Oracle® Banking Corporate Lending

JMS Configuration on Weblogic Server

Release 14.8.2.0.0
G53337-02
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Oracle Banking Corporate Lending JMS Configuration on Weblogic Server, Release 14.8.2.0.0

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Contents

Preface

This topic contains the following sub-topics:

Purpose

This guide is designed to help acquaint you to configure JMS on Oracle Weblogic server in cluster mode. This guide helps the user with the installation of Oracle Banking Application.

Acronyms and Abbreviations

The list of the acronyms and abbreviations used in this guide are as follows:

Table 1 Acronyms and Abbreviations

Abbreviation	Description
BIP	Business Intelligence Publisher
EAR	Enterprise Archive file
EMS	Electronic Messaging Service
JDBC	Java Database Connectivity
JMS	Java Message Service
JNDI	Java Naming and Directory Interface
MDB	Message-Driven Bean
NFS	Network File System
WLS	WebLogic Server

Audience

This manual is intended for the following User/User Roles:

Table 2 Audience

Role	Function
Administrator	Who controls the system and application parameters and ensures smooth functionality and flexibility of the banking application.
Implementation team	Implementation of Oracle Banking Corporate Lending Solution
Pre-sales team	Install Oracle Banking Corporate Lending for demo purpose
Bank personnel	Who installs Oracle Banking Corporate Lending

The user of this manual is expected to have basic understanding of Oracle Banking Application installation.

Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at Critical Patches, Security Alerts and Bulletins. All critical patches should be applied in a timely manner to ensure effective security, as strongly recommended by Oracle Software Security Assurance.

Conventions

The following text conventions are used in this document:

Table 3 Conventions

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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Related Resources

For more information on any related features, refer to the following documents:

- Resource To Be Created Guide
- Installer EAR Building Guide

Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.

1

Introduction

This guide provide brief description on major components in WeblogicJMS Server architechture.

This topic contains the following sub-topics:

- Purpose of Major Components
  This topic explains the steps required for JMS configuration in cluster mode.
- Weblogic 12c New Features
  This topic provides detailed information on the Weblogic 12c JMS server new features.
- Components Diagram and Data Flow
  This topic describes the various components of Weblogic JMS Server architecture that to be created.

1.1 Purpose of Major Components

This topic explains the steps required for JMS configuration in cluster mode.

1. Oracle Banking Corporate Lending
2. WebLogic Server 12.1.3.0.0

JMS Server

The JMS server acts as a management container for the JMS queue and topic resources defined within JMS modules that are targeted to specific JMS servers. A JMS server's main responsibility is to maintain persistent storage for these resources, maintain the state of the durable subscriber, etc. JMS servers can host a defined set of modules and any associated persistent storage that reside on a WebLogic Server instance.

JMS Module

JMS modules are application-related definitions that are independent of the domain environment. JMS modules group JMS configuration resources (such as queues, topics, and connections factories). These are outside domain configurations. JMS modules are globally available for targeting servers, and clusters configured in the domain, and therefore are available to all the applications deployed on the same target. JMS modules contain configuration resources, such as standalone queue and topic destinations, distributed destinations, and connection factories.

Subdeployment

Subdeployment is also known as Advanced Targeting. Subdeployment resource is a bridge between the group of JMS resources and JMS Servers. While creating a JMS resource, the user needs to choose one Subdeployment.

JMS Resources

Table 1-1 JMS Resources- Description

JMS Resources	Description
Queue	This defines a point-to-point destination type, which is used for asynchronous peer communications. A message delivered to the queue is distributed to only one customer.
Topic	This defines a publish/subscribe destination type, which is used for asynchronous peer communication. A message delivered to the topic is distributed to all topic consumers.
Distributed queue	This defines a set of queues that are distributed on multiple JMS servers, but are accessible as a single, logical queue to JMS clients.
Distributed topic	This defines a set of topics that are distributed on multiple JMS servers, but which are as accessible as a single, logical topic to JMS clients.
Uniform Distributed Queue	This queue members are created uniformly from a common configuration.

Persistence store

A persistent store provides a built-in, high-performance storage solution for WebLogic Server subsystems and services that required persistence. There are two types of mechanisms to store the message -

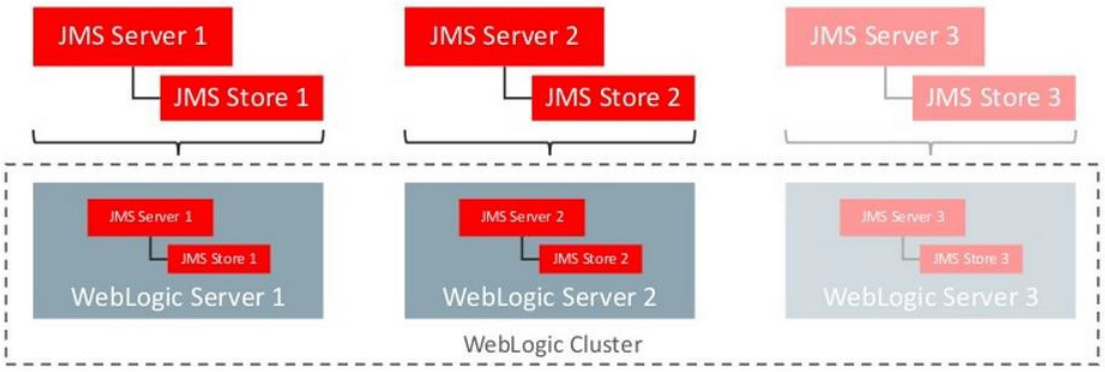
1. File-based persistence store - Message is stored in a file
2. DB-based persistence store - Message is stored in Database.

1.2 Weblogic 12c New Features

This topic provides detailed information on the Weblogic 12c JMS server new features.

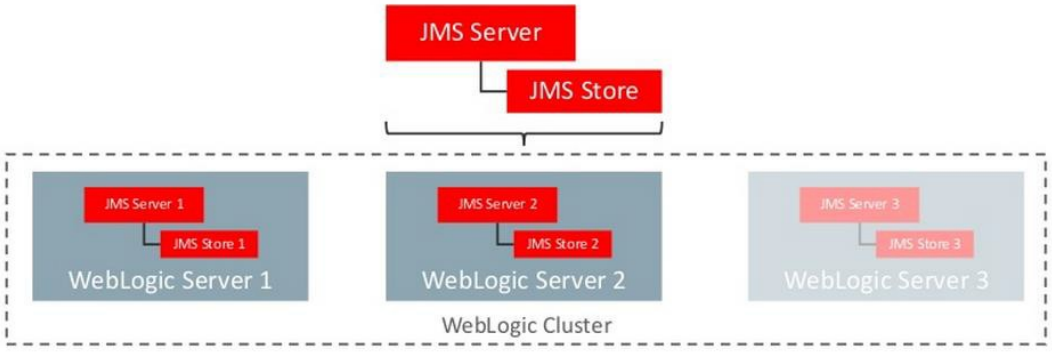
Previouse Weblogic 12c JMS Servers and stores are targeted to individual WLS Servers. Scaling up requires to configure the JMS server, store and target it to the new WLS Server.

Figure 1-1 Architecture previous to 12c



In 12c JMS Servers and stores are targeted to the WLS cluster. Scaling up requires to add a WLS server to the cluster.

Figure 1-2 Architecture in 12c

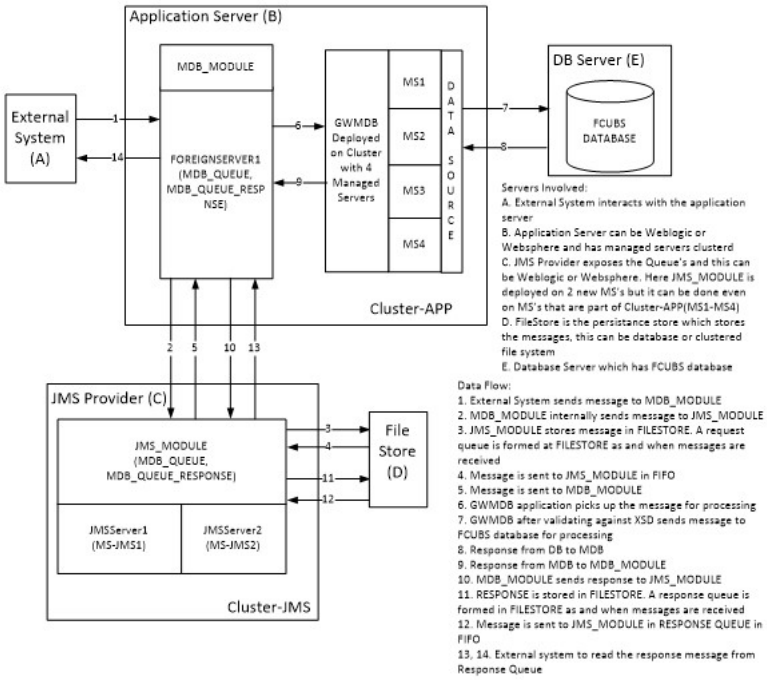


1.3 Components Diagram and Data Flow

This topic describes the various components of Weblogic JMS Server architecture that to be created.

Below is the flow diagram which indicates various components that are used and the document explains the steps to create.

Figure 1-3 Components Diagram and Data Flow



Servers Involved -

1. External System interacts with the application server.
2. The application server can be Weblogic or Websphere and has managed servers clustered.

3. JMS provider exposes the Queue and this can be Weblogic or Websphere. Here JMS_MODULE is deployed on 2 new MSs but it can be done even on MSs that are part of Cluster-APP(MS1-MS4).
4. FileStore is the persistence store that stores the messages, this can be a database or clustered file system.
5. Database Server which has FCUBS database.

Data Flow -

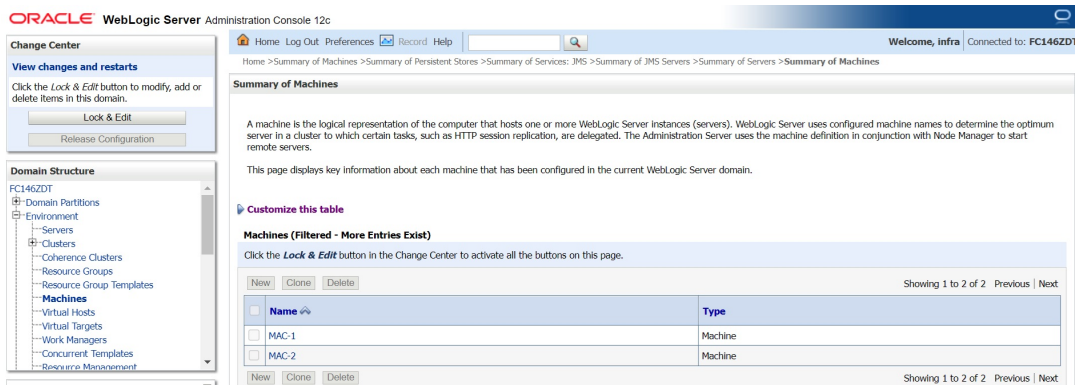
1. External System sends a message to MDB_MODULE.
2. MDB_MODULE internally sends a message to JMS_MODULE.
3. JMS_MODULE stores messages in FILESTORE. A request queue is formed at FILESTORE as and when messages are received.
4. The message is sent to JMS_MODULE in FIFO.
5. The message is sent to MDB_MODULE.
6. GWMDB application picks up the message for processing.
7. GWMDB after validating against XSD sends a message to the FCUBS database for processing.
8. Response from DB to MDB
9. Response from MDB to MDB_MODULE
10. MDB_MODULE sends a response to JMS_MODULE.
11. RESPONSE is stored in FILESTORE. A response queue is formed in FILESTORE as and when messages are received.
12. The message is sent to JMS_MODULE in RESPONSE QUEUE in FIFO.
13. The message is sent to JMS_MODULE in RESPONSE QUEUE in FIFO.

2 Prerequisites

The topic assumes that the below are created before proceeding with the JMS creation.

- **Machines**
  Make sure that **MAC-1** and **MAC-2** machines are created.

Figure 2-1 Summary of Machines



- **Dynamic Clusters and Managed Servers**
  Make sure that the dynamic cluster for FCUBS (4 Managed Servers) and Dynamic cluster for JMS Deployment (2 Managed Servers) are created.

Figure 2-2 Summary of Clusters

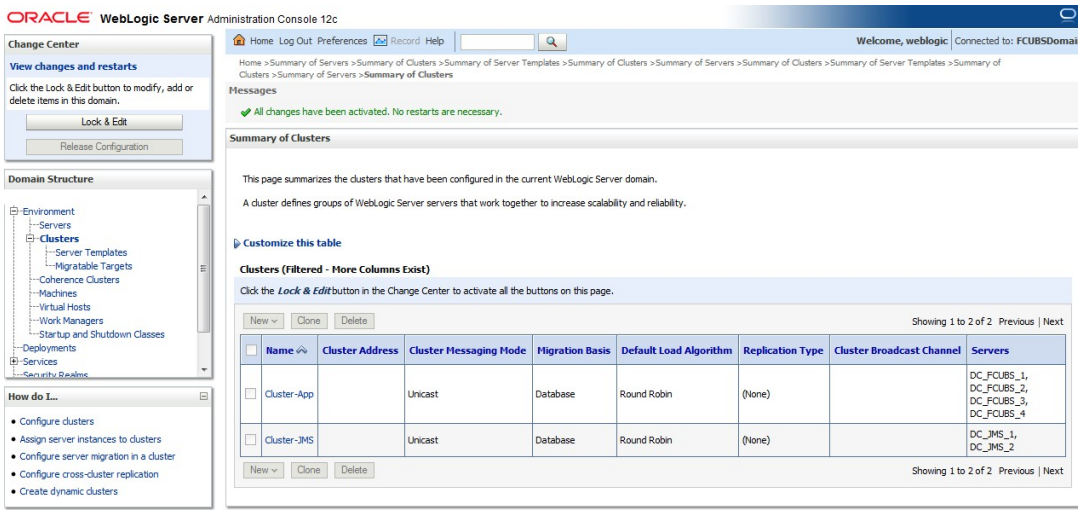
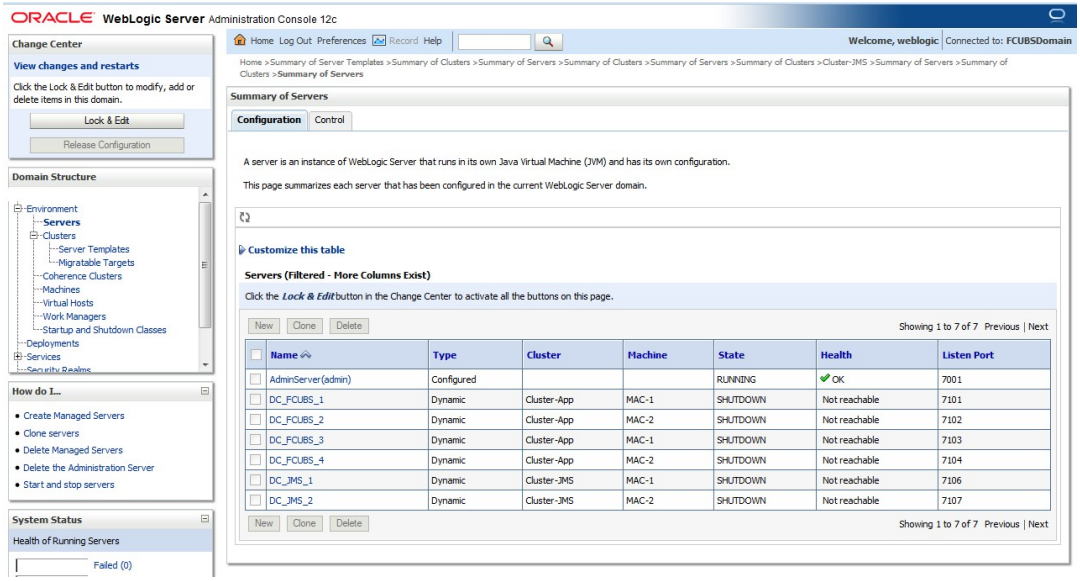
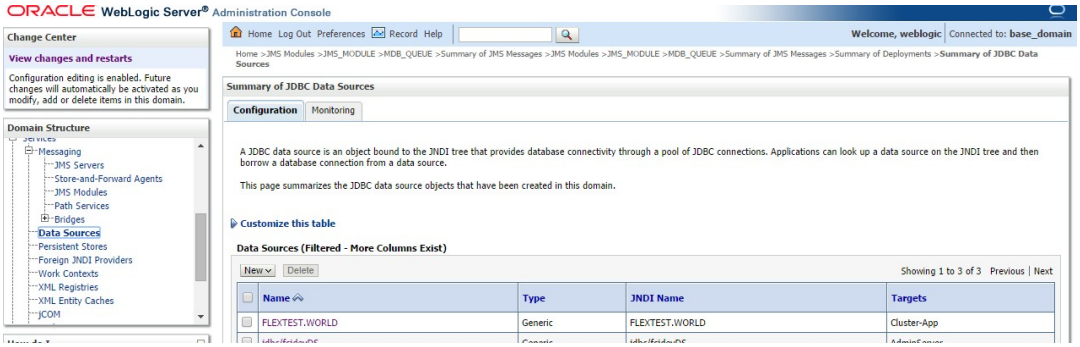


Figure 2-3 Summary of Servers



- **Data Source**
  Make sure that Data Source is required for the MDB EAR is created with target as **Cluster-App**.

Figure 2-4 Summary of JDBC Data Sources



- **Shared Folder**
  A shared folder for File Store Creation is required, and this folder should be accessible across both servers (For example, NFS mount).

3
JMS Configuration

This topic contains the following sub-topics:

- Create Persistence Store
  This topic explains systematic instructions to create the Persistence Store.
- Create JMS Server
  This topic explains systematic instructions to create the JMS Server.
- Configure Cluster for Service Migration
  This topic explains the systematic instructions to configure cluster for service migration.

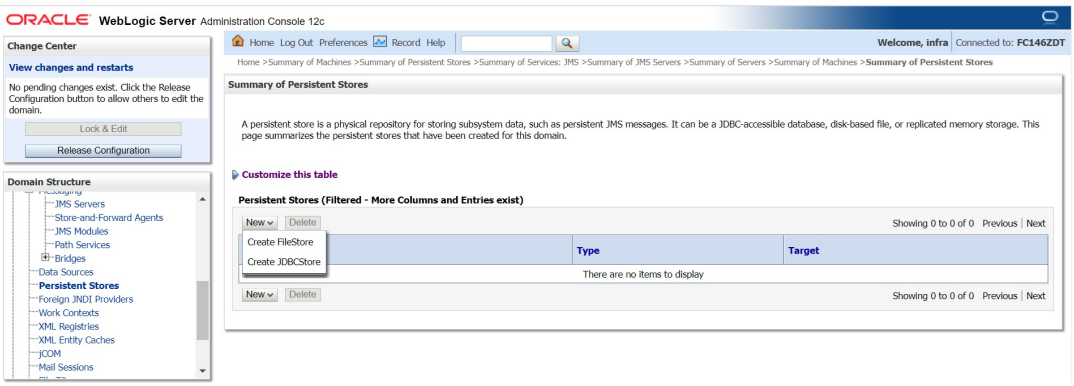
3.1 Create Persistence Store

This topic explains systematic instructions to create the Persistence Store.

1. Under the **Domain Structure** on the left panel, navigate to the **Services**, and click **Messaging**, and then click **Persistent Stores**.

   The **Summary of Persistent Stores** screen displays.

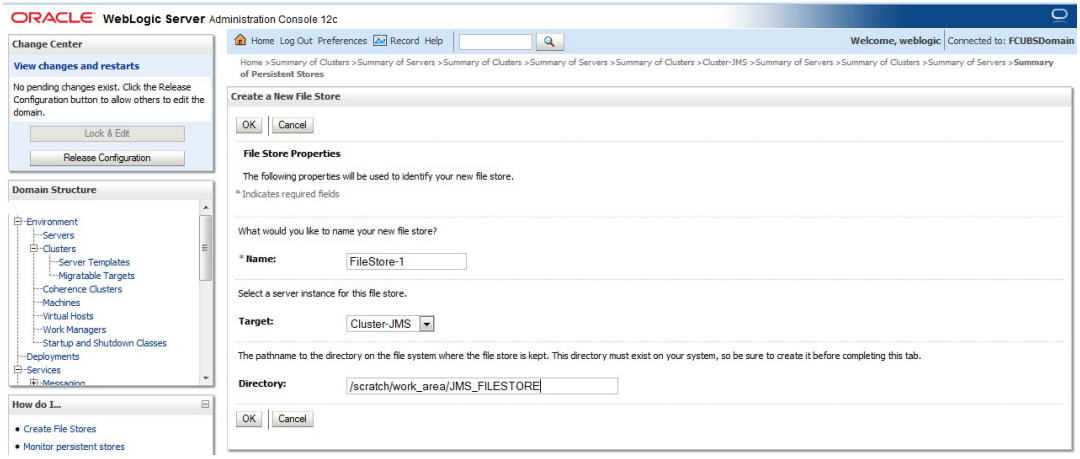
Figure 3-1 Summary of Persistent Stores



2. Click **New** and select **Create FileStore** from the drop-down list.

   The **Create a New File Store** screen displays.

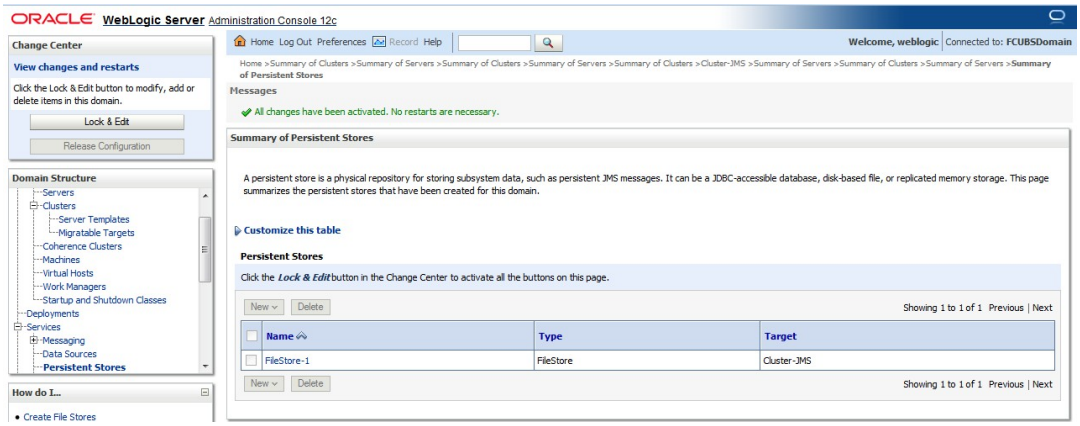
Figure 3-2 Create a New File Store



3. Select **Cluster-JMS** from the **Target** drop-down, and click **OK**.

   The **FileStore-1** is created.

Figure 3-3 Summary of Persistent Stores - Message



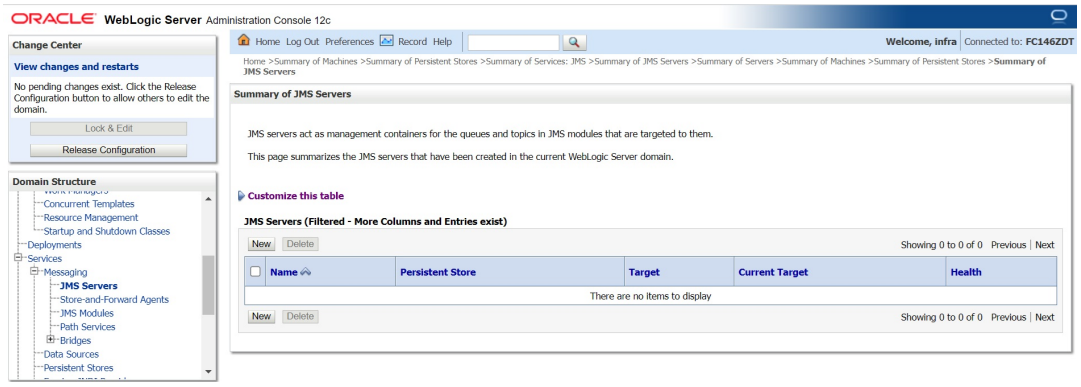
3.2 Create JMS Server

This topic explains systematic instructions to create the JMS Server.

1. Under the **Domain Structure** left panel, navigate to the **Services**, and click **Messaging** and then click **JMS Servers**.

   The **Summary of JMS Servers** screen displays.

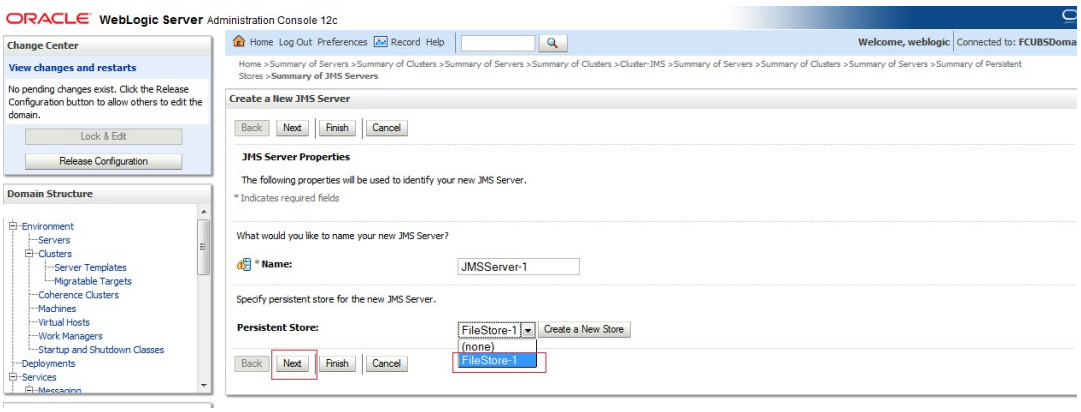
Figure 3-4 Summary of JMS Servers



2. Under JMS server table, click **New**.

   The **Create a New JMS Server** screen displays.

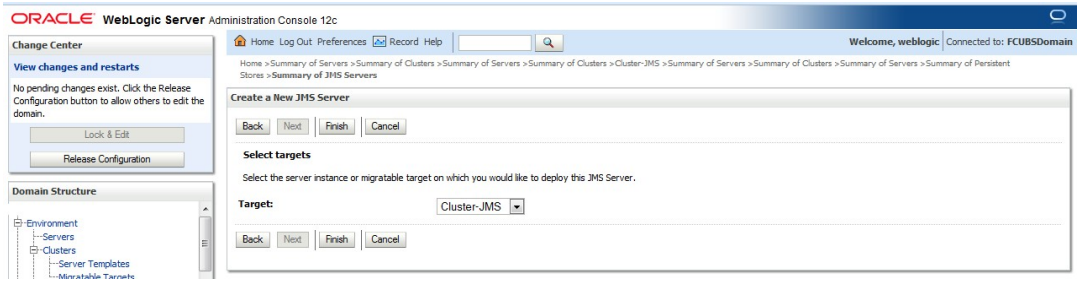
Figure 3-5 Create a New JMS Server



3. Select **FileStore-1** in the field of **Persistent Store**, and then click **Next**.

   The **Create a New JMS Server- Target** screen displays.

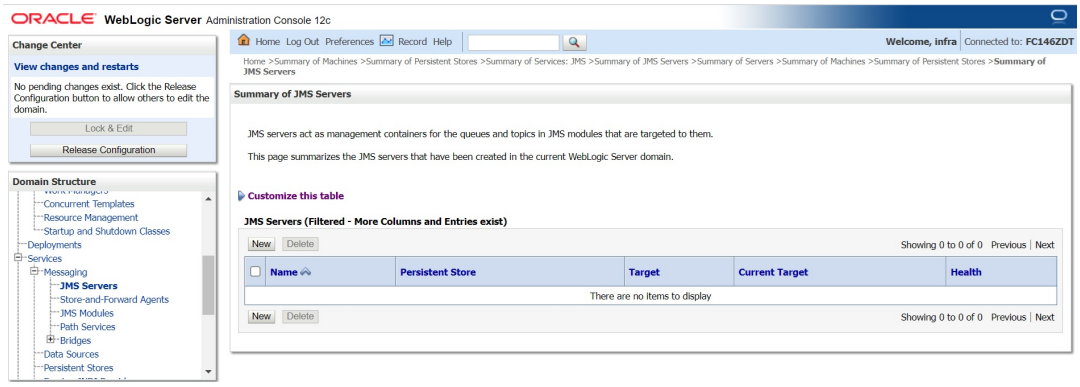
Figure 3-6 Create a New JMS Server- Target



4. Select **Target** as **Cluster-JMS**, and then click **Finish**.

   The **JMS-Server-1** is created.

Figure 3-7 Summary of JMS Servers - Message



In NFS below filestores can be seen.

Figure 3-8 JMS Filestore

```
[root@           JMS_FILESTORE]# ll
total 2056
-rw-r----- 1 wl12c oinstall 1049088 Jun 16 14:10 FILESTORE-1@DC_JMS_1000000.DAT
-rw-r----- 1 wl12c oinstall 1049088 Jun 16 14:10 FILESTORE-1@DC_JMS_2000000.DAT
[root@           JMS_FILESTORE]# pwd
/scratch/work_area/JMS_FILESTORE
[root@           JMS_FILESTORE]#
```

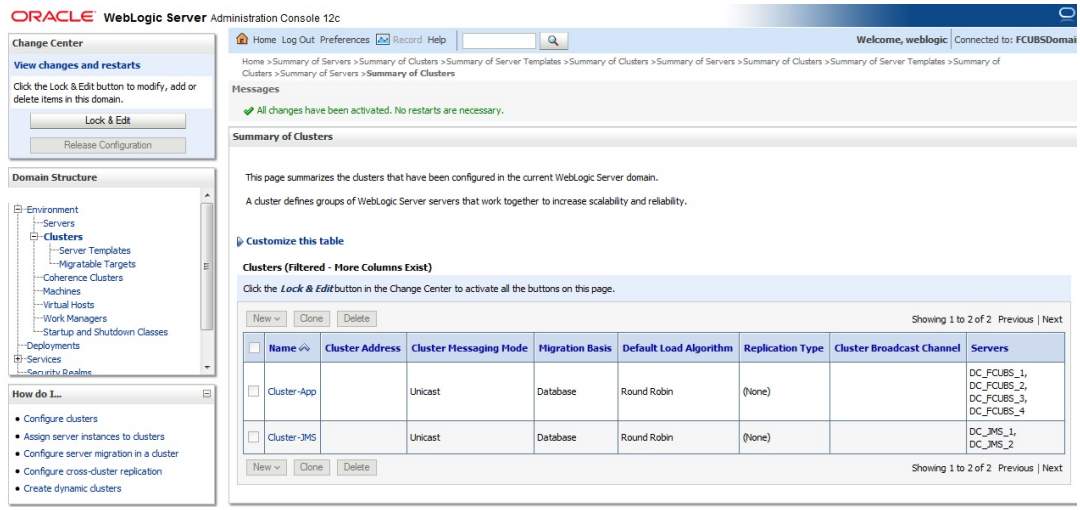
3.3 Configure Cluster for Service Migration

This topic explains the systematic instructions to configure cluster for service migration.

1. Under the **Domain Structure** left panel, click the **Environment** drop-down option, and then click **Clusters**.

   The **Summary of Clusters** screen displays.

Figure 3-9 Summary of Clusters



2. Select **Cluster-JMS** from clusters table.

   The **Settings for Cluster-JMS** screen displays.

Figure 3-10 Settings for Cluster-JMS - Migration tab

3. Click the **Migration** Tab.
4. Change Migration Basis to Consensus, and then click **Save**.

4

JMS Module Creation

This topic explains the creation of JMS module, sub deployment, queue and connection factory.

This topic contains the following sub-topics:

- Create JMS Module
  This topic explains systematic instructions to create the JMS Module.
- Create Sub Deployment
  This topic explains systematic instructions to create the Subdeployment.
- Create Resources
  This topic describes the steps to create resources for configuration of Weblogic JMS Server architecture.

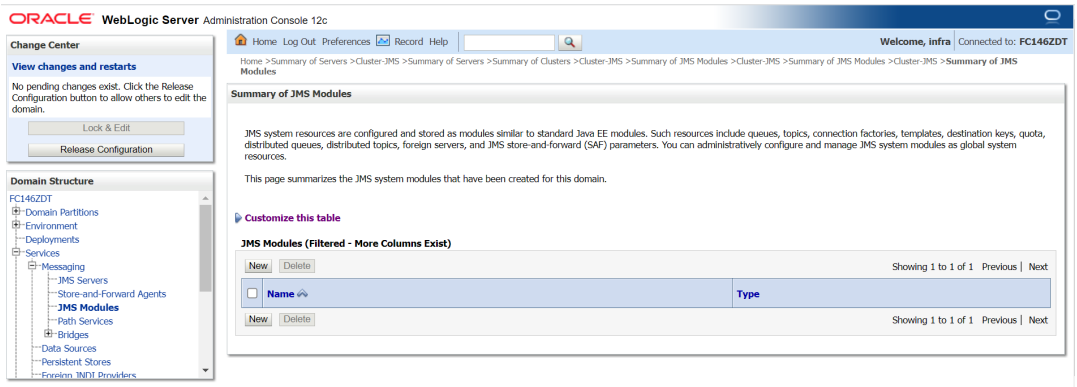
4.1 Create JMS Module

This topic explains systematic instructions to create the JMS Module.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option, and click **Messaging**, and then **JMS Modules**.

   The **Summary of JMS Module** screen displays.

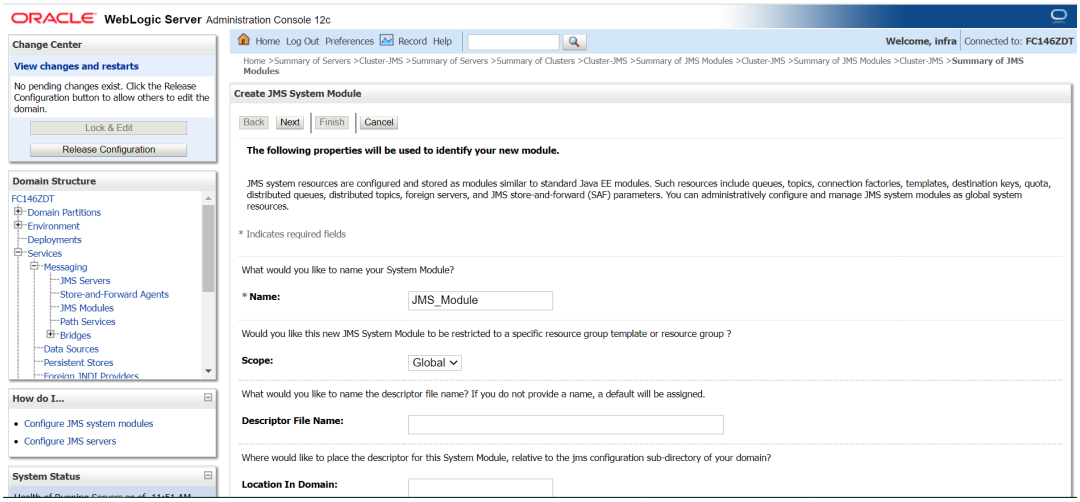
Figure 4-1 Summary of JMS Module



2. Click **New** in the **JMS Module** table.

   The **Create JMS System Module** screen displays.

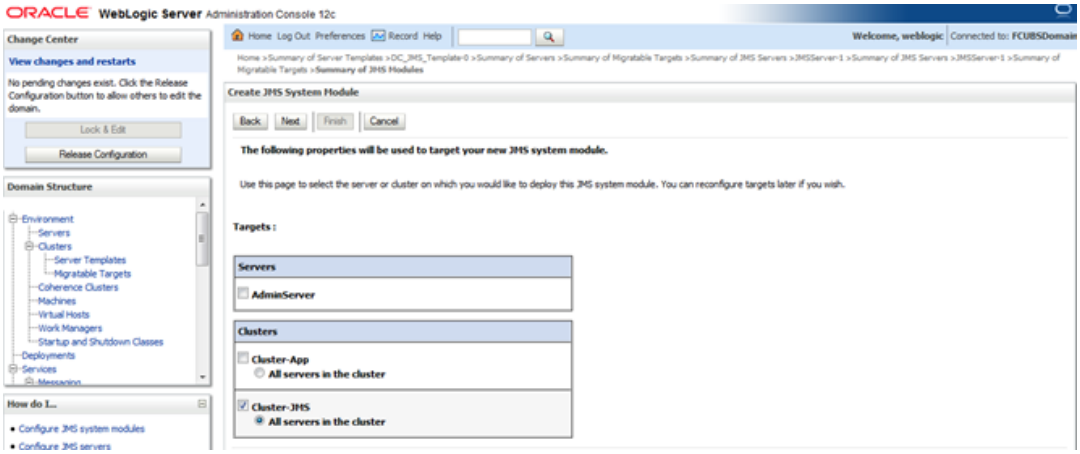
Figure 4-2 Create JMS System Module



3. Enter the **Name** as **JMS_MODULE**, and click **Next**.

   The **Create JMS System Module - Targets** screen displays.

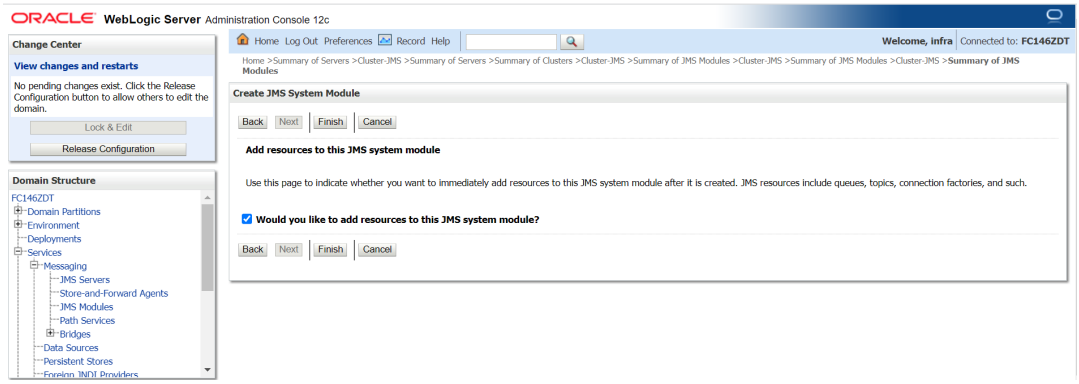
Figure 4-3 Create JMS System Module - Targets



4. Select the target as **Cluster-JMS**, and then click **Next**.

   The **Create JMS System Module - Add resources to this JMS system module** screen displays.

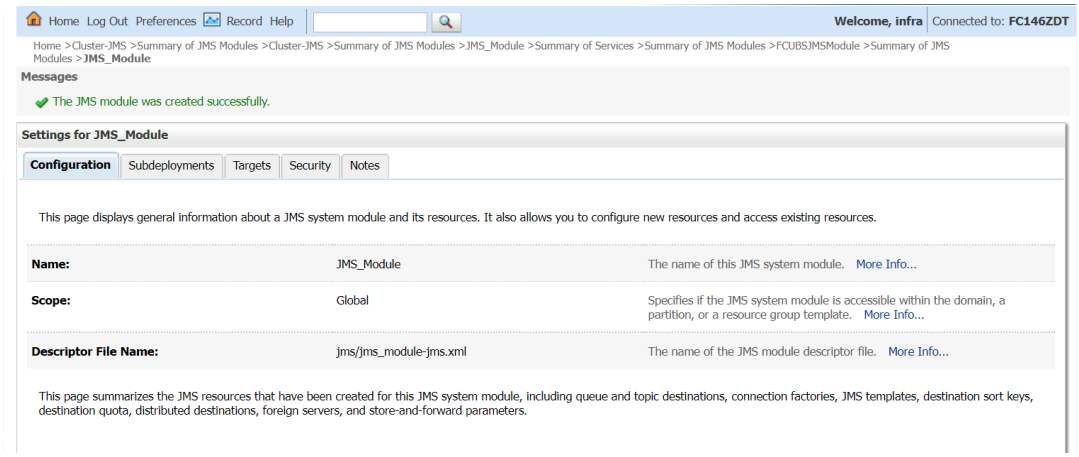
Figure 4-4 Create JMS System Module - Add resources



5. Select the check box, and click **Finish**.

   The **JMS_MODULE** is created and successful message displays on the **Settings for JMS_MODULE** screen.

Figure 4-5 Settings for JMS_MODULE - Messages



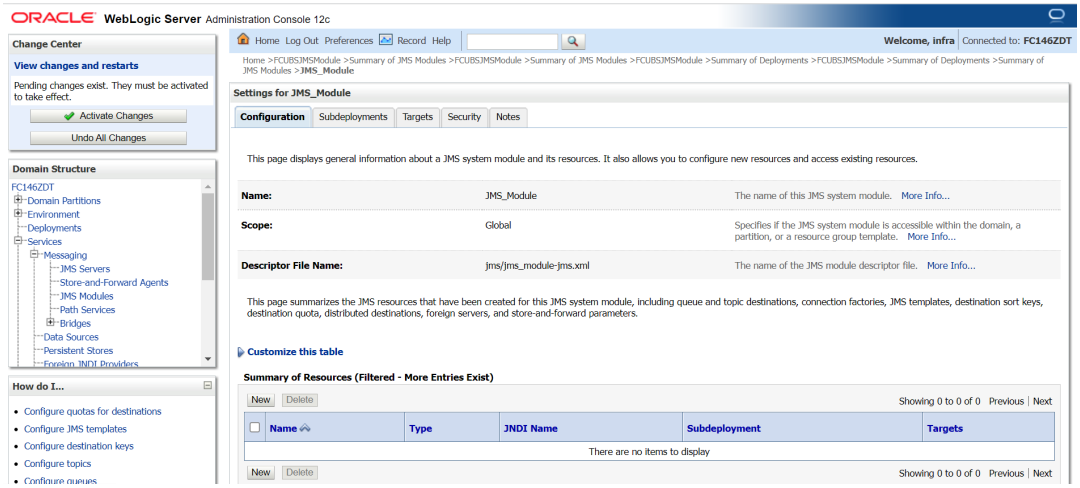
4.2 Create Sub Deployment

This topic explains systematic instructions to create the Subdeployment.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option.
2. Click **Messaging**, and then click **JMS Modules**.

   The **Settings for JMS_Module** screen displays.

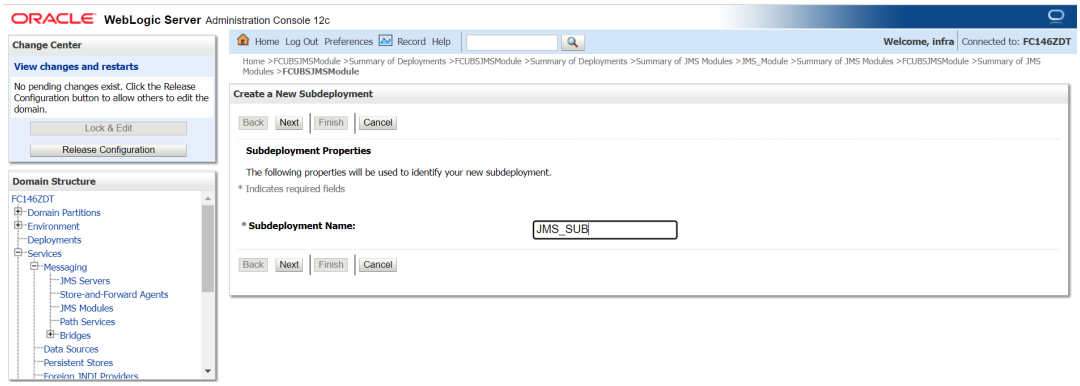
Figure 4-6 Settings for JMS_Module



3. Click the **Subdeployments** tab, and then click **New**.

   The **Create a New Subdeployment** screen displays.

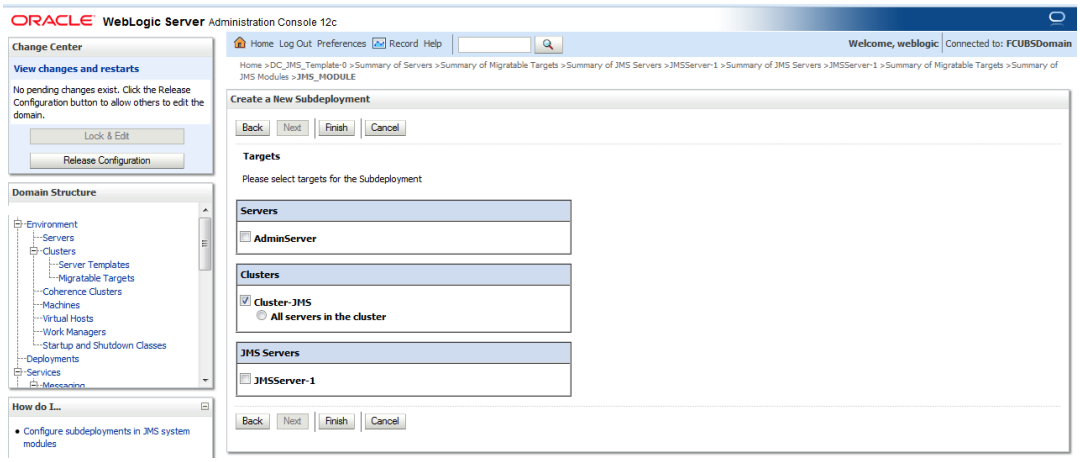
Figure 4-7 Create a New Subdeployment



4. Specify the **Subdeployment Name** as **JMS_SUB**, and then click **Next**.

   The **Create a New Subdeployment - Targets** screen displays.

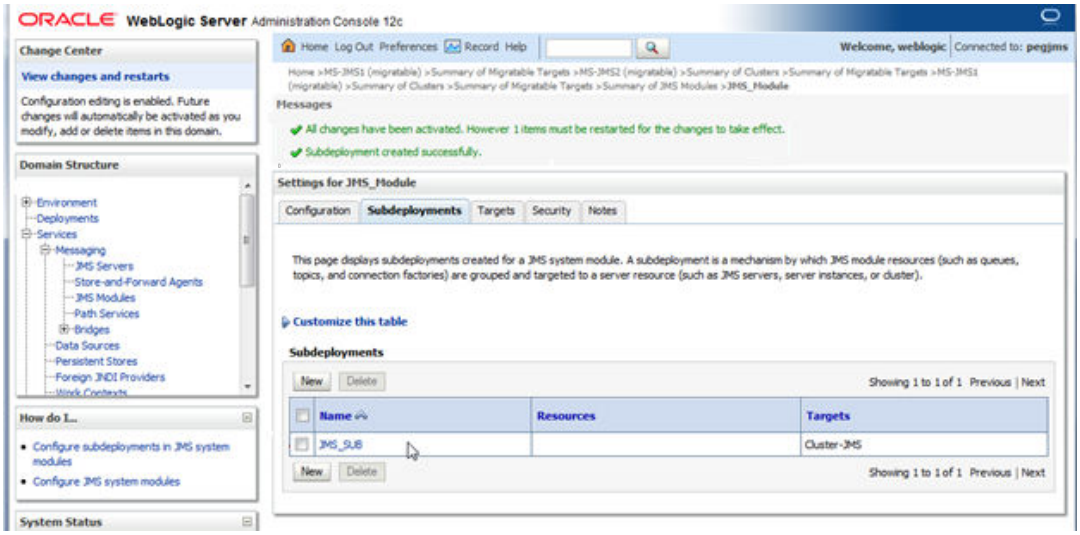
Figure 4-8 Create a New Subdeployment - Targets



5. Select the target as **Cluster-JMS**, and then click **Finish**.

   The **JMS_SUB** subdeployment is created.

Figure 4-9 Settings for JMS_Module- Subdeployment Messages



4.3 Create Resources

This topic describes the steps to create resources for configuration of Weblogic JMS Server architecture.

This topic contains the following sub-topics:

- Create Queue
  This topic explains systematic instructions to create the Queue.
- Create Connection Factory
  This topic explains systematic instructions to create the Connection Factory.

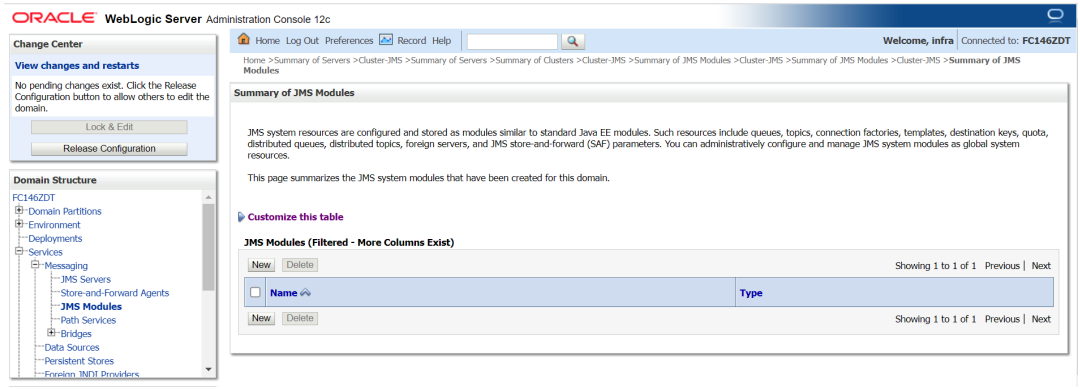
4.3.1 Create Queue

This topic explains systematic instructions to create the Queue.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option.
2. Click **Messaging**, and then click **JMS Modules**.

   The **Settings for JMS_Module** screen displays.

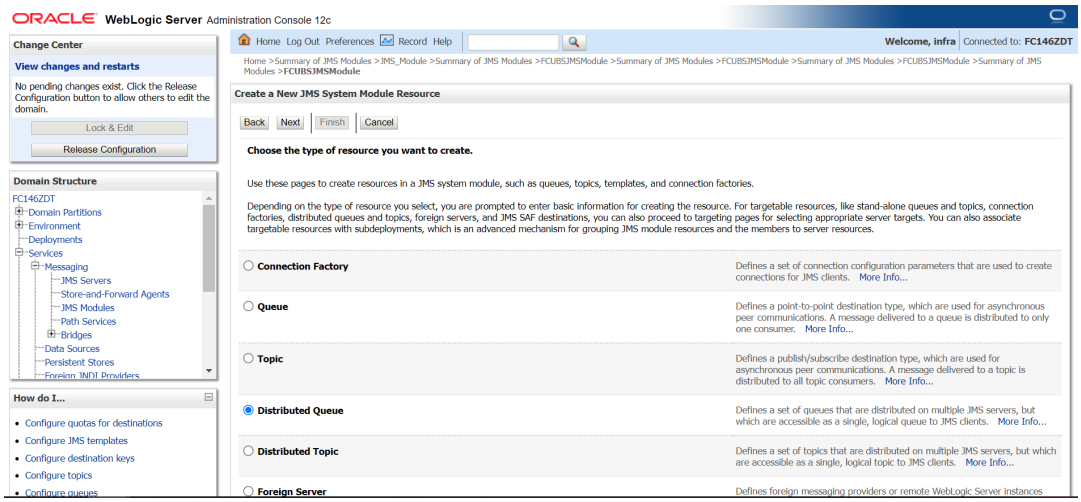
Figure 4-10 Settings for JMS_Module



3. Click the **Configuration** tab, and then click **New**.

   The **Create a New JMS System Module Resources** screen displays to choose the type of resources.

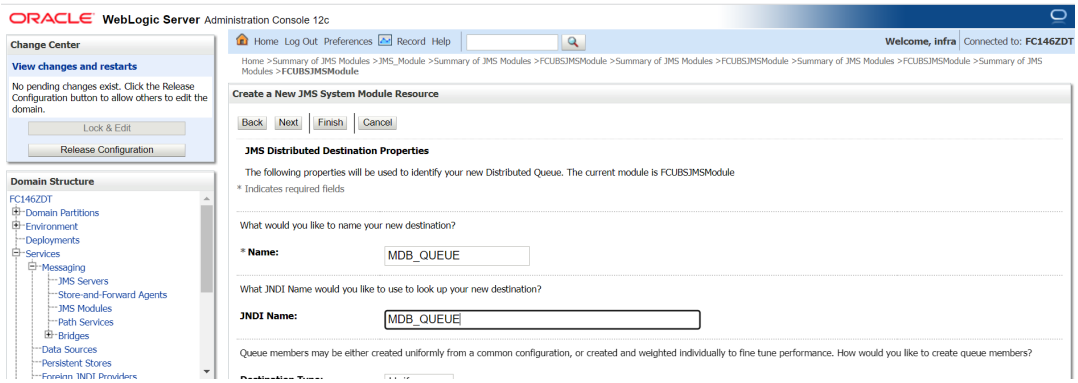
Figure 4-11 Create a New JMS System Module Resources - Choose resources



4. Select the **Distributed Queue**, and then click **Next**.

   The **Create a New JMS System Module Resources** screen displays to enter the name of the resources.

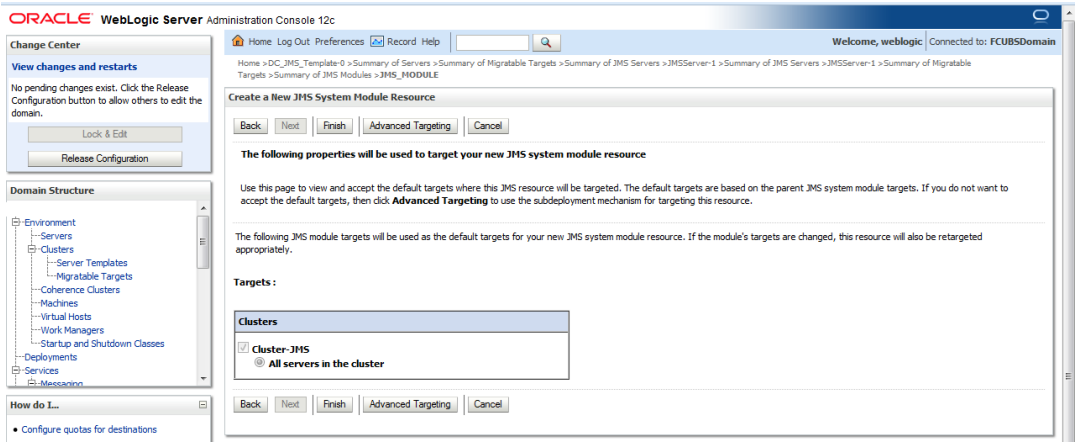
Figure 4-12 Create a New JMS System Module Resources - JMS Distributed Destination Properties



5. Enter the **Name** as MDB_QUEUE, and Click **Next**.

   The **Create a New JMS System Module Resources - Targets** screen displays to enter the name of the resources.

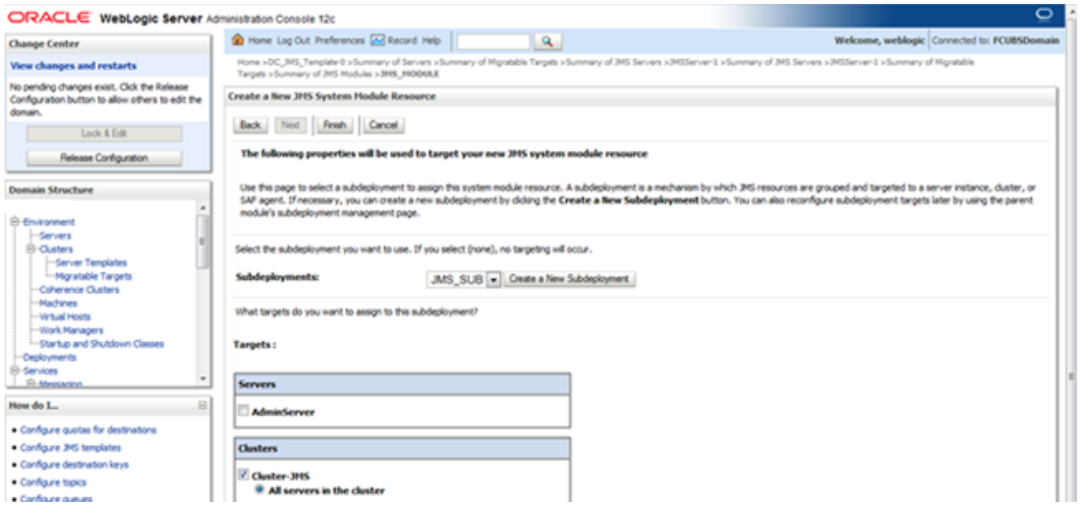
Figure 4-13 Create a New JMS System Module Resources - Targets



6. Click the **Advance Targeting** tab.

   The **Targets** tab opens in **Create a New JMS System Module Resources - Advance Targeting** screen.

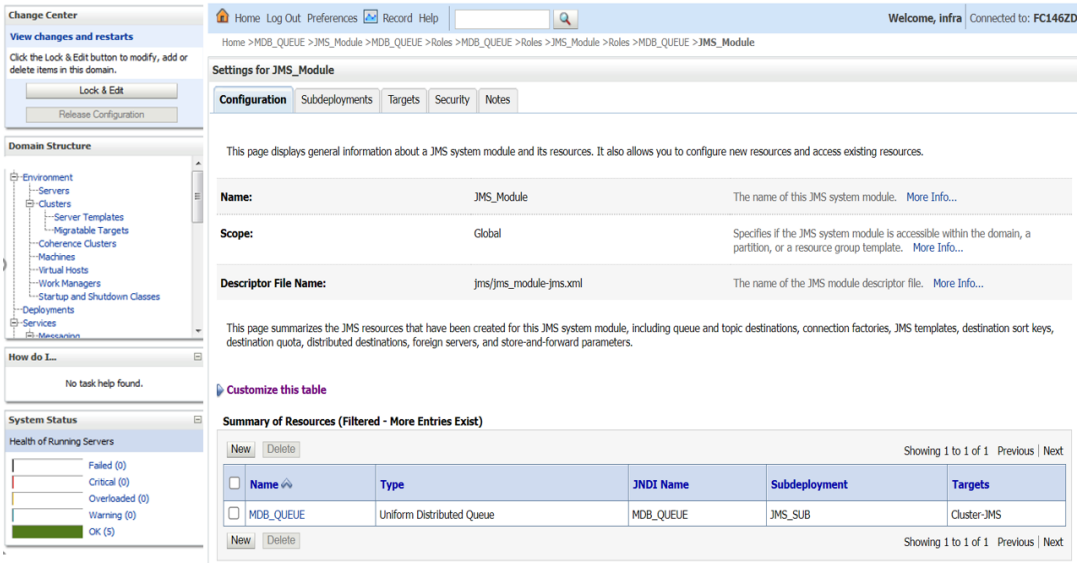
Figure 4-14 Create a New JMS System Module Resources - Advance Targeting



7. Select **Subdeployement** as **JMS_SUB**, and then click **Finish**.

   The **MDB-QUEUE** is created. The **MDB-QUEUE** is reflected under Summary of Resources.

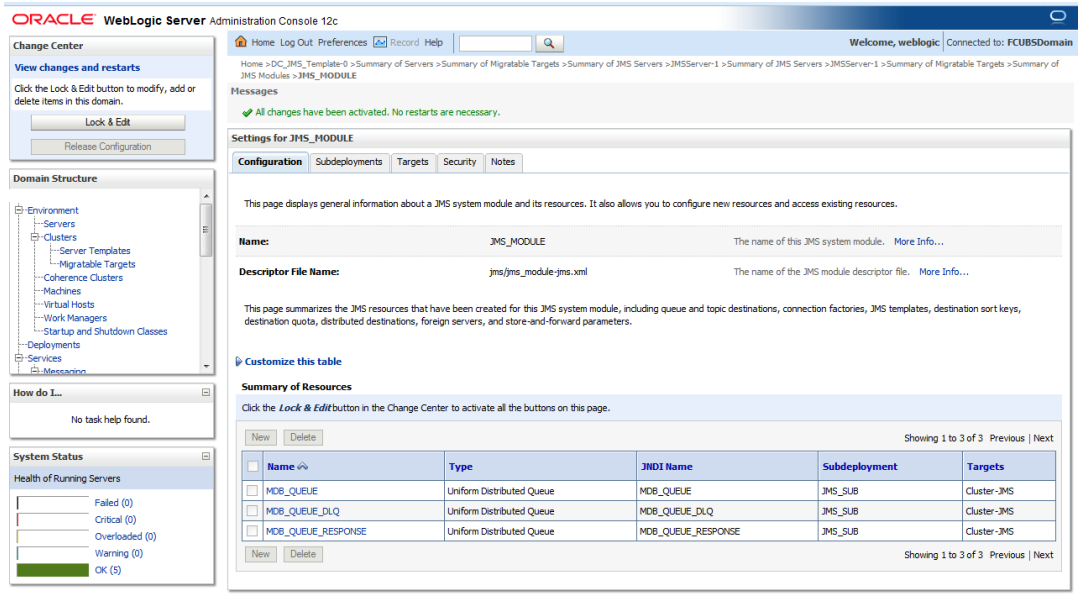
Figure 4-15 Settings for JMS_Module - Message



8. Similarly create the **MDB_QUEUE_RESPONSE** and **MDB_QUEUE_DLQ**.

   The **MDB_QUEUE_RESPONSE** and **MDB_QUEUE_DLQ** displays under the **Summary of Resources** section.

Figure 4-16 Settings for JMS_Module - Summary of Resources



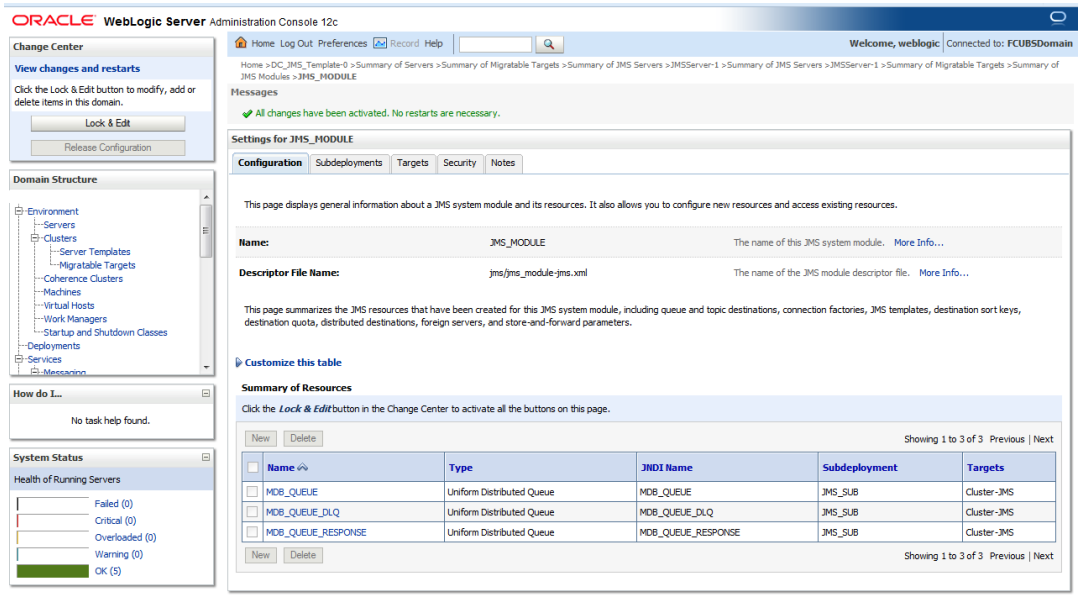
4.3.2 Create Connection Factory

This topic explains systematic instructions to create the Connection Factory.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option, and click **Messaging** and then click **JMS Modules**.

   The **Settings for JMS_Module** screen displays.

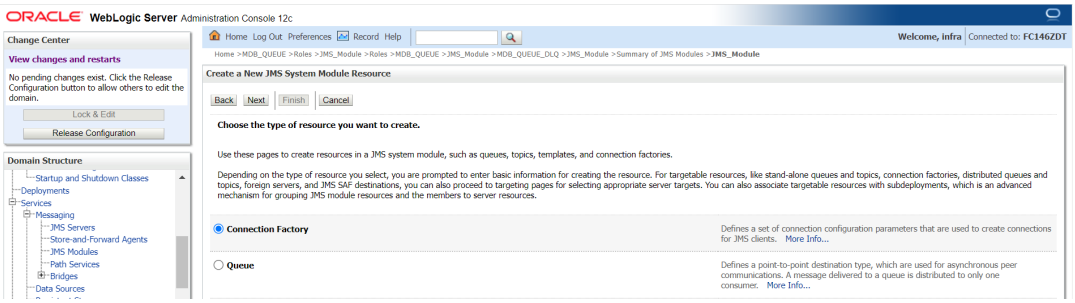
Figure 4-17 Settings for JMS_Module



2. Click the **Configuration** tab, and then click **New**.

   The **Create a New JMS System Module Resource** screen displays to choose the type of resource.

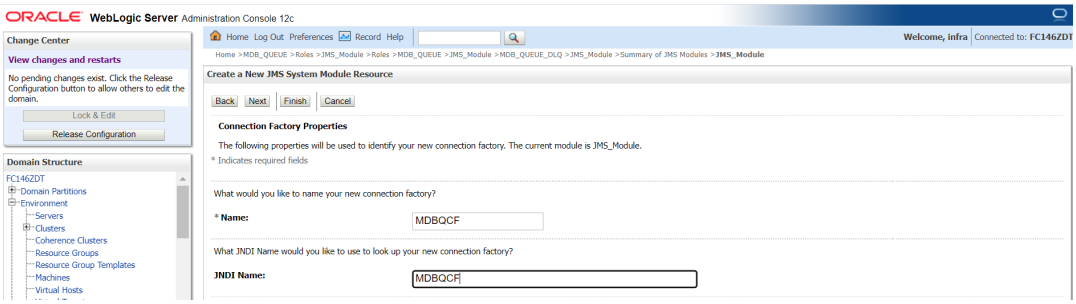
Figure 4-18 Create a New JMS System Module Resources



3. Select the resource **Connection Factory**, and click **Next**.

   The **Create a New JMS System Module Resource** screen displays.

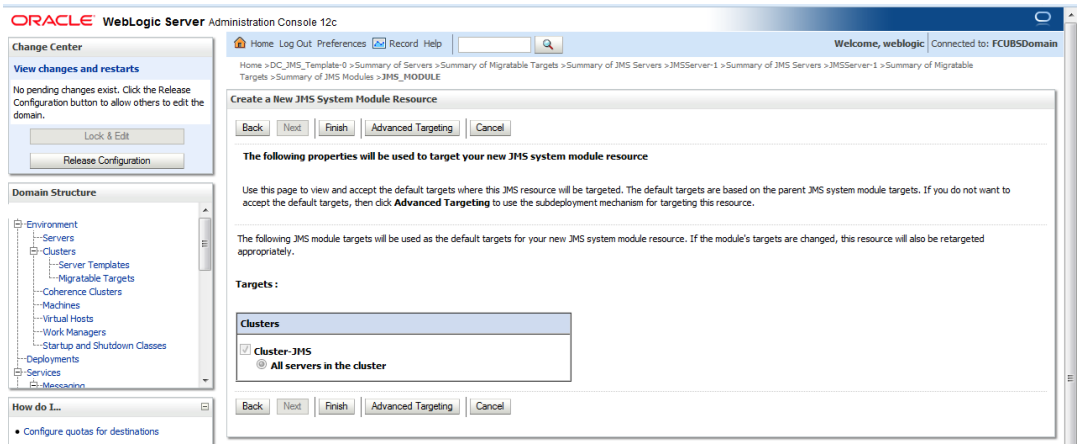
Figure 4-19 Create a New JMS System Module Resources - Connection Factory Properties



4. Specify the **Name** for connection factory, and then click **Next**.

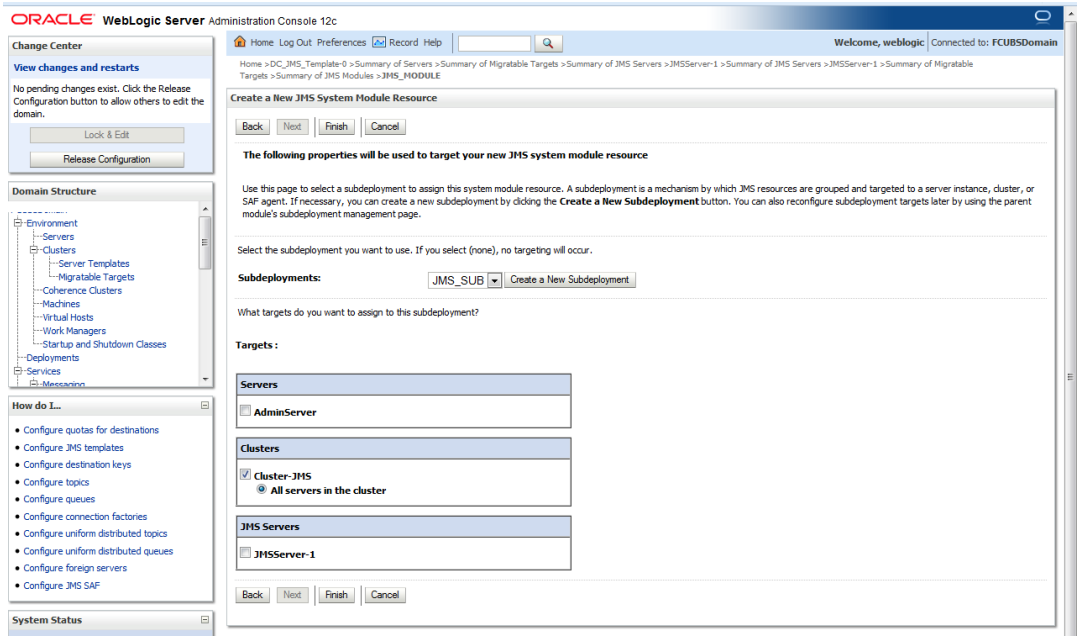
   The **Create a New JMS System Module Resource - Targets** screen displays.

Figure 4-20 Create a New JMS System Module Resources - Targets



5. Click **Advanced Targeting**.

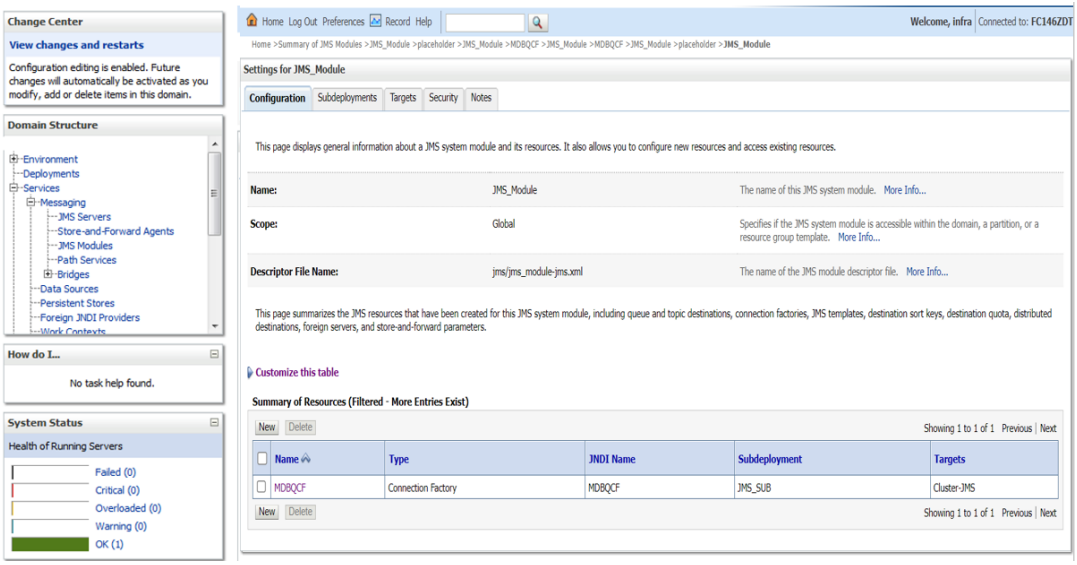
Figure 4-21 Create a New JMS System Module Resources - Advance Targeting



6. Select **JMS_SUB** as **Subdeployments**, and then click **Finish**.

   The new **Connection Factory** is created, and displays under the **Summary of Resources** tab.

Figure 4-22 Summary of Resources



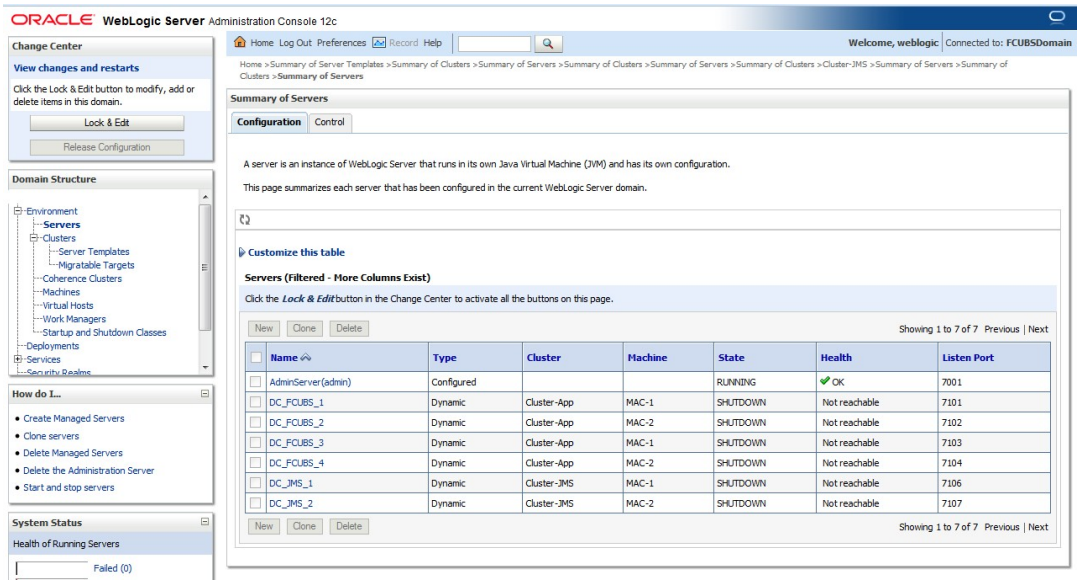
5
Restart Server

This topic explains systematic instructions to restart the JMS servers.

1. Under the **Domain Structure** left panel, navigate to the **Environment** drop-down option.
2. Click **Server**.

   The **Summary of Servers** screen displays.

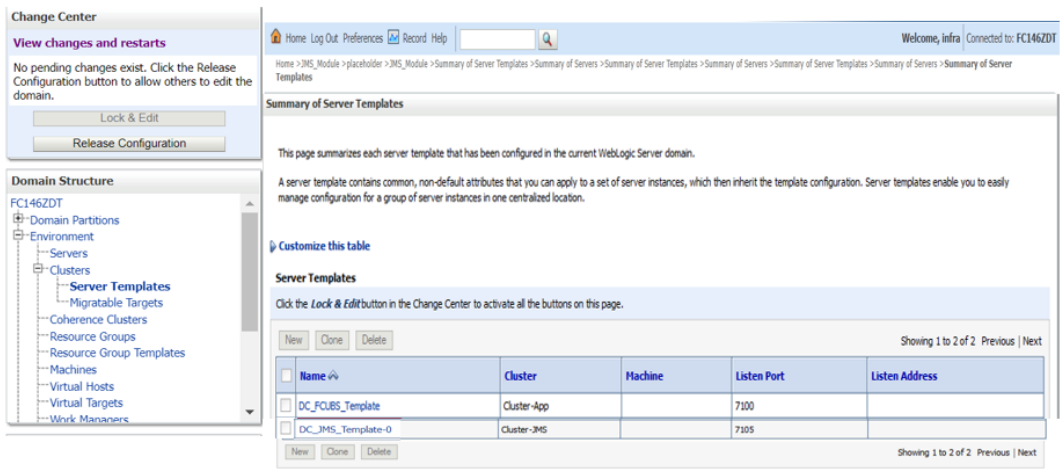
Figure 5-1 Summary of Servers



3. Increase the heap size of both **DC_JMS_1** and **DC_JMS_2** clusters.

   The **Summary of Server Templates** screen displays.

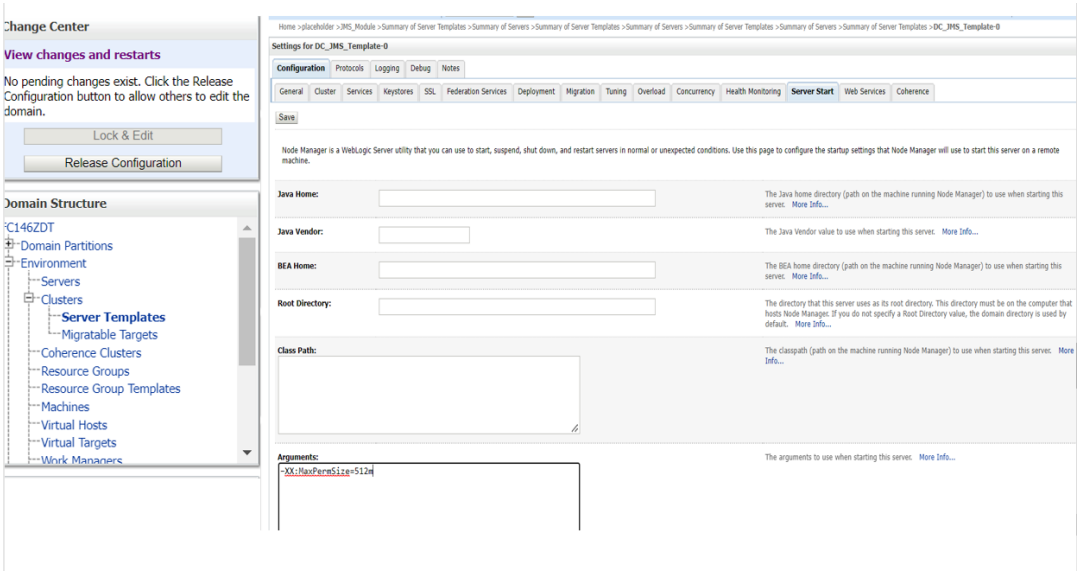
Figure 5-2 Summary of Server Templates



4. Select the cluster **DC_JMS_Template-0**, and click the **Server Start** tab.

   The **Settings for DC_JMS_Template-0** screen displays.

Figure 5-3 Settings for DC_JMS_Template-0



5. Specify the **–XX:MaxPermSize=512m** in the **Arguments** section.
6. Restart the AdminServer and **DC_JMS_1** and **DC_JMS_2** managed servers.

6
Foreign Server Creation

This topic contains the following sub-topics:

- Create JMS Module
  This topic explains systematic instructions to create the JMS Module.
- Create Foreign Server
  This topic provides systematic instructions to create the Foreign server.
- Configure Foreign Server
  This topic explains systematic instructions to configure the foreign server.

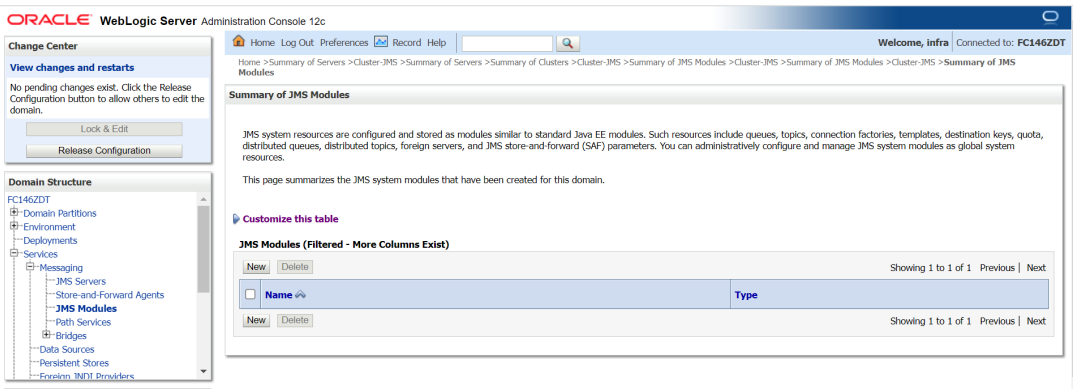
6.1 Create JMS Module

This topic explains systematic instructions to create the JMS Module.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option, and click **Messaging**, and then **JMS Modules**.

   The **Summary of JMS Module** screen displays.

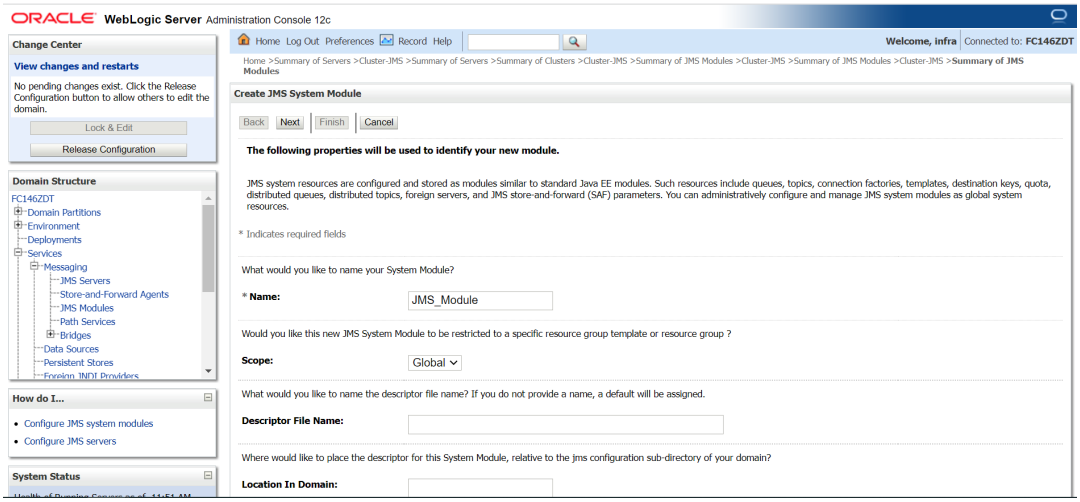
Figure 6-1 Summary of JMS Module



2. Click **New** in the **JMS Module** table.

   The **Create JMS System Module** screen displays.

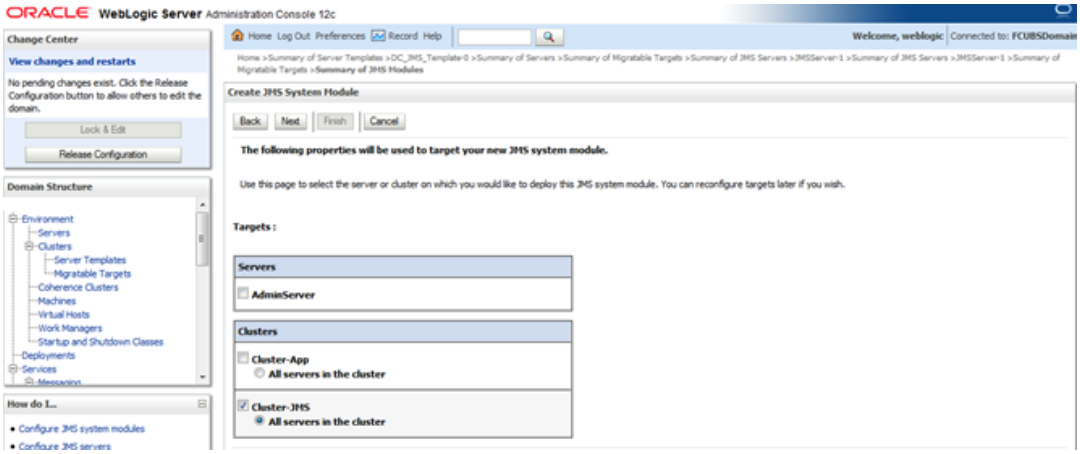
Figure 6-2 Create JMS System Module



3. Enter the **Name** as **JMS_MODULE**, and click **Next**.

   The **Create JMS System Module - Targets** screen displays.

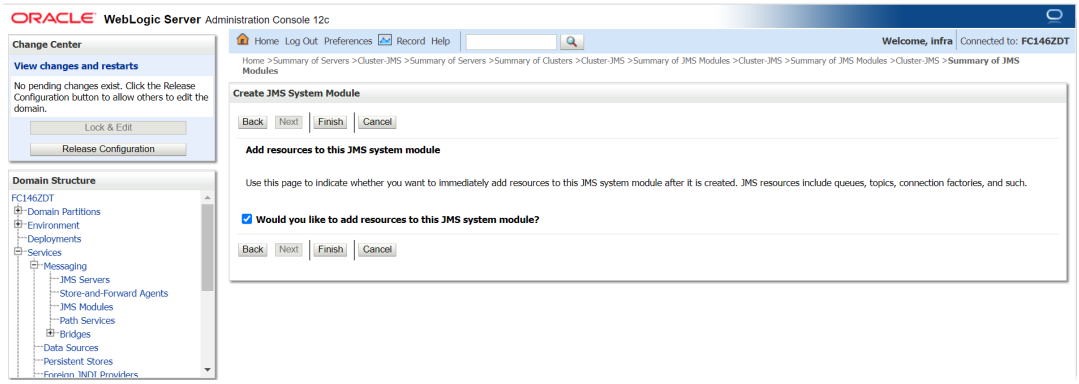
Figure 6-3 Create JMS System Module - Targets



4. Select the target as **Cluster-JMS**, and then click **Next**.

   The **Create JMS System Module - Add resources to this JMS system module** screen displays.

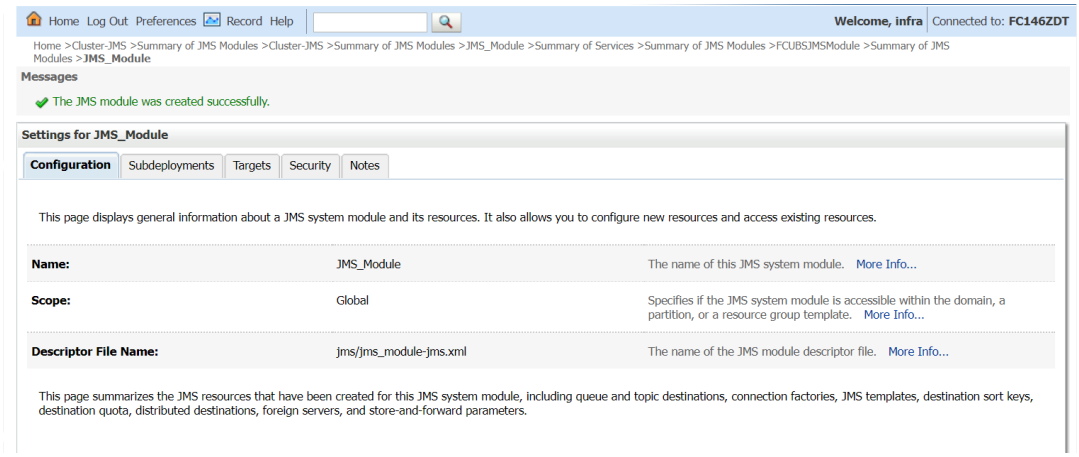
Figure 6-4 Create JMS System Module - Add resources



5. Select the check box, and click **Finish**.

   The **JMS_MODULE** is created and successful message displays on the **Settings for JMS_MODULE** screen.

Figure 6-5 Settings for JMS_MODULE - Messages



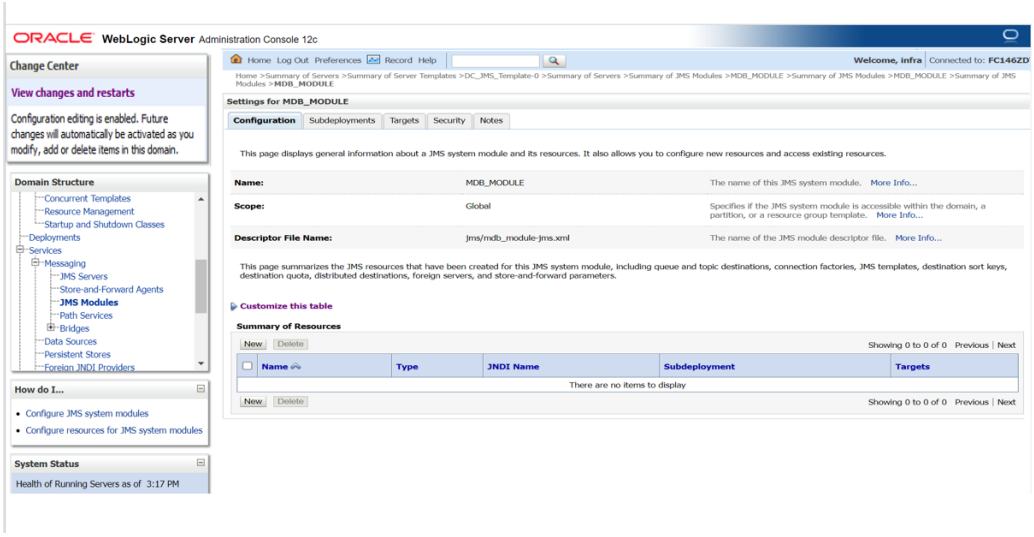
6.2 Create Foreign Server

This topic provides systematic instructions to create the Foreign server.

1. In the **Summary of JMS Modules** screen, click **MDB_MODULE**.

   The **Settings for MDB_MODULE - Configuration screen** displays.

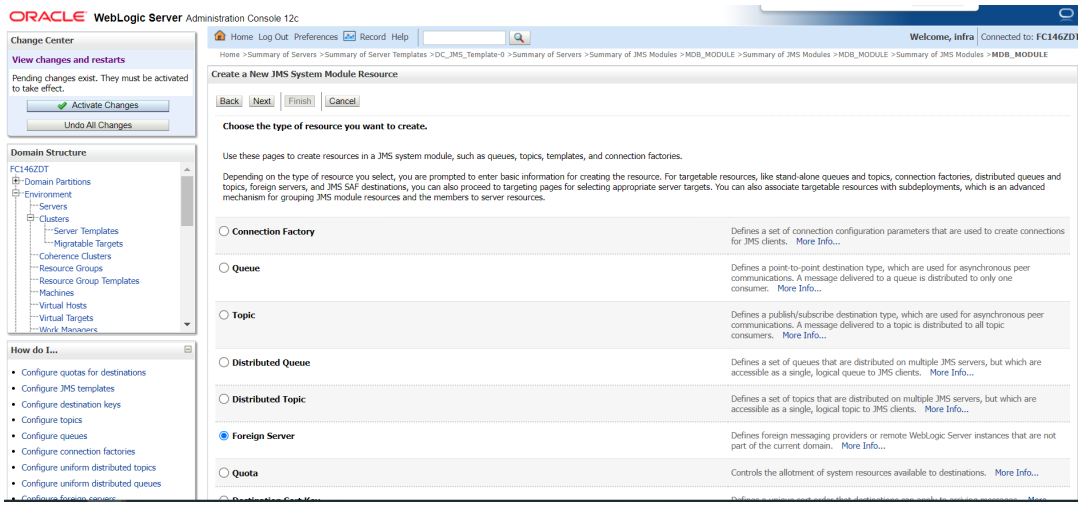
Figure 6-6 Settings for MDB_MODULE



2. Click **New**.

   The **Create a New JMS System Module Resource** screen displays.

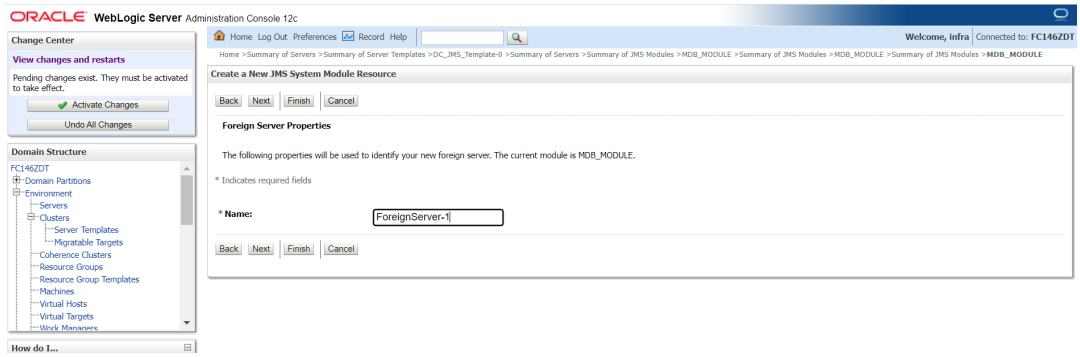
Figure 6-7 Create a New JMS System Module Resource



3. Select the **Foreign Server** resource, and click **Next**.

   The **Create a New JMS System Module Resource - Foreign Server Properties** screen displays.

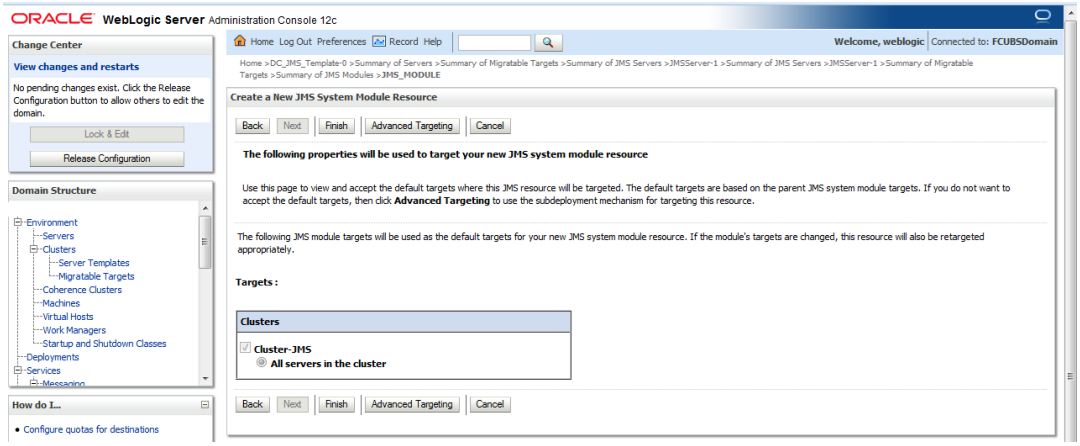
Figure 6-8 Create a New JMS System Module Resource - Foreign Server Properties



4. Specify **Name** of the foreign server, and then click **Next**.

   The **Create a New JMS System Module Resource - Targets** screen displays.

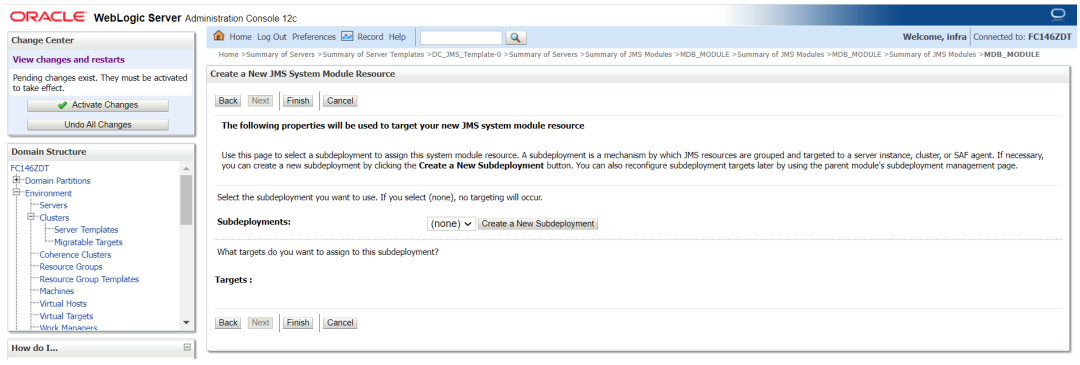
Figure 6-9 Create a New JMS System Module Resource - Targets



5. Click **Advanced Targeting**.

   The **Create a New JMS System Module Resource - Advanced Targeting** screen displays.

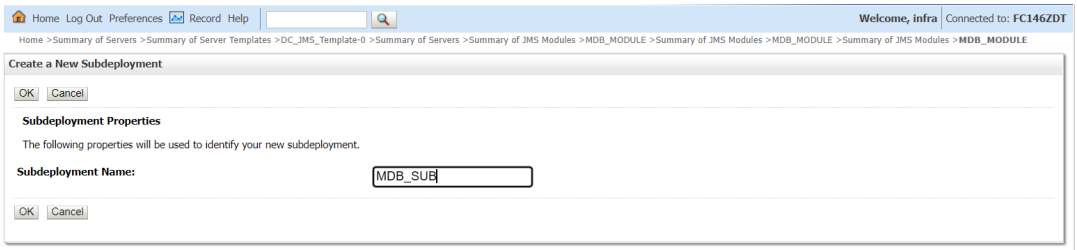
Figure 6-10 Create a New JMS System Module Resource - Advanced Targeting



6. Click the **Create a New Subdeployment** button.

   The **Create a New Subdeployment** screen displays.

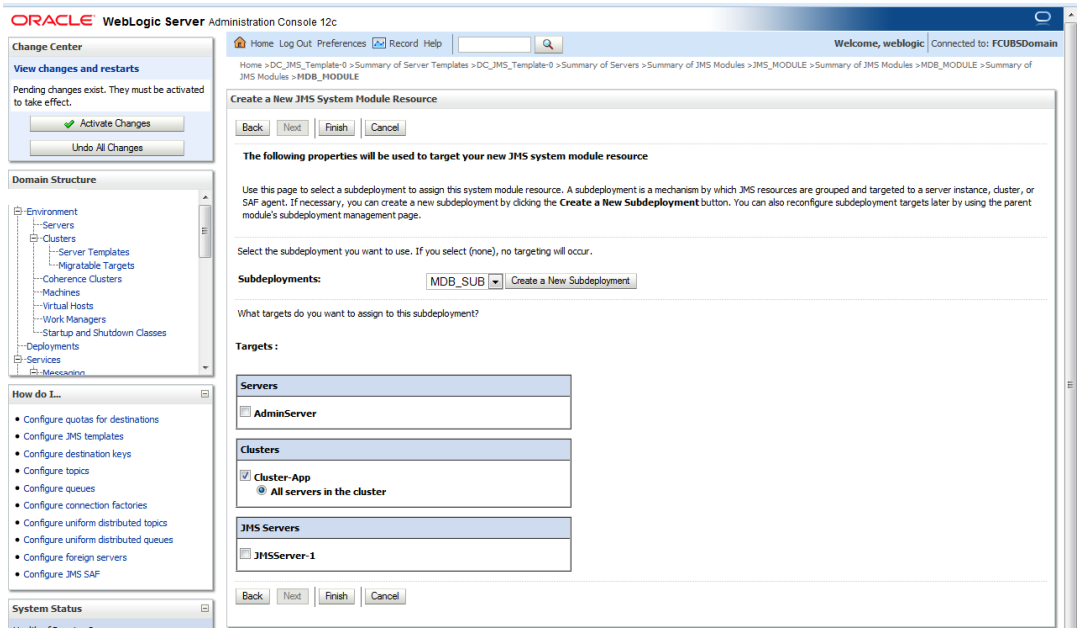
Figure 6-11 Create a New Subdeployment



7. Specify the **Subdeployment Name** as **MDB_SUB**, and click **OK**.

   The **Create a New JMS System Module Resource** screen displays to target **MDB_SUB** module.

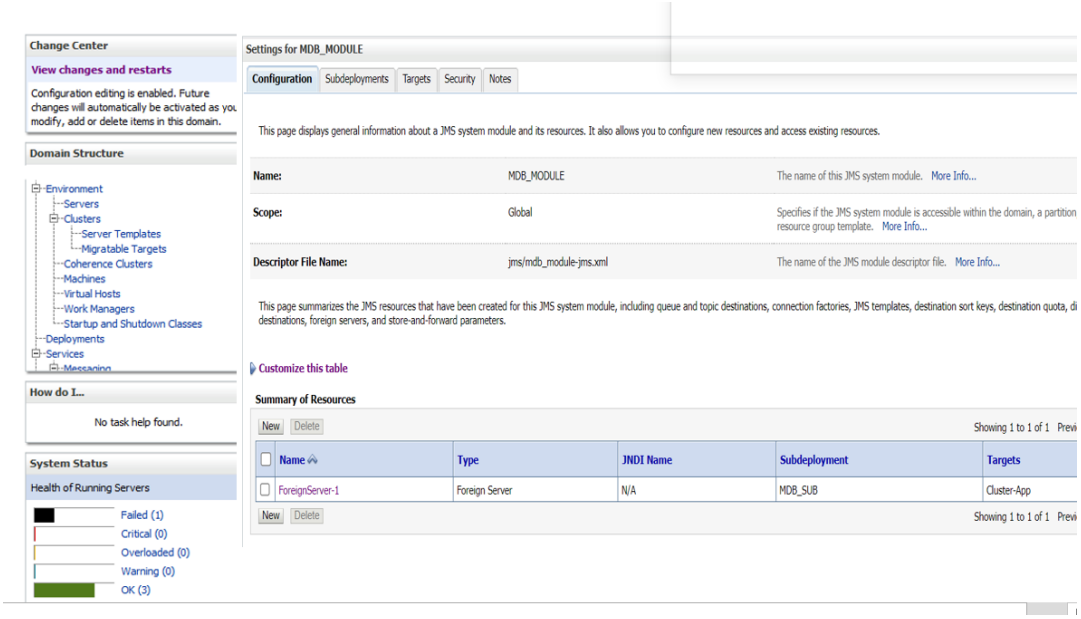
Figure 6-12 Create a New JMS System Module Resource - Subdeployment target



8. Select **Targets** as a **Cluster-App**, and then click **Finish**.

   The foreign server is created.

Figure 6-13 Settings for MDB_Module - Message

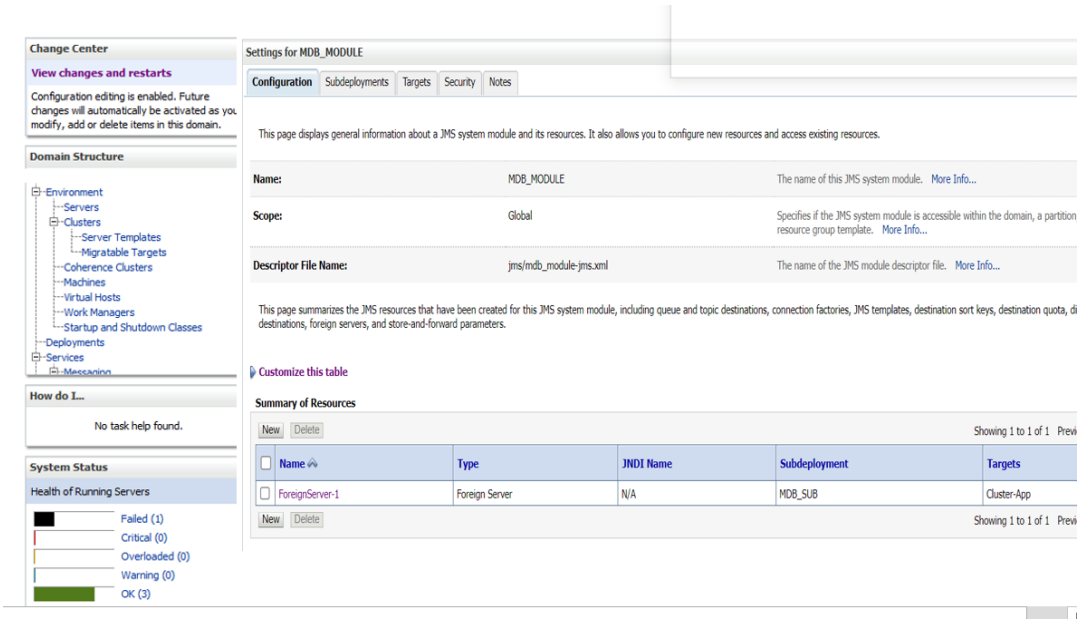


6.3 Configure Foreign Server

This topic explains systematic instructions to configure the foreign server.

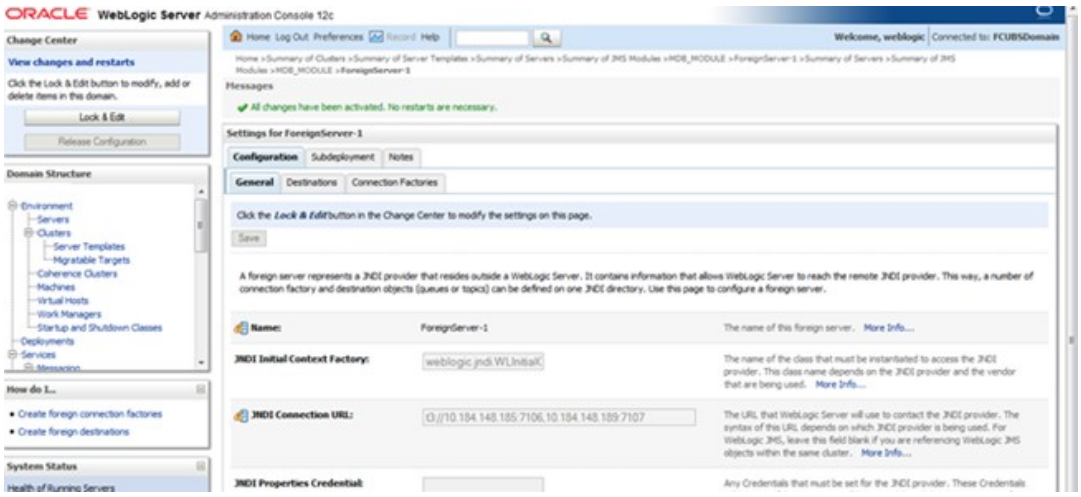
1. In the **Settings for MDB_MODULE** screen, click **ForeignServer-1** in the **Summary of Resources** table.

Figure 6-14 Settings for MDB_Module - Message



The **Settings for ForeignServer-1** screen displays.

Figure 6-15 Settings for ForeignServer-1



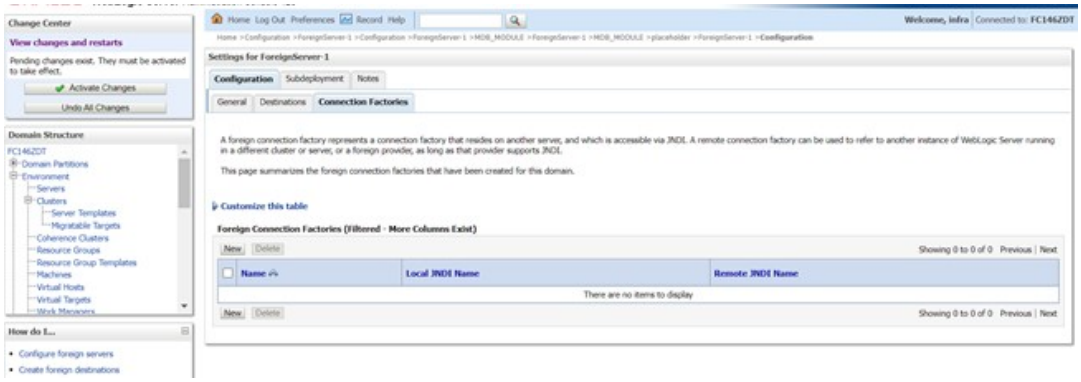
2. Under the **Configuration- General** tab, specify the **JNDI Connection URL** as cluster URL (JMS Managed Servers), and then click **Save**.

   The Cluster URL get saved.

3. In the **Settings for ForeignServer-1** screen, click the **Configuration** and click **Connection Factories** tab.

   The **Settings for ForeignServer-1 - Connection Factories** screen displays.

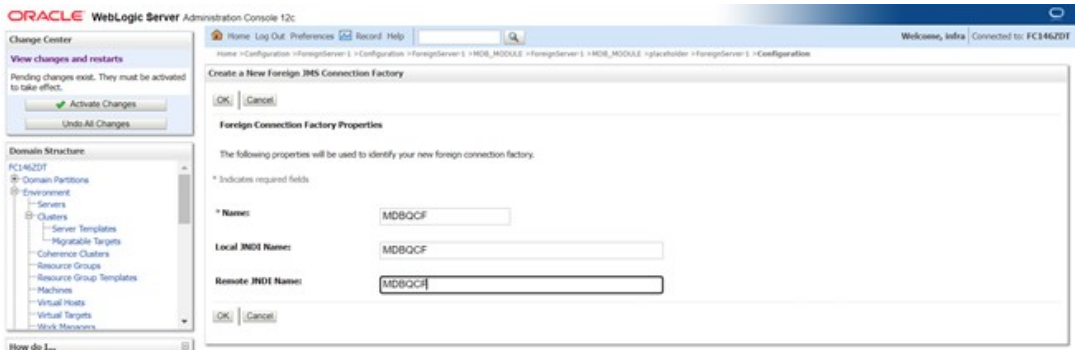
Figure 6-16 Settings for ForeignServer-1 - Connection Factories



4. Click **New**.

   The **Create a New Foreign JMS Connection Factory** screen displays.

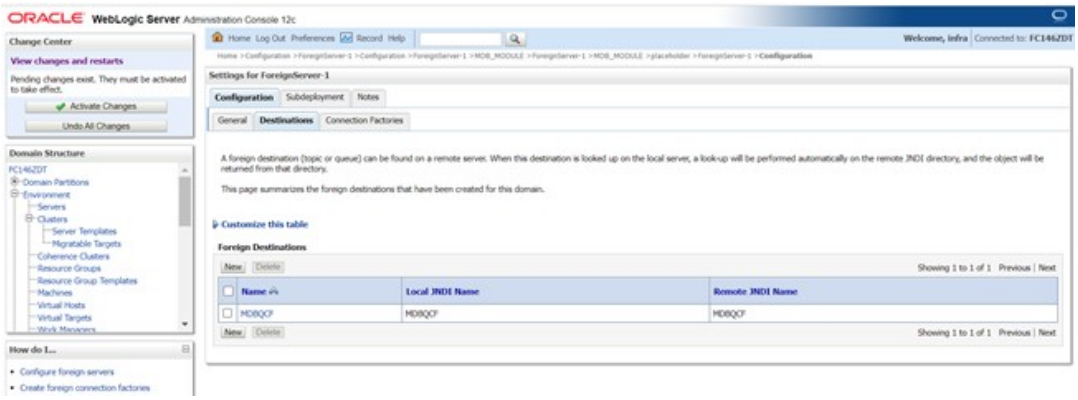
Figure 6-17 Create a New Foreign JMS Connection Factory



5. Specify the fields **Name**, **Local JNDI Name** and **Remote JNDI Name** as a **MDBQCF**, and click **OK** to create the foreign connection factory.

   The **MDBQCF** foreign connection factory is created, and displays in **Foreign Connection Factories** table.

Figure 6-18 Settings for ForeignServer-1 - Configuration Connection Factories



6. Click **Destination** tab.

   The **Settings for ForeignServer-1 - Destination** screen displays.

Figure 6-19 Settings for ForeignServer-1 - Destination

7. Click **New** to create the Queue.

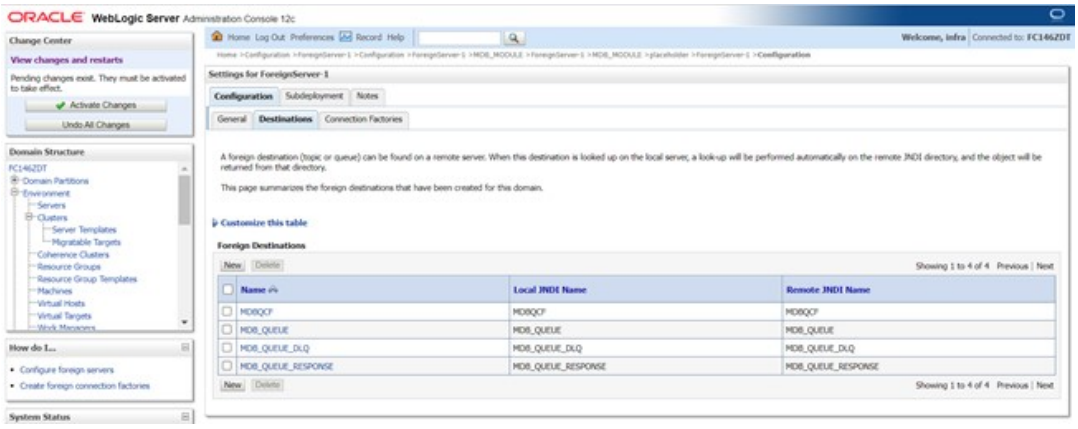
   The **Create a New Foreign JMS Destination** screen displays.

Figure 6-20 Create a New Foreign JMS Destination - MDB_Queue

8. Specify the **Queue Name**, **Local JNDI Name**, **Remote JNDI Name** fields as **MDB_QUEUE**, and then click **OK**.

   The **MDB_QUEUE** is created, and displays under the **Foreign Destinations** table.

Figure 6-21 Settings for ForeignServer-1 - Message



9. Similarly create foreign destination properties for **MDB_QUEUE_RESPONSE**, and **MDB_QUEUE_DLQ**.

10. After creating all the resources, Restart the Admin and Managed Servers.

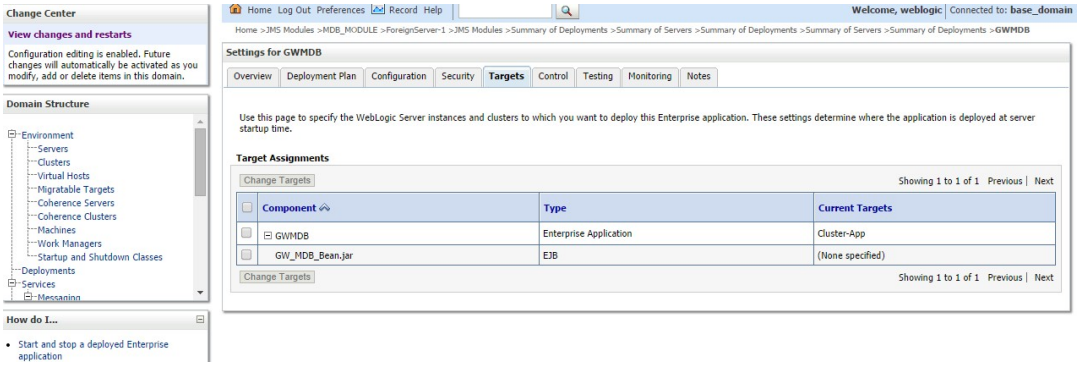
7

Application Deployment

This topic explains systematic instructions to deploy an application.

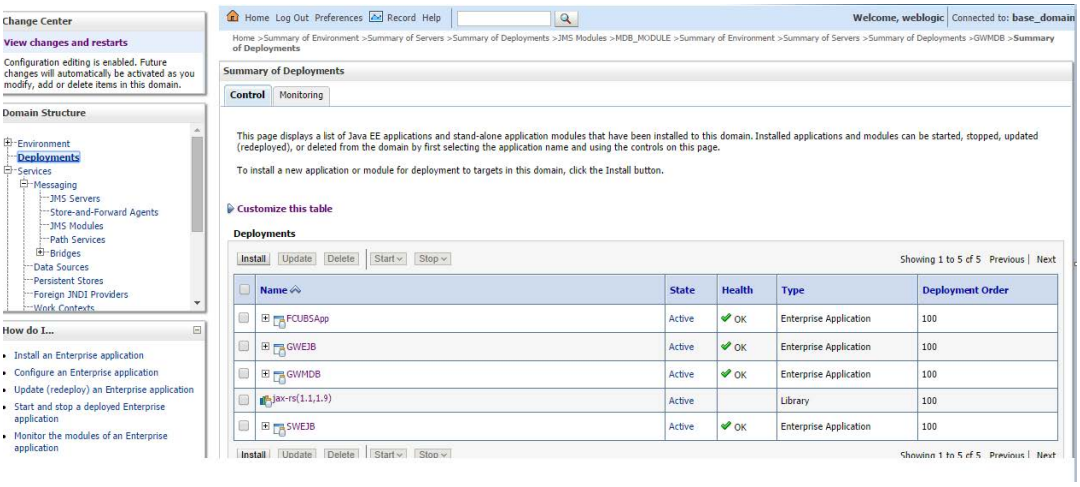
1. Deploy the EAR with **Target** as **Cluster-App**.

Figure 7-1 Settings for GWMDB



2. If JMS is configured properly, the **Health** column should show **OK** in the **Deployments** table, otherwise, the warning will be displayed.

Figure 7-2 Summary of Deployments



8

Frequently Asked Questions

This topic contains the following sub-topics:

8.1 Application and JMS Cluster Deployed on Same Cluster

This topic describes the process of deploying Application and JMS clusters on the same cluster.

Application and JMS Module can be deployed on the same cluster. In this topic both are on different clusters, however, it is possible to deploy on one cluster. When it is deployed on the same cluster then -

1. Foreign Server Creation is not required.
2. Targets should be given accordingly during the Sub-Deployment Creation.

8.2 Application Shows Warning upon Restart of Managed Servers

This topic describes the process for application managed services if shows warning.

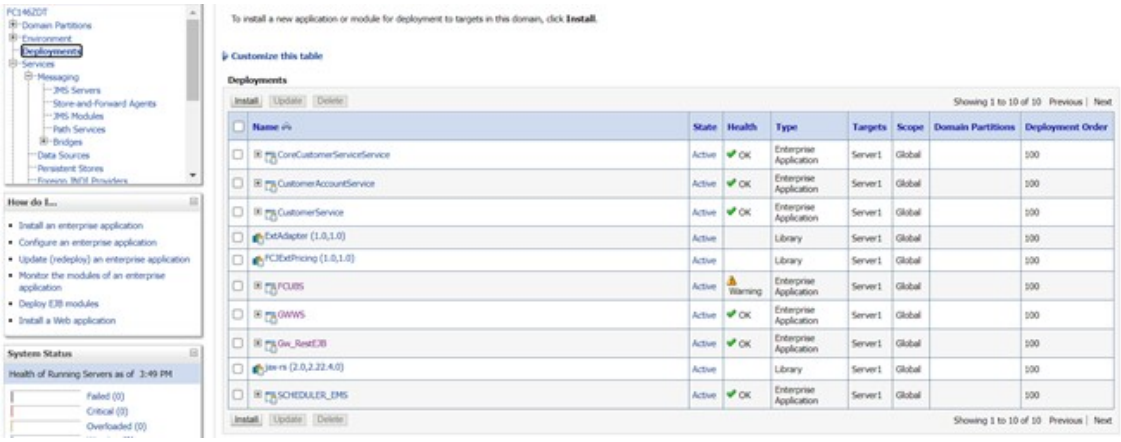
Managed Servers Start Order

1. Stop all managed servers.
2. Start only the JMS Cluster managed servers.

3. After these are started then start the Application Cluster managed servers.

Even after proper JMS setup when the managed servers are restarted and Health of the Application is showing Warning, perform the following steps:

Figure 8-1 Summary of Deployments



1. Force Stop the Application.
2. Then start the Application, this would resolve the Warning and the Health of Deployment is changed to **OK**.

8.3 Secure File Store Data

This topic provides the information about the secure file store data.

To properly secure file store data, set appropriate directory permissions on all file store directories. If data encryption is required, use appropriate third-party encryption software.

8.4 t3s Protocol

This topic provides information about the t3s protocol for configuring the JMS Server.

To secure the communication with the JMS Server use the t3s protocol instead of t3. This is applicable when connecting to the connection factory to send or receive messages, and also in the JNDI Connection URL provided in foreign server creation.

> ⓘ **Note**
>
> When using the t3s protocol **SSL Listen Port Enabled** should be checked in the server template, and the port number used in the URL should be a secure port.

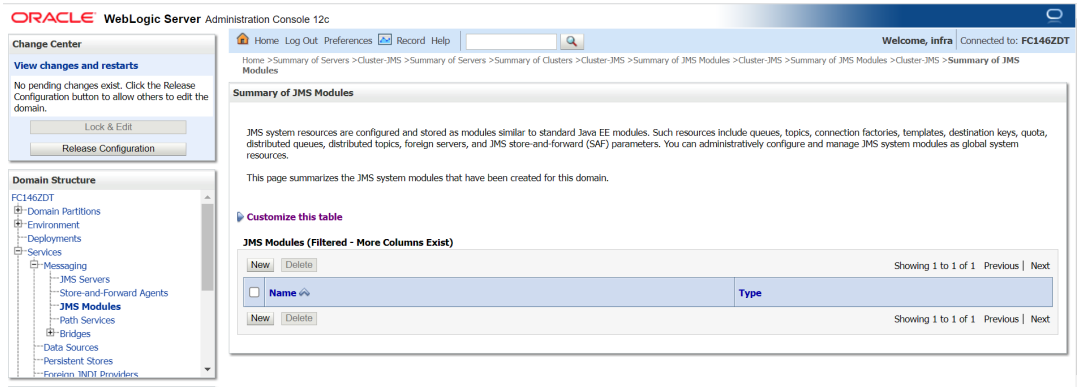
8.5 Test the Deployment

This topic explains systematic instructions to test the deployment.

1. Under the **Domain Structure** left panel, navigate to the **Services** drop-down option, and click **Messaging** and then click **JMS Modules**.

The **Summary of JMS Module** screen displays.

Figure 8-2 Summary of JMS Module



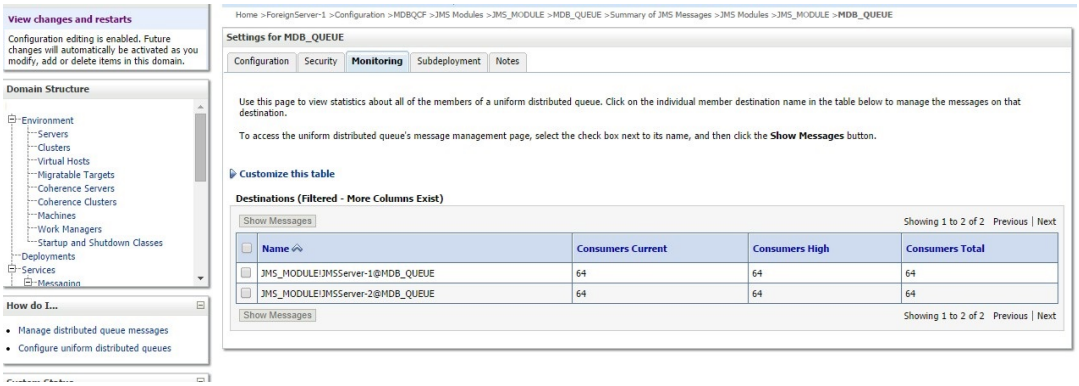
2. Navigate into **JMS_MODULE** and click**MDB_QUEUE**.

   The **Settings for MDB_QUEUE** screen displays.

3. Click the **MONITORING** tab.

   The **Settings for MDB_QUEUE** screen displays with **Destinations** table.

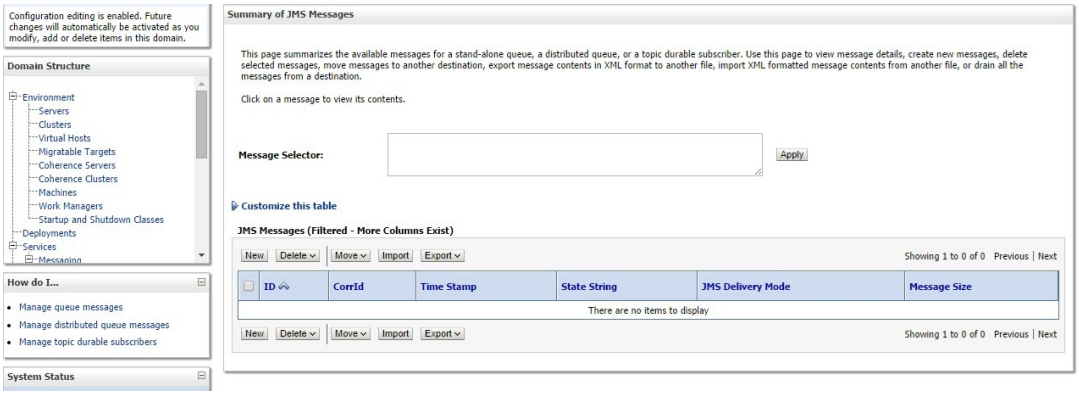
Figure 8-3 Settings for MDB_QUEUE - Monitoring tab



4. Select any one server, and click **Show Messages**.

   The **Summary of JMS Messages** screen displays.

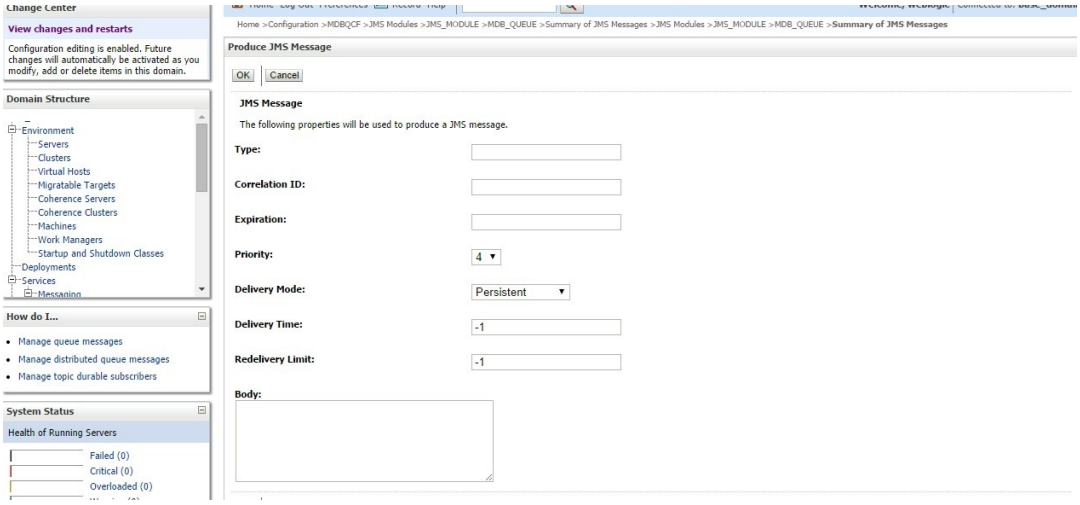
Figure 8-4 Summary of JMS Messages



5. Click **New**.

   The **Produce JMS Message** screen displays.

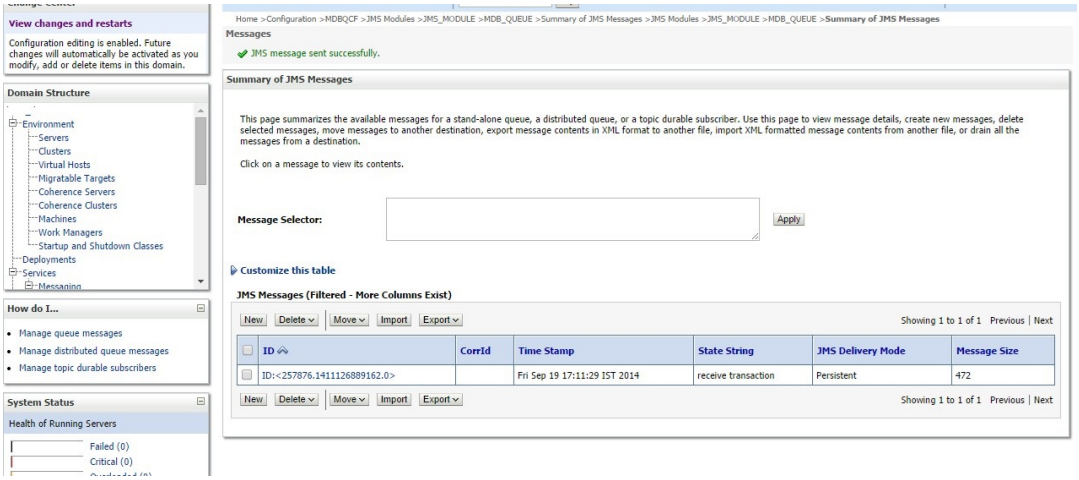
Figure 8-5 Produce JMS Message



6. Specify the message in the field of **Body**, and click **OK**.

   The message is sent, and displays under the **JMS Messages** table.

Figure 8-6 Summary of JMS Messages



7. Verify at the backend or in the MDB log if the message is processed successfully.

8.6 Increase maximum number of message-driven bean threads

This topic provides the information about the message driven bean threads to increase counts.

The default number of consumers for an MDB is 16. To increase or restrict this number create Custom Work Manager with a Max Threads Constraint in conjunction with MDBs.

The solution is to create a work manager with a max threads constraint and assign the proxy services dispatch policy to this work manager. Steps to create a custom work manager -

1. Modify the MDB deployment descriptor, and redeploy the EAR
2. Create a Custom Work manager, and add constraints to limit the number of the max MDB threads

This topic contains the following sub-topics:

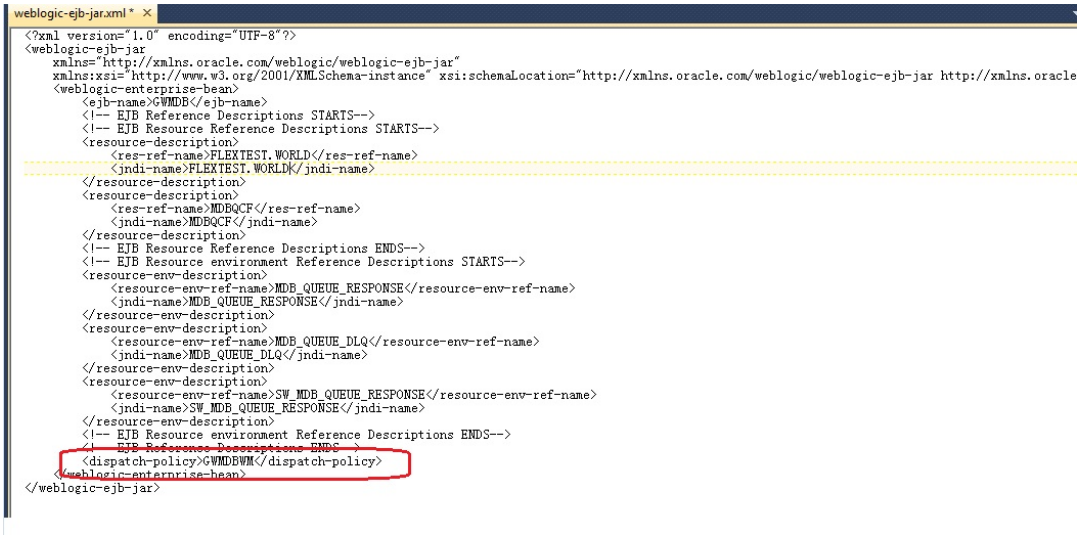
- Modify weblogic-ejb-jar.xml
  This topic explains systematic instructions to modify the weblogic-ejb-jar.xml.
- Create Work Manager
  This topic explains systematic instructions to create the work manager.

8.6.1 Modify weblogic-ejb-jar.xml

This topic explains systematic instructions to modify the weblogic-ejb-jar.xml.

1. Add **<dispatch-policy>GWMDBWM</dispatch-policy>** line to the **weblogic-ejb-jar.xml** of the MDB EAR.

Figure 8-7 weblogic-ejb-jar.xml



2. Remove if any of the below tags are present in **weblogic-ejb-jar.xml**.
   - **max-beans-in-free-pool**
   - **initial-beans-in-free-pool**
3. Save the EAR file, and redeploy the EAR file.

8.6.2 Create Work Manager

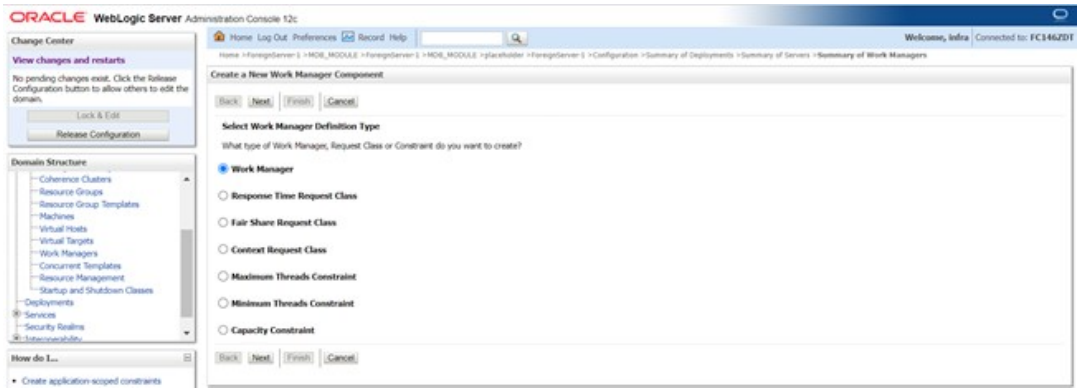
This topic explains systematic instructions to create the work manager.

Create a new work manager with the name GWMDBWM (as mentioned in the property file) by below steps -

1. Log in to the WebLogic console, and navigate to the **Domain Structure**, click **Environment** and then click **Work Managers**.

   The **Create a New Work Manager Component** screen displays.

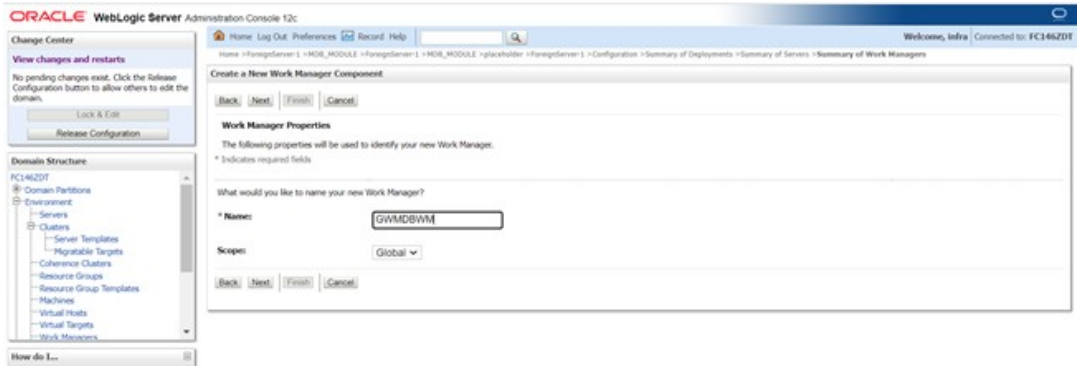
Figure 8-8 Create a New Work Manager Component



2. Select **Work Manager**, and then click **Next**.

   The **Work Manager Properties** screen displays.

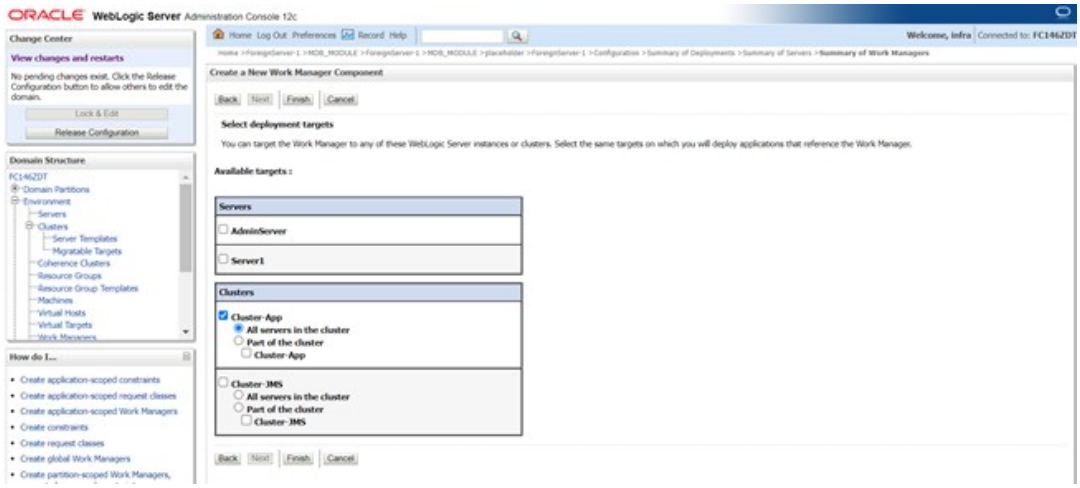
Figure 8-9 Work Manager Properties



3. Specify the field **Name** as **GWMDBWM** that is mentioned in the property file, and then click **Next**.

   The **Select deployment targets** screen displays.

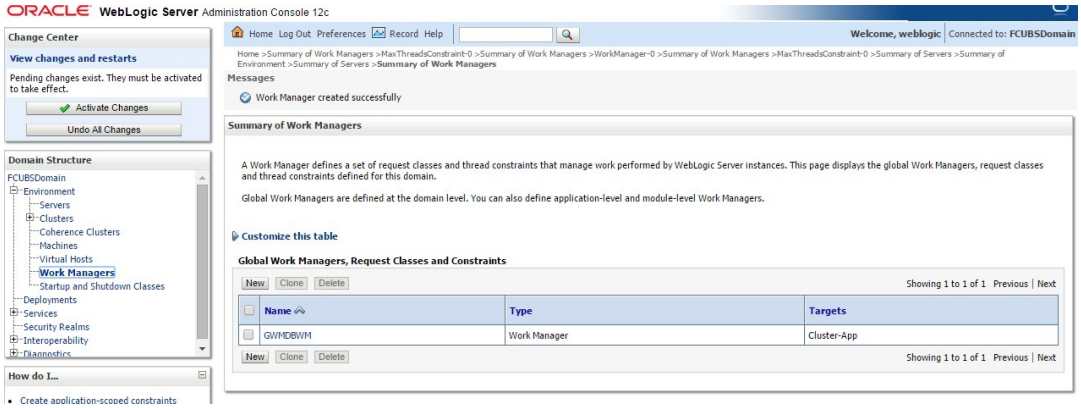
Figure 8-10 Select deployment targets



4. Select **Cluster-App** in available targets, and click **Finish**.

   The **Summary of Work Managers** screen displays.

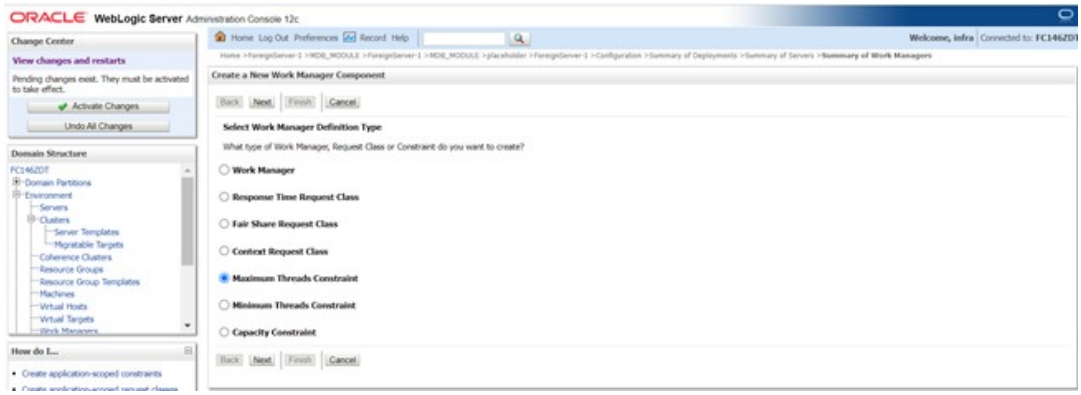
Figure 8-11 Summary of Work Managers



5. Click **New** in the **Global Work Managers, Request Classes and Constraints** table.

   The **Create a New Work Manager Component** screen displays.

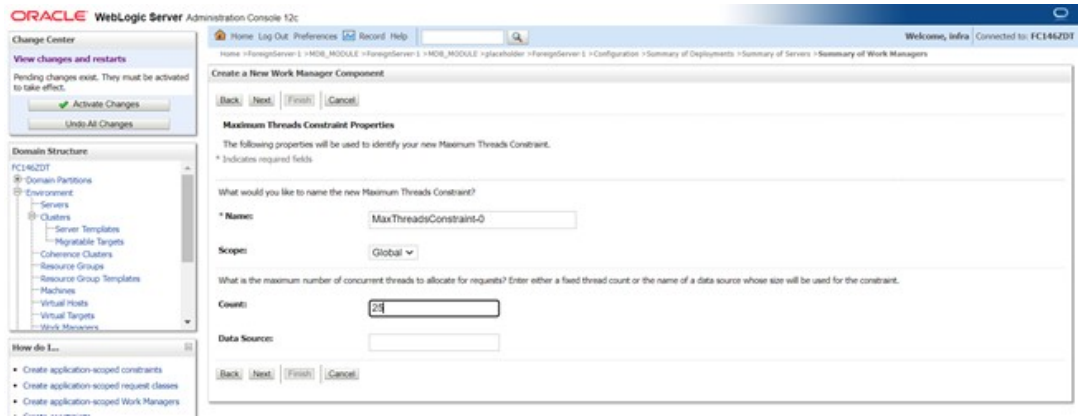
Figure 8-12 Create a New Work Manager Component



6. Select **Maximum Threads Constraints**, and then click **Next**.

   The **Maximum Threads Constraints Properties** screen displays.

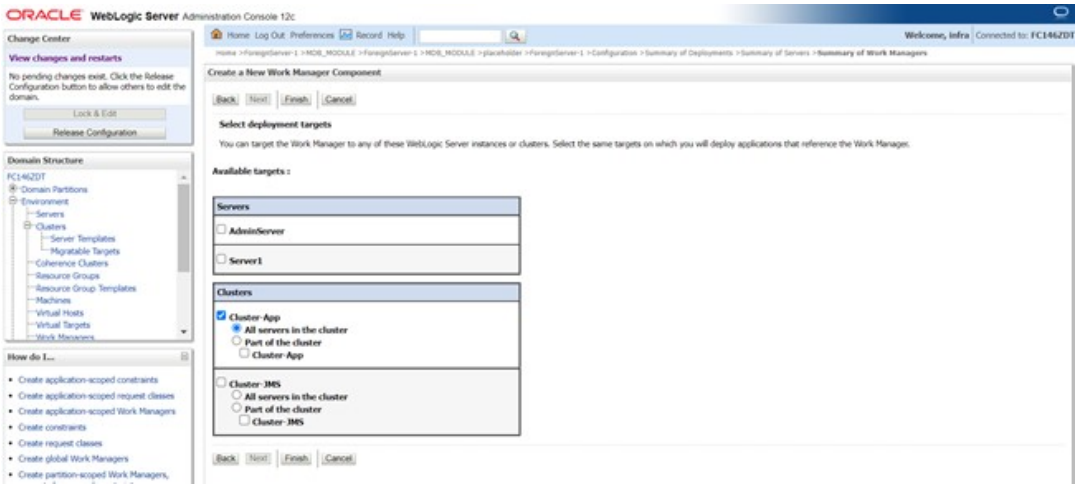
Figure 8-13 Maximum Threads Constraints Properties



7. Specify the desired thread count in the **Count** field, and then click **Next**.

   The **Select deployment targets** screen displays.

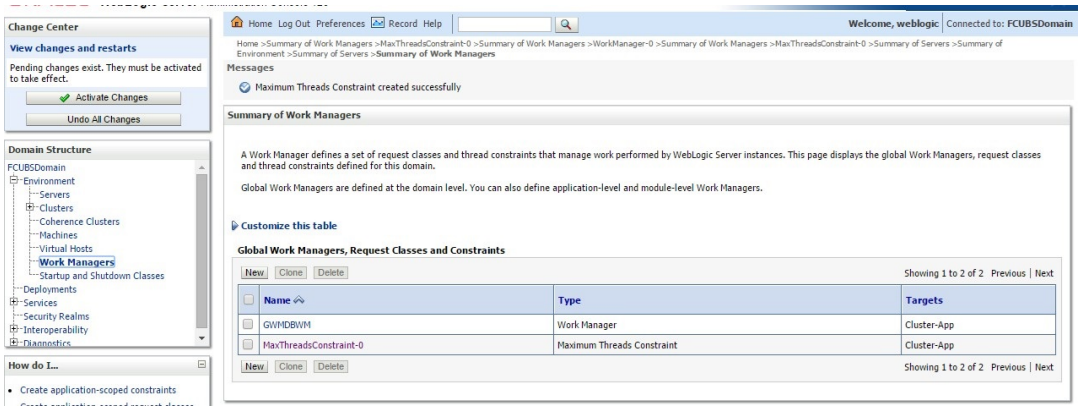
Figure 8-14 Select deployment targets



8. Select **Cluster-App** target, and then click **Finish**.

   The **Summary of Work Managers** screen displays.

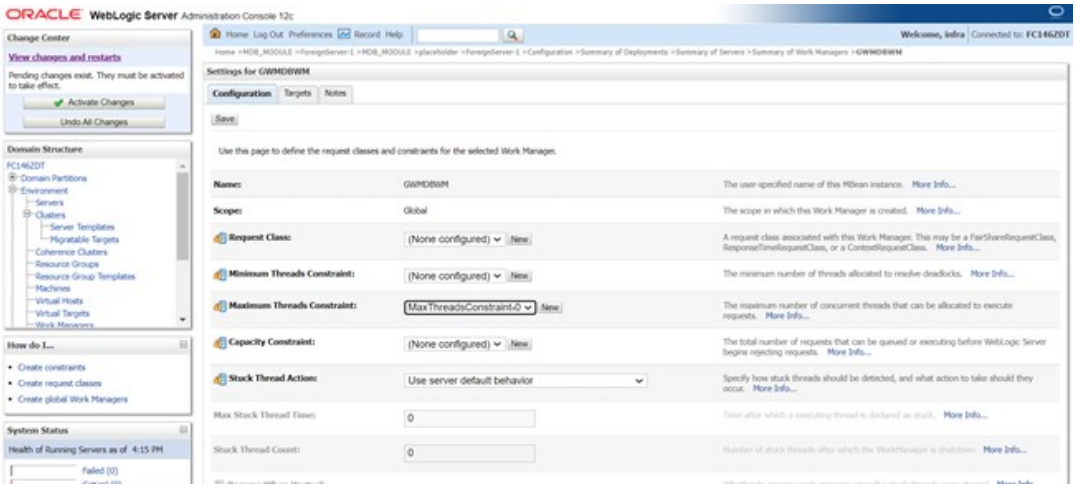
Figure 8-15 Summary of Work Managers



9. Navigate to newly created Work Manager **GWMDBWM**.

   The **Settings for GWMDBWM** screen displays.

Figure 8-16 Settings for GWMDBWM



10. Select the **Maximum Threads Constraint** field to newly created **MaxThreadsConstraint-0**, and click **Save**.
11. Restart managed servers, and notice the change in the number of consumers for the queues.

8.7 High Availability of Servers

This topic describes the high availability of servers.

1. **Application Server** - MDB_MODULE and the GWEJB EAR are deployed in a cluster. The cluster has 4 managed servers, if any server goes down then the messages are processed by other managed servers.
2. **JMS Provider** - JMS is deployed on 2 managed servers, JMSServer1 and JMSServer2, if anyone goes down others will handle the messages.
3. **FileStore** - Filestore is a cluster file system or database where if one node goes down then the other will handle the requests.
4. **DB Server** - The database is installed in RAC mode where it has more than 1 node, if a node goes down then other nodes will handle messages.

8.8 Setup for Scheduler/Notifications

The above topics can be used for setting up JMS for scheduler/notifications but additional queues and connection factory needs to be created.

8.9 Other Modules uses JMS Queue's

JMS is used by following modules, relevant queues and factories need to be created additionally.

1. EMS for swift messages
2. GI for upload
3. ELCM
4. BIP