Oracle® Banking Payments

Payments Weblogic JMS Configuration

Release 14.8.0.0.0
G32378-02
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Oracle Banking Payments Payments Weblogic JMS Configuration, Release 14.8.0.0.0

G32378-02

Contents

6 Frequently Asked Questions

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Preface

1.1 Purpose

This guide is designed to help acquaint you with the Oracle Banking Payments application. This guide provides answers to specific features and procedures that the user need to be aware of the module to function successfully.

1.2 Audience

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

Table 1-1 User Roles

Role	Function
Implementation & IT Staff	Implementation & Maintenance of the Software

1.3 Documentation Accessibility

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

Access to Oracle Support

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

1.4 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 make sure effective security, as strongly recommended by Oracle Software Security Assurance.

1.5 Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

1.6 Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text.
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.

2
Introduction

2.1 Purpose

The purpose of this document is to explain the steps required for JMS Configuration in cluster mode for:

- WebLogic Server 14.1.2

Administration of WebLogic Server is performed using the WebLogic Remote Console. Administration console is no longer supported in WebLogic Server 14.1.2.0.0 and has been removed.

WebLogic Remote Console documentation: https://oracle.github.io/weblogic-remote-console/set-console/

2.2 Introduction

Below is brief description on major components in Weblogic JMS Server architecture

JMS Server

JMS server acts as management container for JMS queue and topic resources defined within JMS modules that are targeted to specific that JMS server. A JMS server's main responsibility is to maintain persistent storage for these resources, maintain the state of durable subscriber and 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 configuration. JMS modules are globally available for targeting to servers and clusters configured in the domain and therefore are available to all the applications deployed on the same targeted. 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. When you create a JMS resource you need to choose one Subdeployment.

JMS Resources

1. **Queue:** defines a point-to-point destination type, which are used for asynchronous peer communications. A message delivered to queue is distributed to only one customer.
2. **Topic:** defines a publish/subscribe destination type, which are used for asynchronous peer communication. A message delivered to topic is distributed to all topic consumers.
3. **Distributed queue:** defines a set of queues that are distributed on multiple JMS servers, but are accessible as a single, logical queue to JMS clients.
4. **Distributed topic:** defines a set of topics that are distributed on multiple JMS servers, but which as accessible as a single, logical topic to JMS clients.
5. **Uniform Distributed Queue:** 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 type of mechanism 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.

2.3 Weblogic 14c New Features

Before weblogic 14c JMS Servers and stores are targeted to individual WLS Servers. Scaling up requires configure the JMS server, the store and target it to new WLS Server.

In 14c JMS Servers and stores are targeted to WLS cluster. Scaling up requires to add a WLS server to the cluster.

Figure 2-1 Architecture previous to 14c

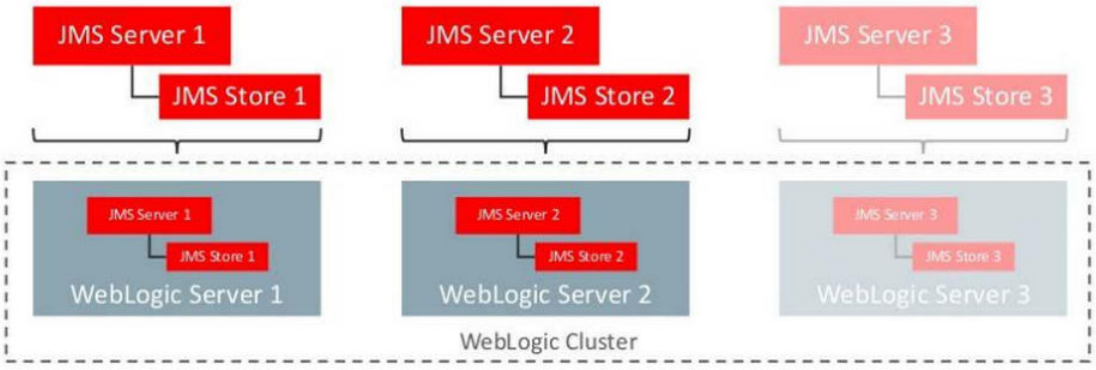
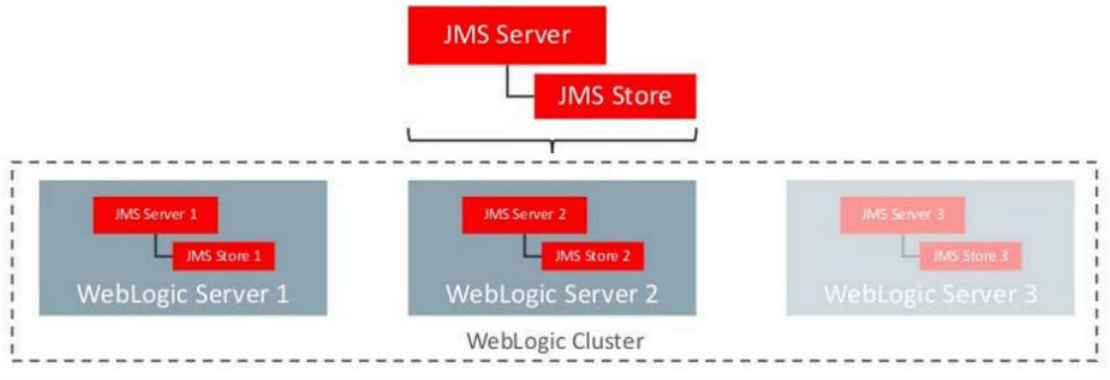


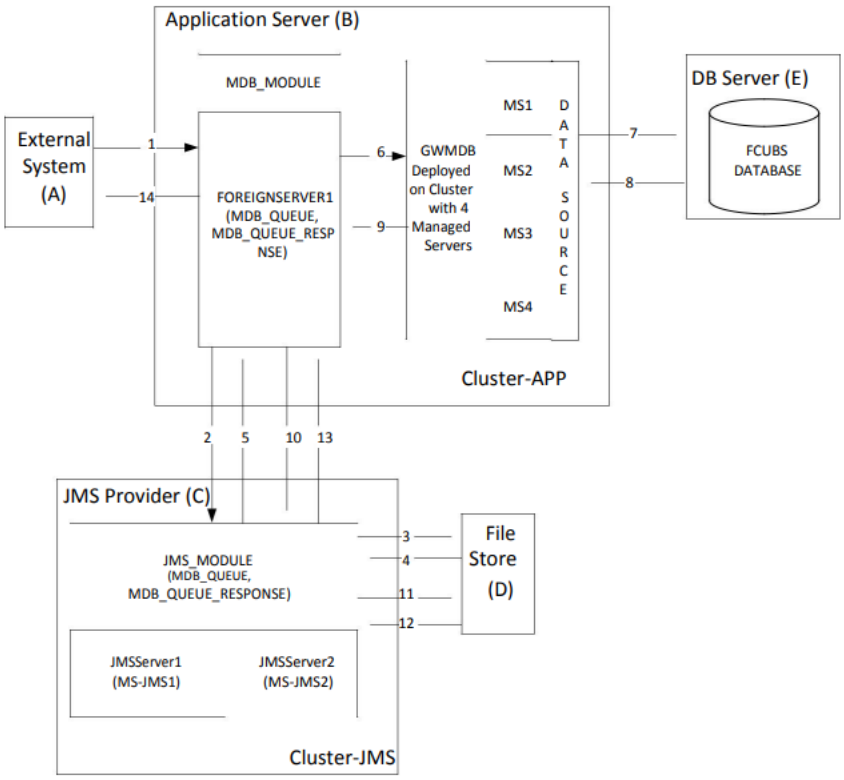
Figure 2-2 Architecture in 14c



2.4 Components Diagram & Data Flow

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

Figure 2-3 Components Diagram & Data Flow



Servers Involved:

- External System interacts with the application C server
- Application Server can be Weblogic or Websphere and has managed servers clusterd
- JMS Provider exposes the Queue's and this can be Weblogic or Websphere. Here JMS_MODULE is Cluster-APP deployed on 2 new MS's but it can be done even on MS's that are part of Cluster-APP(MS1-MS4)
- FileStore is the persistance store which stores 2 5 10 13 the messages, this can be database or clustered file system
- Database Server which has FCUBS database

Data Flow:

- External System sends message to MDB_MODULE
- MDB_MODULE internally sends message to JMS_MODULE
- JMS_MODULE stores message in FILESTORE. A request JMS_MODULE 4 Store queue is formed at FILESTORE as and when messages are received
- Message is sent to JMS_MODULE in FIFO
- Message is sent to MDB_MODULE
- GWMDB application picks up the message for processing
- GWMDB after validating against XSD sends message to FCUBS database for processing
- Response from DB to MDB
- Response from MDB to MDB_MODULE
- MDB_MODULE sends response to JMS_MODULE
- RESPONSE is stored in FILESTORE. A response queue is formed in FILESTORE as and when messages are received
- Message is sent to JMS_MODULE in RESPONSE QUEUE in FIFO
- External system to read the response message from Response Queue

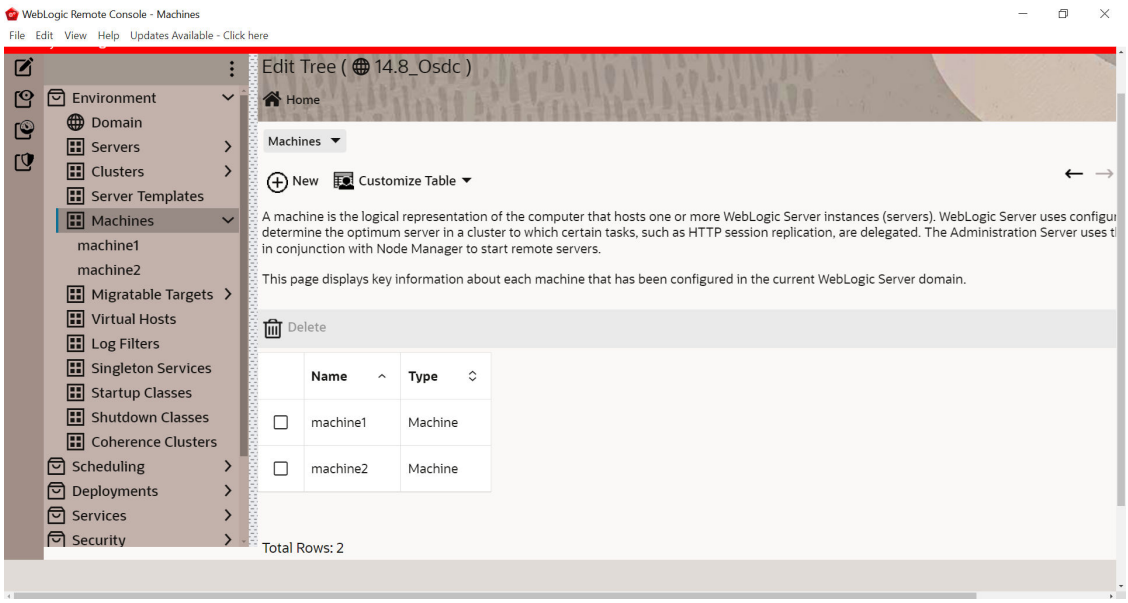
3
Pre-Requisites

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

- Machines
- Clusters and Managed Servers
- DataSource

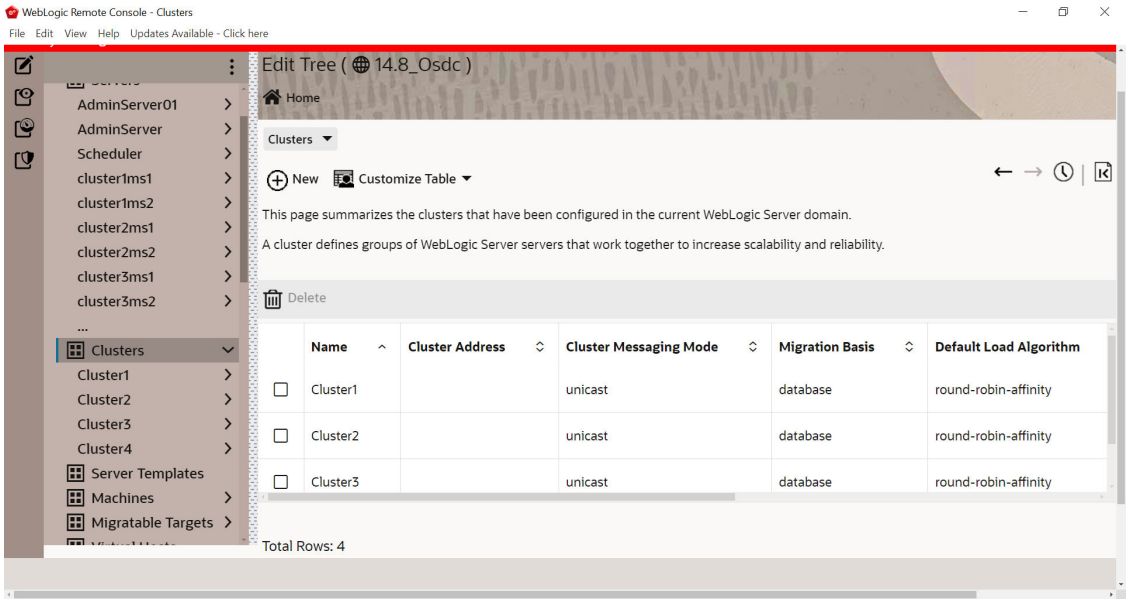
3.1 Machines

Figure 3-1 Machine-1



3.2 Clusters and Managed Servers

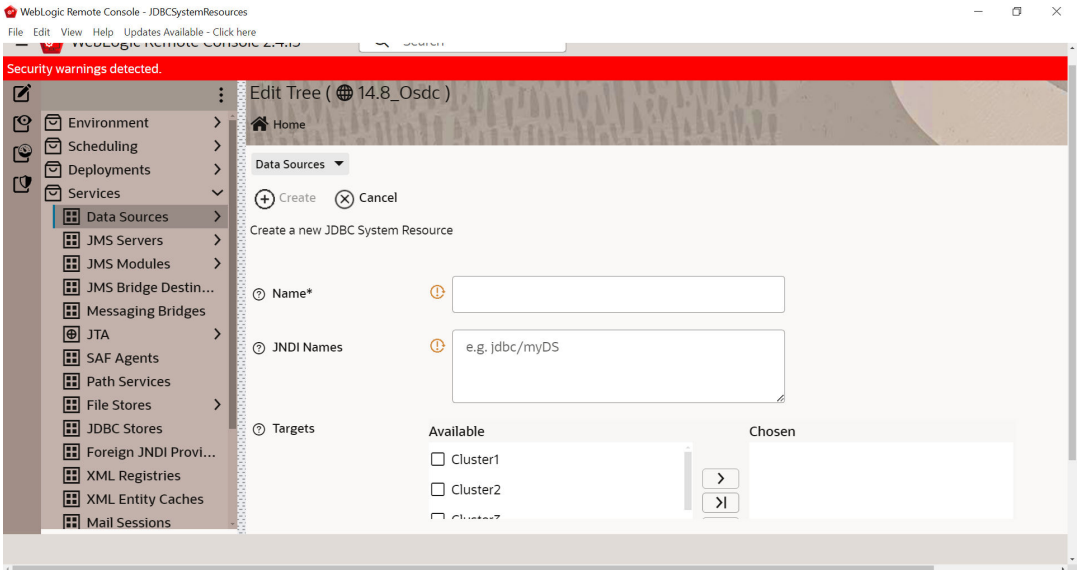
Figure 3-2 Clusters and Managed Servers



3.3 DataSource

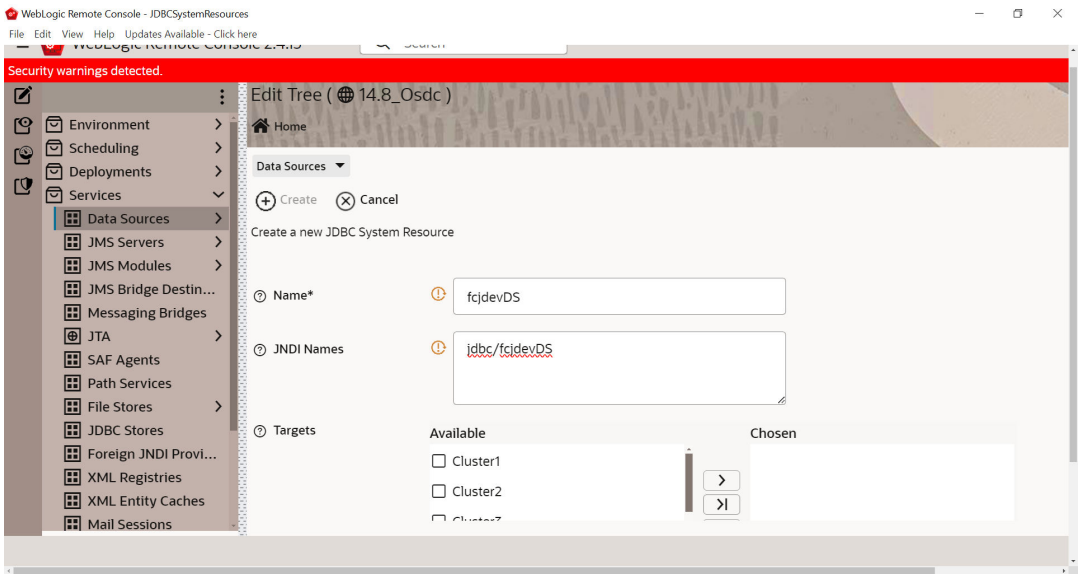
1. Select **Services** > **Data Sources** > **Edit Tree**, and Click **New**.

Figure 3-3 DataSource



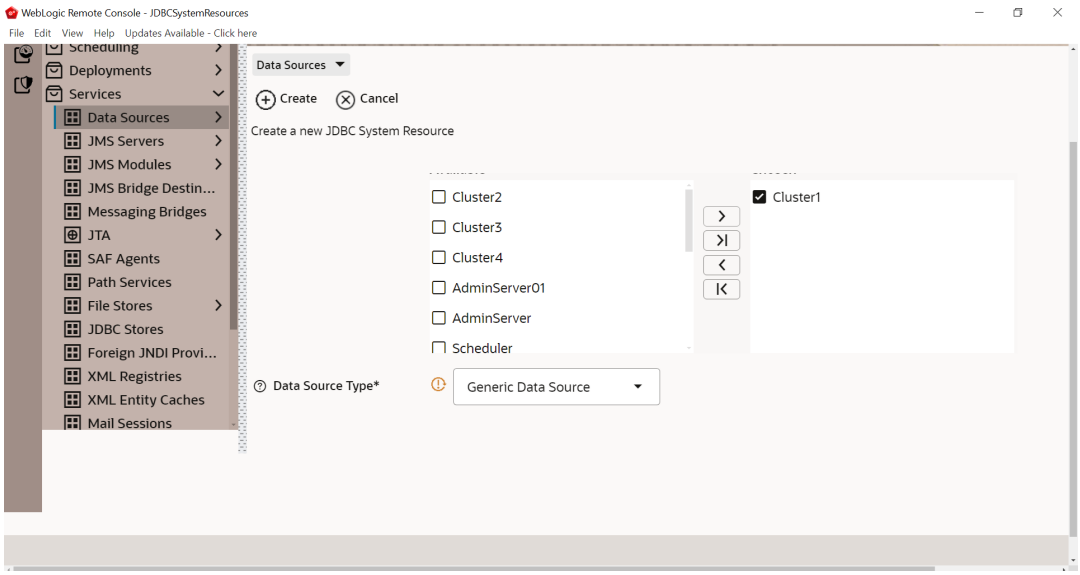
2. Specify the DataSource Name and Scroll Down.

Figure 3-4 DataSource



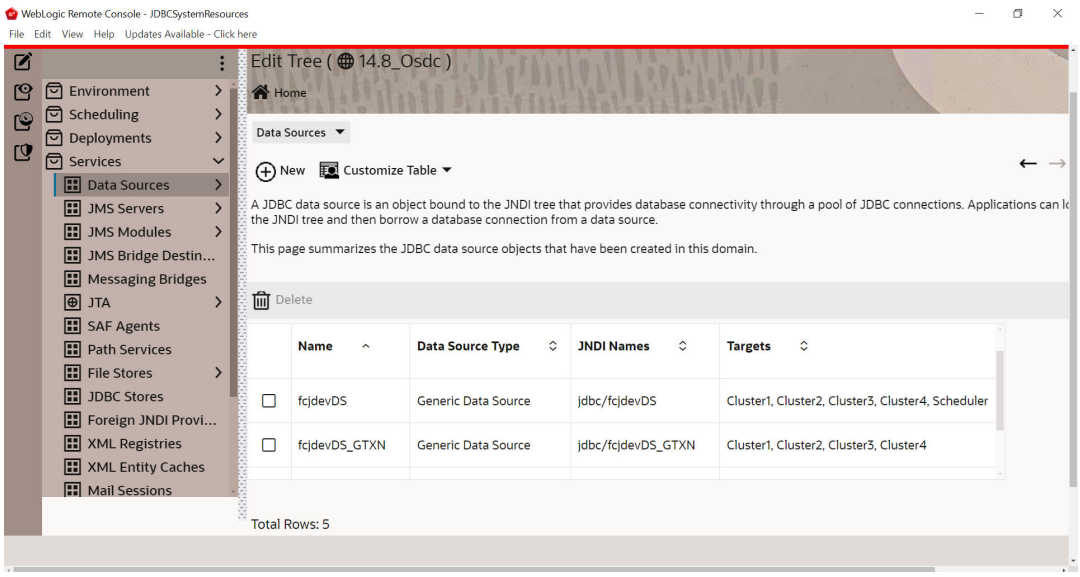
3. Map the respective Manage Server Target and select the Data source type.
4. Create, Save and Commit the Changes.

Figure 3-5 DataSource



5. Go to **Edit Tree**, and update.

Figure 3-6 DataSource



6. From Edit Tree, specify the user details and perform the test connection.

Figure 3-7 DataSource

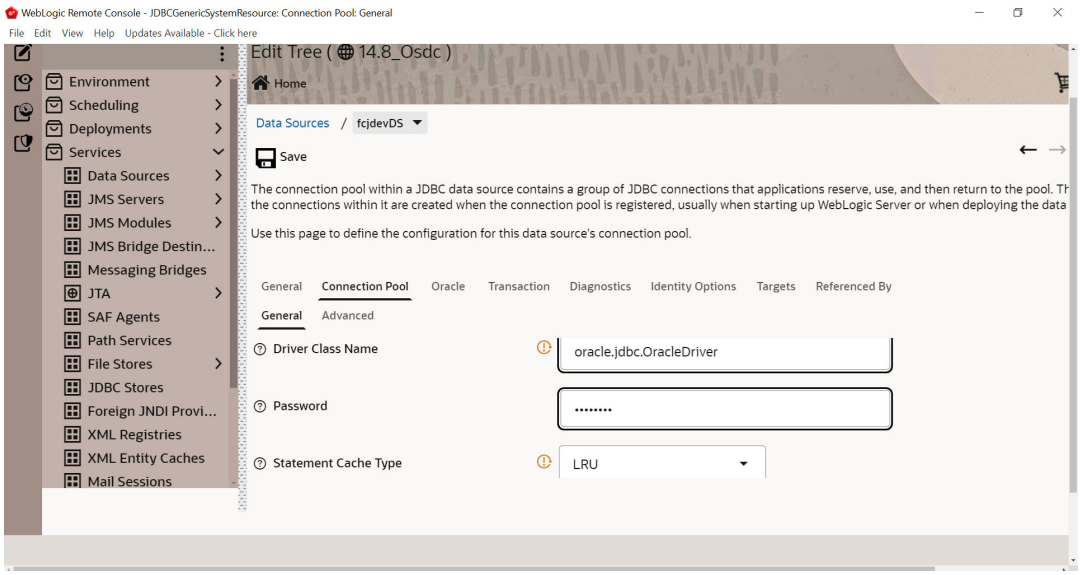
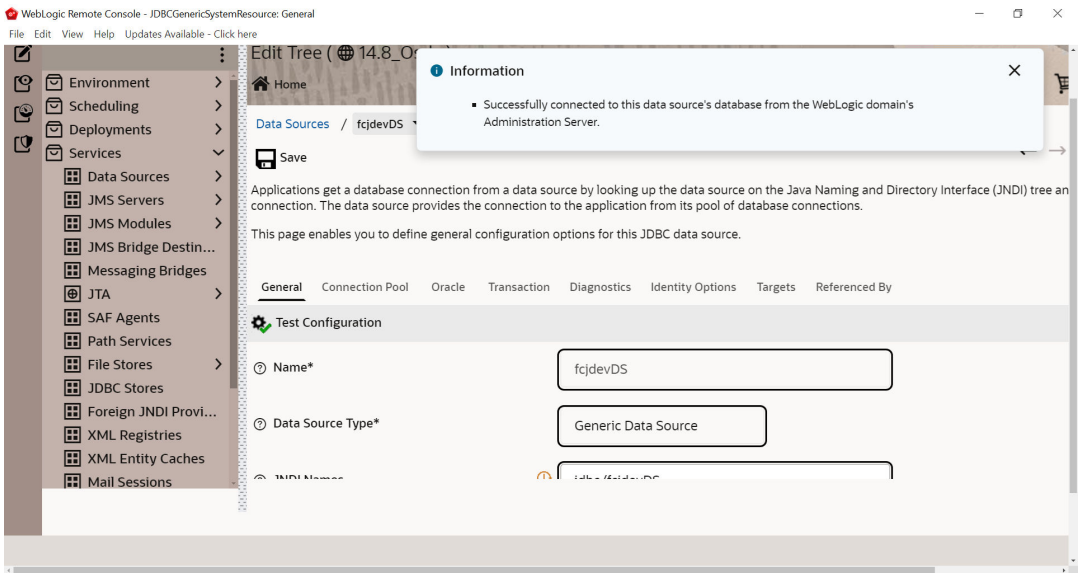


Figure 3-8 DataSource



7. Data Source is created successfully.

4
JMS Configuration

4.1 Persistence Store Creation

1. Go to **Filestore** and click **New** and **Create**.
2. Under **Services**, click **File Stores** and select **Create FileStore**.

Figure 4-1 Summary of File Stores

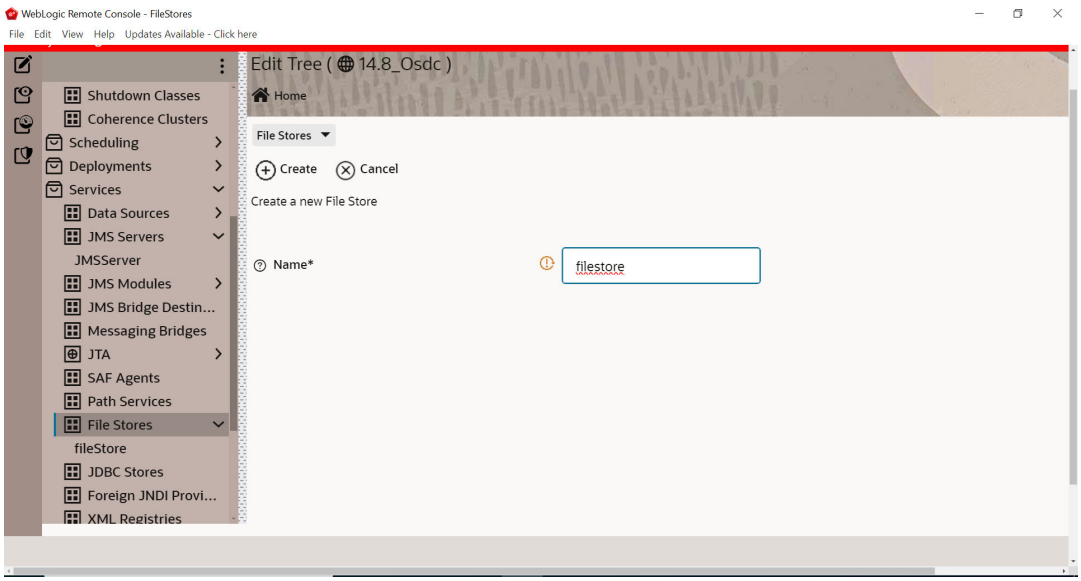
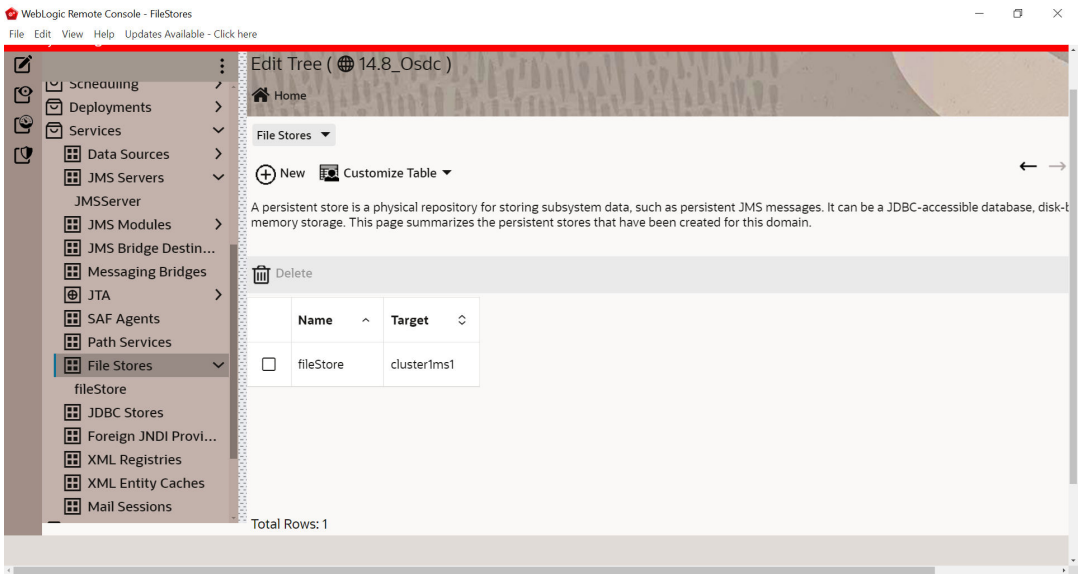


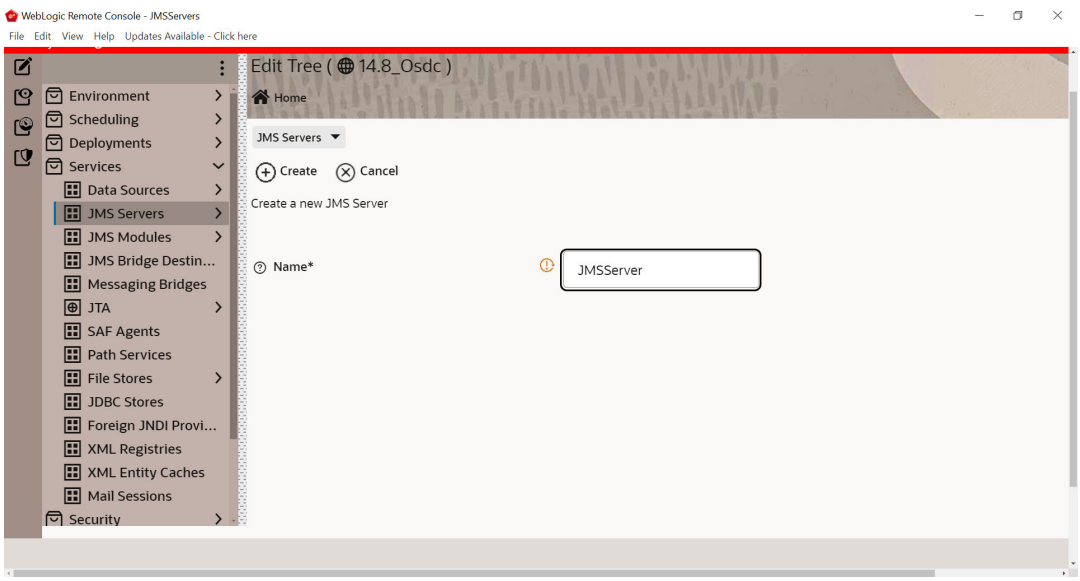
Figure 4-2 Summary of File Stores



4.2 JMS Server Creation

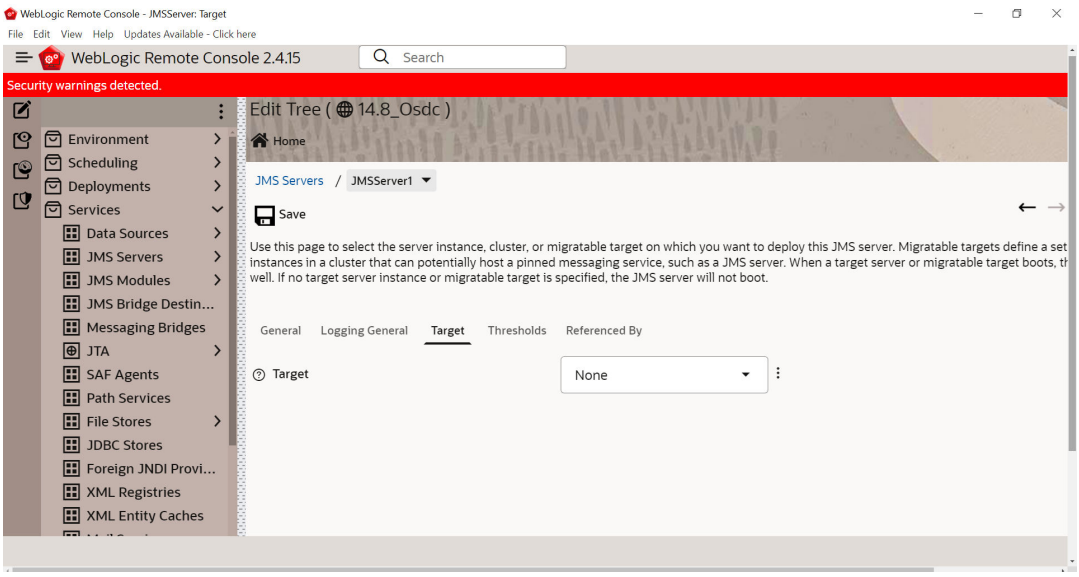
1. Go to **Services** then **JMS Servers**, and click **New**.
2. Specify the **JMS Servers Name** and click **Create**.

Figure 4-3 Summary of JMS Servers



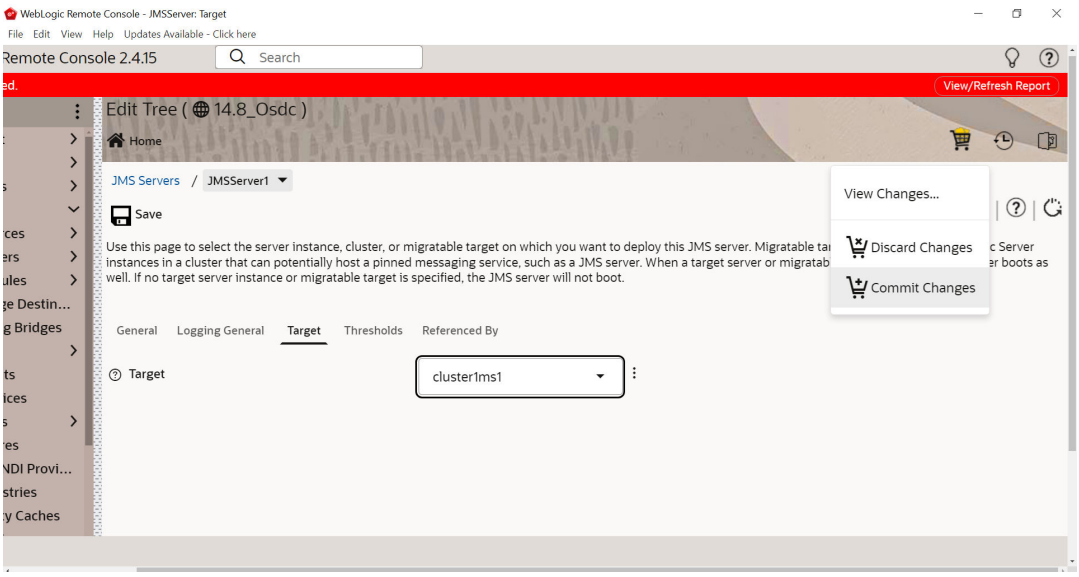
3. Select Target Manage Server, Click **Save**.

Figure 4-4 Create a New JMS Servers



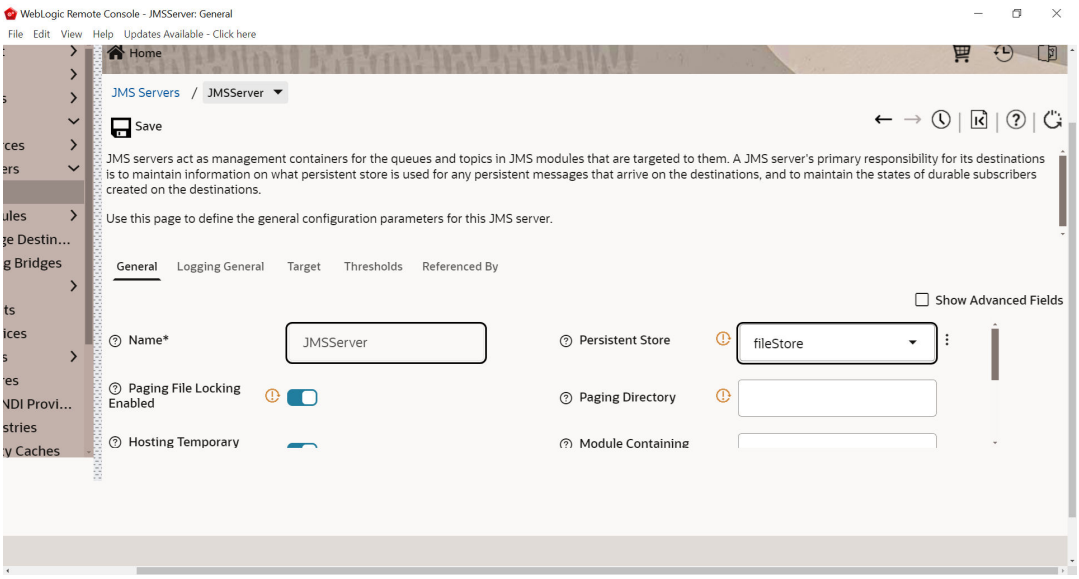
4. Select the **Target** server and click **Finish**.

Figure 4-5 Create a New JMS Servers



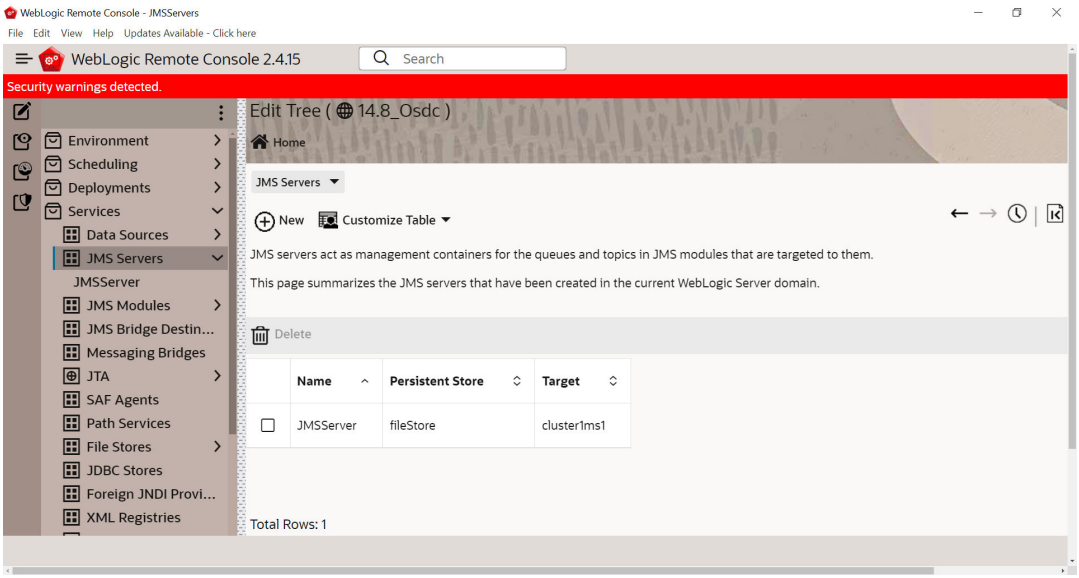
5. Also, map the persistence store and click **Commit Changes**.

Figure 4-6 JMS Server



6. JMS-Server-1 is created.

Figure 4-7 JMS Server is created



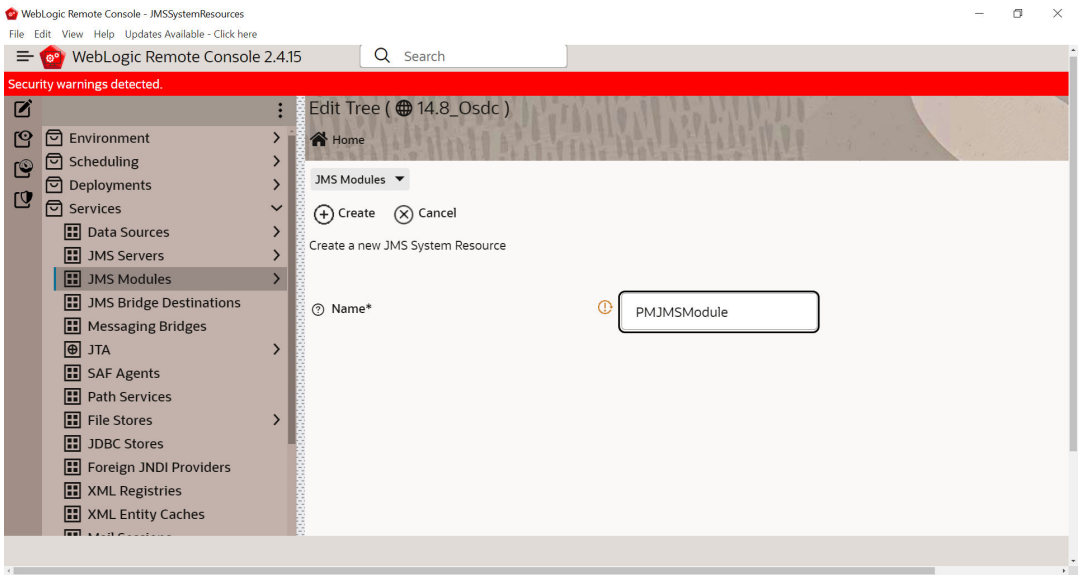
5

JMS Module Creation

5.1 Module Creation

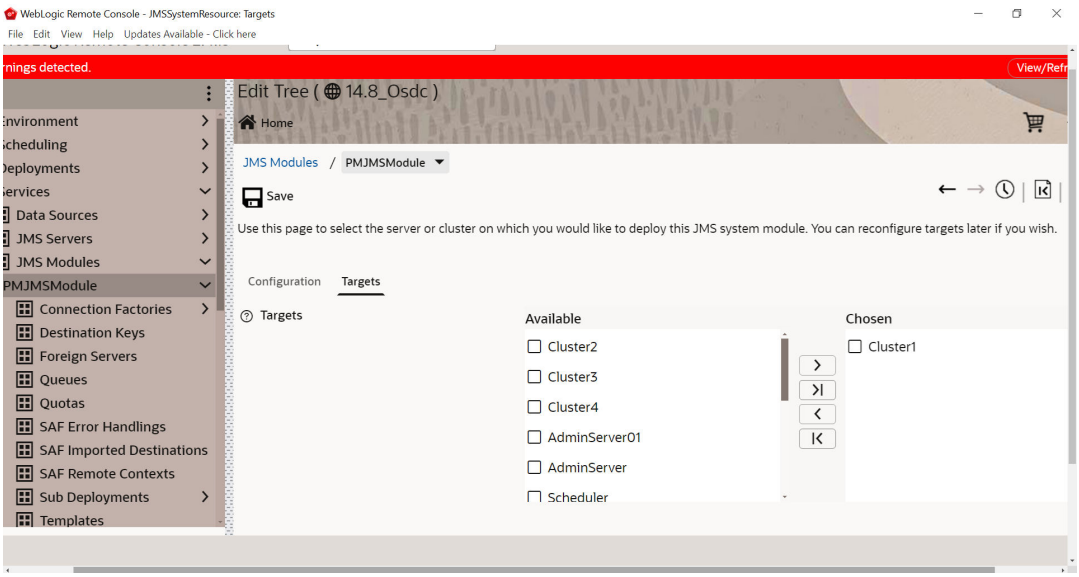
1. Go to **Services**, select **JMS Modules** and then click **New**.

Figure 5-1 Summary of JMS Modules



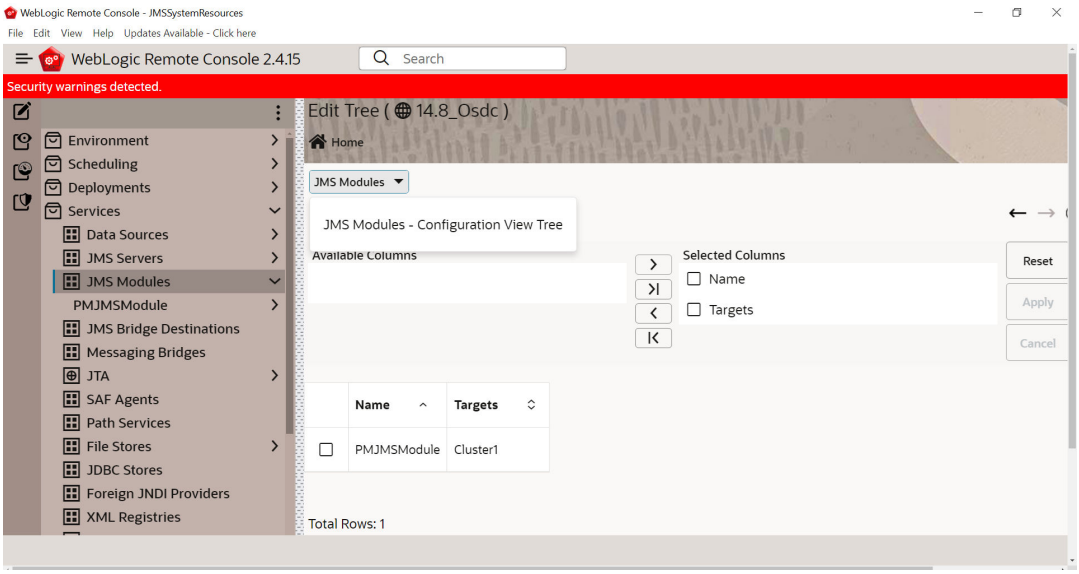
2. Enter name as JMS_MODULE and click **Create**.
3. Select Target to respective Cluster and click **Save**.

Figure 5-2 Create JMS System Module



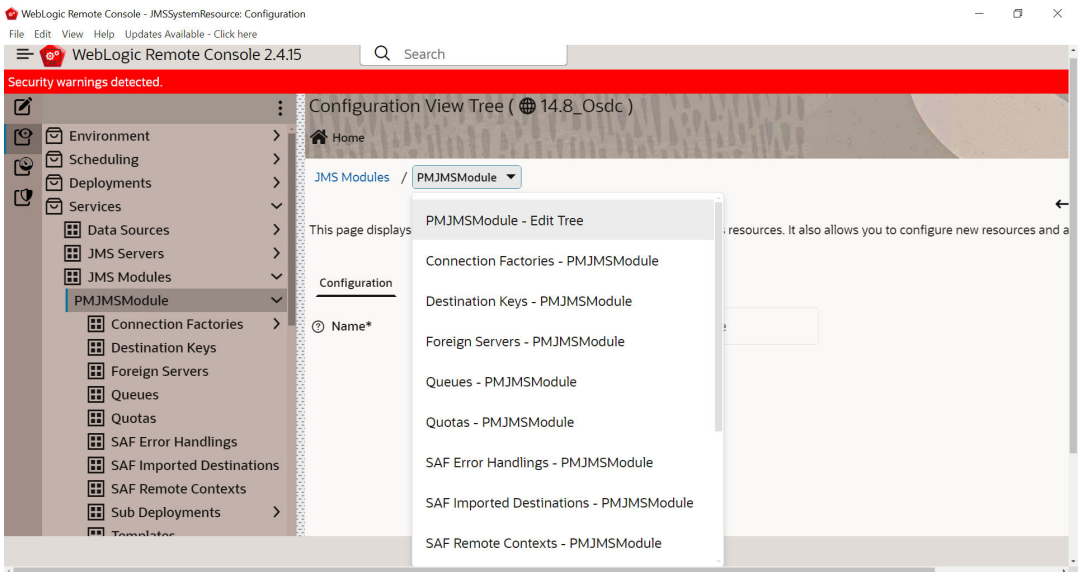
4. Select the cart to **Commit** the changes.
5. JMS_MODULE is created.

Figure 5-3 Settings for JMS_Module



6. Click on the configuration view tree to view the changes.
7. Select the JMS Module name and click the **Edit Tree** in the drop to update the configuration.

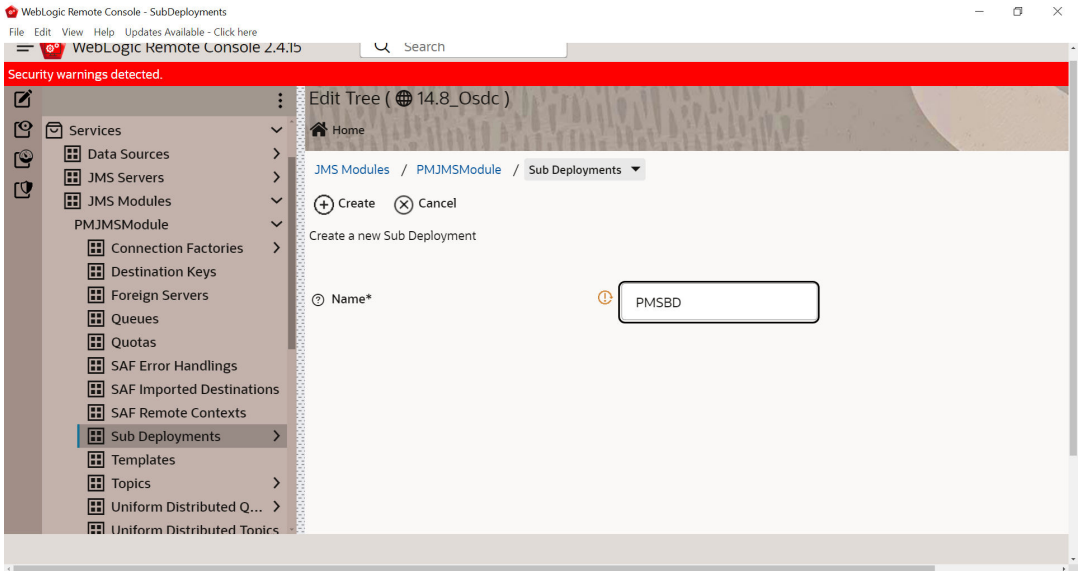
Figure 5-4 Configuration View Tree



5.2 Sub Deployment Creation

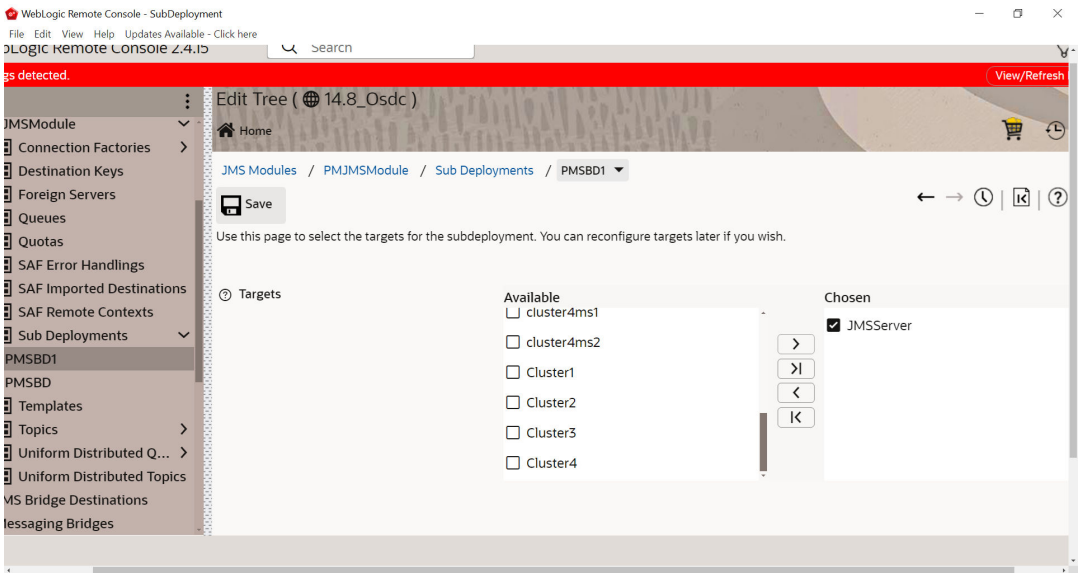
1. In JMS_MODULE, Module name > Goto Sub Deployment tab, Click **New**.

Figure 5-5 Settings for JMS Module



2. Enter name as JMS_SUB and click **Save**.

Figure 5-6 Create a New Subdeployment



3. Select the cart to commit the changes.

Figure 5-7 Create a New Subdeployment

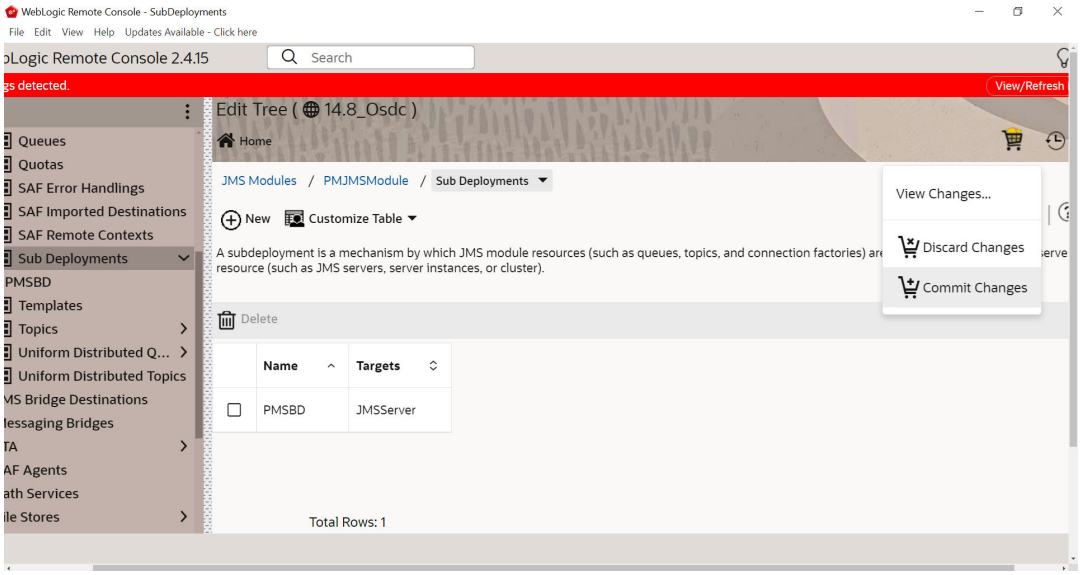
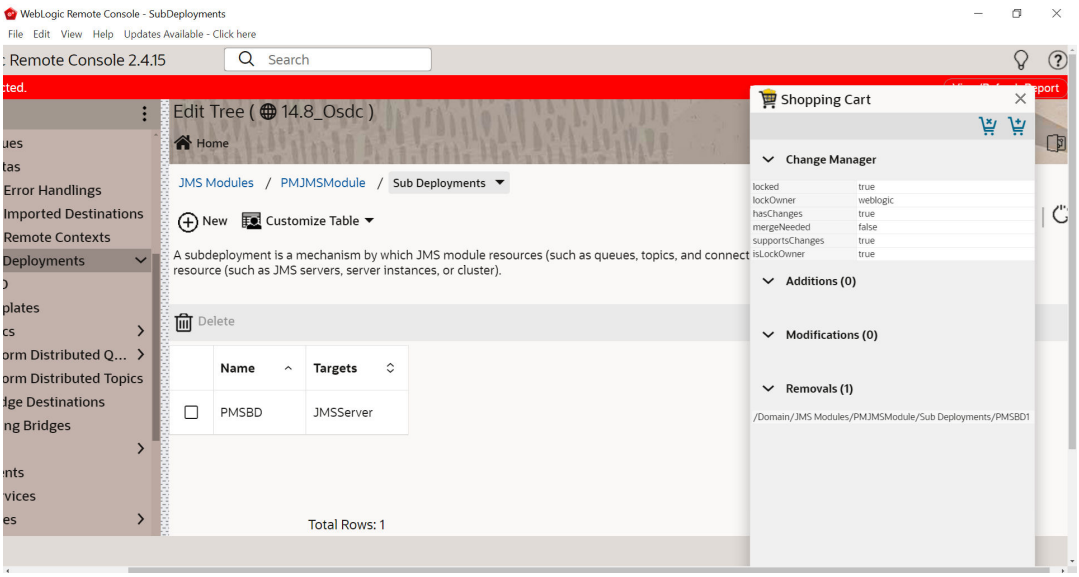
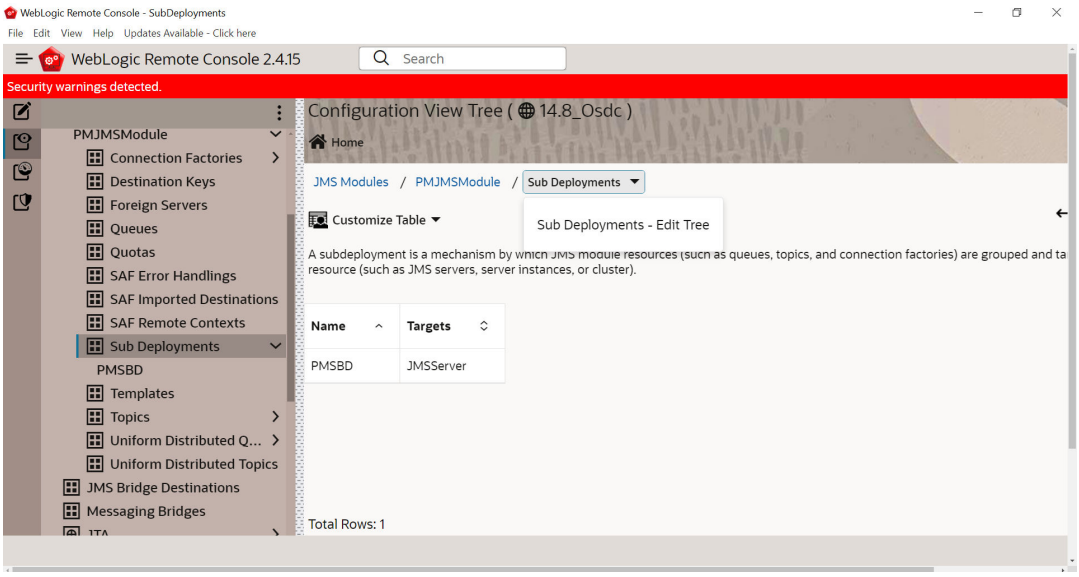


Figure 5-8 Create a New Subdeployment



4. This is an example of the Shopping Cart, where we can see the changes on the last action been done. Click onto the **Cart** and select **View Changes** to display the Shopping Cart Bill.

Figure 5-9 Settings for JMS_Module



5. Click **Edit Tree** to update the configuration.

5.3 Resource Creation

- Queue Creation
- Connection Factory Creation
- Server Restart

5.3.1 Queue Creation

1. Goto Configuration **View Tree** > **Services** > **In JMS_MODULE** , select the module type and Click **New**.
2. Below is the example of the Distributed Queue.

Figure 5-10 Distributed Queue

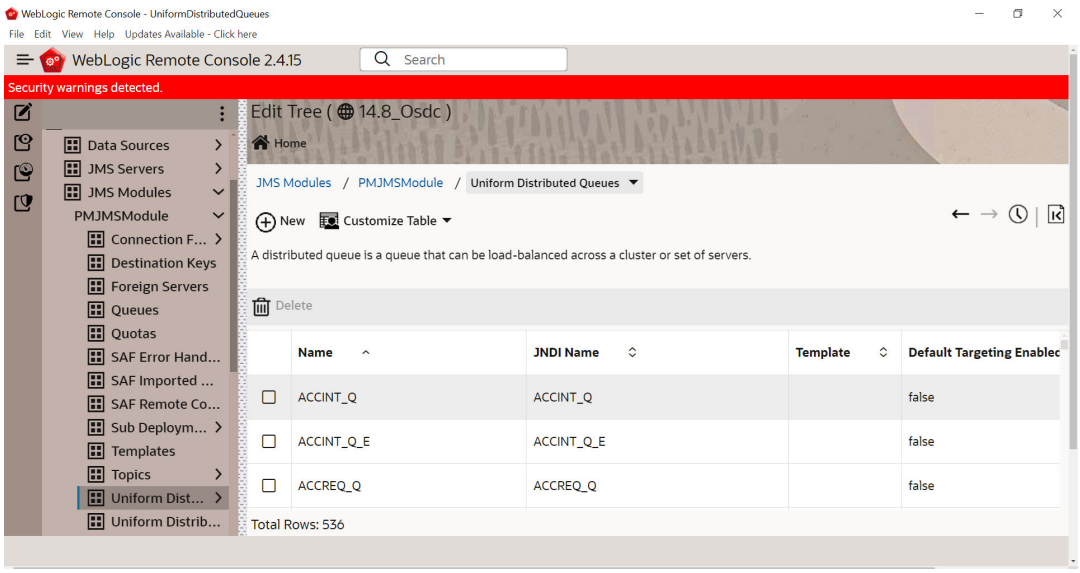
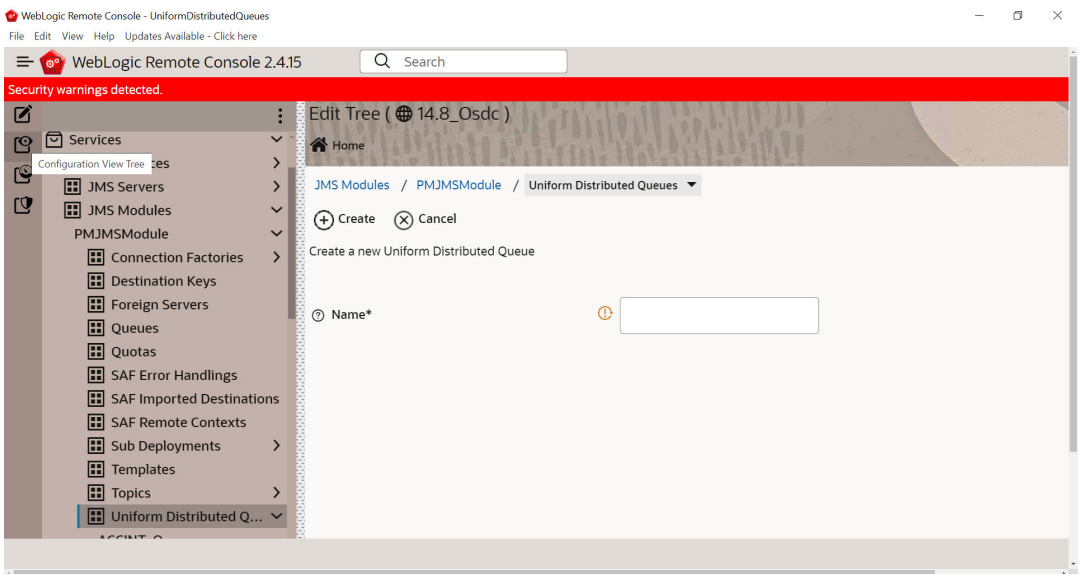
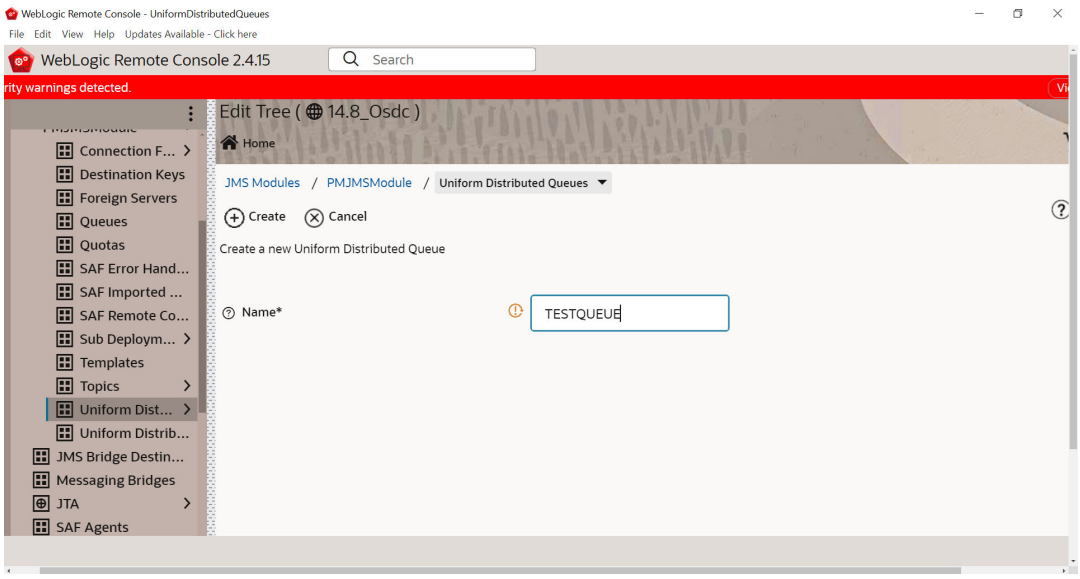


Figure 5-11 Distributed Queue



3. Specify the Queue name and click **Create**.

Figure 5-12 Create a New JMS System Module Resource



4. Specify the JNDI Name of the Queue.
5. Scroll down and specify the Sub deployment Name and Save.
6. After the configuration, select the **Shopping Cart** and **Commit** the changes.

Figure 5-13 Create a New JMS System Module Resource

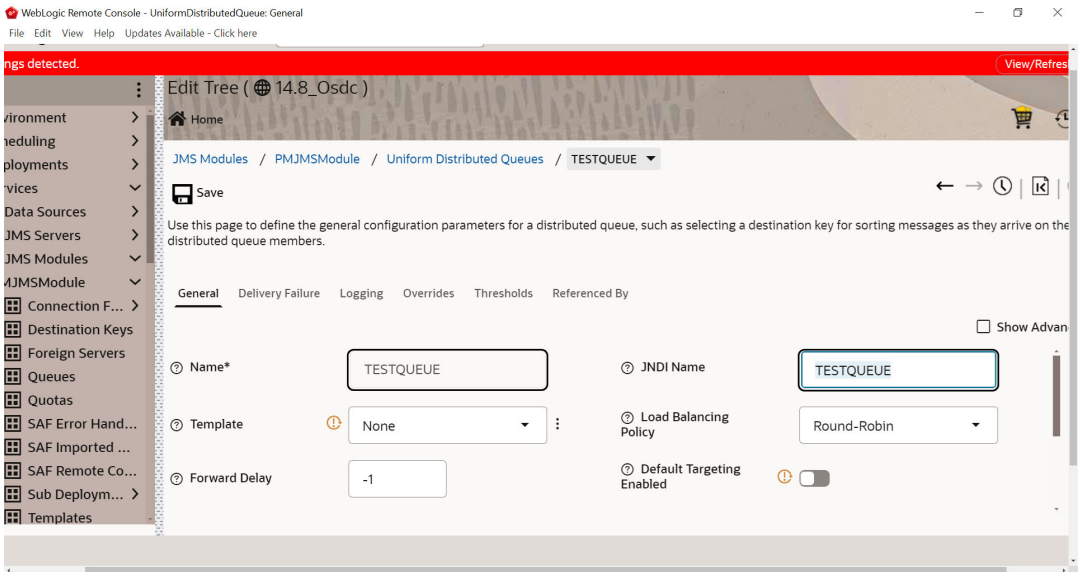


Figure 5-14 Create a New JMS System Module Resource

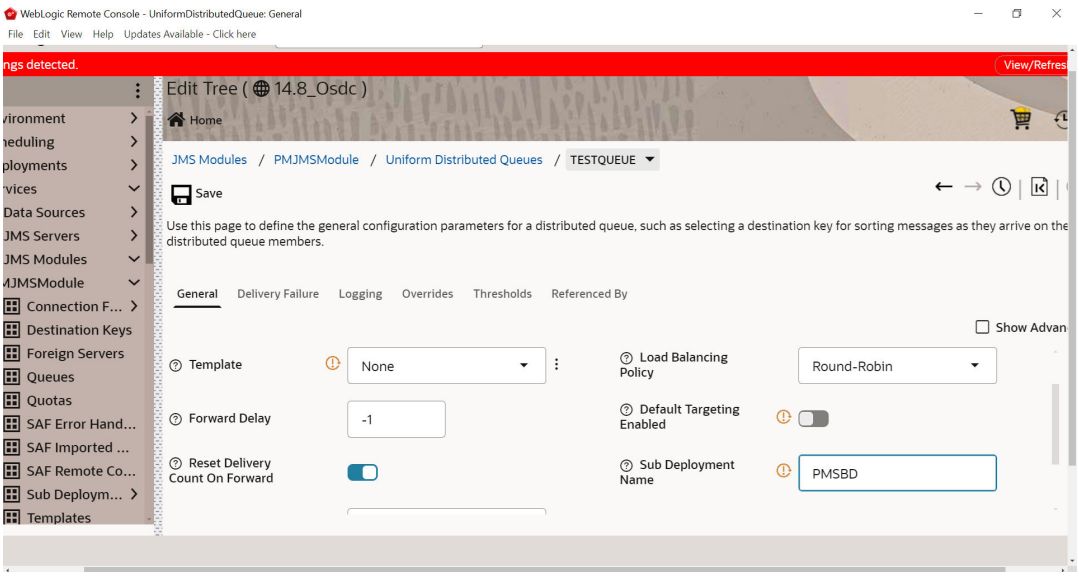
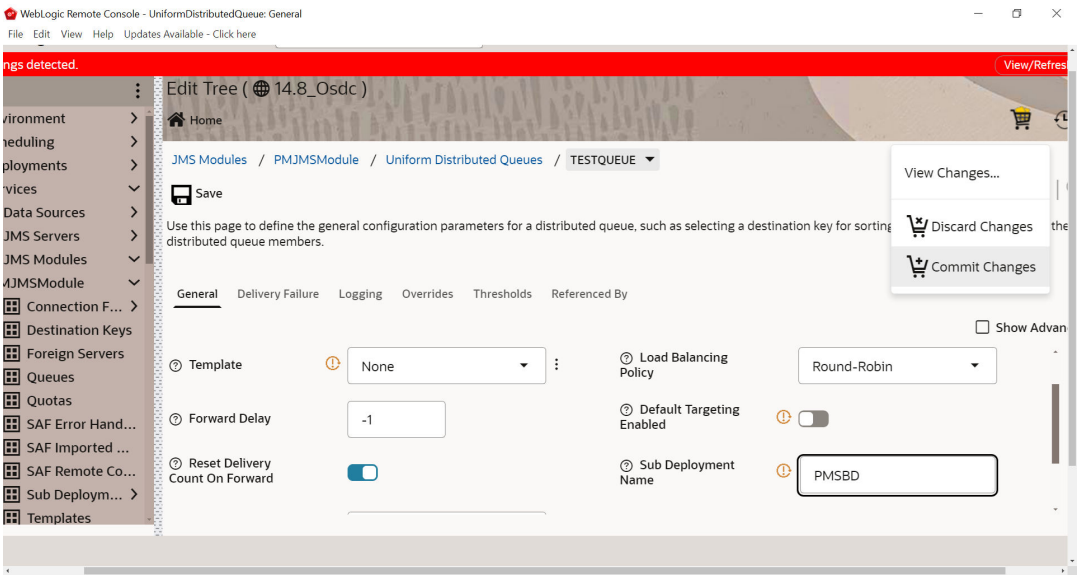
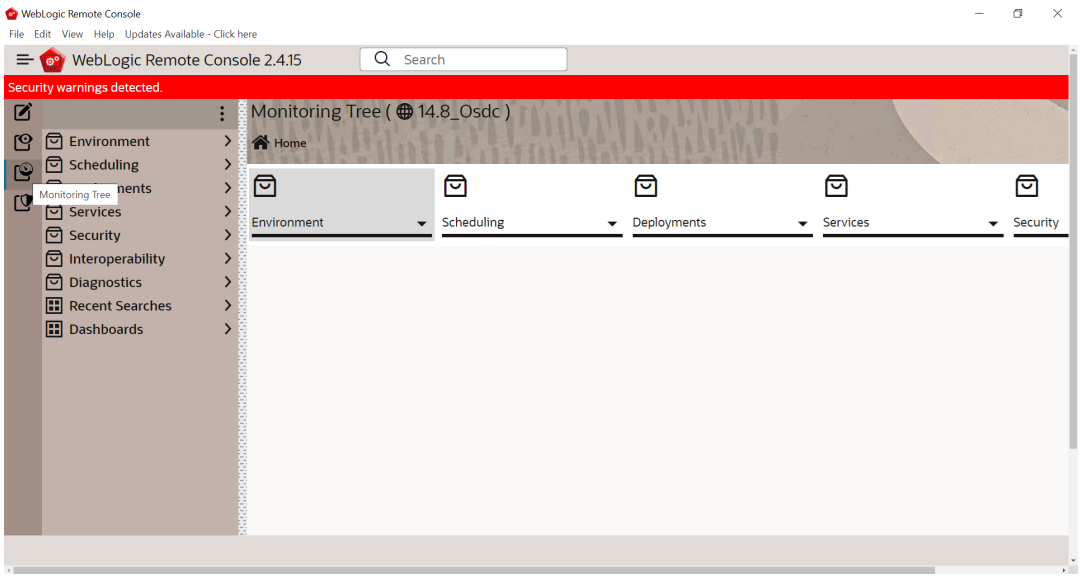


Figure 5-15 Create a New JMS System Module Resource



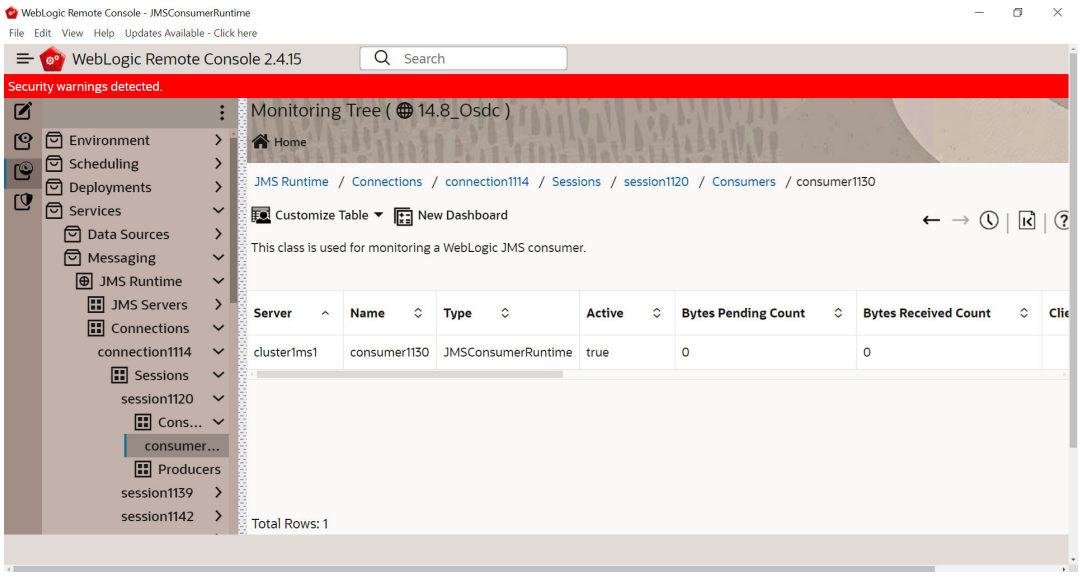
7. Go to Monitoring Tree and Select Services.

Figure 5-16 Create a New JMS System Module Resource



8. Follow the hierarchy to see the message count in the Queues.

Figure 5-17 Create a New JMS System Module Resource

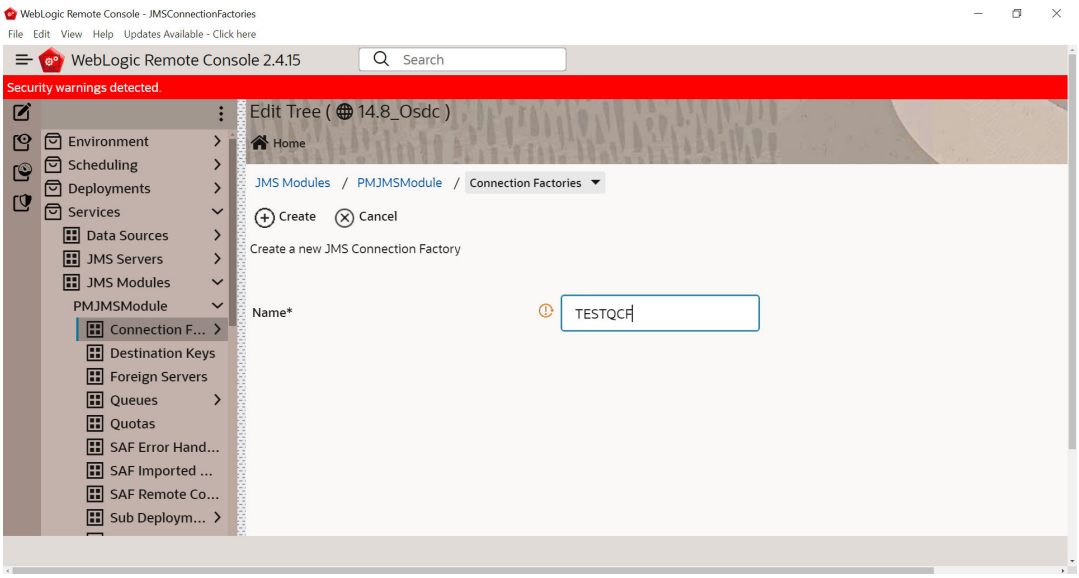


9. Select Subdeployement as JMS_SUB and click **Finish**.

5.3.2 Connection Factory Creation

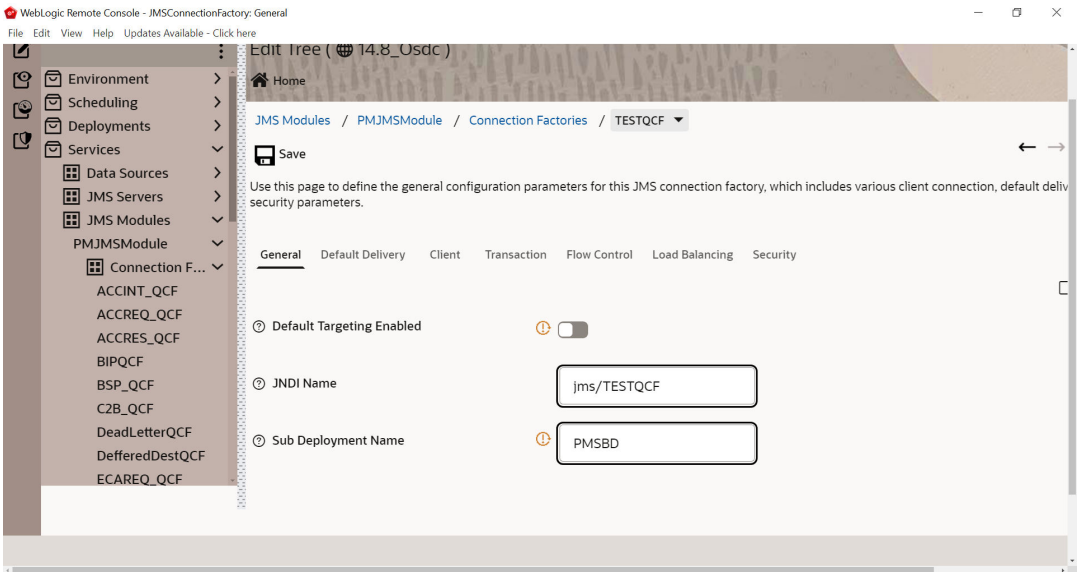
1. In JMS_MODULE Select on Connection Factory, click **New** and create the Connection Factory.

Figure 5-18 Settings for JMS Module



2. Post Save, **Commit** the changes.
3. Select Connection Factory and click **Next**.

Figure 5-19 Create a New JMS System Module Resource

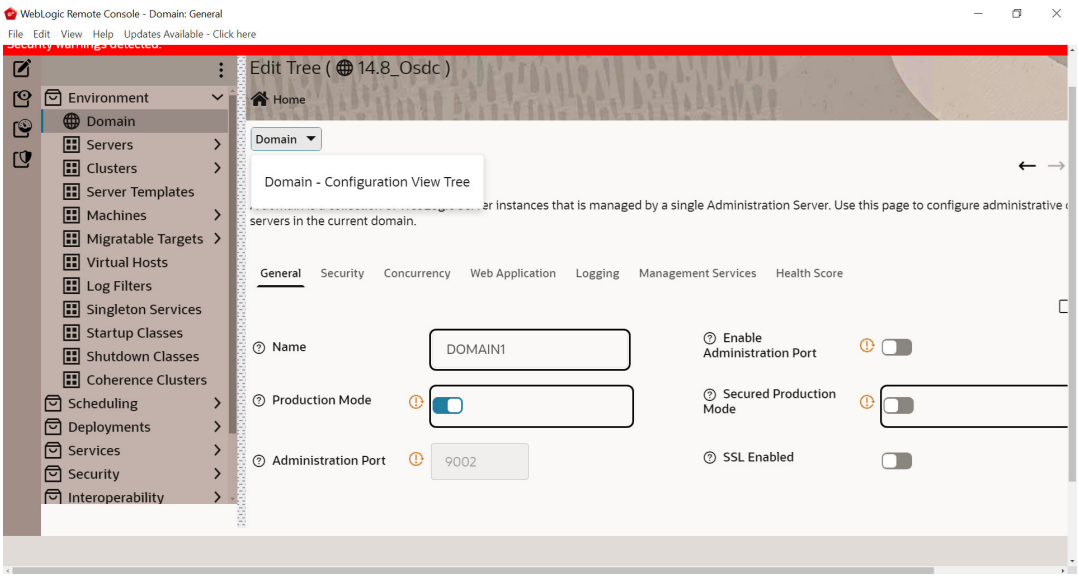


4. Specify the JNDI Name and Sub-deployment Name, click **Save** and **Commit** the changes.
5. Connection Factory is created.

5.3.3 Server Restart

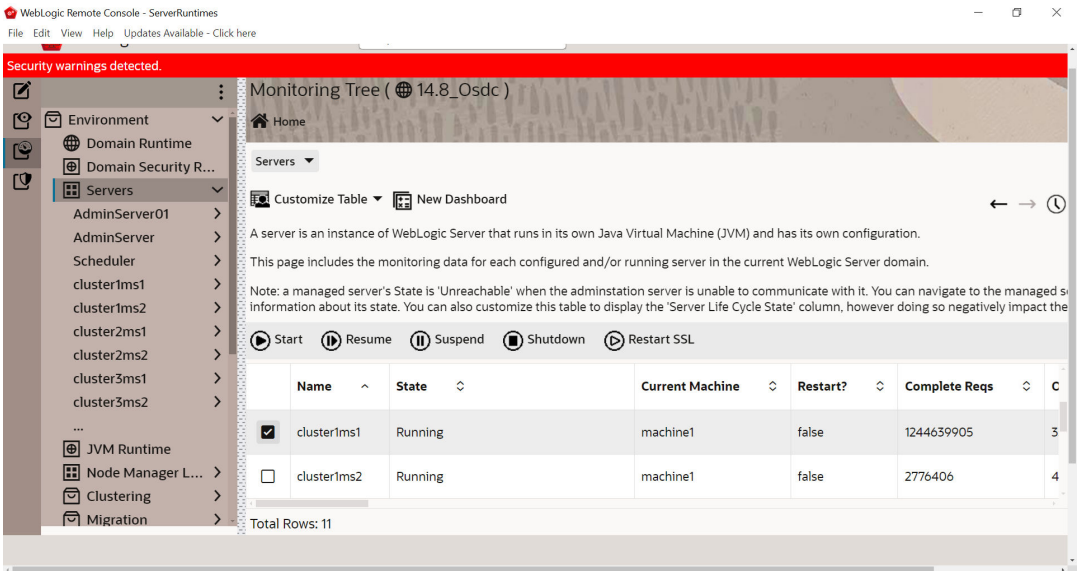
1. Select **Domain** and view the configuration.

Figure 5-20 Settings for JMS Module



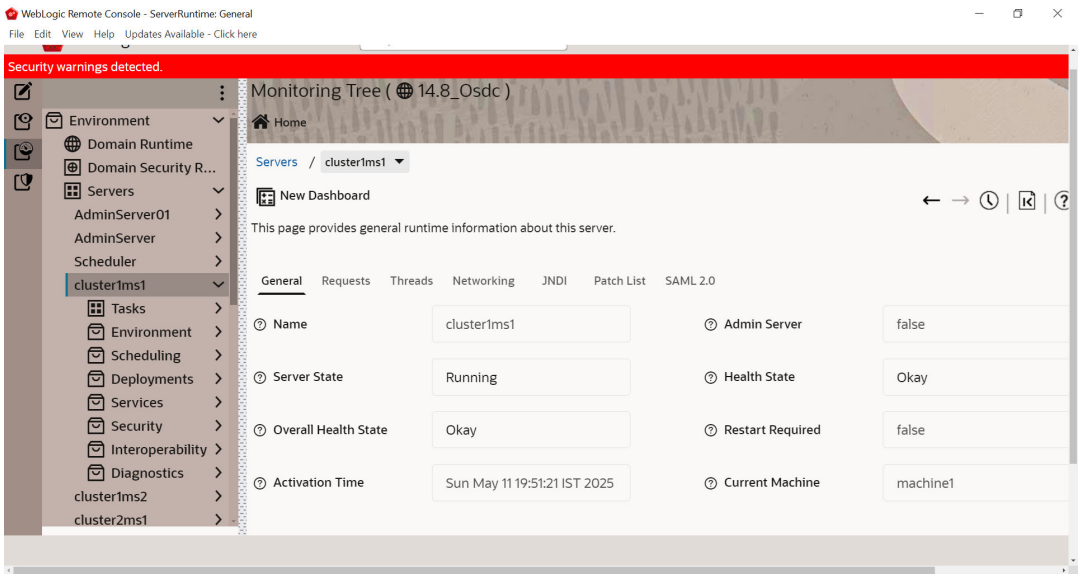
2. Go to Monitor Tree and select Servers Option.
3. Select the **Manage Server** to Shutdown and Start.

Figure 5-21 Settings for JMS Module



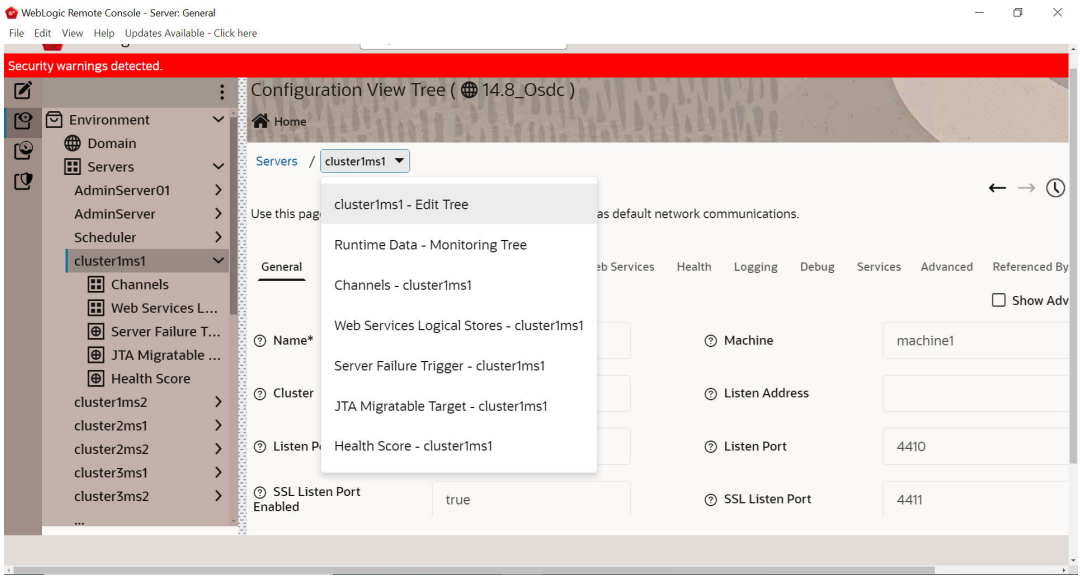
4. Click on the Manage Server to view the status.

Figure 5-22 Settings for JMS Module



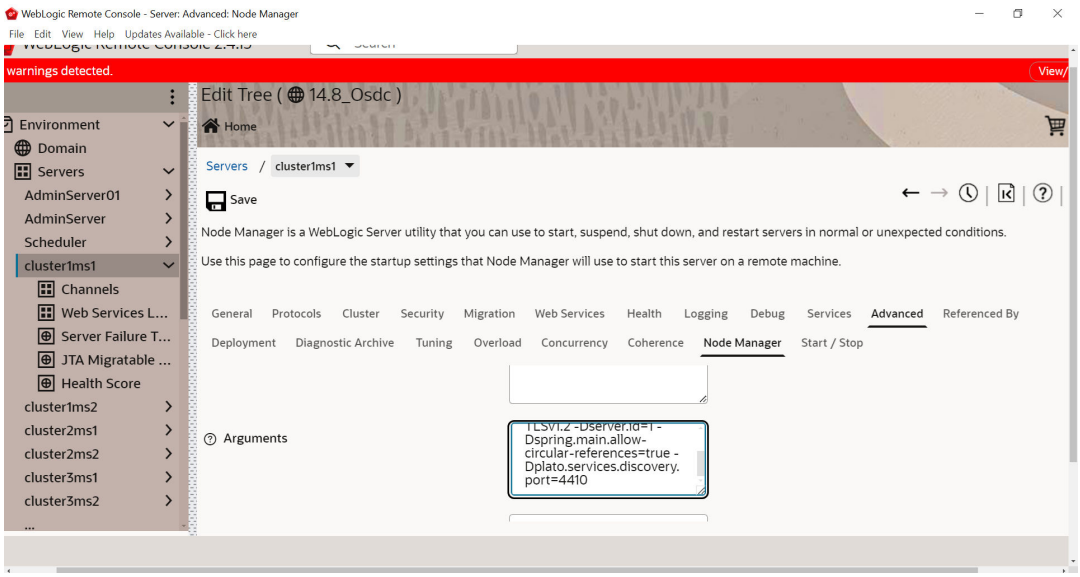
5. Click **Edit Tree** option to update the Manage Server Configuration.

Figure 5-23 Settings for JMS Module



6. Go to Advanced > Node Manager to update the Arguments section.

Figure 5-24 Create a New JMS System Module Resource



6
Frequently Asked Questions

6.1 Application and JMS Cluster Deployed on Same Cluster

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

1. Foreign Server Creation is not required
2. Targets should be given accordingly during SubDeployment Creation

6.2 Application Shows Warning upon Restart of Managed Servers

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 App Cluster managed servers.

Even after proper JMS setup when the managed servers are restarted Health of the Application is Warning.

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

6.3 Securing File Store Data

In order 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.

6.4 t3s Protocol

To secure the communication with the JMS Server use 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 server template and the port number used in the URL should be secure port.

6.5 How to Test the Deployment

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

1. Navigate to Services JMS Modules JMS_MODULE MDB_QUEUE MONITORING
2. Verify at backend or in the MDB log if the message is processed successfully.

6.6 Increase Maximum Number of Message-driven bean Threads

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 custom work manager

1. Modify the MDB deployment descriptior and redploy the EAR
2. Create Custom Workmanager and add constraints to limit the number of the max MDB threads

Restart managed servers and notice the change in the number of consumers for the QUEUE's.

6.7 How High Availability is achieved

1. Application Server: MDB_MODULE and the GWEJB ear are deployed in a cluster. 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 any one goes down other will handle the messages.
3. FileStore: File store is a cluster file system or database where if one node goes down then other will handle the requests.
4. DB Server: Database is installed in RAC mode where it has more than 1 node, if a node goes down then other nodes will handle messages.

6.8 How to setup for Scheduler/Notifications

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

6.9 What Other Modules uses JMS Queue's

JMS is used by following modules, relevant queues and factories needs to be created additionally:

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

6.10 References

JMS is used by following modules, relevant queues and factories needs to be created additionally:

- Resource_Creation_WL.doc