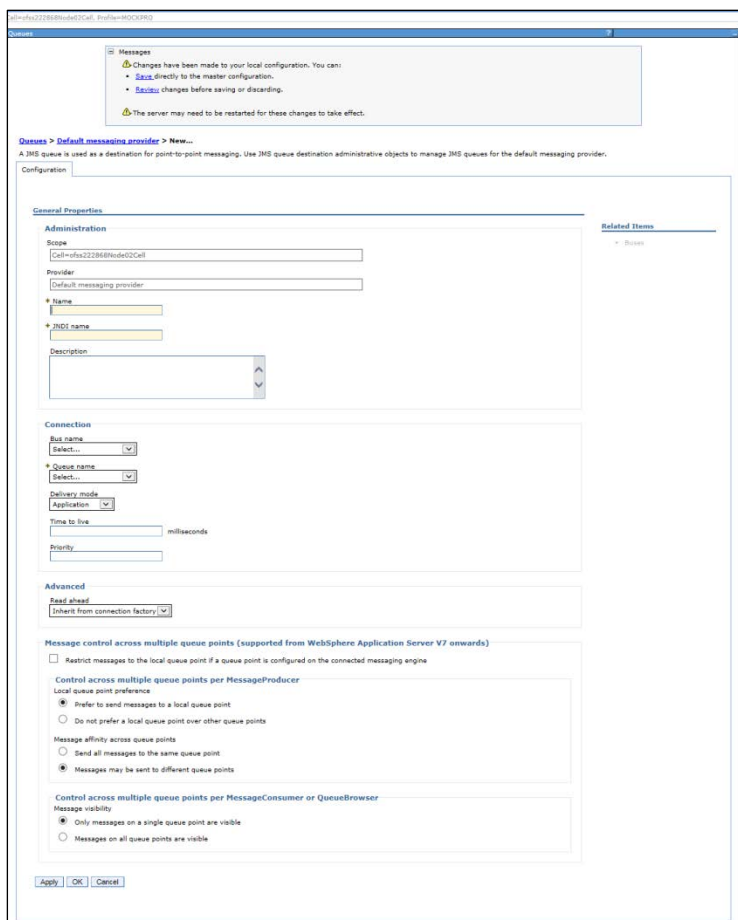


Figure 47: General Properties section

8. Enter the following details:

Table 7: JMS Queues General Properties - Field Values

| Field | Value |
|-----------|-------------------------|
| Name | RTI Source Entity Queue |
| JNDI Name | jms/sourceEntityQueue |
| Bus Name | RTIServer |

9. Select **Create Service Integration Bus destination** from **Queue Name**.

The screenshot shows the 'General Properties' configuration window. It is divided into two main sections: 'Administration' and 'Connection'.
Administration Section:
 - **Scope:** Cell=ofss2311701Node02Cell
 - **Provider:** Default messaging provider
 - **Name:** (empty field)
 - **JNDI name:** (empty field)
 - **Description:** (empty text area)
Connection Section:
 - **Bus name:** RTIServer (dropdown menu)
 - **Queue name:** Create Service Integration Bus destination (dropdown menu, highlighted in blue)
 Other options in the Queue name dropdown include: Select..., _SYSTEM.Exception.Destination.ofss2311701Node01.server1-RTIServer, rtiSourceEntityQueue, rtiFeedbackQueue, rtiWireTrxnQueue, Queue1, rtiTransactionActionQueue, and other, please specify.

Figure 48: Queue Name

The *Set queue attributes* screen is displayed.

Configuring IPE in Web Application Servers for Real Time Mode

Cell=ofss222868Node02Cell, Profile=MOCKPRO

Create new queue

Create a new queue for point-to-point messaging.

Step 1: Set queue attributes

Step 2: Assign the queue to a bus member

Step 3: Confirm queue creation

Set queue attributes

Configure the attributes of your new queue

* Identifier
rtiSourceEntityQueue

Description

Next Cancel

Figure 49: Set queue attributes

10. Enter the Identifier as **rtiSourceEntityQueue**.

11. Click **Next**.

Cell=ofss222868Node02Cell, Profile=MOCKPRO

Create new queue

Create a new queue for point-to-point messaging.

Step 1: Set queue attributes

Step 2: Assign the queue to a bus member

Step 3: Confirm queue creation

Assign the queue to a bus member

Assign the queue to a bus member that will store and process the messages for the queue.

Bus member
Node=ofss222868Node01:Server=server1

Previous Next Cancel

Figure 50: Assign the queue to a bus member

12. Click **Next**.

Cell=ofss222868Node02Cell, Profile=MOCKPRO

Create new queue

Create a new queue for point-to-point messaging.

Step 1: Set queue attributes

Step 2: Assign the queue to a bus member

Step 3: Confirm queue creation

Confirm queue creation

To complete creation of the queue, click Finish. If you want to change any selections, click Previous.

Summary of actions:
New queue "rtiSourceEntityQueue" will be
A Queue point for "rtiSourceEntityQueue"

Previous Finish Cancel

Figure 51: Confirm queue creation

Configuring IPE in Web Application Servers for Real Time Mode

13. Click **Finish**. The Configuration screen is displayed.

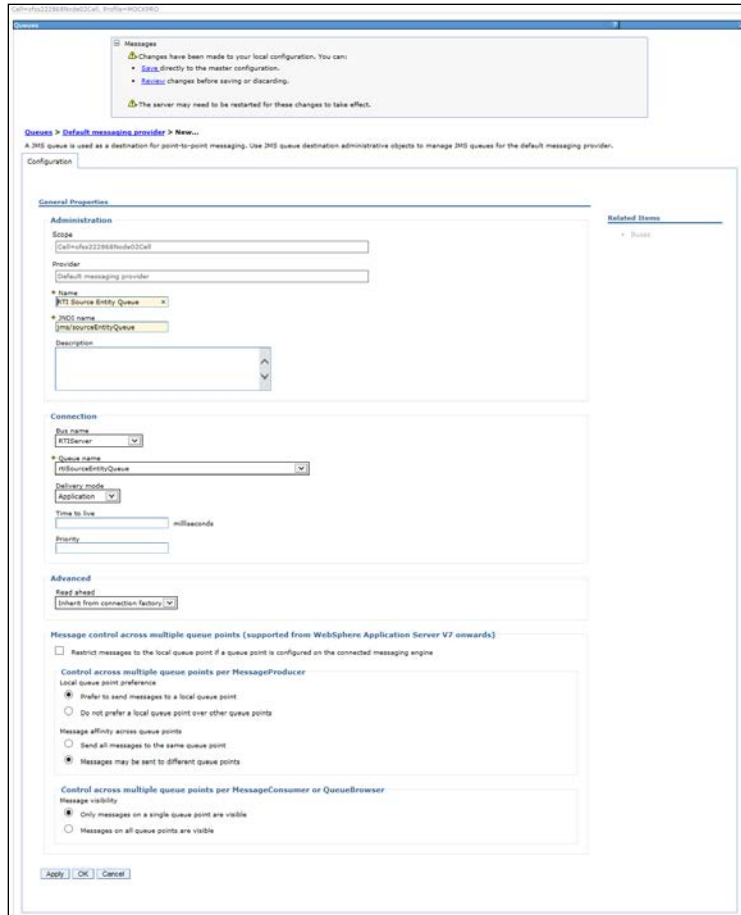


Figure 52: Configuration

14. Click **Apply** and save the details.

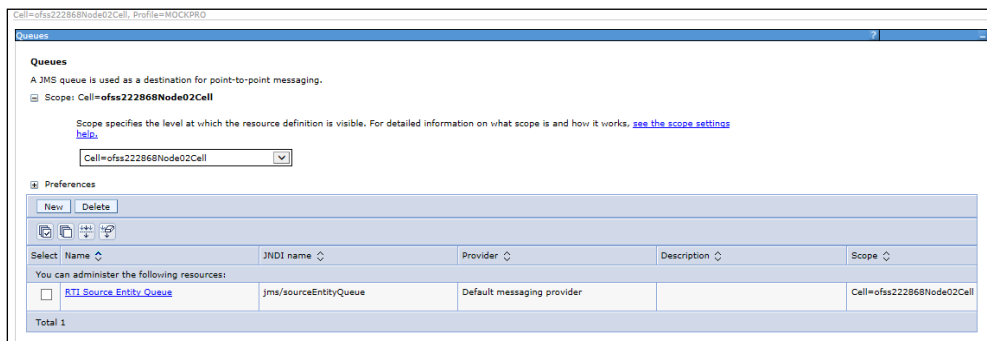


Figure 53: Queues

Configuring IPE in Web Application Servers for Real Time Mode

3.2.6.2 Creating remaining JMS Queues

Similarly, to create the remaining queues, follow these steps:

1. Repeat Steps 1 - 15 from section [RTI Source Entity Queue](#).
2. Enter the following details:

Table 8: WebSphere JMS Queues - Field Values

| Queue Name | Fields | | | |
|---|---|--|---|---|
| | Name | JNDI name | Bus name | Queue Identifier |
| RTI Hold JMS Queue | Enter the name as RTI Hold JMS Queue | Enter the JNDI name as jms/TransactionActionQueue | Select the Bus name as RTIServer | Enter the Queue as rtiTransactionActionQueue |
| RTI Feedback Queue | Enter the name as RTI Feedback Queue | Enter the JNDI name as jms/feedbackQueue | Select the Bus name as RTIServer | Enter the Queue as rtiFeedbackQueue |
| Wire Transaction Source Entity Queue | Enter the name as Wire Transaction Source Entity | Enter the JNDI name as jms/wireTrxnQueue | Select the Bus name as RTIServer | Enter the Queue as rtiWireTrxnQueue |

3. The JMS Queues are created successfully.

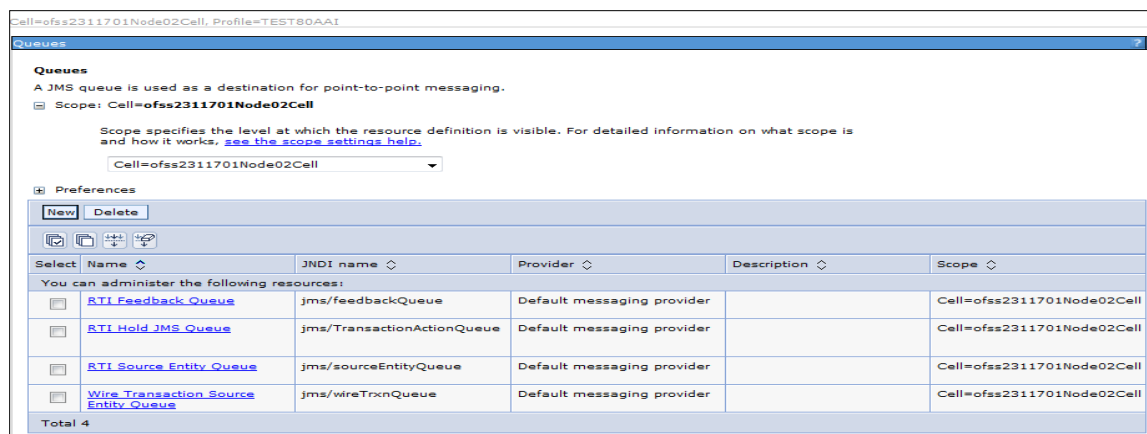


Figure 54: JMS Queue

3.2.7 Configuring JMS Topics

This section discusses the following JMS Topics which are to be created:

- [Creating RTI Cache Operation Message Destination Topic](#)
- [Creating RTI Assessment Response Destination Topic](#)

3.2.7.1 Creating RTI Cache Operation Message Destination Topic

To create JMS topics, follow these steps:

1. Click **+** to expand **Resources** in the LHS menu.
2. Click **+** to expand **JMS**.
3. Click **Topics**.
4. Select Cell as Scope (for example Cell=OFSA80Node02Cell)

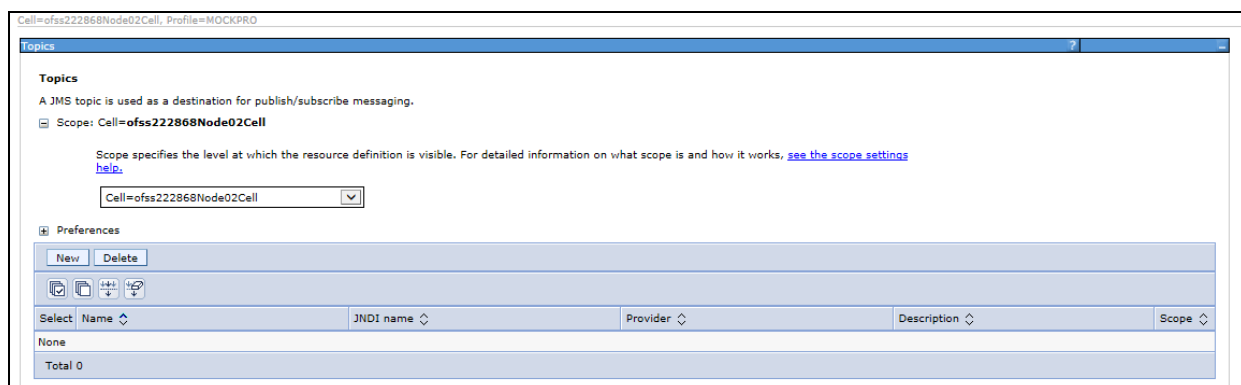


Figure 55: WebSphere - JMS Topics

5. Click **New**. The *Select JMS resource provider* screen is displayed.

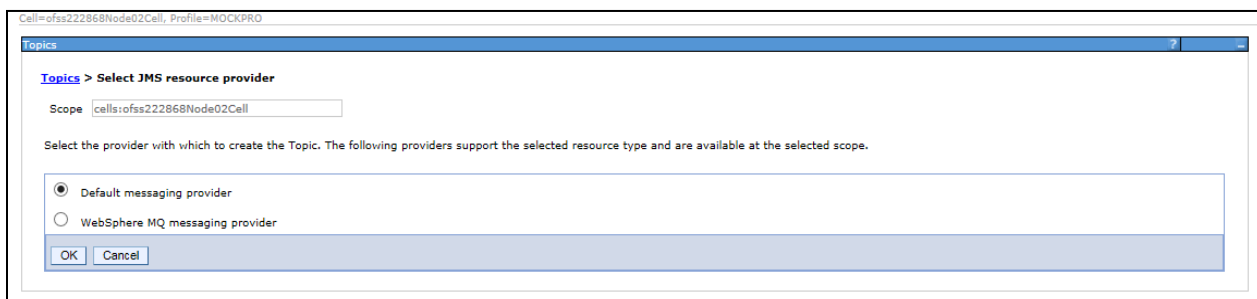


Figure 56: Select JMS resource provider

6. Select **Default messaging provider**.
7. Click **OK**. The *Configuration* screen is displayed.

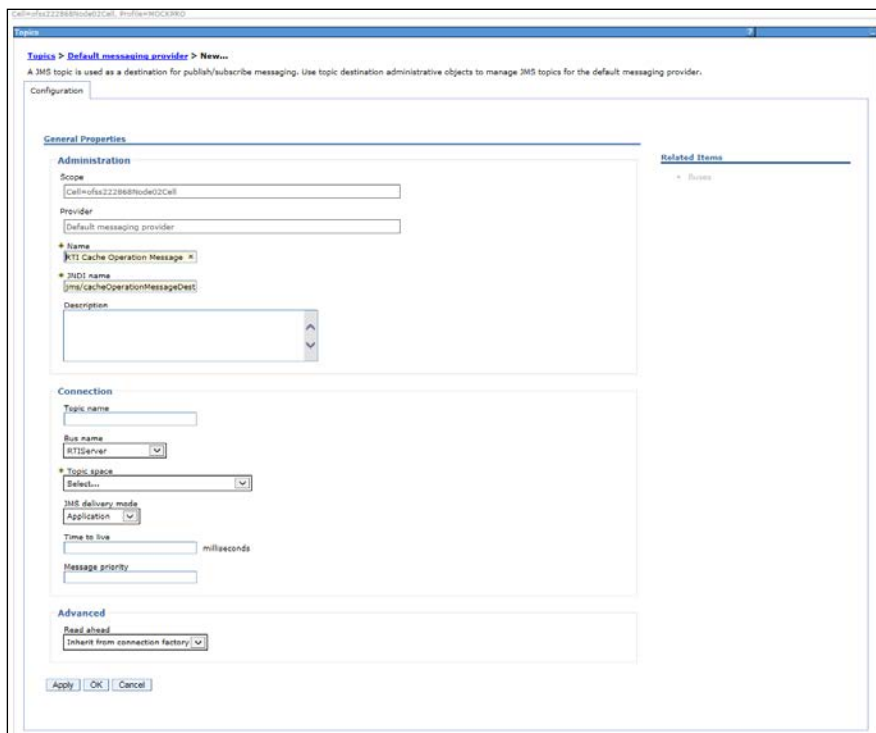


Figure 57: Configuration screen

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8. Enter the following details:

Table 9: JMS Topic General Properties - Field Values

| Field | Value |
|-----------|---|
| Name | RTI Cache Operation Message Destination Topic |
| JNDI Name | jms/cacheOperationMessageDestination |
| Bus Name | RTIServer |

9. Select **Create Service Integration Bus Destination** from **Topic space**.

10. The *Create new topic space* screen is displayed.

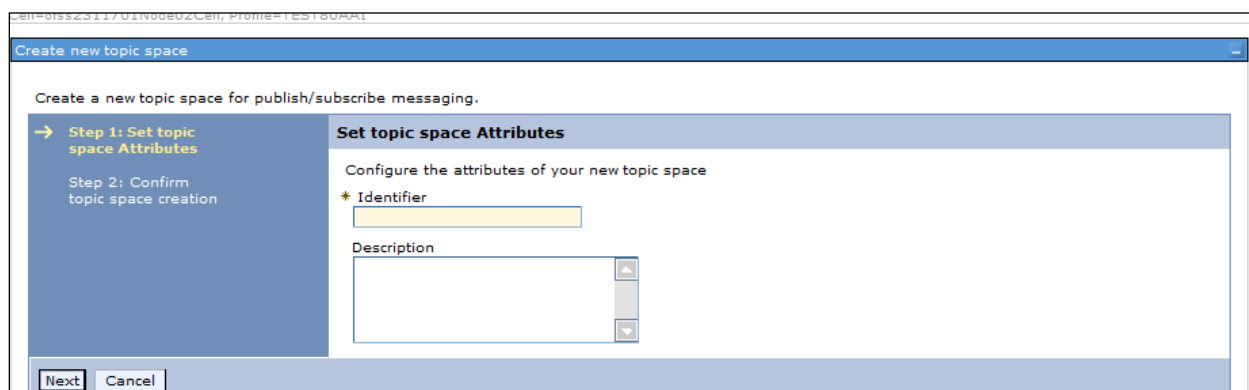


Figure 58: Create new topic space

11. Enter the **Identifier** as **rtiCacheOperationTopic**.

12. Click **Next**.

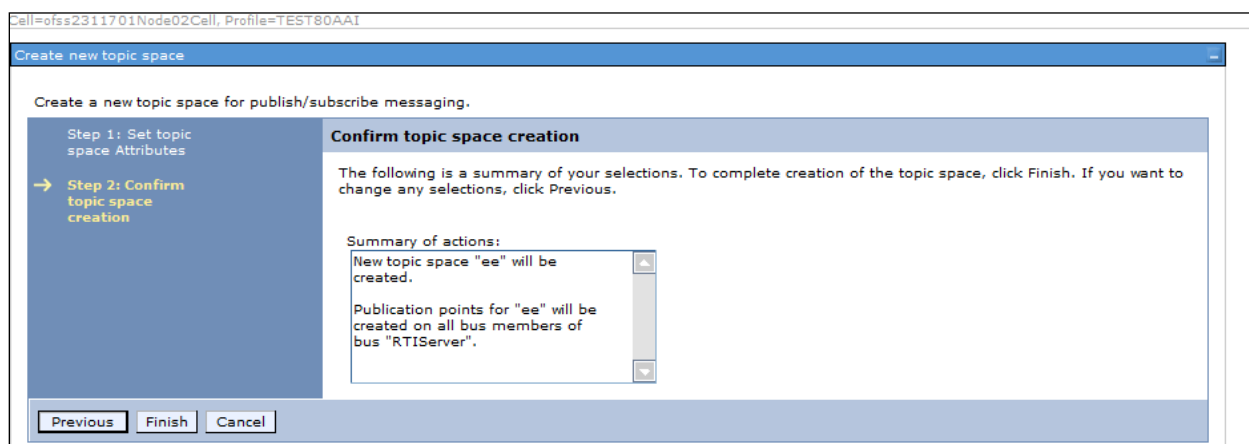


Figure 59: Confirm topic space creation

13. Click **Finish**. The *Configuration* screen is displayed.

14. Click **Apply** and save details.

3.2.7.2 Creating RTI Assessment Response Destination Topic

To create an RTI Assessment Response Destination Topic, follow these steps:

1. Repeat Steps 1-14 from section [RTI Cache Operation Message Destination Topic](#).
2. Enter the following details:

| Field | Value |
|------------------------|---|
| Name | RTI Assessment Response Destination Topic |
| JNDI name | jms/assessmentResponseDestination |
| Bus name | RTIServer |
| Topic Space Identifier | rtiAssessmentResponseDestinationTopic |

3.2.8 RMI/IOP Authentication Settings

This section describes the steps for authentication settings. For security setting, follow these steps:

1. Click **+** to expand **Security** in the LHS menu.
2. Click **+** to expand **Global Security**.
3. Click **+** to expand **RMI/IOP security** under **Authentication** section.

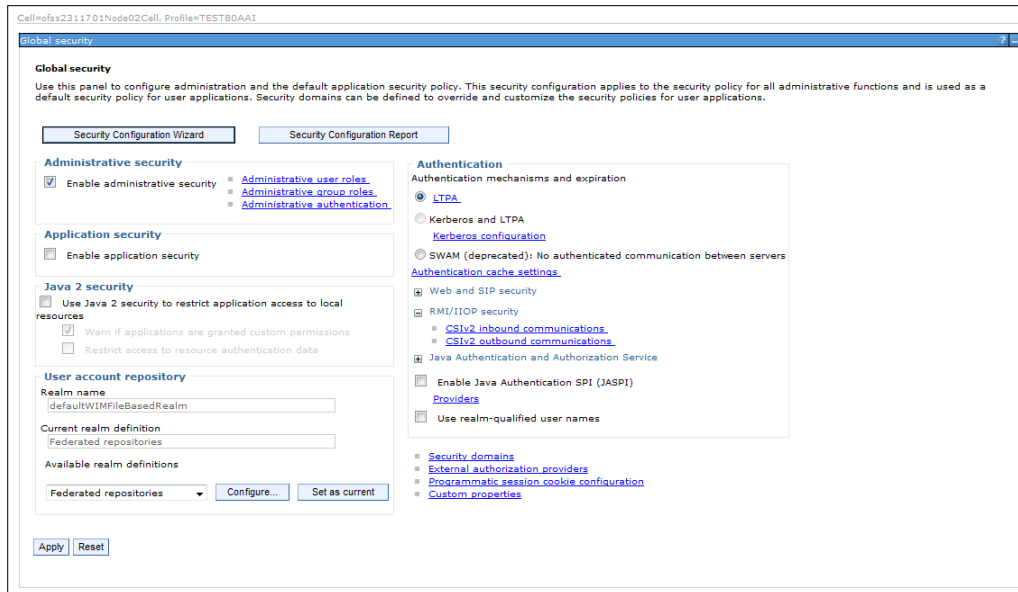


Figure 60: Global Security screen

4. Click **CSiv2 inbound communications/CSiv2 outbound communications**.
5. Select the following values:

Table 10: RMI/IOP authentication Settings

| RMI/IOP Security | Client certificate authentication | Transport |
|--------------------------------------|-----------------------------------|---------------|
| CSiv2 inbound communications | Supported | SSL-supported |
| CSiv2 outbound communications | Supported | SSL-supported |

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The screenshot shows the 'Global security' configuration window for CSIV2 inbound communications. The window title is 'Global security' and the subtitle is 'Global security > CSIV2 inbound communications'. Below the subtitle is a brief description: 'Use this panel to specify authentication settings for requests that are received and transport settings for connections that are accepted by this server using the Object Management Group (OMG) Common Secure Interoperability (CSI) authentication protocol.' The window is divided into two main sections: 'CSIV2 Attribute Layer' and 'CSIV2 Message Layer'. In the 'CSIV2 Attribute Layer', the 'Propagate security attributes' checkbox is checked, while 'Use identity assertion' is unchecked. There is a 'Trusted identities' text field. In the 'CSIV2 Transport Layer', 'Client certificate authentication' is set to 'Supported', and 'Transport' is set to 'SSL-supported'. The 'SSL settings' section has 'Centrally managed' selected, with a link to 'Manage endpoint security configurations'. In the 'CSIV2 Message Layer', 'Message layer authentication' is set to 'Supported'. Under 'Allow client to server authentication with:', 'LTPA' and 'Basic authentication' are checked, while 'Kerberos' is unchecked. There is a link to 'Trusted authentication realms - inbound'. At the bottom, there are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'.

Figure 61: CSIV2 inbound communications

The screenshot shows the 'Global security' configuration window for CSIV2 outbound communications. The window title is 'Global security' and the subtitle is 'Global security > CSIV2 outbound communications'. Below the subtitle is a brief description: 'Use this panel to specify authentication settings for requests that are sent and transport settings for connections that are initiated by the server using the Object Management Group (OMG) Common Secure Interoperability (CSI) authentication protocol.' The window is divided into two main sections: 'CSIV2 Attribute Layer' and 'CSIV2 Message Layer'. In the 'CSIV2 Attribute Layer', 'Propagate security attributes' is checked, and 'Use identity assertion' is checked. Under 'Use identity assertion', 'Use server trusted identity' is selected, with fields for 'Trusted identity', 'Password', and 'Confirm password'. In the 'CSIV2 Transport Layer', 'Client certificate authentication' is set to 'Supported', and 'Transport' is set to 'SSL-supported'. The 'SSL settings' section has 'Centrally managed' selected, with a link to 'Manage endpoint security configurations'. In the 'CSIV2 Message Layer', 'Message layer authentication' is set to 'Supported'. Under 'Allow client to server authentication with:', 'LTPA' and 'Basic authentication' are checked, while 'Kerberos' is unchecked. There is a link to 'Trusted authentication realms - outbound'. In the 'Additional Properties' section, 'Login configuration' is set to 'RMI_OUTBOUND', and 'Stateful sessions' is checked. There is a link to 'Trusted authentication realms - inbound'. At the bottom, there are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'.

Figure 62: CSIV2 outbound communications

6. Click **Apply** and save details.

Note: RMI/IIOP Authentication Settings are not required for WebLogic.

3.2.9 Restart WebSphere Profile

For more information, refer to the Start/Stop Infrastructure Services section in the Oracle Financial Services Analytical Applications Infrastructure Installation and Configuration Guide available on the [OHC](#) page.

3.3 Configuring IPE in Tomcat

This section provides details for configuring IPE in Tomcat and includes the following topics:

- [Prerequisites](#)
- [Configuring Tomcat](#)

3.3.1 Prerequisites

The following are the prerequisites for Tomcat configuration:

- Before deployment, make required changes in App layer.

3.3.2 Configuring Tomcat

Perform the following procedure to configure Tomcat:

1. Create the datasource for ILP context in Tomcat by editing the `server.xml` file in the `<TOMCAT_HOME_DIR>/conf` directory.

Note: The following example is a sample configuration. Update your database details accordingly. Make sure the context name matches the directory name under webapps. In the following example, ILP is the context name.

```
<Context path="/ILP" docBase="/scratch/ofsaobie/apache-tomcat-8.0.21/webapps/ILP" debug="0" reloadable="false" crossContext="true">
  <Loader delegate="true"/>
  <Resource auth="Container"
    name="jdbc/FICMASTER"
    type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username="act_obiconf"
    password="password"
    url="jdbc:oracle:thin:@whf00aqr:1521/DEVUT08SPRINT"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000" removeAbandoned="true"
    removeAbandonedTimeout="60" logAbandoned="true"/>
  <Resource auth="Container"
    name="jdbc/OFSAAAIINFO"
    type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username="act_obiadm"
    password="password"
    url="jdbc:oracle:thin:@whf00aqr:1521/DEVUT08SPRINT"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000" removeAbandoned="true"
    removeAbandonedTimeout="60" logAbandoned="true"/>
  <Resource auth="Container"
```

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```
name="jdbc/OFSAAAIINFOCNF"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="act_obiadm"
password="password"
url="jdbc:oracle:thin:@whf00agr:1521/DEVUT08SPRINT"
maxTotal="100"
maxIdle="30"
maxWaitMillis="10000" removeAbandoned="true"
removeAbandonedTimeout="60" logAbandoned="true"/>

</Context>
```

2. Update the following parameters in the `install.properties` file in the `$FIC_HOME/ILP/conf` directory:

```
sql.config.datasource.jndi.name=java:comp/env/jdbc/FICMASTER
sql.atomic.datasource.jndi.name=java:comp/env/jdbc/<RTI_INFODOM>
sql.metadom.datasource.jndi.name=java:comp/env/jdbc/<RTI_INFODOM>CNF
```

Note: Name should match the Resource Name defined in the `server.xml` file.

3. Update the `application-env.properties` file in `$FIC_HOME/ILP/conf` directory after commenting out the parameter

```
spring.profiles.active=JMS,JMSApplicationCache,JMSGateway,JMSFeedBackGatew
ay
```

and adding

```
spring.profiles.active=
```

Note: The following is an example and the changes shown will remove the JMS dependencies for IPE.

```
#
# The spring profiles to activate. The list of available profiles are:
# 1. JMS - To activate the use of JMS infrastructure. This is required for
#       activating any other JMS profile
# 2. JMSGateway - To activate JMS interface for receiving source entities
# 3. JMSApplicationCache - To activate JMS for receiving cache refresh
#       messages
# 4. JMSFeedBackGateway - To activate the Feedback message from APPS like
#       FCCM in JMS
#
#spring.profiles.active=JMS,JMSApplicationCache,JMSGateway,JMSFeedBackGate
#       way
spring.profiles.active=
```

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4. Copy the following jars from the `FIC_HOME/realtime_processing/additionaljars/tomcat` directory to the `fichome/realtime_processing/WEB-INF/lib` directory:
 1. `jms-api-1.1-rev-1.jar`
 2. `javax.ws.rs-api-2.0.1.jar`
5. Execute the `ant.sh` script to create `ilp.ear` and `ilp.war` files from the `fichome/realtime_processing` directory.
6. Copy the `ilp.war` file to the `TOMCAT_HOME/webapps` directory (not required to explode).
7. Restart the Tomcat server.

3.4 Configuring IPE in Kafka

This section provides details for configuring IPE in Kafka and includes the following topics:

3.4.1 Prerequisites

The following are the prerequisites for Kafka configuration:

- Before deployment, make required changes in App layer.

3.4.2 Configuring Kafka

Perform the following procedure to configure Kafka:

1. Create the datasource for ILP context in Tomcat by editing the `server.xml` file in the `<TOMCAT_HOME_DIR>/conf` directory.

Note: The following example is a sample configuration. Update your database details accordingly. Make sure the context name matches the directory name under `webapps`. In the following example, ILP is the context name.

```
<Context path="/ILP" docBase="/scratch/ofsaobie/apache-tomcat-8.0.21/webapps/ILP" debug="0" reloadable="false" crossContext="true">
  <Loader delegate="true"/>
  <Resource auth="Container"
    name="jdbc/FICMASTER"
    type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username="act_obiconf"
    password="password"
    url="jdbc:oracle:thin:@whf00agr:1521/DEVUT08SPRINT"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000" removeAbandoned="true"
    removeAbandonedTimeout="60" logAbandoned="true"/>
  <Resource auth="Container"
```

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```
name="jdbc/OFSAAAIINFO"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="act_obiadm"
password="password"
url="jdbc:oracle:thin:@whf00aqr:1521/DEVUT08SPRINT"
maxTotal="100"
maxIdle="30"
maxWaitMillis="10000" removeAbandoned="true"
removeAbandonedTimeout="60" logAbandoned="true"/>
<Resource auth="Container"
name="jdbc/OFSAAAIINFOCNF"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="act_obiadm"
password="password"
url="jdbc:oracle:thin:@whf00aqr:1521/DEVUT08SPRINT"
maxTotal="100"
maxIdle="30"
maxWaitMillis="10000" removeAbandoned="true"
removeAbandonedTimeout="60" logAbandoned="true"/>
</Context>
```

2. Update the following parameters in the `install.properties` file in the `fichome/realtime_processing/conf` directory:

```
sql.config.datasource.jndi.name=java:comp/env/jdbc/FICMASTER
sql.atomic.datasource.jndi.name=java:comp/env/jdbc/<RTI_INFODOM>
sql.metadom.datasource.jndi.name=java:comp/env/jdbc/<RTI_INFODOM>CNF
```

Note: Name should match the Resource Name defined in the `server.xml` file.

3. Update the `$TOMCAT_HOME/webapps/ILP/conf/install.properties` file for kafka broker details, the inbound topic names, and outbound topic names as shown in the following example:

```
kafka.bootstrap.servers=whf00act.in.oracle.com:9092
kafka.inbound.topic.group.id=IPE
kafka.inbound.topic=IPERT.t
kafka.outbound.topic=IPERESPONSE.t
kafka.consumer.num=5
kafka.inbound.partitions=10
kafka.inbound.poll.timeout=3000
```

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4. Update the `application-env.properties` file in `$TOMCAT_HOME/webapps/ILP/conf` directory after commenting out the parameter `spring.profiles.active=JMS ,JMSApplicationCache ,JMSGateway ,JMSFeedBackGateway` and adding `spring.profiles.active=IPEKAFKA`
Note: The preceding example changes will remove the JMS dependencies for IPE and enable Kafka.
5. Update the `web.xml` file in the `$TOMCAT_HOME/webapps/ILP/WEB-INF` directory (append the `,/conf/applicationContext-kafka.xml` file in the end under **param contextConfigLocation**).
`/conf/applicationContext.xml ,/conf/applicationContext-jms.xml ,/conf/applicationContext-jmx.xml ,/conf/ext/spring*.xml ,/conf/applicationContext-kafka.xml`
6. Copy the following jars from the `fichome/realtime_processing/additionaljars` directory to the `fichome/realtime_processing/WEB-INF/lib` directory:
 1. `spring-messaging-4.2.3.RELEASE.jar`
 2. `spring-kafka-1.2.0.RELEASE.jar`
 3. `spring-integration-kafka-2.0.1.RELEASE.jar`
 4. `kafka-clients-0.11.0.0.jar`
 5. `slf4j-log4j12-1.4.3.jar`
 6. `slf4j-api-1.4.3.jar`
 7. `jms-api-1.1-rev-1.jar`
 8. `javax.ws.rs-api-2.0.1.jar`
7. Update the following in the `server.properties` file under `config` directory:
`num.partitions=200`
`auto.create.topics.enable=true`
8. Execute the `ant.sh` script to create `ilp.ear` and `ilp.war` files from the `fichome/realtime_processing` directory.
9. Copy the `ilp.war` file to the `TOMCAT_HOME/webapps` directory.
10. Restart the Tomcat server to deploy `ilp.war`.

3.4.3 Testing Kafka Configuration

NOTE: The examples shown in this section display port number, URL, and request for illustrative purposes only. You must enter the correct values for the port number, URL and request as it exists in your application.

Perform the following procedure to test the Kafka configuration:

1. Use the following command to stop all Tomcat servers:

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```
ss -tanp | grep 9092
Output: LISTEN      0          50          :::9092
       :::*        users:(("java",31114,554))
ps -eaf | grep 31114
kill -9 31114
```

Note: 9092 is the port number of the URL.

2. Use the following command to stop all Kafka servers:

```
ps -eaf | grep kafka
```

Note: Cntrl+C will actually kills all kafka related process.

3. Open four putty sessions, one each for zookeeper, server, producer and consumer. Enter the following commands in the respective sessions after changing the path to kafka:

Zookeeper session: `bin/zookeeper-server-start.sh config/zookeeper.properties`

Server session: `bin/kafka-server-start.sh config/server.properties`

Producer session: `bin/kafka-console-producer.sh --broker-list`

`whf00bfk.in.oracle.com:9092 --topic IPERT.t`

Consumer session: `bin/kafka-console-consumer.sh --bootstrap-server`

`whf00bfk.in.oracle.com:9092 --topic IPERESPONSE.t`

4. Start Tomcat.

5. Enter the following request in the producer window in a single line:

```
"eg: { "type" : "DIM_ACCOUNT", "domain" : "FRA", "appId" :
      "OFS_IPE", "runType" : 1, "runParam" : 1, "attributes" :
      { "Account Skey" : "500", "Account Description" : "ASD"
      }, "additionalParams" : { } }
"
```

6. Check for the results in the Consumer window.
7. Check for results in `rti_eval_assmnt_result` and `rti_assmnt_result`.

4 Post data in JSON format to IPE

JSON requests are posted through REST services in IPE Realtime Mode. The subsections in this topic provides information on how to post data in JSON format using HTTP requests and receive responses from the server.

4.1 Prerequisites

The following are the prerequisites to post JSON requests in IPE:

1. Install a JSON client on your local computer.
2. User access for authentication on the server.
3. Knowledge about posting JSON requests.

4.2 Posting JSON request for REST services

The following is the procedure to post JSON requests for REST services:

1. Open the JSON client.
2. Select or enter Method as **POST**.
3. Enter the server URL in **Request URL**.
4. Enter the Header parameters as shown in the following table:

Table 11: JSON Request Header Parameters

| No. | Header Name | Header Value | Description |
|-----|--------------|---|--|
| 1 | username | Enter the user name to login to the server. | This value is used for user authentication. |
| 2 | password | Enter the password to login to the server. | This value is used for user authentication. |
| 3 | content-type | Select or enter application/json. | This value denotes that the data in JSON format. |
| 4 | accept | Select or enter application/json. | This value denotes that the data in JSON format |

5. Select **application/json** for **Body content type**.
6. Enter the JSON message in the body. The following code sample is an example:

```
{
  "type": "DIM_ACCOUNT",
```

```
"domain": "FRA",
"appId": "OFS_IPE",
"runtype": 1,
"runParam": 1,
"attributes": {
  "Account Skey": 181,
  "Account Description": "ABC"
},
"additionalParams": {}
}
```

The following is the convention for the data in the fields of the preceding code sample:

```
{
  "type": <ACTIVITY Table>,
  "domain": <Processing Segment>,
  "appId": <Product ID>,
  "runtype": 1,
  "runParam": 1,
  "attributes":
  {
    <Required attributes/Business Column names of activity table>:
    <Values>
  },
  "additionalParams": {}
}
```

7. Send the JSON message from the client to the server. The server provides a response message with values for successful posting or for errors, if any.

5 Additional Configuration

To use IPE framework without a Sample Application, perform the following additional configuration.

5.1 Updating Install Properties

To update the install properties, follow these steps:

1. Login to the UNIX machine where the OFS AAI Application Pack is installed with IPE enabled.
2. Navigate to <OFSAA Installation Directory>/realtime_processing/WebContent/conf.
3. Edit `install.properties` and provide the following information:

| Parameter Code | Value | Description |
|----------------|---|--|
| <RTI_INFODOM> | < Infodom Name > | Infodom Name used for IPE For example, OFSAAIINFO |
| <RTI_SEGMENT> | < default IPE processing segment code > | Enter the default IPE Processing Segment Code. For example, FRA |

5.1.1 Updating `install.properties` to enable Highlights in Real-Time

The following is an example of the `install.properties` file with Highlights in Real-Time disabled. To enable, set the parameter `ipe.produce.hglights.results=false` to `ipe.produce.hglights.results=true` in the file.

```

sql.config.datasource.jndi.name=jdbc/FICMASTER
sql.atomic.datasource.jndi.name=jdbc/OFSAAIINFO
sql.metadom.datasource.jndi.name=jdbc/OFSAAIINFOCNF
system.infodom=OFSAAIINFO
system.domain=FRA
system.appid=OFS_IPE
deployment.assessment.execution.mode=LIVE
    
```

```

deployment.datastore=RDBMS
deployment.test.java.naming.initial.context.factory=
deployment.test.java.naming.provider.url=
batch.audit.backup=true
ipe.persist.eval.results=false
process.maxalert.count=100
action.json.constant=200
action.json.response.url=
aai.auth.url=
kafka.bootstrap.servers=
kafka.inbound.topic.group.id=IPE
kafka.inbound.topic=IPERT.t
kafka.outbound.topic=IPERESPONSE.t
ipe.produce.hglights.results=false
kafka.consumer.num=5
kafka.inbound.partitions=10
kafka.inbound.poll.timeout=3000
    
```

5.1.2 IPE Caching

To perform caching in IPE, follow these steps:

1. Connect to OFSAA Configuration schema.
2. Replace the placeholders with the following information in the update queries.
3. Run the update queries.

| Parameter Code | Value | Description |
|------------------|---------------------------|---|
| <INITIALFACTORY> | < initial context for app | Initial Context for the Web Application Server Websphere: |

| | | |
|----------------|------------------|--|
| | server> | com.ibm.websphere.naming.WsnInitialContext Factory Weblogic: weblogic.jndi.WLInitialContextFactory |
| <PROVIDER_URL> | <processing URL> | URL for accessing Queues and Topics in Web Application server. For more information, refer to Appendix A . |

- Update configuration c set c.PARAMVALUE='<INITIALFACTORY>' where c.paramname='RTI_PROCESSING_INITIALCONTEXTFACTORY'
/
Update configuration c set c.PARAMVALUE='<PROVIDER_URL>' where c.paramname='RTI_PROCESSING_PROVIDER_URL'
/
/

5.2 Creating ILP.ear/ ILP.war

It is mandatory to have the ILP.ear in the same profile or domain where the <contextname>.ear file of the OFS AAI Application is deployed. To create ILP.ear/ ILP.war, follow these steps:

- Navigate to < OFSAA Installation Directory >/realtime_processing.
- Execute the command:

```
./ant.sh.
```

```
/scratch/ofsaobie/AAAI_80/realtime_processing>ls
ant.sh application.xml build.xml ILP.ear ILP.war ipesampleapp WebContent
/scratch/ofsaobie/AAAI_80/realtime_processing>./ant.sh
executing "ant"
Buildfile: build.xml

createwar:

createear:

BUILD SUCCESSFUL
Total time: 0 seconds
/scratch/ofsaobie/AAAI_80/realtime_processing>
```

- On successful execution, the ILP.ear and ILP.war files are generated under the <OFSAA Installation Directory >/realtime_processing folder.

5.3 Deploying ILP.ear in Weblogic

This section defines how to deploy ILP.ear in Weblogic.

NOTE: It is mandatory to have ILP.ear in the same domain where <contextname>.ear of the OFS AAI Application is deployed.

NOTE: Do not deploy ilp.ear on Sanctions TFLT, the installation will fail.

To deploy ILP.ear in Weblogic, follow these steps:

1. Start the Weblogic server.
2. Create an ILP.ear folder in
<WEBLOGIC_INSTALL_DIR>/user_projects/domains/<DOMAIN_NAME>/applications

Copy <FIC_HOME>/realtime_processing/ILP.ear to
<WEBLOGIC_INSTALL_DIR>/user_projects/domains/<DOMAIN_NAME>/applications/ILP.ear/.

3. Explode the ILP.ear file by executing the command:

```
jar -xvf ILP.ear
```

4. Delete the ILP.ear and IPL.war files.
5. Create an ILP.war folder in
<WEBLOGIC_INSTALL_DIR>/user_projects/domains/<DOMAIN_NAME>/applications/ILP.ear

Copy <FIC_HOME>/realtime_processing/ILP.war to
<WEBLOGIC_INSTALL_DIR>/user_projects/domains/<DOMAIN_NAME>/applications/ILP.ear/ILP.war

6. Explode the ILP.war file by executing the command:

```
jar -xvf ILP.war.
```

7. Delete the ILP.war file.

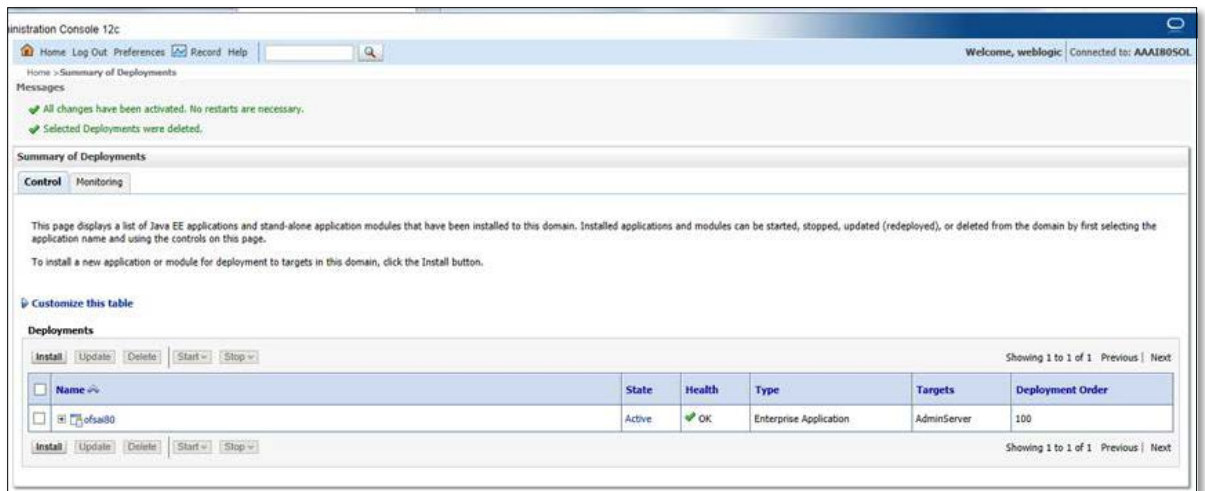
5.3.1 Installing ILP.ear in WebLogic using WebLogic Administrator Console.

1. Navigate to the path
<WEBLOGIC_INSTALL_DIR>/user_projects/domains/<DOMAIN_NAME>/bin in the machine in which WebLogic is installed.

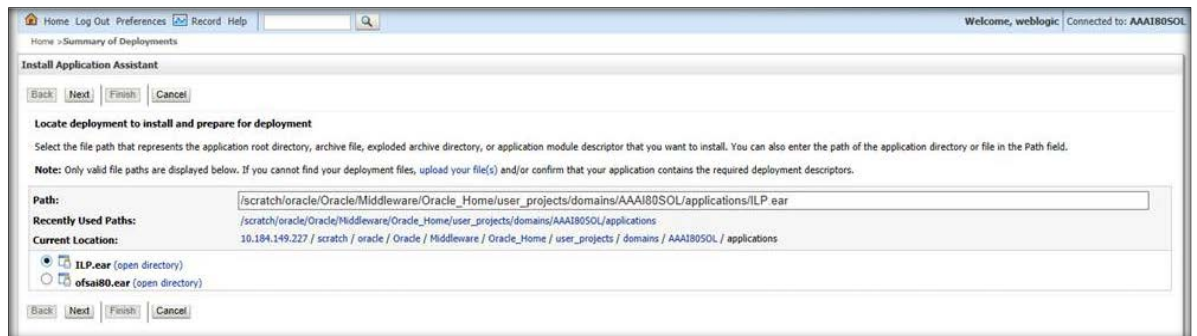
2. Start WebLogic by executing the command:

```
./startWebLogic.sh -d64 file
```

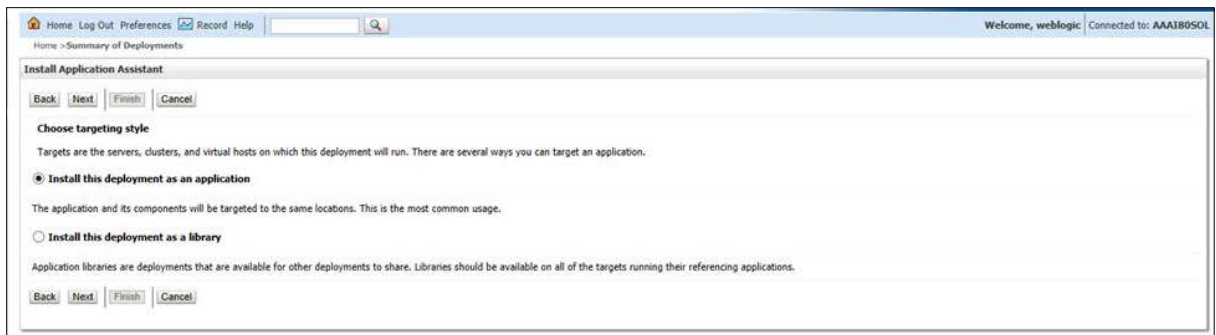
- Open the following URL in the browser window: `http://<ipaddress>:<administrative console port>/console`. (Use `https` protocol if SSL is enabled). The *Welcome* window is displayed.
- Login with the Administrator **Username** and **Password**. The Summary of Deployment page is displayed.



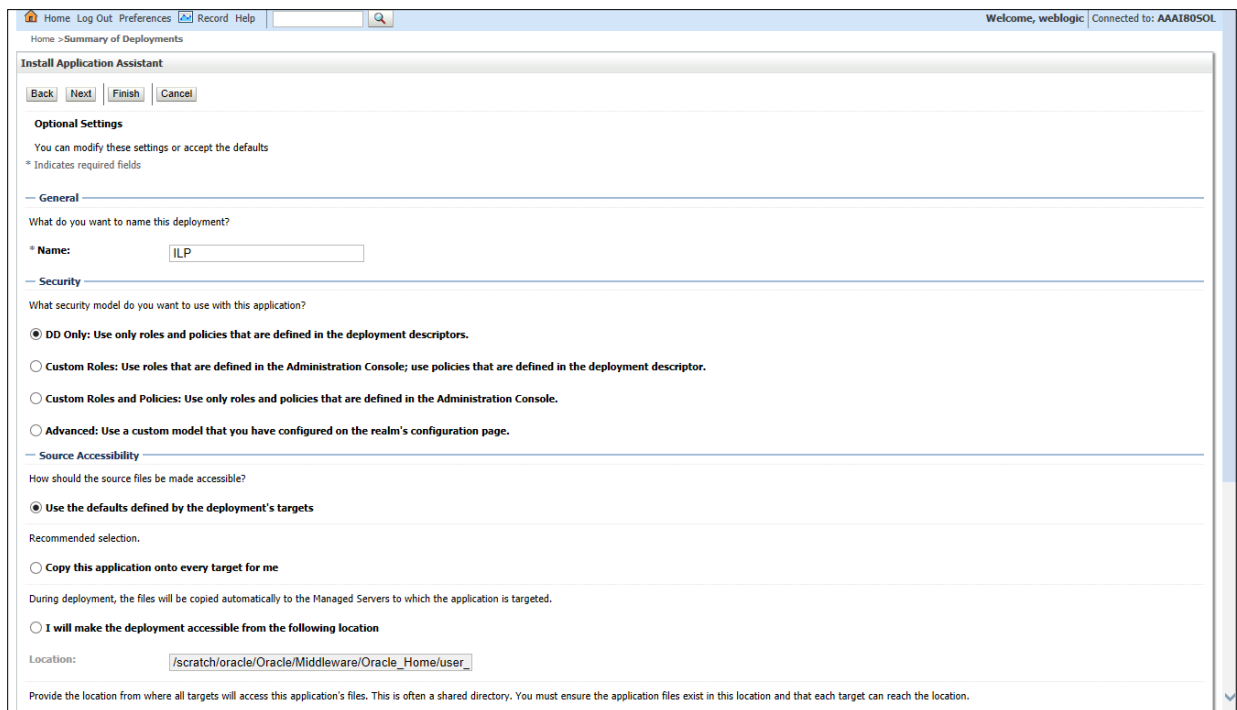
- Click **Install**. The Install Application Assistance page is displayed.



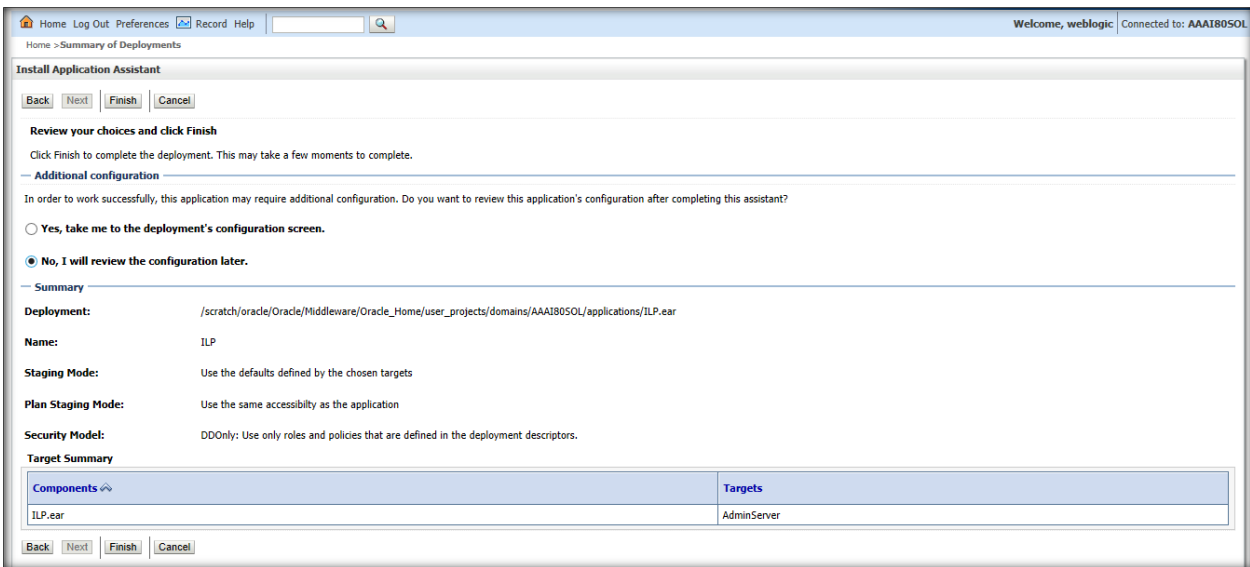
- Select **ILP .ear** and click **Next**. The Install Application Assistance page is displayed with the Choose targeting style section.



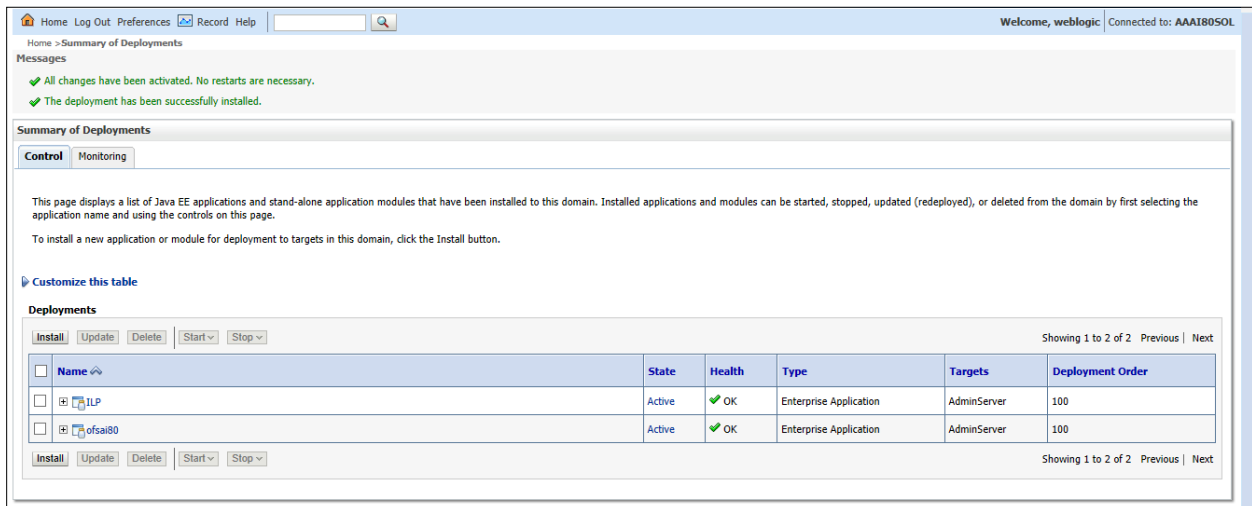
7. By default, the **Install this deployment as an application** option in the Choose targeting style section is selected. Click **Next**. The Install Application Assistance page is displayed with the Optional Settings section.



8. Retain the default selections and click **Next**. The Install Application Assistance page is displayed with the Review your choices and click Finish section.



9. Select **No, I will review the configuration later** in the Additional Configuration section and click **Finish**. ILP is added in the Name section of the Summary of Deployment page with following message: *The deployment has been successfully installed.*



10. Restart all OFS AAI servers. For more information, refer to the *Start/Stop Infrastructure Services* section in the *Oracle Financial Services Analytical Applications Infrastructure Installation and Configuration Guide* available on the [OHC](#) page.

5.3.2 Deploying ILP.ear in WebSphere

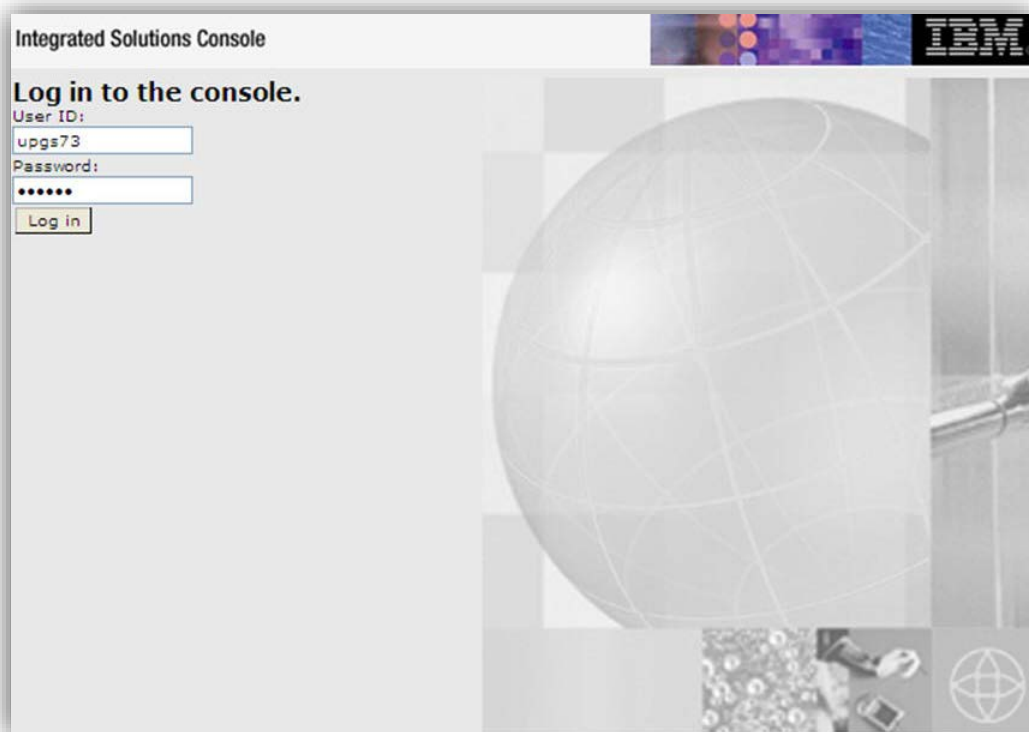
To deploy ILP.ear in WebSphere, follow these steps:

NOTE: It is mandatory to have ILP.ear in the same profile where <contextname>.ear of OFS AAI Application is deployed.

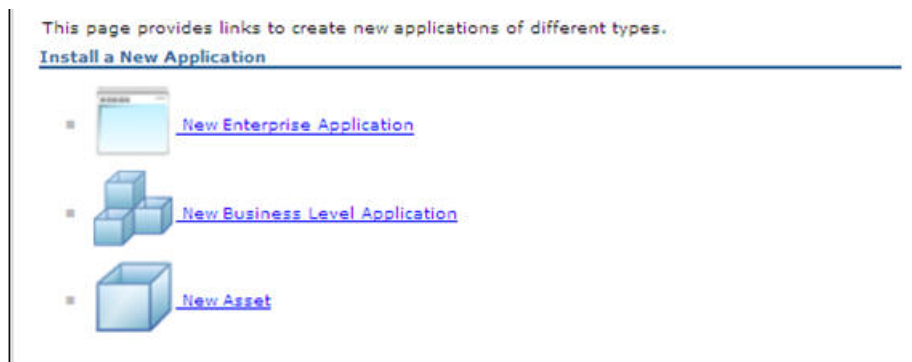
NOTE: Do not deploy **ilp.ear** on Sanctions TFLT, the installation will fail.

1. Start the WebSphere Profile by navigating to the path
"/<WebSphere_Installation_Directory>/IBM/WebSphere/AppServer/profiles/<Profile_Name>/bin/" then execute the command:

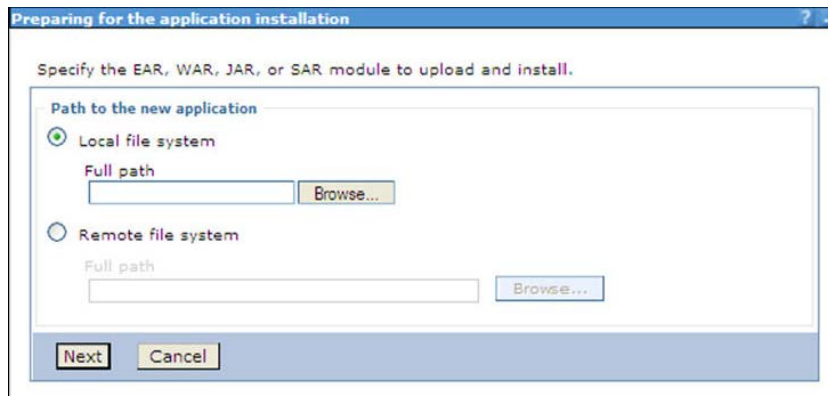
```
./startServer.sh server1
```
2. Open the following URL in the browser: `http://<ipaddress>:<Administrative Console Port>/ibm/console`. (use https protocol if SSL is enabled). The login screen is displayed.



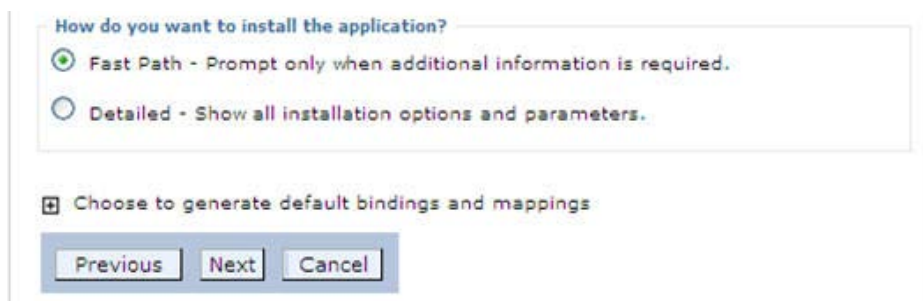
3. Enter the user credentials which have administrator rights and click **Log In**.
4. From the LHS menu, select **Applications** and click **New Application**. The New Application window is displayed.



5. Click **New Enterprise Application**. The *Preparing for the application installation* page is displayed.



6. Select **Remote File System** and click **Browse**. Select the EAR file generated for IPE to upload and install. Click **Next**.

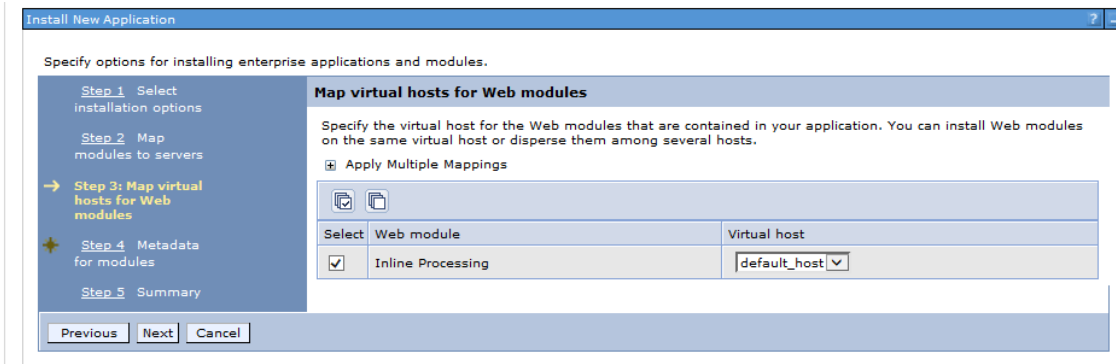


7. Select the **Fast Path** option and click **Next**. The *Install New Application* window is displayed.

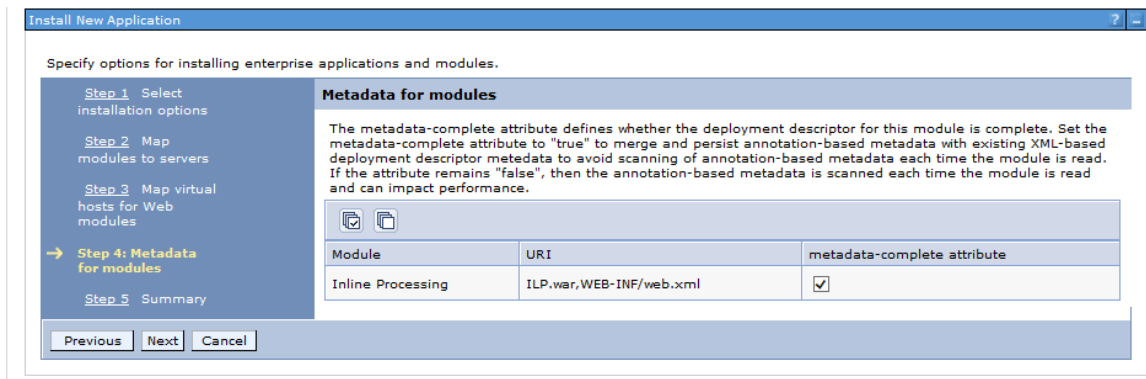
8. Click **Next**. The *Map Modules to Servers* page is displayed.

| Select | Module | URI | Server |
|-------------------------------------|-------------------|-------------------------|--|
| <input checked="" type="checkbox"/> | Inline Processing | ILP.war,WEB-INF/web.xml | WebSphere:cell=ofss2311701Node02Cell,node=ofss2311701Node02,server=server1 |

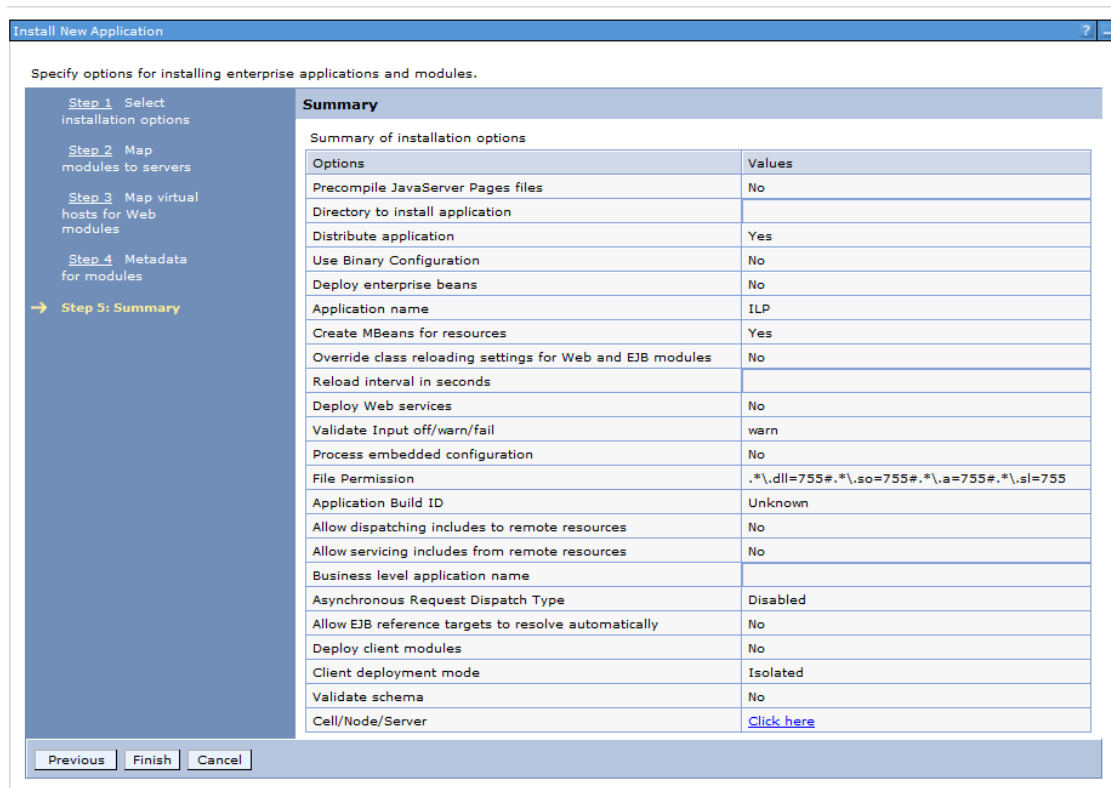
9. Select the **Inline Processing** checkbox and click **Next**. The *Map Virtual hosts for Web modules* page is displayed.



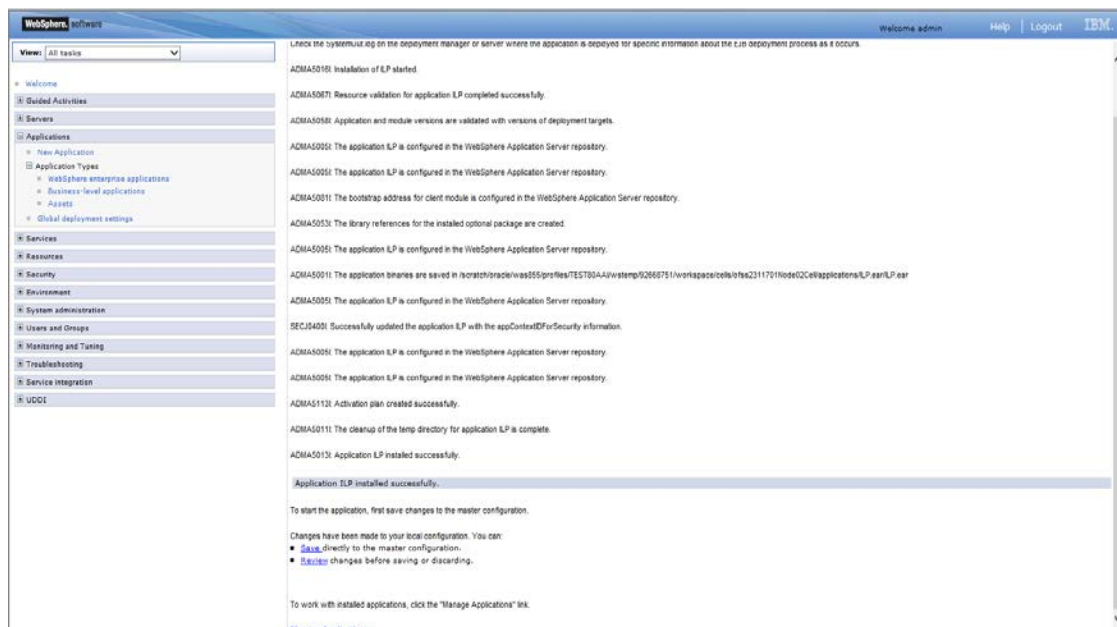
10. Select the **Inline Processing** checkbox and click **Next**. The Metadata for modules page is displayed.



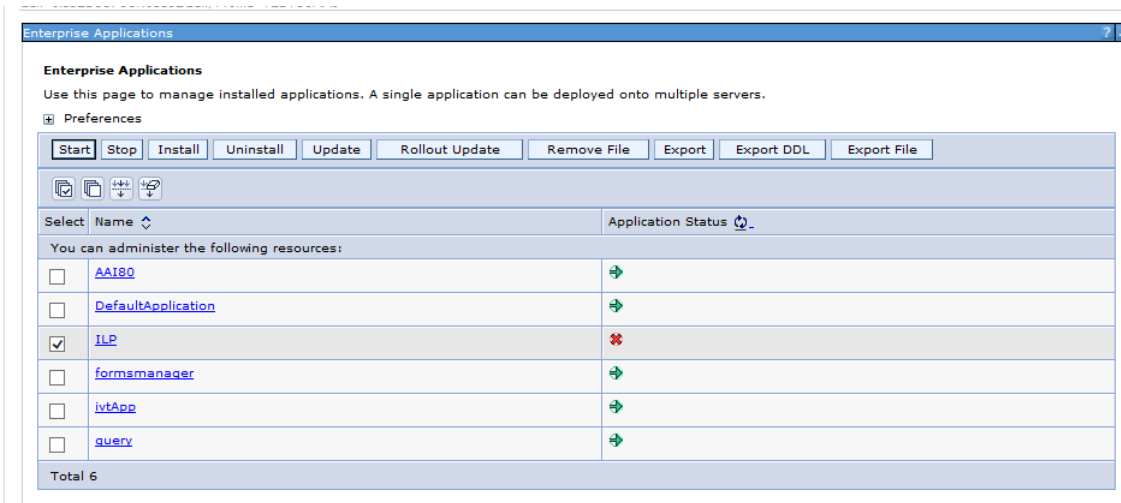
11. Select the **Metadata-complete** attribute checkbox and click **Next**. The Summary page is displayed.



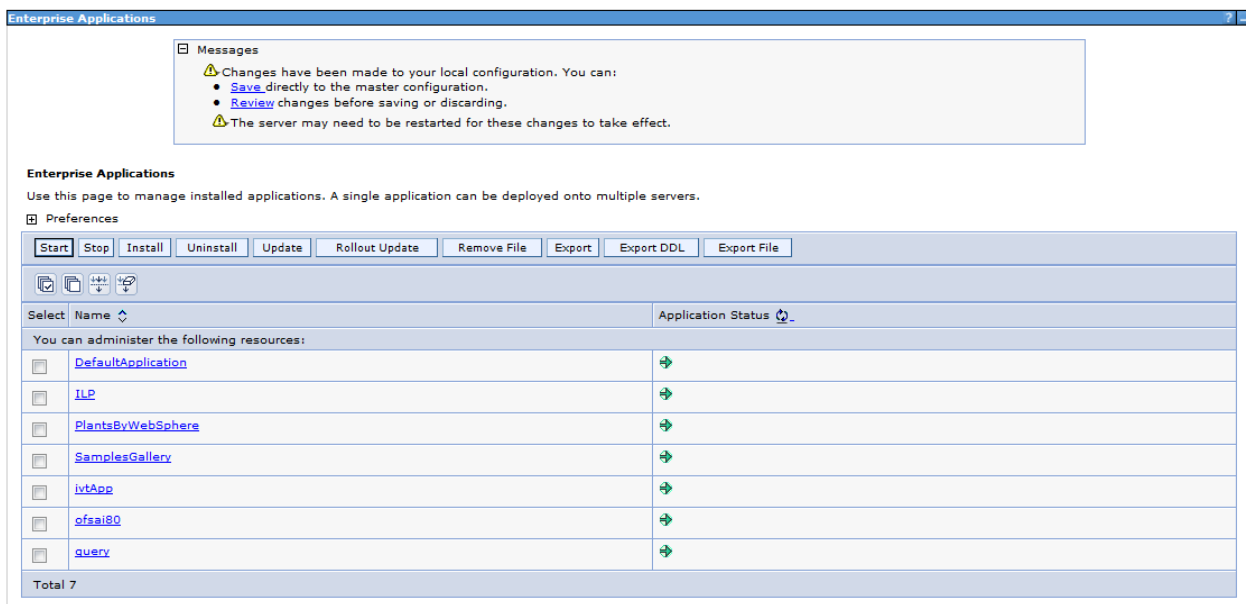
12. Click **Finish**. On successful installation, a message is displayed.



13. Click **Save** and save the master file configuration. The details are displayed in the *Master File Configuration* page.



14. Select **ILP** and click **Start**. The Enterprise Application page is displayed with confirmation message.



15. Restart all OFS AAI servers. For more information, refer to the Start/Stop Infrastructure Services section in the Oracle Financial Services Analytical Applications Infrastructure Installation and Configuration Guide available on the [OHC](#) page.

5.4 Logging

Once the sample application client is triggered, the logs get written onto RTI-server.log from the path <<ILP deploy area>>/logs

By default, the log mode will be set to 'info'. If detailed logs are required then follow these steps:

1. Navigate to <FIC_HOME>/realtime_processing/WebContent/WEB-INF/

2. Edit the file `log4j.xml` to modify the level value of the code from 'info' to 'debug' as follows:

```
<logger name="com.ofs.aai">  
<level value="DEBUG"/>  
</logger>
```

3. Create `ilp.ear/ilp.war`. For more information, refer to the *Creating ILP.ear/ILP.war* section in the *Oracle Financial Services Inline Processing Engine Configuration Guide* available on the [OHC](#) page.
4. Deploy the ILP.ear file. For more information, refer to the *Deploying ILP.ear. in Weblogic* section or *Deploying ILP.ear. in Websphere* section in the *Oracle Financial Services Inline Processing Engine Configuration Guide* available on the [OHC](#) page.

6 HIVE Configurations

To run IPE in HIVE, perform the following configurations:

NOTE: HIVE supports only batch mode processing.

6.1 Loading UDF file in HIVE

To load the UDF file in HIVE, follow these steps:

1. Copy the JAR file `$FIC_HOME/realtime_processing/ipeudf/lib/ofsa_ipe_udf.jar` to the host on which HIVEServer2 is running.
2. Provide the HIVE user with Read, Write and Execute permissions to this directory, and make a note of the path (For example, `/opt/local/hive/lib/`).
3. Login to the Cloudera Manager Console as an admin user and navigate to Clusters menu, click on HIVE. The HIVE service window appears.
4. Click the **Configuration** tab.

NOTE: This is the Classic layout of the Cloudera Manager console.

5. Click Service-Wide menu and select **Advanced**.
6. Configure the HIVE Auxiliary JARs Directory property with the HIVEServer2 host path from Step 1, `/opt/local/hive/lib/`.
7. Click **Save Changes**. The JARs are added to `HIVE_AUX_JARS_PATH` environment variable.
8. Redeploy the HIVE client configuration. Follow these steps:
 - a. Navigate to the HIVE service in the Cloudera Manager Admin Console.
 - b. On the **Actions** menu, select **Deploy Client Configuration**.
 - c. Click **Deploy Client Configuration**.
9. Restart the HIVE service. If the HIVE Auxiliary JARs Directory property is configured but the directory does not exist, HIVEServer2 does not start. Follow these steps:
 - a. On the **Actions** menu, select **Restart**.
 - b. Click **Restart**.

6.2 Creating Result Tables

To create Result Tables for HIVE, follow these steps:

1. Login to the server where OFSAA is installed.

2. Navigate to the path `$FIC_HOME/realtime_processing/infodomscripsts/DDL/hive` and execute the scripts in `create_infodom.hql` file into the Datadom (HIVE schema).
3. The tables `RTI_ASSMNT_EVAL_RESULT` and `RTI_ASSMNT_RESULT` are created.

7 Appendix A

Inline Processing URL of JMS

Construct URL for JMS as below.

- **Websphere**→`iiop://<APP_SERVER_HOST_NAME>:<BOOTSTRAP_ADDRESS>`
For example, `iiop://myhost.mydomain.com:2809`

NOTE: For more information, refer to the *Oracle Financial Services Analytical Applications Infrastructure Inline Processing Configuration Guide* available in the [OTN](#) page. Check the port in the *Websphere* section.

- **Weblogic**→`t3://<APP_SERVER_HOST_NAME>:<SERVLET PORT>` (Use t3s protocol for SSL)
For example, `t3://myhost.mydomain.com:7001`

NOTE: `<APP_SERVER_HOST_NAME>` is the IP or the Host Name of a server where WebLogic or WebSphere is installed.

8 Appendix B

8.1 Check ports in WebSphere

To check the ports in WebSphere, follow these steps:

1. Open the following URL in the browser window:
<http://<ipaddress>:<administrative console port>/ibm/console>. (https if SSL is enabled). The Login window is displayed.
2. Login with the Administrator **Username** and **Password**.
3. Click **+** to expand **Servers**.
4. Click **+** to **Server Types**.
5. Click **WebSphere application servers**.

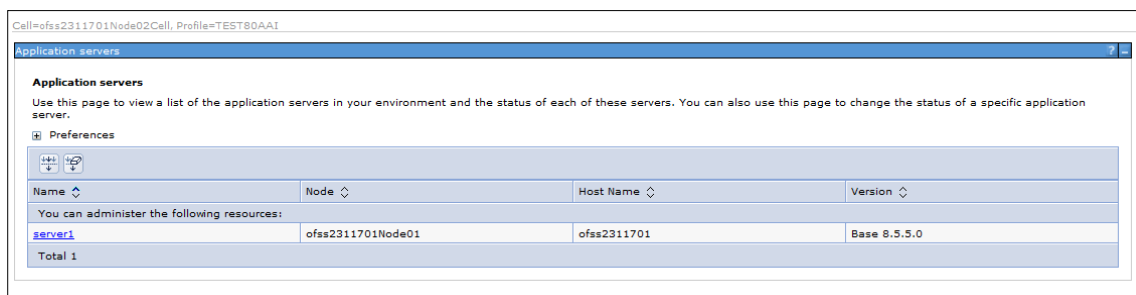


Figure 63: Application Servers

6. Click **server1**.

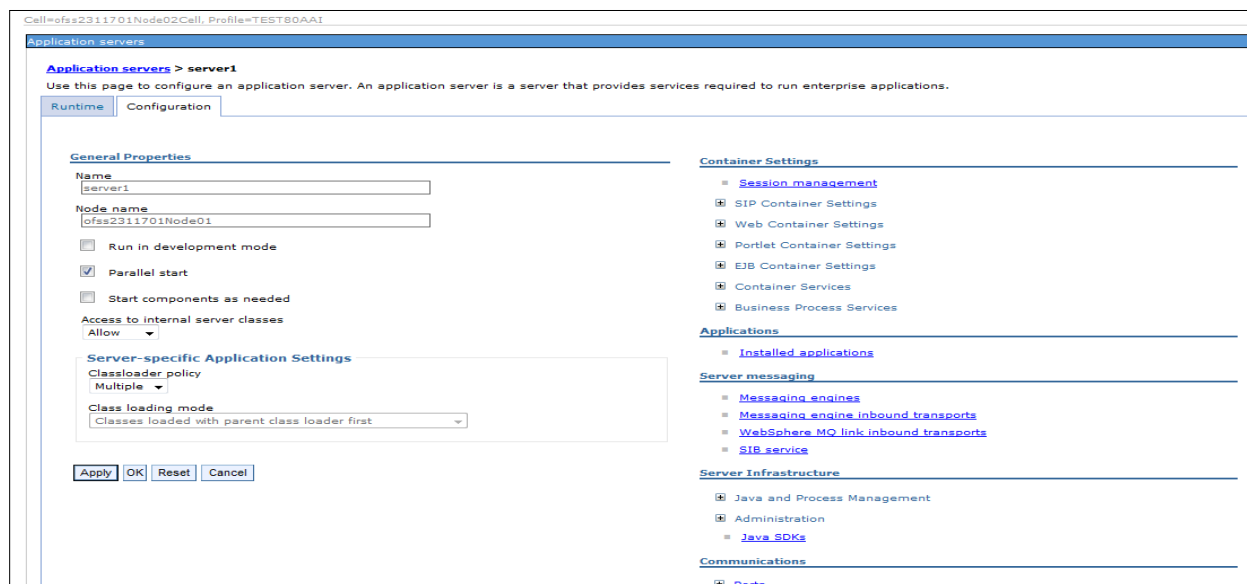


Figure 64: Application Servers

7. Click + to expand **Ports** under **Communications**.

The screenshot shows the Oracle WebCenter Communications configuration console. On the left, there are settings for 'Classloader policy' (set to 'Multiple') and 'Class loading mode' (set to 'Classes loaded with parent class loader first'). Below these are 'Apply', 'OK', 'Reset', and 'Cancel' buttons. The main area is divided into sections: 'Server messaging' (with sub-items: Messaging engines, Messaging engine inbound transports, WebSphere MQ link inbound transports, SIB service), 'Server Infrastructure' (with sub-items: Java and Process Management, Administration, Java SDKs), and 'Communications' (with sub-item: Ports). The 'Ports' section is expanded to show a table of port configurations.

| Port Name | Port | Details |
|---------------------------------------|-------|---------|
| BOOTSTRAP_ADDRESS | 2811 | |
| SOAP_CONNECTOR_ADDRESS | 8882 | |
| ORB_LISTENER_ADDRESS | 9102 | |
| SAS_SSL_SERVERAUTH_LISTENER_ADDRESS | 9409 | |
| CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS | 9408 | |
| CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS | 9407 | |
| WC_adminhost | 9062 | |
| WC_defaulthost | 9083 | |
| DCS_UNICAST_ADDRESS | 9355 | |
| WC_adminhost_secure | 9045 | |
| WC_defaulthost_secure | 9445 | |
| SIP_DEFAULTHOST | 5065 | |
| SIP_DEFAULTHOST_SECURE | 5064 | |
| SIB_ENDPOINT_ADDRESS | 7278 | |
| SIB_ENDPOINT_SECURE_ADDRESS | 7288 | |
| SIB_MQ_ENDPOINT_ADDRESS | 5560 | |
| SIB_MQ_ENDPOINT_SECURE_ADDRESS | 5580 | |
| IPC_CONNECTOR_ADDRESS | 9635 | |
| OVERLAY_UDP_LISTENER_ADDRESS | 11007 | |
| OVERLAY_TCP_LISTENER_ADDRESS | 11008 | |

Below the table, there are additional sections: 'Messaging' (with sub-item: Communications Enabled Applications (CEA)) and 'Performance'.

Figure 65: Ports List

9 Appendix C

9.1 Checking Target Inbound transport chain and Provider endpoints values

To check the values, follow these steps:

1. Open the following URL in the browser window:
<http://<ipaddress>:<administrative console port>/ibm/console>. (https if SSL is enabled). The Login window is displayed.
2. Login with the Administrator **Username** and **Password**.
3. Click **+** to expand **Servers** in the LHS menu.
4. Click **+ Server Types**.
5. Click **WebSphere application servers**. The Application servers screen is displayed.

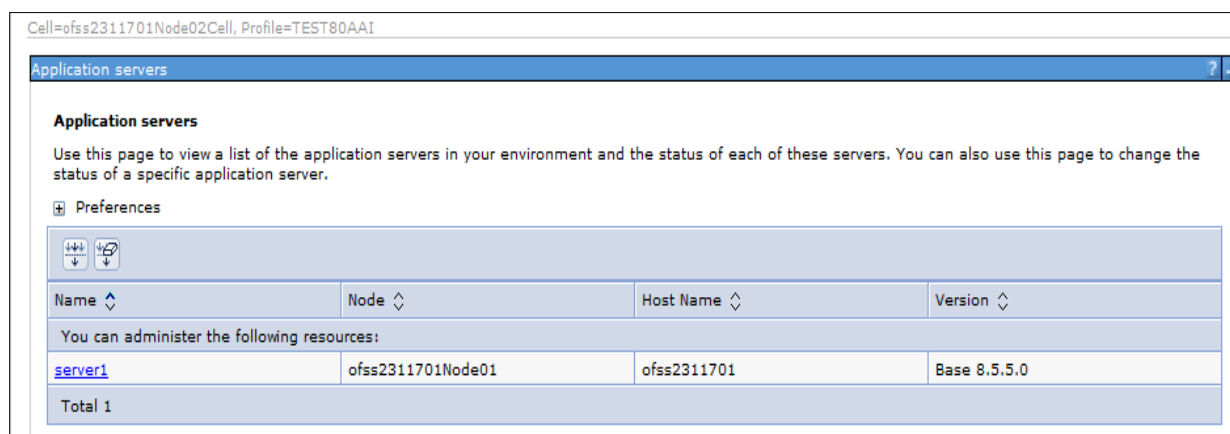


Figure 66: Application servers

6. Click **server1**.
7. Navigate to **Configuration** tab.

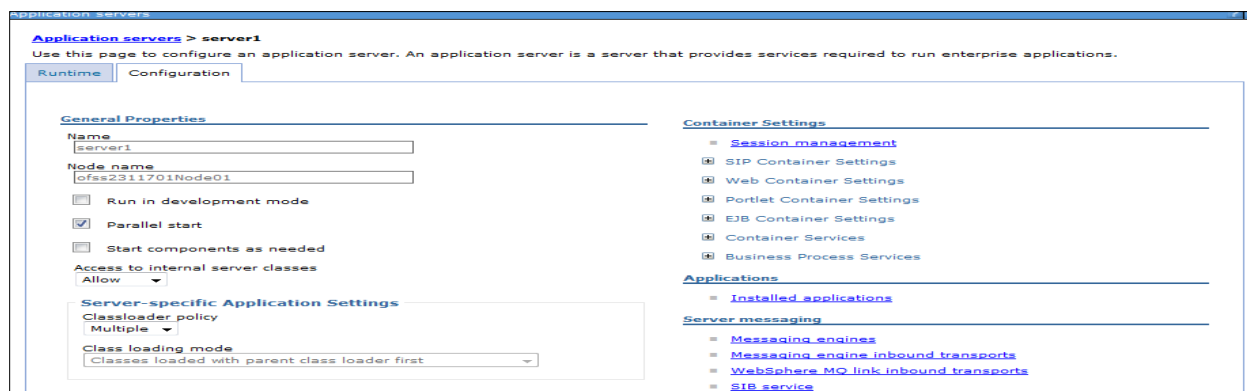


Figure 67: Configuration

8. Under **Server messaging**, select **Messaging engine inbound transports**. The *Transport Chain* screen is displayed.

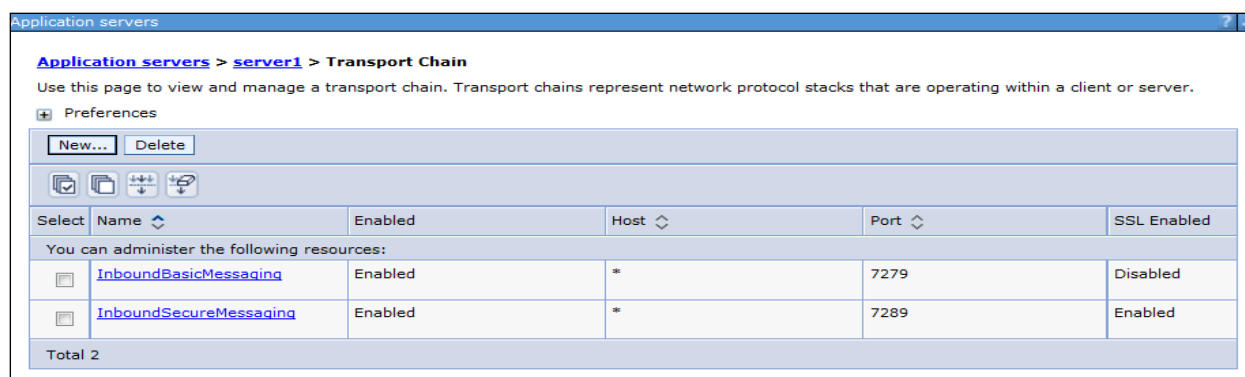


Figure 68: Transport Chain

9. Note the Transport chain name `InboundBasicMessaging` for Target Inbound Transport Chain.
10. Use the following **Provider endpoints** format: `<WebSphere_HostName> : <SIB_ENDPOINT_ADDRESS port>: <Transport Chain Name>`
- `<WebSphere_HostName>`: The hostname of the server where WebSphere is installed.
 - `<SIB_ENDPOINT_ADDRESS port>`: The transport chain port corresponding for Transport chain name as `InboundBasicMessaging`.
 - `<Transport Chain Name>`: The Transport chain name as `InboundBasicMessaging`.

For example: `ofss222868.in.oracle.com:7279:InboundBasicMessaging`

NOTE: The transport chain name and Provider endpoints should be entered during configuration of JMS Connection Factory. Refer to section [Configuring JMS Connection Factory](#) for more details.



OFS AAA IPE

8.0.5.0.0 Configuration Guide

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:

Phone: +1.650.506.7000

Fax: +1.650.506.7200

www.oracle.com/us/industries/financial-services/

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