

National Data Update (DATUP) Installation Guide

Pharmacy Reengineering



Version 2.0

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**Department of Veterans Affairs
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Product Development (PD)**

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1 Project Scope

1.1 Project Description

The goal of the VHA PRE project is to design and develop a re-engineered pharmacy system, incorporating changes that have been made to the Enterprise Architecture and changes in pharmacy business processes. The intent of the PRE program is to ensure that no current system functionality is lost, but that it is either replicated in the new system or replaced by improved process and functionality. While the overall plan is still based on designing and implementing a complete pharmacy system, the scope of the effort has been defined to address a focused subset of the PRE functionality confined to the Data Update (DATUP) process.

1.2 PRE Project Goals and Objectives

The objective of the PRE project is to facilitate the improvement of pharmacy operations, customer service, and patient safety for the VHA. The PRE project will help address the identified goals and vision for the VHA Pharmacy System.

The goal for the PRE project is a seamless and integrated nationally-supported system that is an integral part of the HealthVet-Veterans Health Information Systems & Technology Architecture (VistA) environment. To meet this goal, the PRE project will enhance pharmacy data exchange, as well as clinical documentation capabilities, in a truly integrated fashion to improve operating efficiency and patient safety. Additionally, it will provide a flexible technical environment to adjust to future business conditions and to meet patient needs in the clinical environment. Achieving this goal will enable resolution of current pharmacy issues, improve patient safety, and facilitate long-term process stability.

1.3 DATUP Background

DATUP supports the Medication Order Check Healthcare Application (MOCHA) by performing data source updates. MOCHA conducts order checks using First Databank (FDB) MedKnowledge Framework¹ within the existing VistA pharmacy application. FDB is a data product that provides the latest identification and safety information on medications. Additionally, FDB provides the latest algorithms used to perform order checks. DATUP processes the data updates associated with FDB MedKnowledge Framework. The order checks performed by MOCHA include:

- Drug-Drug Order Check – Check interactions between two or more drugs, including interaction monographs.
- Duplicate Therapy Order Check – Check for duplicated drug classifications between two or more drugs.
- Drug-Dose Order Check – Check minimum and maximum single doses, verify the dosing schedule, and provide the normal dosing range.

¹ At the time of development, this product was known as FDB Drug Information Framework (commonly abbreviated as FDB-DIF). The references to FDB-DIF in this manual are necessary due to previously completed code and instructions that could not be changed to match the new product name.

1.4 Related Documents

A complete list of documents relating to the PRE project and the DATUP development effort can be found in the Glossary and Acronym List (Version 5.0, dated September 26, 2008).

2 Document Overview

The information contained in this National Data Update (DATUP) Installation Guide is specific to DATUP development, which supports the MOCHA component. This section defines the layout of this document and provides an outline of the document structure.

2.1 Document Background

This document details the steps required to install the DATUP software at a national site, the terminology used for the configuration and deployment of the software, and the assumptions for installing the software. Additionally, this document details how to install and configure the database environment. This document accompanies the delivery of the DATUP v2.0.00.001 software release. The DATUP Version Description Document (Version 2.0.00.001) is delivered as a companion document to this Installation Guide. Refer to the Version Description Document for more information on the software inventory and versions used in the DATUP. v2.0.00.001 software release.

2.2 Overview

The following list provides a brief description of the sections included in this document:

- Section 1: Provides introductory material delineating the purpose of the PRE project and the scope of the MOCHA effort
- Section 2: Presents an overview of the layout of the document
- Section 3: Presents the installation instructions for the DATUP. v2.0.00.001 software release
- Section 4: Details the steps required to perform an installation when an existing version is already deployed.
- Section 5: Presents verification steps to verify that the installation was successful

Text in a `Courier New` font indicates WebLogic Console panels or text, commands, and settings that must be typed, executed, or configured to complete the installation.

(This page included for two-sided copying.)

3 Installation Instructions

The following instructions detail the steps required to perform a *fresh* installation of the DATUP software at a national site. For *upgrade* installation instructions see Section 4. Section 3.1 details the terminology used for the configuration and deployment of the DATUP software. Section 3.2 outlines the assumptions for installing the DATUP software. While the system may be configured to run outside the given assumptions, doing so requires modifications that are not detailed in this document. Section 3.3 describes how to install and configure the DATUP software properly. Finally, Section 3.3 describes how to install and configure the database environment.

In order to understand the installation and verification process, the reader should be familiar with the WebLogic console shown in Figure 3-1. The WebLogic console is a Web page viewable from any Internet browser; however, Internet Explorer, Version 7, is recommended. The WebLogic console is generally divided into two sections. The left section contains the Change Center, Domain Structure, and other informational panels. The right section displays panels containing additional options or configuration details. Note: With the exception of the Change Center and Domain Structure references, further references to WebLogic console panels refer to panels in the right section of the WebLogic console.

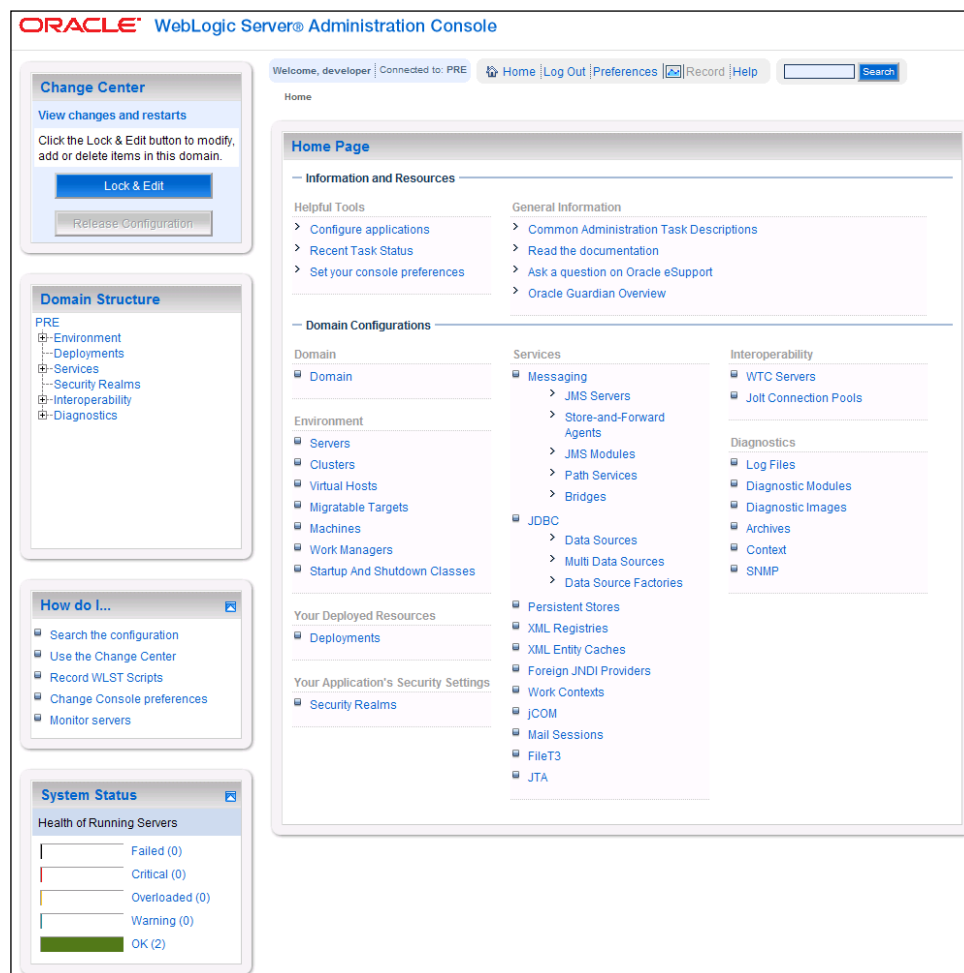


Figure 3-1. WebLogic Console

3.1 Terminology

In an effort to make these installation instructions as general as possible for installation at any site, a few terms are used throughout the instructions with the intent that they be replaced with site-specific values.

Table 3-1 contains a list of those terms used only within this document as well as sample site-specific values for each term. Additionally, references to the DATUP-N server may be replaced with the site-specific name of the destination server at the installation site.

Table 3-1. Terminology

Term	Definition	Sample
Database Server	Machine on which Oracle is installed and runs	DATUP-N-DB
Deployment Machine	Site-specific machine on which WebLogic is installed and runs	DATUP-N
Deployment Server	WebLogic managed server where DATUP is deployed	NationalPharmacyServer
Deployment Server Port	Port on which the Deployment Server is listening	8010
Deployment Server's class path directory	Folder location on the Deployment Server where libraries on the class path are located (see WebLogic documentation for instructions on setting a WebLogic managed server's class path)	/opt/boa/domains/PRE/lib
Java Database Connectivity (JDBC) Universal Resource Locator (URL)	URL to connect to Oracle database	jdbc:Oracle://DATUP-N-db:1972/FDB_DIF

3.2 Assumptions

The installation instructions found within this guide are intended to be performed on a clean installation of WebLogic 10.3, with a separate managed server to act as the Deployment Server. For details on completing the installation of the following items, please refer to each item's installation and configuration documentation supplied by Oracle.

For successful deployment of the DATUP software at a national site, the following assumptions must be met:

- The Deployment Server is configured and running.
- WebLogic is configured to run with the Java™ Standard Edition Development Kit, Version 1.6+.
- Access to the WebLogic console is by means of any valid administrative user name and password.
- The proper Oracle database driver libraries for the chosen deployment environment are present on the class path for the respective Deployment Servers.
- Red Hat Enterprise Linux 5.2 operating system is properly installed.
- Domain Name Server (DNS) resolution is configured for the DATUP server.
- The installation instructions are followed in the order that the sections are presented within this Installation Guide.
- FDB-DIF v3.3 database is installed on the Database Server. Installation instructions are provided in FDB-DIF Installation/Migration guide. Contact the PRE Configuration Manager who should be identified on the project's Technical Services Project Repository (TSPR) site for a copy of the guide and installations/migration scripts.

3.3 Database Installation and Configuration

The following sections describe the operating system and software for the DATUP database tier installation and configuration. Initially, install and configure the operating system software according to the manufacturer's specifications. Then configure the Oracle databases as specified in the following sections for DATUP to function properly.

3.3.1 Oracle Database

The DATUP database is designed to be operating system independent. The only constraint is that Oracle 11g Enterprise Edition – Production must be properly installed and configured. The following sections describe the installation, features, user creation, and configuration for the Oracle database.

For successful deployment of the DATUP 2.0 application on the National DATUP instance, the FDB-DIF v3.3 database must be installed. Installation instructions are provided in FDB-DIF Installation/Migration guide. Contact the PRE Configuration Manager who should be identified on the project's Technical Services Project Repository (TSPR) site for a copy of the guide and installations/migration scripts.

3.3.2 Oracle Installation

A proper installation of the Oracle Relational Database Management System (RDBMS) is one in which the Oracle Universal Installer was used to perform an error-free installation and a general purpose instance was created. A properly configured Oracle RDBMS is one in which the associated Oracle application development and configuration tools, namely SQL*Plus and Oracle Enterprise Manager, can be used to connect to the instance through Transparent Network Substrate alias.

Oracle Database Parameters

The following Oracle database parameters are recommended for the DATUP application:

- NLS language = American
- NLS territory = America
- Character set = WE8ISO8859P1

3.3.3 Oracle Schema Creation for DATUP

Following are the steps needed to setup the DATUP schema on a national instance. Additionally, an example session is provided in **Oracle Installation.txt** detailing the commands issued, sequence performed, and expected results at each step. This file and the SQL scripts needed to create the DATUP schema are provided in the database/oracle_scripts.zip file. The following table provides a summary of each step that will be detailed below:

Table 3-2: Summary of Steps for Creating Oracle Schema

Step	Brief Description	Script File	User to Run Script File
1	Create tablespace and schema owner	1_CreateDatupSchema.sql	SYSTEM
2	Create schema objects	2_CreateDatupTables.sql	DATUP
3	Create application user	3_CreateDatupAppUser.sql	SYSTEM

Step 1 – Create Tablespace and Schema Owner

Prior to creation of the schema, logical and physical environment structures must be setup for storage of the schema database objects: tablespaces and data files. For the DATUP schema one tablespace must be created, DATUP. The default scripted DATUP tablespace path is `/home/oracle/datup.dbf`, which may be changed in the `1_CreateDatupSchema.sql` script to match the installation environment prior to execution. This script also creates the schema owner DATUP as described below:

- DATUP – Owner of the DATUP schema. The default scripted password is “DATUP”, which may be changed in the `1_CreateDatupSchema.sql` script prior to installation. The script should be loaded as SYSTEM, or a user with account creation privileges.

Step by Step Commands

1. Open a text editor and open the `1_CreateDatupSchema.sql` script. Replace `/home/oracle` with the data file directory. The directory entered should already exist on the database server.
2. Login to the SQL client using a database account that has SYSDBA privileges (SYSTEM).
3. Execute the “`1_CreateDatupSchema.sql`” script.
4. Check for errors.

Step 2 – Create Schema Objects

Once the storage structures and schema have been created, execute the script `2_CreateDatupTables.sql` to create the DATUP tables, sequences, triggers, and indices. The script should be executed as DATUP, the schema owner.

Step by Step Commands

5. Login to the SQL client using the DATUP user account.
6. Execute the “`2_CreateDatupTables.sql`” script.
7. Check for errors.

Step 3 – Create Application User

Once the schema objects have been established, create the required DATUP application user by executing the script `3_CreateDatupAppUser.sql`.

- DATUP_APP_USER – Application user with read/update/delete access granted to the tables in the DATUP schema. The default scripted password is “DATUP_APP_USER”, which may be changed in the `3_CreateDatupAppUser.sql` script prior to installation. The script should be loaded as SYSTEM, or a user with account creation privileges. The chosen DATUP_APP_USER password must match the password used to configure the JDBC data sources in Section 3.4.4.

Step by Step Commands

8. Login to the SQL client using a database account that has SYSDBA privileges (SYSTEM).
9. Execute the “`3_CreateDatupAppUser.sql`” script.
10. Check for errors.

3.3.4 Oracle Configuration and Data Load

The DATUP Oracle Database is the primary data repository for the DATUP application on the National DATUP instance. The database should be installed and configured appropriately for the DATUP operating environment.

The initial data load of VA Local Site data must be loaded for the national DATUP instance to function. The data can be loaded with the SQL Loader scripts provided in the `database/oracle_scripts.zip` file. The `Sites.ctl` file describes the data and the `Sites.csv` file contains the comma-delimited Site records. The data should be loaded as DATUP_APP_USER. Execute the following steps to load the DATUP schema:

Step by Step Commands

11. Ensure the `Sites.ctl` file is in the current directory.
12. Type the following command from the Linux command prompt to invoke SQL Loader:
`$sqlldr datup_app_user/datup_app_user@ORACLE control= Sites.ctl`
13. Check for errors.

The DATUP database will need to be updated if a new local site has been brought online since the original DATUP delivery date of March 17, 2010 and is not included in the `Sites.csv` spreadsheet. To update the `Site` table, login to the database as user DATUP_APP_USER. A new row must be added to

the `Site` table for each local site added since the system was first brought online. The site table contains three columns, a unique `SITE_ID`, a descriptive `SITE_NAME`, and the Veterans Integrated Service Network (VISN) `VISN number`. To update this table, execute a statement such as `INSERT INTO SITE VALUES (999, 'Example Medical Center', 23)` for each new site brought online.

3.4 WebLogic Installation Instructions

The following sections detail the steps required to configure and deploy DATUP onto WebLogic at a national site.

3.4.1 Class Path

The national DATUP Enterprise Application Archive (EAR) file contains all the required libraries for the proper functioning of the application. If any other applications have been deployed to the Deployment Server, there may be conflicting third-party libraries in the Deployment Server's class path that will cause DATUP to operate differently than expected. If versions on the Deployment Server's class path differ from those defined in the DATUP Version Description Document (Version 1.0.00.002, dated November 12, 2010), the preferred solution is to remove the library from the Deployment Server's class path. If that is not possible, replace the libraries with the DATUP versions.

3.4.2 WebLogic Server Startup Configuration

DATUP requires additional arguments added to the WebLogic Server's Server Start properties. This section details the steps to add the arguments to the server

1. Open and log into the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the `Domain Structure` panel found in the left column of the WebLogic console, click on the `Services > JDBC > Data Sources` node. For reference, see Figure 3-2.

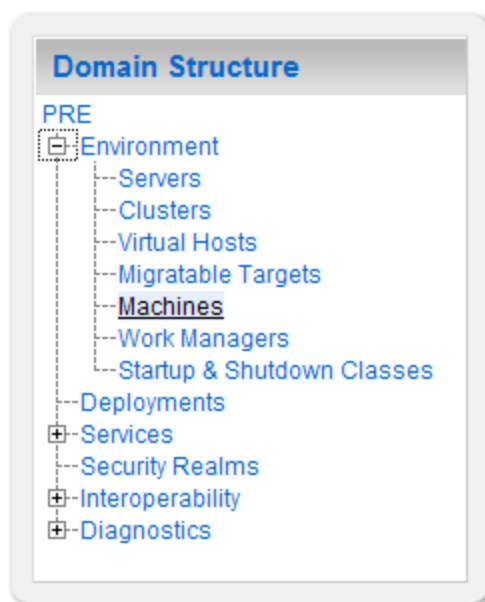


Figure 3-2. Domain Structure

3. Within the Change Center panel found in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-3.

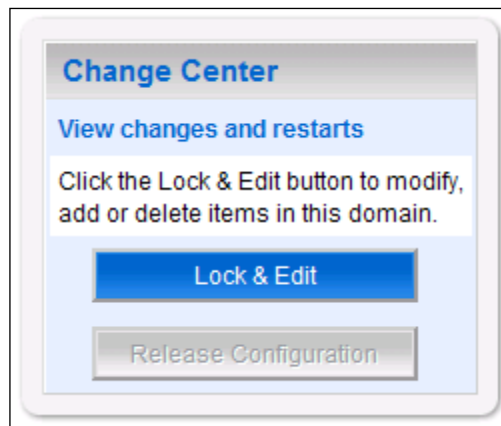


Figure 3-3. Change Center

4. Click on the server name corresponding to the deployment server in the Summary of Servers panel found in the right column of the WebLogic console. For reference, see Figure 3-4.

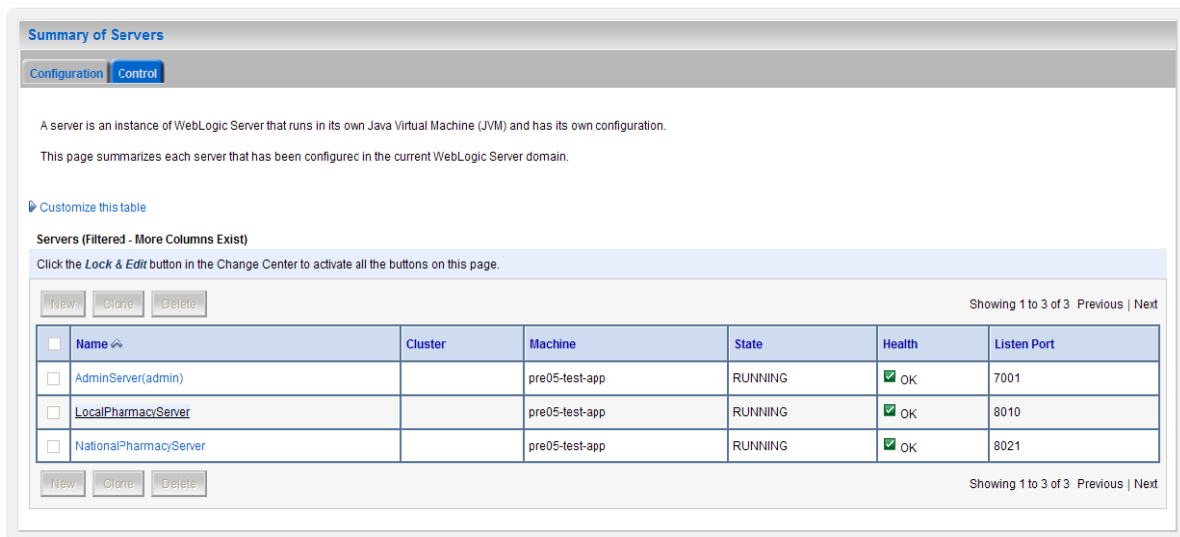


Figure 3-4. Summary of Servers

- WebLogic will now display the panel **Settings** for **Deployment Server** in the right column of the console, where configuration of the Deployment Server are set. For reference, see Figure 3-5.

Settings for NationalPharmacyServer

Configuration Protocols Logging Debug Monitoring Control Deployments Services Security Notes

General Cluster Services Keystores SSL Federation Services Deployment Migration Tuning Overload Health Monitoring Server Start

Save

Use this page to configure general features of this server such as default network communications.

Name:	NationalPharmacyServer	An alphanumeric name for this server instance. More Info...
Machine:	pre05-test-app	The WebLogic Server host computer (machine) on which this server is meant to run. More Info...
Cluster:	(Stand-Alone)	The cluster, or group of WebLogic Server instances, to which this server belongs. More Info...
Listen Address:	129.162.101.74	The IP address or DNS name this server uses to listen for incoming connections. More Info...
<input checked="" type="checkbox"/> Listen Port Enabled		Specifies whether this server can be reached through the default plain-text (non-SSL) listen port. More Info...
Listen Port:	8021	The default TCP port that this server uses to listen for regular (non-SSL) incoming connections. More Info...
<input type="checkbox"/> SSL Listen Port Enabled		Indicates whether the server can be reached through the default SSL listen port. More Info...
SSL Listen Port:	7002	The TCP/IP port at which this server listens for SSL connection requests. More Info...
<input type="checkbox"/> Client Cert Proxy Enabled		Specifies whether the HttpClusterServlet proxies the client certificate in a special header. More Info...
Java Compiler:	javac	The Java compiler to use for all applications hosted on this server that need to compile Java code. More Info...

Advanced

Save

Figure 3-5. Settings for Deployment Server

- Click on the **Server Start** tab.

7. WebLogic will now display the panel **Server Start** tab in the **Settings** for **Deployment Server** in the right column of the console, where configuration of the **Deployment Server** is set. For reference, see Figure 3-6.

Figure 3-6. Server Start Tab

8. Insert the following text in the **Arguments** box:
- Xms1024m
 - Xmx1024m
 - XX:PermSize=1024m
 - XX:MaxPermSize=1024m
 - Dweblogic.JobScheduler=true

Also add arguments for Log4j file and other Log files. (for reference, see the examples below, modify path per your server configuration) :-

-Dlog4j.configuration=file:/u01/app/user_proj/domains/sqa_PECs/log4j.xml

-Dlog4j.logs.dir=servers/NationalPharmacyServer/logs

-Dpeps.datup.configuration=/opt/fdb_datup_configuration.properties

9. Click the Save Button
10. Within the Change Center panel in the left column of the WebLogic console, click Activate Changes. For reference, see Figure 3-7.

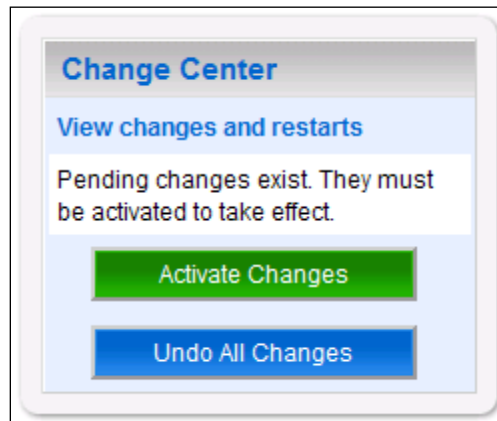


Figure 3-7. Activate Changes

3.4.3 National FDB-DIF Data Source Configuration

DATUP uses two database connections by means of a data source to FDB-DIF in order to perform FDB updates. Complete the following steps to create a new connection pool and data source for FDB-DIF.

1. Open and log into the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Domain Structure panel found in the left column of the WebLogic console, click on the `Services > JDBC > Data Sources` node. For reference, see Figure 3-8.



Figure 3-8. Domain Structure

3. Within the Change Center panel found in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-9.

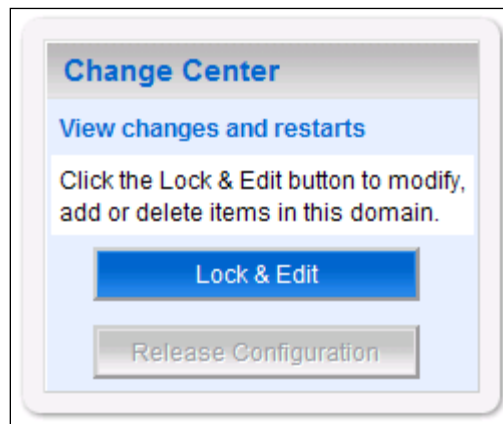


Figure 3-9. Change Center

4. Click New found in the Summary of JDBC Data Sources panel found in the right column of the WebLogic console. For reference, see Figure 3-10.

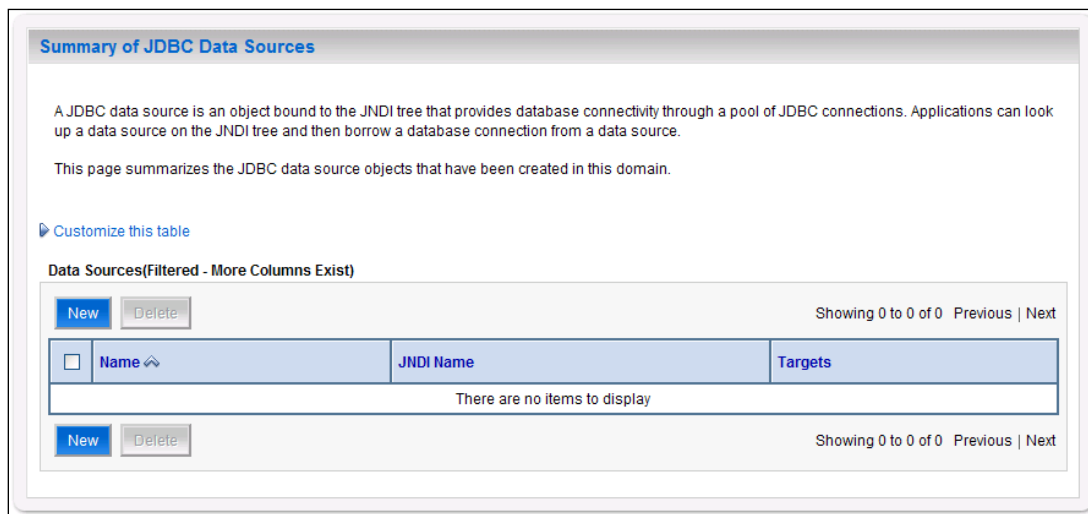


Figure 3-10. Summary of JDBC Data Sources

- WebLogic will now display the panel **Create a New JDBC Data Source** in the right column of the console, where details of the new data source are set. For reference, see Figure 3-11.

Create a New JDBC Data Source

Back Next Finish Cancel

JDBC Data Source Properties

The following properties will be used to identify your new JDBC data source.

* Indicates required fields

What would you like to name your new JDBC data source?

* Name: FDB-DIF

What JNDI name would you like to assign to your new JDBC Data Source?

* JNDI Name: datasource/FDB-DIF

What database type would you like to select?

Database Type: Oracle

What database driver would you like to use to create database connections?

Database Driver: *Oracle's Driver (Thin) Versions:9.0.1,9.2.0,10,11

Back Next Finish Cancel

Figure 3-11. JDBC Data Source Properties

- For the Name, type FDB-DIF.
- For the JNDI Name, type datasource/FDB-DIF.
- For the Database Type, select Oracle.
- For the Database Driver, verify that Oracle's Drive (Thin) Versions:9.0.1, 9.2.0, 10, 11 is selected.
- Click Next.

11. WebLogic will now display the panel `Transaction Options` in the right column of the console, where the transaction attributes for this data source are set. For reference, see Figure 3-12.

The screenshot shows a dialog box titled "Create a New JDBC Data Source". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below the buttons is a section titled "Transaction Options". The text in this section reads: "You have selected non-XA JDBC driver to create database connection in your new data source." followed by "Does this data source support global transactions? If yes, please choose the transaction protocol for this data source." There are three radio button options: "Supports Global Transactions" (which is checked), "Logging Last Resource", and "Emulate Two-Phase Commit". Below each option is a descriptive paragraph. At the bottom of the dialog, there are again four buttons: "Back", "Next", "Finish", and "Cancel".

Create a New JDBC Data Source

Back Next Finish Cancel

Transaction Options

You have selected non-XA JDBC driver to create database connection in your new data source.

Does this data source support global transactions? If yes, please choose the transaction protocol for this data source.

☒ **Supports Global Transactions**

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the *Logging Last Resource* (LLR) transaction optimization. Recommended in place of Emulate Two-Phase Commit.

☐ **Logging Last Resource**

Select this option if you want to enable non-XA JDBC connections from the data source to emulate participation in global transactions using JTA. Select this option only if your application can tolerate heuristic conditions.

☒ **Emulate Two-Phase Commit**

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the one-phase commit transaction processing. With this option, no other resources can participate in the global transaction.

☐ **One-Phase Commit**

Back Next Finish Cancel

Figure 3-12. Transaction Options

12. Select the `Emulate Two-Phase Commit` radio button.
13. Click `Next`.

14. WebLogic will now display the panel **Connection Properties** in the right column of the console, where the connection pool attributes are set. For reference, see Figure 3-13.

Create a New JDBC Data Source

Back Next Finish Cancel

Connection Properties

Define Connection Properties.

What is the name of database you would like to connect to?

Database Name: FDB_DIF

What is the name or IP address of the database server?

Host Name: 129.162.101.79

What is the port on the database server used to connect to the database?

Port: 1521

What database account user name do you want to use to create database connections?

Database User Name: fdb_dif

What is the database account password to use to create database connections?

Password:

Confirm Password:

Back Next Finish Cancel

Figure 3-13. Connection Properties

15. For **Database Name**, type the name of the Oracle database to which DATUP will connect. For example, FDB_DIF
16. For **Host Name**, type the name of the machine on which Oracle is running. For example, 129.162.101.79.
17. For **Port**, type the port on which Oracle is listening. For example, 1521.

18. For Database User Name, type the user to connect to the FDB database. For example, FDB-DIF. The user entered should be the same as configured in Section 3.3.4
19. For Password and Confirm Password, type the password for the user given previously. For example, FDB-DIF.
20. Click Next.

21. WebLogic will now display the panel **Test Database Connection** in the right column of the console, where the new data source can be tested. For reference, see Figure 3-14.

Create a New JDBC Data Source

Test Configuration | Back | Next | Finish | Cancel

Test Database Connection

Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?
(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name:

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL:

What database account user name do you want to use to create database connections?

Database User Name:

What is the database account password to use to create database connections?
(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password:

Confirm Password:

What are the properties to pass to the JDBC driver when creating database connections?

Properties:

What table name or SQL statement would you like to use to test database connections?

Test Table Name:

Test Configuration | Back | Next | Finish | Cancel

Figure 3-14. Test Database Connection

22. Leave all values as set by default, with the exception of **Test Table Name**. For this attribute, type `fdb_version`.
23. Click **Next**.

24. WebLogic will now display the panel **Select Targets** in the right column of the console, where the target server is selected for the new data source. For reference, see Figure 3-15.

The screenshot shows a web interface titled "Create a New JDBC Data Source". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below this is a section titled "Select Targets" with a descriptive paragraph: "You can select one or more targets to deploy your new JDBC data source. If you don't select a target, the data source will be created but not deployed. You will need to deploy the data source at a later time." Below the text is a table with the heading "Servers". It contains two rows: "AdminServer" with an unchecked checkbox and "NationalPharmacyServer" with a checked checkbox. At the bottom, there are again four buttons: "Back", "Next", "Finish", and "Cancel".

Servers
<input type="checkbox"/> AdminServer
<input checked="" type="checkbox"/> NationalPharmacyServer

Figure 3-15. Select Targets

25. Select the Deployment Server as the target. For example, `NationalPharmacyServer`.
26. Click **Finish**.
27. WebLogic will now display the panel **Summary of JDBC Data Sources** in the right column of the console, where the newly created data source is displayed. For reference, see Figure 3-16.

The screenshot shows a web interface titled "Summary of JDBC Data Sources". It contains a paragraph explaining what a JDBC data source is and another paragraph stating that the page summarizes the objects created in the domain. Below this is a link "Customize this table". Then, there is a section titled "Data Sources(Filtered - More Columns Exist)" with "New" and "Delete" buttons and a "Showing 1 to 1 of 1 Previous | Next" indicator. Below this is a table with three columns: "Name", "JNDI Name", and "Targets". The table has one row with the values "FDB-DIF", "datasource/FDB-DIF", and "NationalPharmacyServer". At the bottom, there are "New" and "Delete" buttons and another "Showing 1 to 1 of 1 Previous | Next" indicator.

Name	JNDI Name	Targets
FDB-DIF	datasource/FDB-DIF	NationalPharmacyServer

Figure 3-16. Summary of JDBC Data Sources

28. Within the Change Center panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-17.

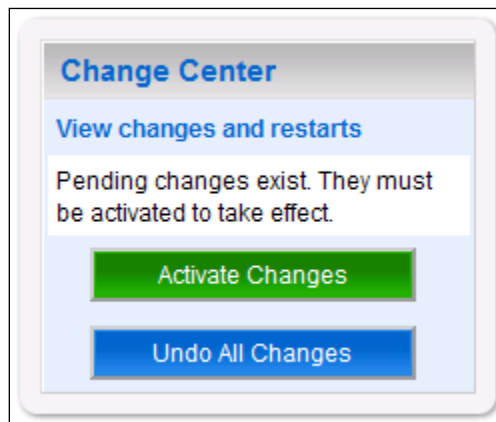


Figure 3-17. Activate Changes

3.4.4 National JDBC DATUP Data Source Configuration

DATUP uses two database connections by means of a data source to perform the automated DATUP update process. Complete the following steps to create a new connection pool and data source for MedKnowledge Framework.

1. Open and log into the WebLogic console, using an administrative user name and password. The WebLogic console is located at: <http://<Deployment Machine>:7001/console>.
2. Within the Domain Structure panel found in the left column of the WebLogic console, click on the **Services > JDBC > Data Sources** node. For reference, see Figure 3-18.

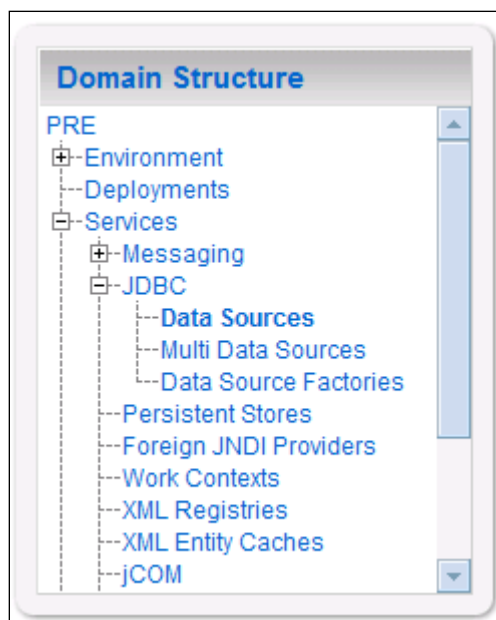


Figure 3-18. Domain Structure

3. Within the Change Center panel found in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-19.

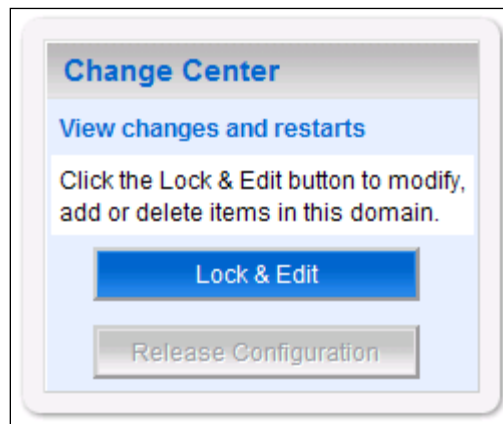


Figure 3-19. Change Center

4. Click New found in the Summary of JDBC Data Sources panel found in the right column of the WebLogic console. For reference, see Figure 3-20.

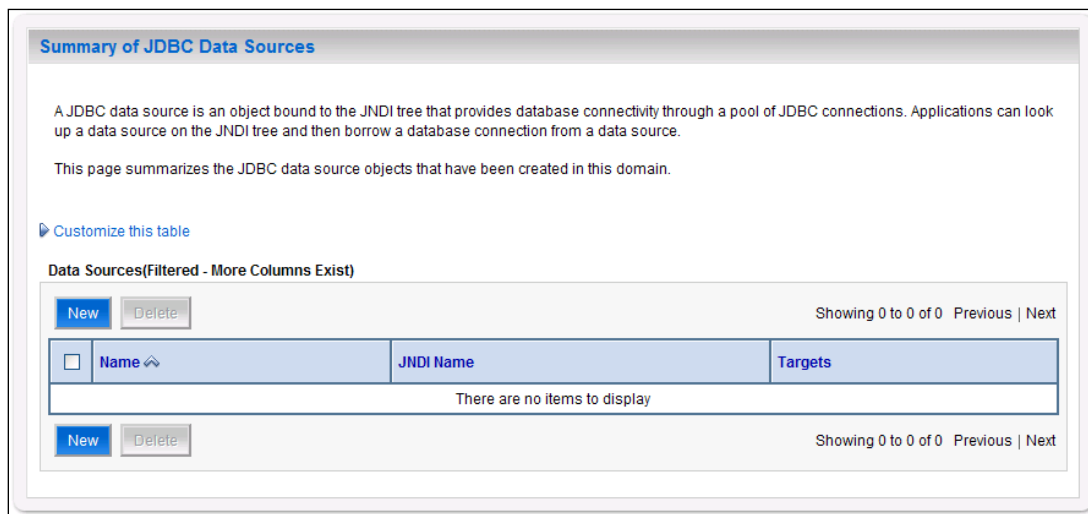


Figure 3-20. Summary of JDBC Data Sources

5. WebLogic will now display the panel **Create a New JDBC Data Source** in the right column of the console, where details of the new data source are set. For reference, see Figure 3-21.

Create a New JDBC Data Source

Back Next Finish Cancel

JDBC Data Source Properties

The following properties will be used to identify your new JDBC data source.

* Indicates required fields

What would you like to name your new JDBC data source?

Name: DATUP

What JNDI name would you like to assign to your new JDBC Data Source?

JNDI Name: datasource/DATUP

What database type would you like to select?

Database Type: Oracle

What database driver would you like to use to create database connections?

Database Driver: *Oracle's Driver (Thin) Versions: 9.0.1, 9.2.0, 10, 11

Back Next Finish Cancel

Figure 3-21. JDBC Data Source Properties

6. For the Name, type DATUP.
7. For the JNDI Name, type datasource/DATUP.
8. For the Database Type, select Oracle.
9. For the Database Driver, verify that Oracle's Drive (Thin) Versions: 9.0.1, 9.2.0, 10, 11 is selected.
10. Click Next.

11. WebLogic will now display the panel `Transaction Options` in the right column of the console, where the transaction attributes for this data source are set. For reference, see Figure 3-22.

The screenshot shows a web-based configuration window titled "Create a New JDBC Data Source". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below this is the "Transaction Options" section. It starts with a message: "You have selected non-XA JDBC driver to create database connection in your new data source." followed by a question: "Does this data source support global transactions? If yes, please choose the transaction protocol for this data source." There are four options, each with a radio button and a description:

- ☒ **Supports Global Transactions**
Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the *Logging Last Resource* (LLR) transaction optimization. Recommended in place of Emulate Two-Phase Commit.
- ☐ **Logging Last Resource**
Select this option if you want to enable non-XA JDBC connections from the data source to emulate participation in global transactions using JTA. Select this option only if your application can tolerate heuristic conditions.
- ☒ **Emulate Two-Phase Commit**
Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the one-phase commit transaction processing. With this option, no other resources can participate in the global transaction.
- ☐ **One-Phase Commit**

At the bottom of the panel, there are four buttons: "Back", "Next", "Finish", and "Cancel".

Figure 3-22. Transaction Options

12. Select the `Emulate Two-Phase Commit` radio button
13. Click `Next`.

14. WebLogic will now display the panel `Connection Properties` in the right column of the console, where the connection pool attributes are set. For reference, see Figure 3-23.

The screenshot shows a web-based wizard titled "Create a New JDBC Data Source". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below this is a section titled "Connection Properties" with the instruction "Define Connection Properties." The form contains several input fields with labels and placeholder text:

- Database Name:** A text box containing "DATUP". Above it is the question: "What is the name of database you would like to connect to?"
- Host Name:** A text box containing "129.162.101.47". Above it is the question: "What is the name or IP address of the database server?"
- Port:** A text box containing "1521". Above it is the question: "What is the port on the database server used to connect to the database?"
- Database User Name:** A text box containing "datup". Above it is the question: "What database account user name do you want to use to create database connections?"
- Password:** A text box filled with dots. Above it is the question: "What is the database account password to use to create database connections?"
- Confirm Password:** A text box filled with dots.

At the bottom of the form, there are four buttons: "Back", "Next", "Finish", and "Cancel".

Figure 3-23. Connection Properties

15. For `Database Name`, type the name of the Oracle database to which DATUP will connect. For example, DATUP
16. For `Host Name`, type the name of the machine on which Oracle is running. For example, 129.162.101.47.
17. For `Port`, type the port on which Oracle is listening. For example, 1521.
18. For `Database User Name`, type the user to connect to the FDB database. For example, DATUP. The user entered should be the same as configured in Section 3.3.3
19. For `Password` and `Confirm Password`, type the password for the user given previously. For example, DATUP.
20. Click `Next`.

21. WebLogic will now display the panel **Test Database Connection** in the right column of the console, where the new data source can be tested. For reference, see Figure 3-24.

Create a New JDBC Data Source

Test Configuration Back Next Finish Cancel

Test Database Connection

Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?

(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name: oracle.jdbc.OracleDriver

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL: jdbc:oracle:thin:@129.162

What database account user name do you want to use to create database connections?

Database User Name: datup

What is the database account password to use to create database connections?

(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password: [Masked]

Confirm Password: [Masked]

What are the properties to pass to the JDBC driver when creating database connections?

Properties: user=datup

What table name or SQL statement would you like to use to test database connections?

Test Table Name: SQL SELECT 1 FROM DUAL

Test Configuration Back Next Finish Cancel

Figure 3-24. Test Database Connection

22. Leave all values as set by default.
23. Click **Next**.

24. WebLogic will now display the panel **Select Targets** in the right column of the console, where the target server is selected for the new data source. For reference, see Figure 3-25.

The screenshot shows a web interface titled "Create a New JDBC Data Source". At the top, there are navigation buttons: "Back", "Next", "Finish", and "Cancel". Below this is a section titled "Select Targets" with a descriptive paragraph: "You can select one or more targets to deploy your new JDBC data source. If you don't select a target, the data source will be created but not deployed. You will need to deploy the data source at a later time." Below the text is a table with the heading "Servers". It contains two rows: "AdminServer" with an unchecked checkbox and "NationalPharmacyServer" with a checked checkbox. At the bottom, there are another set of navigation buttons: "Back", "Next", "Finish", and "Cancel".

Figure 3-25. Select Targets

25. Select the Deployment Server as the target. For example, `NationalPharmacyServer`.
26. Click **Finish**.
27. WebLogic will now display the panel **Summary of JDBC Data Sources** in the right column of the console, where the newly created data source is displayed. For reference, see Figure 3-26.

The screenshot shows a web interface titled "Summary of JDBC Data Sources". It contains a descriptive paragraph about JDBC data sources and a summary of created objects. Below this is a link "Customize this table". A section titled "Data Sources(Filtered - More Columns Exist)" contains a table with two columns: "Name" and "JNDI Name". The table lists two data sources: "DATUP" and "FDB-DIF", both with "NationalPharmacyServer" as the target. Above the table are "New" and "Delete" buttons, and below it are "Showing 1 to 2 of 2", "Previous", and "Next" links.

Name	JNDI Name	Targets
DATUP	datasource/DATUP	NationalPharmacyServer
FDB-DIF	datasource/FDB-DIF	NationalPharmacyServer

Figure 3-26. Summary of JDBC Data Sources

28. Within the Change Center panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-27.

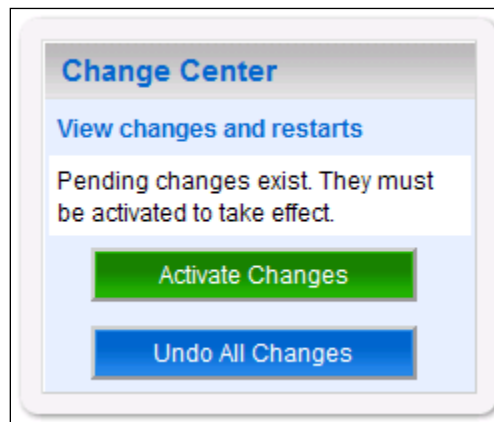


Figure 3-27. Activate Changes

3.4.5 Log4j

DATUP uses Log4j to provide debug and error logs. Although the application will function without Log4j installed, using it can be helpful to troubleshoot potential issues. Because DATUP can operate without Log4j configured, all instructions within this section are only required if debugging deployed code.

If the installation of Log4j is desired, the Java Archive (JAR) can be found within the national DATUP EAR, or it can be downloaded from the Internet. Please refer to the DATUP Version Description Document (Version 1.0.00.002, dated November 12, 2010) for the version required.

To install Log4j, the Log4j JAR must be placed on the Deployment Server's class path and the `log4j.xml` must be edited to include the DATUP appenders and loggers. Complete the following instructions to place the Log4j library on the Deployment Server's class path. If Log4j is already installed on the Deployment Server, these steps do not need to be completed.

1. Locate the Deployment Server's Class Path Directory.
2. Copy the `log4j-1.2.15.jar` file into a folder within the class path.
3. Configure WebLogic to include the Log4j library in the Deployment Server's class path. Please refer to the WebLogic documentation provided by BEA for completing this step.
4. Restart the Deployment Server to load Log4j.

With Log4j installed on the Deployment Server, the `log4j.xml` file must be modified to include the DATUP configuration. Note that the appenders place the logs under a `log` folder. This folder must be created at the same directory level at which the Deployment Server is running. For example, `/opt/BEA/domains/PRE/log`. Without this folder, Log4j will not be able to create the log files specified in the DATUP configuration. Alternatively, the file locations could be altered to be placed in a different location. Follow the steps below to complete this process:

1. If Log4j has already been installed, locate the `log4j.xml` file used for the Deployment Server. Otherwise, create a new `log4j.xml` file that is either located in a folder on the Deployment Server class path, or use the `log4j.configuration` Java system property to set the location

of the file. Please refer to the WebLogic provided by BEA and Log4j documentation provided by Apache to complete any of these operations.

2. Add the following configuration to the `log4j.xml` file:

```
<appender name="PepsAppender"
class="org.apache.log4j.RollingFileAppender">
    <param name="File" value="log/peps.log"/>
    <param name="Append" value="false"/>
    <param name="MaxBackupIndex" value="10"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{dd MMM
        yyyy hh:mm:ss a} %-5p [%c:%M] %m%n"/>
    </layout>
</appender>

<appender name="SpringAppender"
class="org.apache.log4j.RollingFileAppender">
    <param name="File" value="log/spring.log"/>
    <param name="Append" value="false"/>
    <param name="MaxBackupIndex" value="10"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{dd MMM
        yyyy hh:mm:ss a} %-5p [%c:%M] %m%n"/>
    </layout>
</appender>

<logger name="org.springframework" additivity="false">
    <level value="error" />
    <appender-ref ref="SpringAppender"/>
</logger>

<logger name="gov.va.med.pharmacy.peps" additivity="false">
    <level value="error" />
    <appender-ref ref="PepsAppender"/>
</logger>
```

3. If profiling is turned on and should be recorded, add the following configuration to the `log4j.xml` file:

```
<appender name="ProfileAppender"
class="org.apache.log4j.RollingFileAppender">
    <param name="File" value="log/profile.log" />
    <param name="Append" value="false" />
```

```

    <param name="MaxBackupIndex" value="10" />
    <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{dd MMM
        yyyy hh:mm:ss a} %-5p [%c%M] %m%n" />
    </layout>
</appender>

<logger
name="gov.va.med.pharmacy.peps.common.utility.profile"
additivity="false">
    <level value="info" />
    <appender-ref ref="ProfileAppender" />
</logger>

```

4. Restart the Deployment Server to load the Log4j configuration.

The given Log4j configuration assumes that an existing `log4j.xml` file is being modified, as the configurations above are only a fragment of a complete Log4j configuration. In particular, the given configuration will only log messages for classes in the `org.springframework` and `gov.va.med.pharmacy.peps` packages and sub-packages. No other classes are covered. If additional logging is desired, other `logger` elements or the `root` element must be configured. In addition, the given Log4j configuration only logs error-level messages and optionally the info-level profiling messages.

For further information, reference <http://wiki.apache.org/logging-log4j/Log4jXmlFormat>.

Note: Due to policy constraints, this document cannot support live links. Copy and paste the above URL into your browser.

Please use `log4j.xml` for reference only from Appendix C.

3.4.6 National JMS Configuration

The national DATUP instance is comprised of a JMS server and a JMS module including a connection factory, JMS template, and national receive queue. Complete the following instructions, in order by section, for each element of the National JMS configuration.

JMS Server

1. Open and log into the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-28.

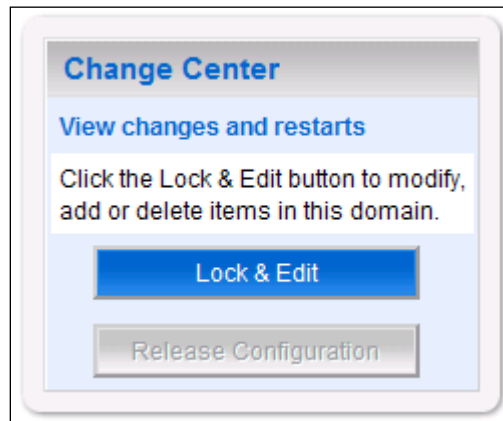


Figure 3-28. Change Center

3. Within the Domain Structure panel in the left column of the WebLogic console, click the Services > Messaging > JMS Servers node. For reference, see Figure 3-29.



Figure 3-29. JMS Servers

4. WebLogic will now display the panel **Summary of JMS Servers** in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-30.

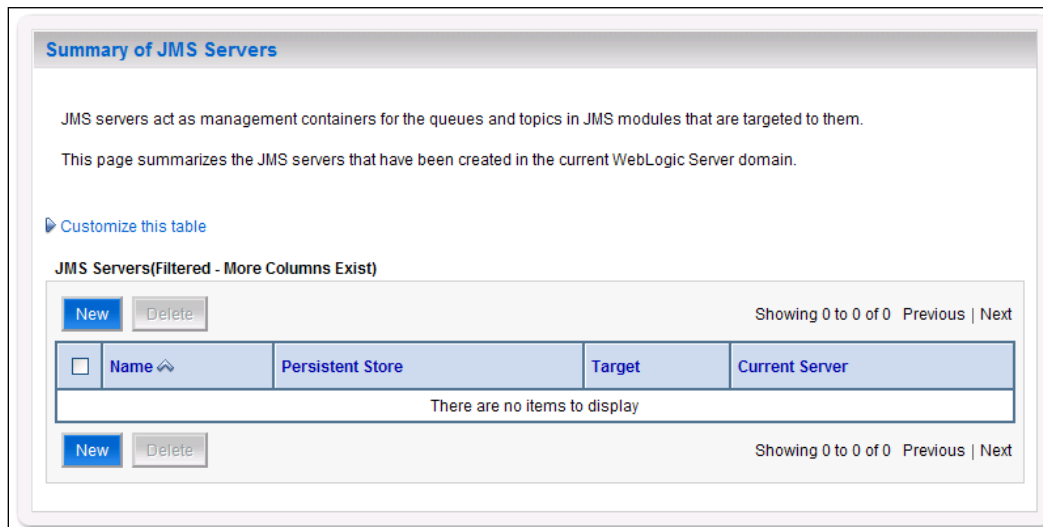


Figure 3-30. Summary of JMS Servers

5. Click **New**.
6. WebLogic will now display the panel **Create a New JMS Server** in the right column of the console. Within the panel is the **JMS Server Properties**, where the new JMS server will be configured. For reference, see Figure 3-31.

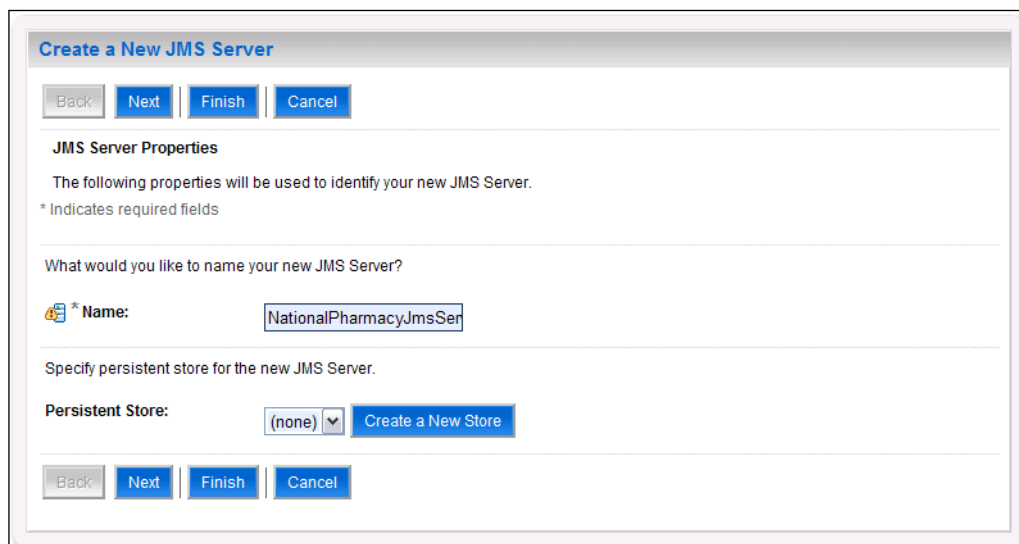


Figure 3-31. JMS Server Properties

7. For the **Name**, enter a unique name for the new JMS server. For example, `NationalPharmacyJmsServer`.
8. Verify that the following default option for **Persistent Store** is selected: `(none)`

9. Click **Next**.
10. WebLogic will now display the panel **Create a New JMS Server** in the right column of the console. Within the panel is **Select targets**, where the new JMS server will be configured. For reference, see Figure 3-32.



Figure 3-32. Select Targets

11. For the **Target**, select the **Deployment Server** for the national DATUP instance. For example, **NationalPharmacyServer**.
12. Click **Finish**.
13. Within the **Change Center** panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-33.

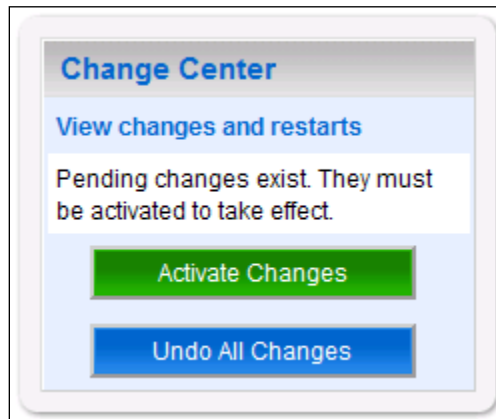


Figure 3-33. Activate Changes

JMS Module

1. Open and log onto the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-34.

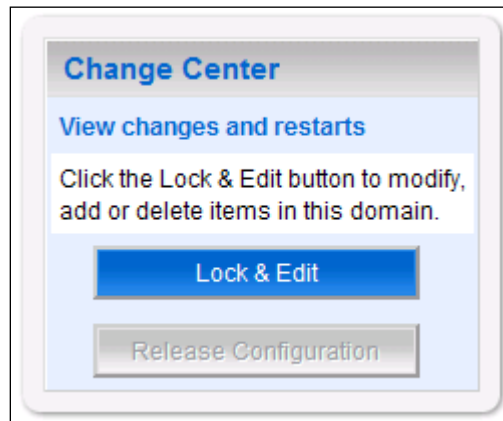


Figure 3-34. Change Center

3. Within the Domain Structure panel in the left column of the WebLogic console, click the Services > Messaging > JMS Modules node. For reference, see Figure 3-35.



Figure 3-35. Domain Structure

4. WebLogic will now display the panel **JMS Modules** in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-36.

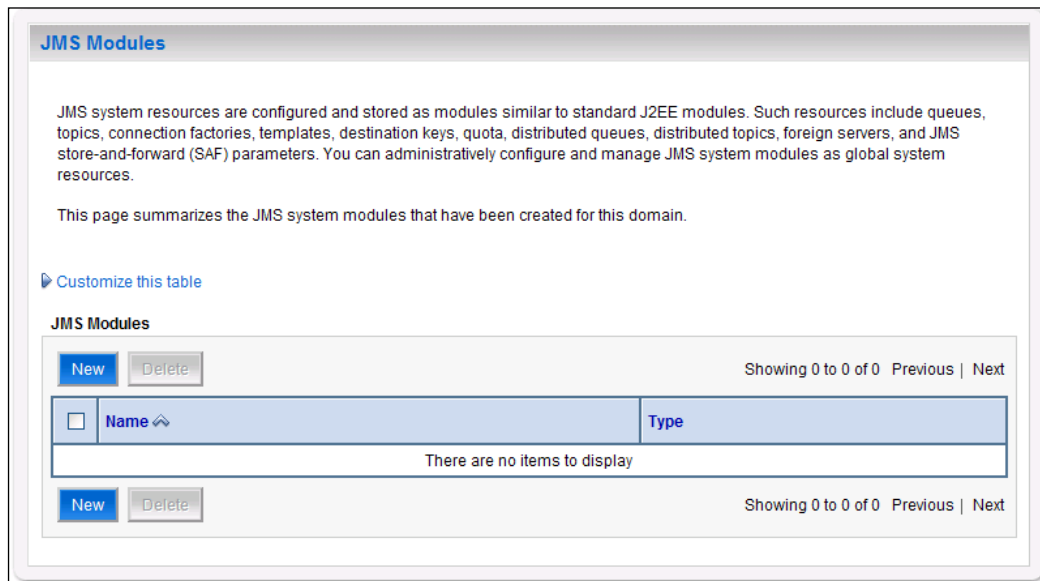


Figure 3-36. Domain Structure

5. Click **New**.

- WebLogic will now display the panel Create JMS System Module in the right column of the console. Within the panel the following properties will be used to identify your new module, where the new JMS module will be configured. For reference, see Figure 3-37.

Create JMS System Module

Back Next Finish Cancel

The following properties will be used to identify your new module.

JMS system resources are configured and stored as modules similar to standard J2EE modules. Such resources include queues, topics, connection factories, templates, destination keys, quota, distributed queues, distributed topics, foreign servers, and JMS store-and-forward (SAF) parameters. You can administratively configure and manage JMS system modules as global system resources.

* Indicates required fields

What would you like to name your System Module?

* Name:

What would you like to name the descriptor file name? If you do not provide a name, a default will be assigned.

Descriptor File Name:

Where would like to place the descriptor for this System Module, relative to the jms configuration sub-directory of your domain?

Location In Domain:

Back Next Finish Cancel

Figure 3-37. JMS System Module Properties

- For Name, enter a unique name for the new JMS system module. For example, NationalPharmacyJmsModule.
- Leave Descriptor File Name and Location In Domain blank.
- Click Next.

- WebLogic will now display the panel `Create JMS System Module` in the right column of the console. Within the panel is `Targets`, where the new JMS module will be configured. For reference, see Figure 3-38.

Create JMS System Module

Back Next Finish Cancel

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

Use this page to select the server or cluster on which you would like to deploy this JMS system module. You can reconfigure targets later if you wish.

Targets :

Servers
<input type="checkbox"/> AdminServer
<input checked="" type="checkbox"/> NationalPharmacyServer

Back Next Finish Cancel

Figure 3-38. JMS System Module Targets

- For `Targets`, select the Deployment Server for the national DATUP instance. For example, `NationalPharmacyServer`.
- Click `Next`.
- WebLogic will now display the panel `Create JMS System Module` in the right column of the console. Within the panel is `Add resources to this JMS system module`, where the new JMS module will be configured. For reference, see Figure 3-39.

Create JMS System Module

Back Next Finish Cancel

Add resources to this JMS system module

Use this page to indicate whether you want to immediately add resources to this JMS system module after it is created. JMS resources include queues, topics, connection factories, etc.

☐ Would you like to add resources to this JMS system module?

Back Next Finish Cancel

Figure 3-39. Add Resources to JMS System Module

- Leave the `Would you like to add resources to this JMS system module?` check box unchecked.

15. Click **Finish**.
16. Within the **Change Center** panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-40.

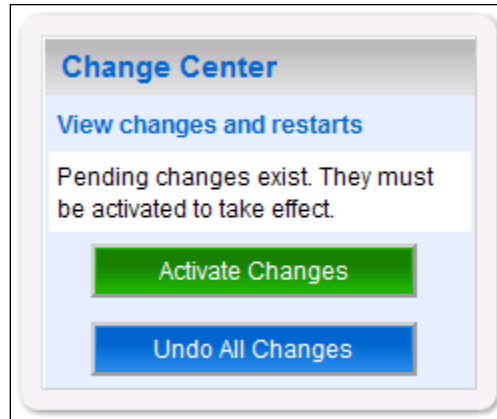


Figure 3-40. Activate Changes

Connection Factory

1. Open and log onto the WebLogic console, using an administrative user name and password. The WebLogic console is located at: <http://<Deployment Machine>:7001/console>.
2. Within the **Change Center** panel in the left column of the WebLogic console, click **Lock & Edit**. For reference, see Figure 3-41.

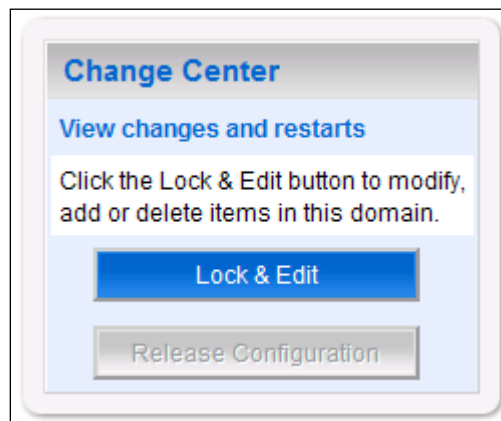


Figure 3-41. Change Center

3. Within the Domain Structure panel in the left column of the WebLogic console, click the `Services > Messaging > JMS Modules` node. For reference, see Figure 3-42.



Figure 3-42. Domain Structure

4. WebLogic will now display the panel `JMS Modules` in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-43.

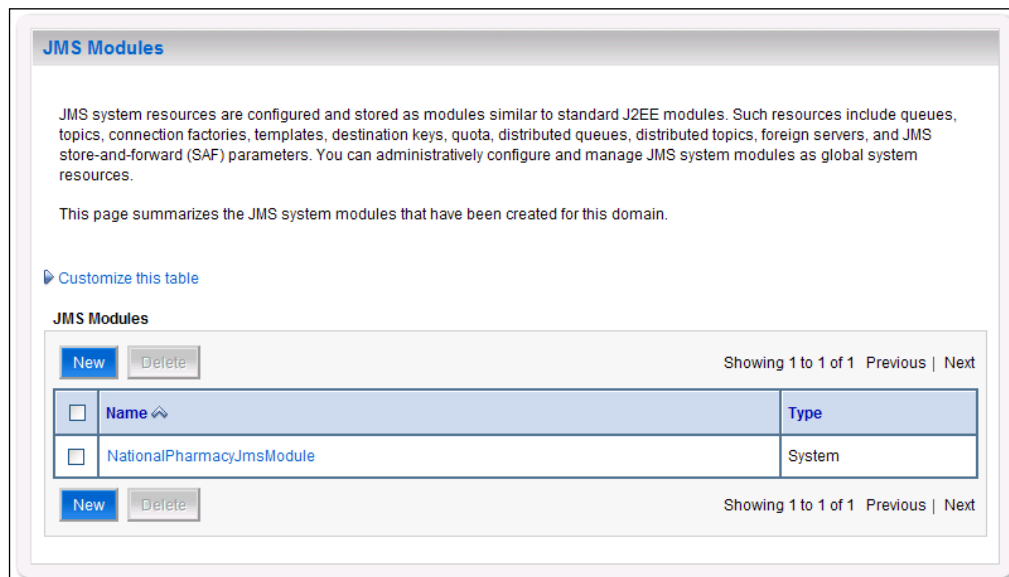


Figure 3-43. Domain Structure

5. Click on the link to the JMS system module created in Section 0. For example, `NationalPharmacyJmsModule`.

- WebLogic will now display the panel **Settings** for `NationalPharmacyJmsModule` in the right column of the console. Within the panel is **Summary of Resources**, where the JMS module will be further configured. For reference, see Figure 3-44.

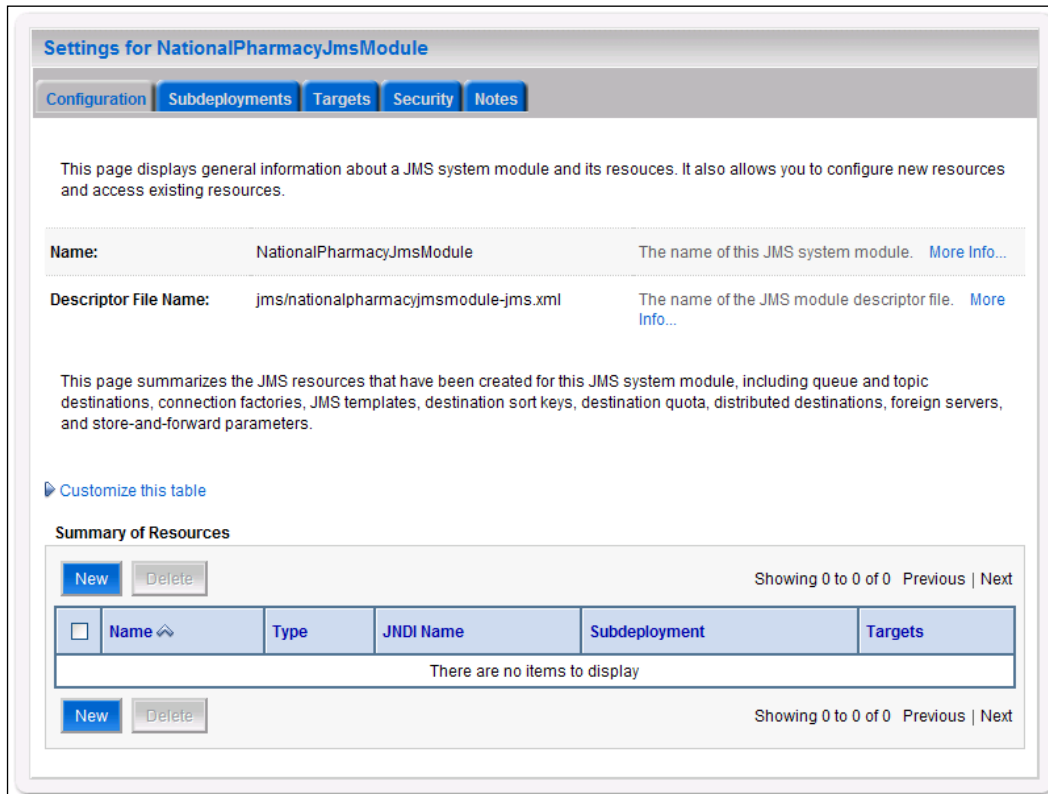


Figure 3-44. Summary of Resources

- Click **New**.

8. WebLogic will now display the panel **Create a New JMS System Module Resource** in the right column of the console. Within the panel is **Choose the type of resource you want to create**, where the JMS module will be further configured. For reference, see Figure 3-45.

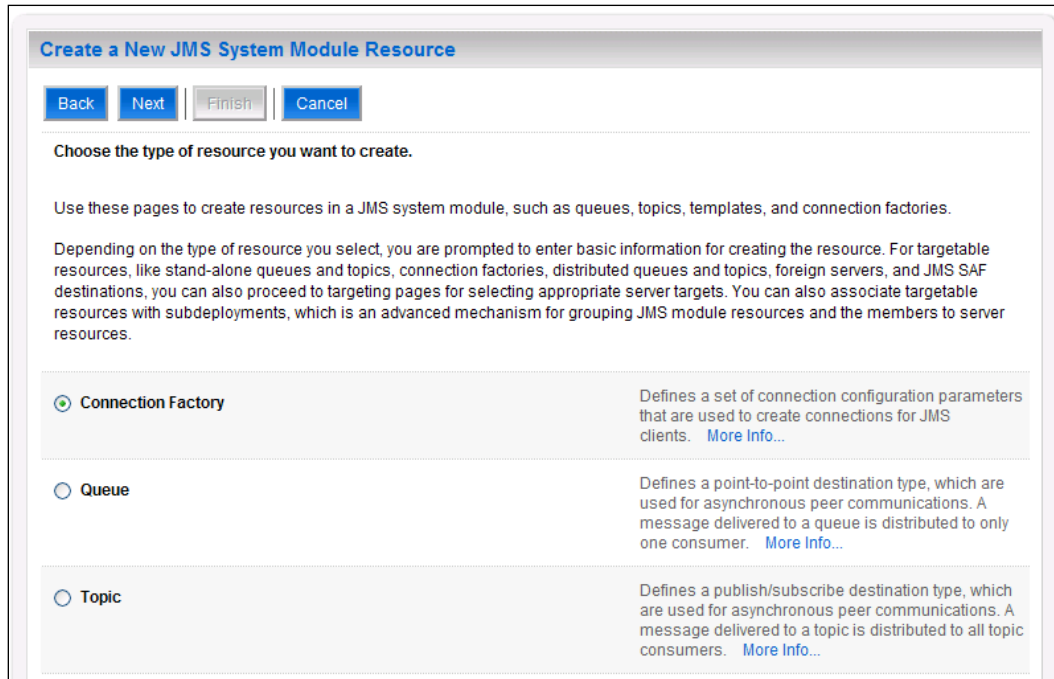


Figure 3-45. Choose Type of Resource to Create

9. Select **Connection Factory**.
10. Click **Next**.

11. WebLogic will now display the panel **Create a New JMS System Module Resource** in the right column of the console. Within the panel is **Connection Factory Properties**, where the JMS module will be further configured. For reference, see Figure 3-46.

Create a New JMS System Module Resource

Back Next Finish Cancel

Connection Factory Properties

The following properties will be used to identify your new connection factory. The current module is NationalPharmacyJMSModule.

* Indicates required fields

What would you like to name your new connection factory?

* Name:

What JNDI Name would you like to use to look up your new connection factory?

JNDI Name:

Back Next Finish Cancel

Figure 3-46. Connection Factory Properties

12. For Name, enter a unique name for the connection factory. For example, `DatupConnectionFactory`.
13. For JNDI Name, enter:
`jms/gov/va/med/pharmacy/peps/messagingervice/factory`.
14. Click Next.

15. WebLogic will now display the panel **Create a New JMS System Module Resource** in the right column of the console. Within the panel is **Connection Factory Targets**, where the JMS module will be further configured. For reference, see Figure 3-47.

Create a New JMS System Module Resource

Back Next Finish Advanced Targeting Cancel

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

Use this page to view and accept the default targets where this JMS resource will be targeted. The default targets are based on the parent JMS system module targets. If you do not want to accept the default targets, then click **Advanced Targeting** to use the subdeployment mechanism for targeting this resource.

The following JMS module targets will be used as the default targets for your new JMS system module resource. If the module's targets are changed, this resource will also be retargeted appropriately.

Targets :

Servers
<input checked="" type="checkbox"/> NationalPharmacyServer

Back Next Finish Advanced Targeting Cancel

Figure 3-47. Connection Factory Targets

16. Verify that the selected Targets match the National Deployment Server.
17. Click Finish.

18. WebLogic will now display the panel **Settings** for **NationalPharmacyJmsModule** in the right column of the console. Within the panel is **Connection Factory Configuration**, where the JMS module will be further configured. For reference, see Figure 3-48.

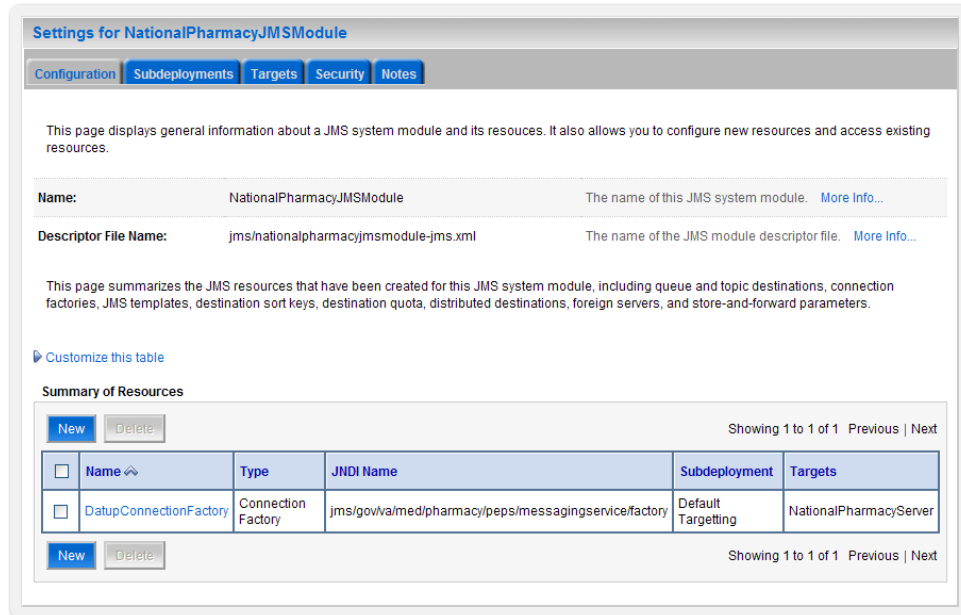


Figure 3-48. Settings for NationalPharmacyJmsModule

19. Click on the link for the JMS connection factory created. For example, **DatupConnectionFactory**.
20. WebLogic will now display the panel **Settings** for **DatupConnectionFactory** in the right column of the console. Within the panel is **Configuration - General**, where the JMS module will be further configured. For reference, see Figure 3-49.

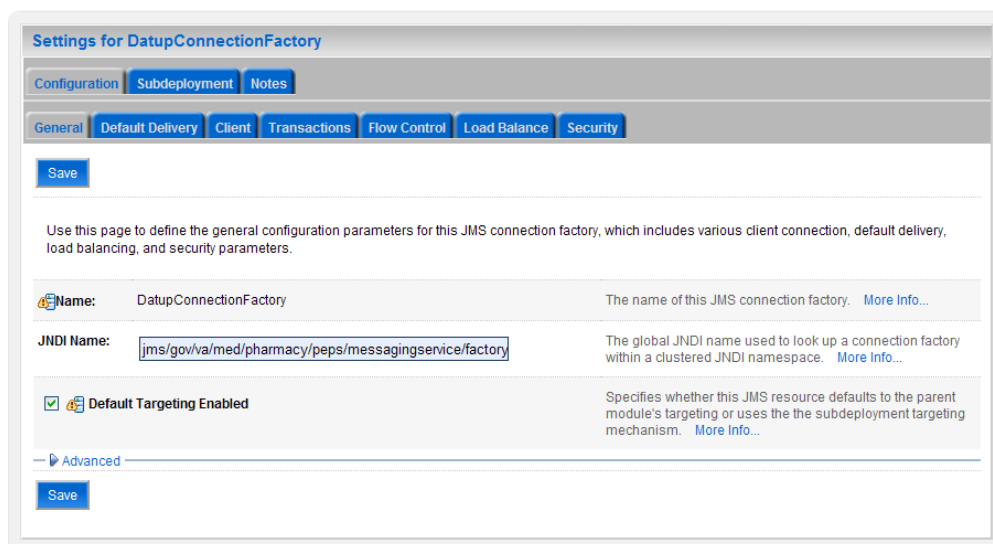


Figure 3-49. DatupConnectionFactory General Configuration

21. Select the Transactions tab.
22. WebLogic will now display the panel Settings for DatupConnectionFactory in the right column of the console. Within the panel is Transactions within the Configuration tab, where the JMS module will be further configured. For reference, see Figure 3-50.

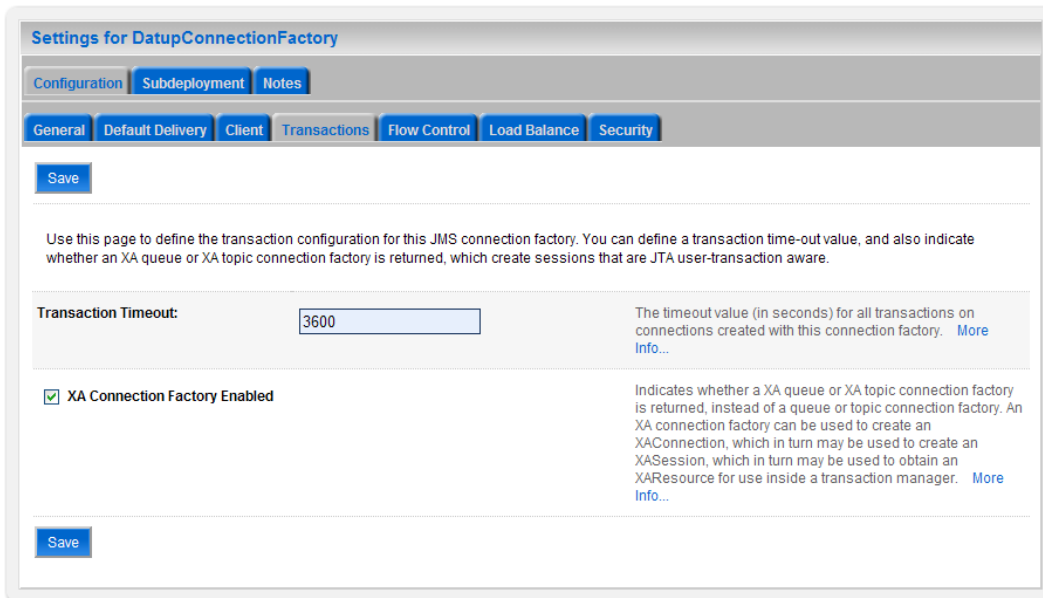


Figure 3-50. DatupConnectionFactory Transactions Configuration

23. Check the XA Connection Factory Enabled check box.
24. Click Save.
25. Within the Change Center panel in the left column of the WebLogic console, click Activate Changes. For reference, see Figure 3-51.

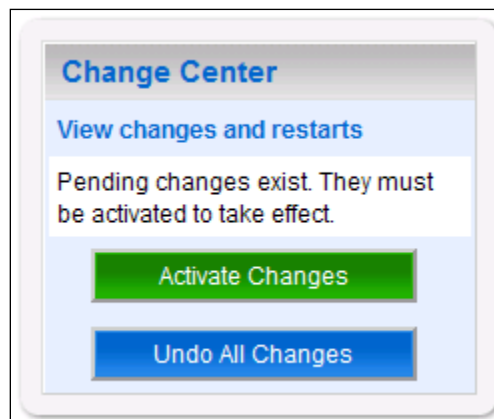


Figure 3-51. Activate Changes

JMS Message Queue

1. Open and log on to the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-52.

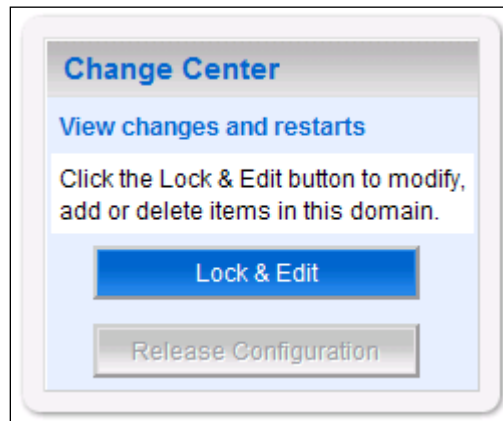


Figure 3-52. Change Center

3. Within the Domain Structure panel in the left column of the WebLogic console, click the Services > Messaging > JMS Modules node. For reference, see Figure 3-53.



Figure 3-53. Domain Structure

4. WebLogic will now display the panel **JMS Modules** in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-54.

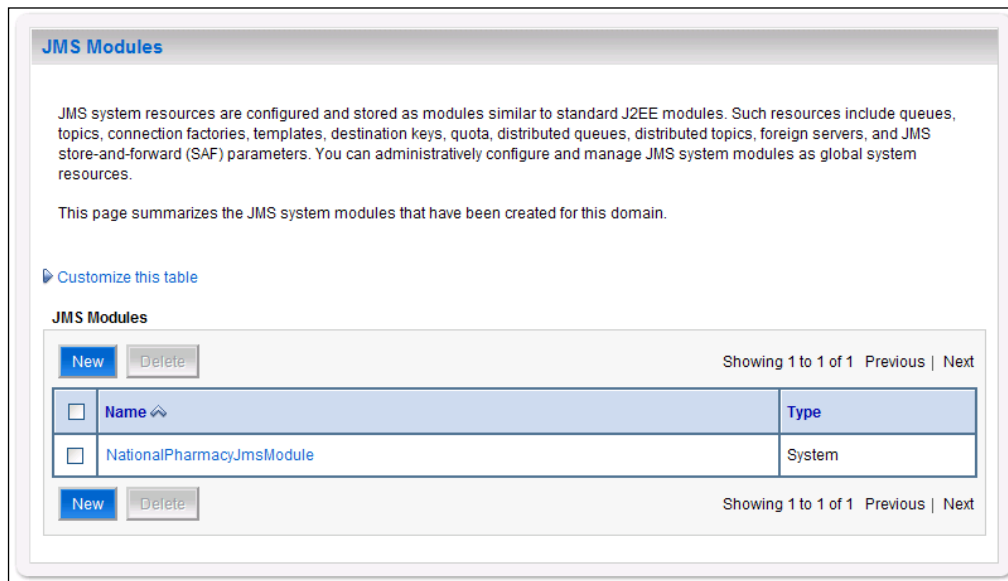


Figure 3-54. Domain Structure

5. Click on the link to the JMS system module created in Section 0. For example, `NationalPharmacyJmsModule`.

- WebLogic will now display the panel **Settings** for **NationalPharmacyJmsModule** in the right column of the console. Within the panel is **Summary of Resources**, where the JMS module will be further configured. For reference, see Figure 3-55.

Settings for NationalPharmacyJMSModule

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

Descriptor File Name: jms/nationalpharmacyjmsmodule-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

New Delete Showing 1 to 1 of 1 Previous | Next

<input type="checkbox"/>	Name ↕	Type	JNDI Name	Subdeployment	Targets
<input type="checkbox"/>	DatupConnectionFactory	Connection Factory	jms/gov/wa/med/pharmacy/peps/messaging-service/factory	Default Targetting	NationalPharmacyServer

New Delete Showing 1 to 1 of 1 Previous | Next

Figure 3-55. Summary of Resources

- Click **New**.

8. WebLogic will now display the panel **Create a New JMS System Module Resource** in the right column of the console. Within the panel is **Choose the type of resource** you want to create, where the JMS module will be further configured. For reference, see Figure 3-56.

The screenshot shows a web form titled "Create a New JMS System Module Resource". At the top are buttons for "Back", "Next", "Finish", and "Cancel". Below the buttons is a section titled "Choose the type of resource you want to create." with a descriptive paragraph: "Use these pages to create resources in a JMS system module, such as queues, topics, templates, and connection factories. Depending on the type of resource you select, you are prompted to enter basic information for creating the resource. For targetable resources, like stand-alone queues and topics, connection factories, distributed queues and topics, foreign servers, and JMS SAF destinations, you can also proceed to targeting pages for selecting appropriate server targets. You can also associate targetable resources with subdeployments, which is an advanced mechanism for grouping JMS module resources and the members to server resources." Below this are three radio button options: "Connection Factory" (with a description: "Defines a set of connection configuration parameters that are used to create connections for JMS clients. More Info..."), "Queue" (selected, with a description: "Defines a point-to-point destination type, which are used for asynchronous peer communications. A message delivered to a queue is distributed to only one consumer. More Info..."), and "Topic" (with a description: "Defines a publish/subscribe destination type, which are used for asynchronous peer communications. A message delivered to a topic is distributed to all topic consumers. More Info...").

Figure 3-56. Choose Type of Resource to Create

9. Select Queue.
10. Click Next.
11. WebLogic will now display the panel **Create a New JMS System Module Resource** in the right column of the console. Within the panel is **JMS Destination Properties**, where the JMS module will be further configured. For reference, see Figure 3-57.

The screenshot shows a web form titled "Create a New JMS System Module Resource" with a sub-section titled "JMS Destination Properties". At the top are buttons for "Back", "Next", "Finish", and "Cancel". Below the buttons is a paragraph: "The following properties will be used to identify your new Queue. The current module is NationalPharmacyJMSModule." Below this is a note: "* Indicates required fields". The form contains three fields: "Name:" with the value "DatupNationalQueue", "JNDI Name:" with the value "jms/gov/va/med/pharmacy/peps/messaging-service/queue/", and "Template:" with a dropdown menu set to "None". At the bottom are buttons for "Back", "Next", "Finish", and "Cancel".

Figure 3-57. JMS Destination Properties

12. For Name, enter DatupNationalQueue.
13. For JNDI Name, enter:
jms/gov/va/med/pharmacy/peps/messagingervice/queue/national/datup/receive.
14. For Template, select None.
15. Click Next.
16. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel is The following properties will be used to target your new JMS system module resource, where the JMS module will be further configured. For reference, see Figure 3-58.

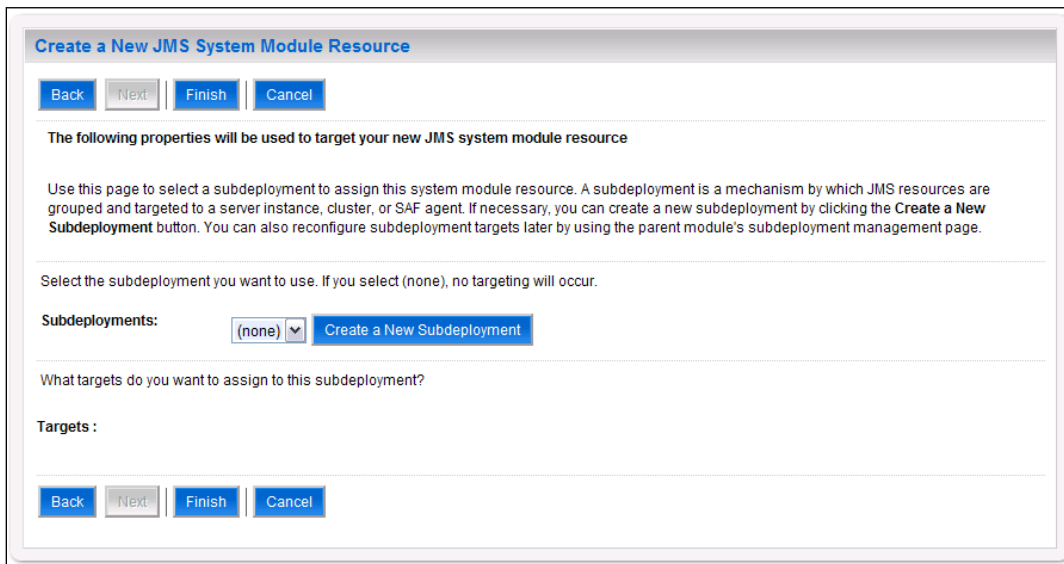


Figure 3-58. Target JMS Queue

17. Click Create a New Subdeployment.
18. WebLogic will now display the panel Create a New Subdeployment in the right column of the console. Within the panel is Subdeployment Properties, where the JMS module will be further configured. For reference, see Figure 3-59.

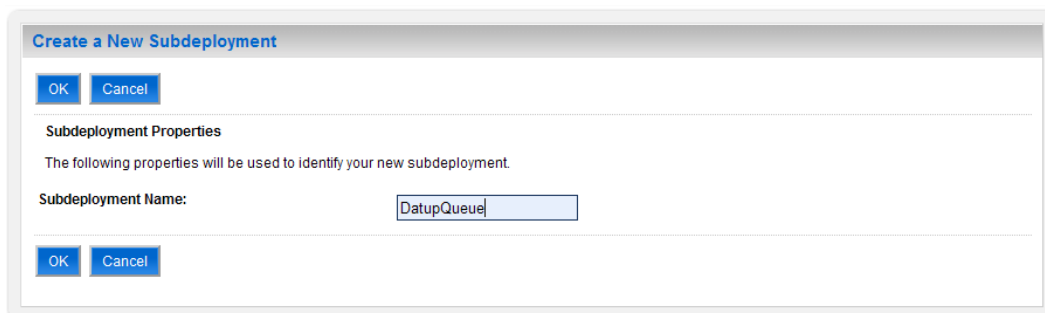


Figure 3-59. Subdeployment Properties

19. For Subdeployment Name, enter DatupQueue.
20. Click OK.
21. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel is The following properties will be used to target your new JMS system module resource, where the JMS module will be further configured. For reference, see Figure 3-60.

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: DataupQueue Create a New Subdeployment

What targets do you want to assign to this subdeployment?

Targets :

JMS Servers
<input checked="" type="radio"/> NationalDatup

Back Next Finish Cancel

Figure 3-60. Target JMS Queue with Subdeployment

22. For Subdeployments, verify that the subdeployment just created is selected. For example, NationalPharmacySubdeployment.
23. For Targets, verify that the JMS server created in JMS Server section is selected. For example, NationalDatup.
24. Click Finish.

25. Within the Change Center panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-61.

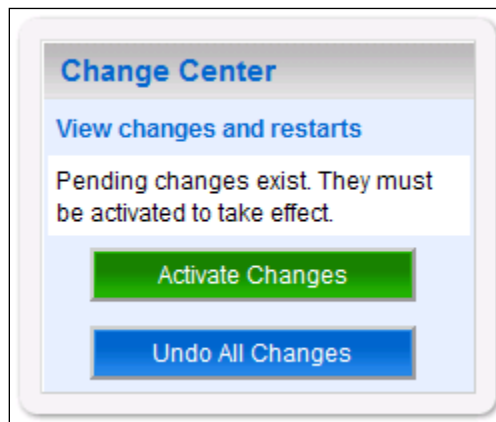


Figure 3-61. Activate Changes

26. Within the Change Center panel in the left column of the WebLogic console, click **Lock & Edit**. For reference, see Figure 3-62.

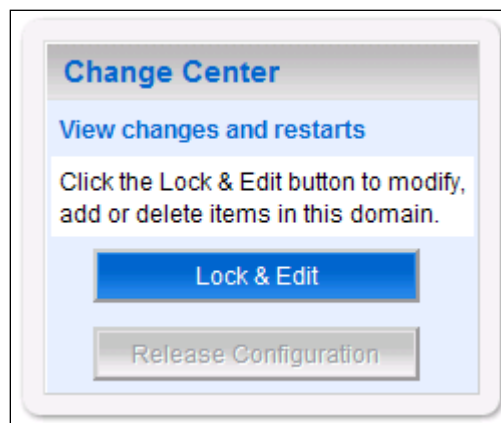


Figure 3-62. Change Center

27. Within the Domain Structure panel in the left column of the WebLogic console, click the Services > Messaging > JMS Modules node. For reference, see Figure 3-63.



Figure 3-63. Domain Structure

28. WebLogic will now display the panel JMS Modules in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-64.

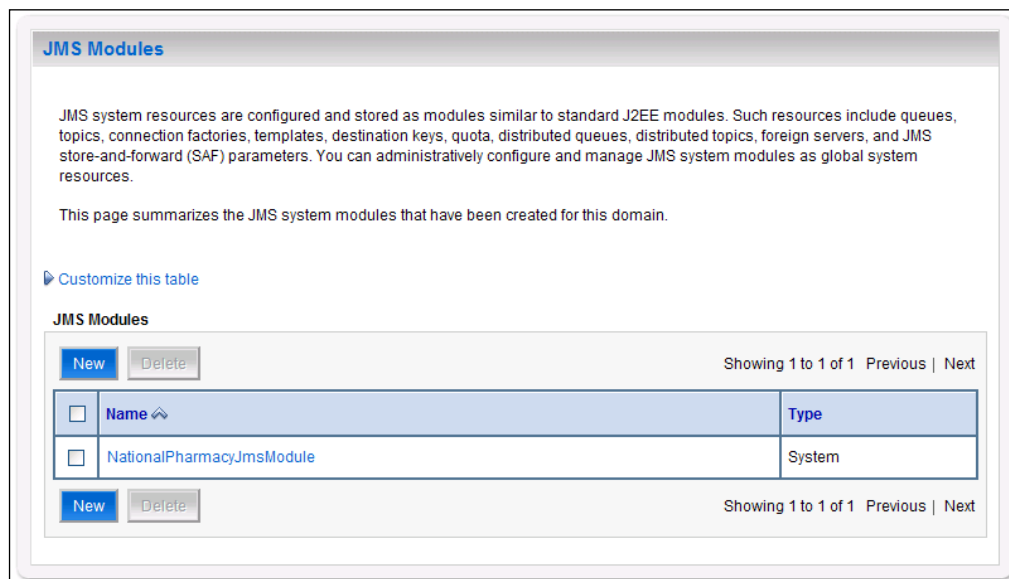


Figure 3-64. Domain Structure

29. Click on the link to the JMS system module created in Section 0. For example, NationalPharmacyJmsModule.

30. WebLogic will now display the panel **Settings** for **NationalPharmacyJmsModule** in the right column of the console. Within the panel is **Summary of Resources**, where the JMS module will be further configured. For reference, see Figure 3-65

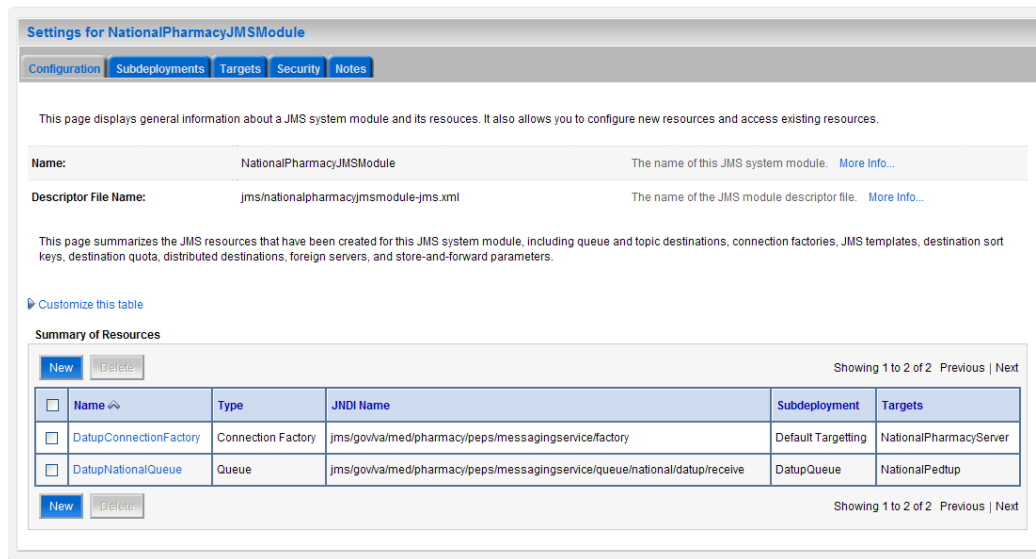


Figure 3-65. Module Settings

31. Click on the **DatupQueue** that was just created
32. WebLogic will now display the **Settings for DatupQueue** in the right column of the console, where the Queue will be configured more. For Reference, see Figure 3-66.

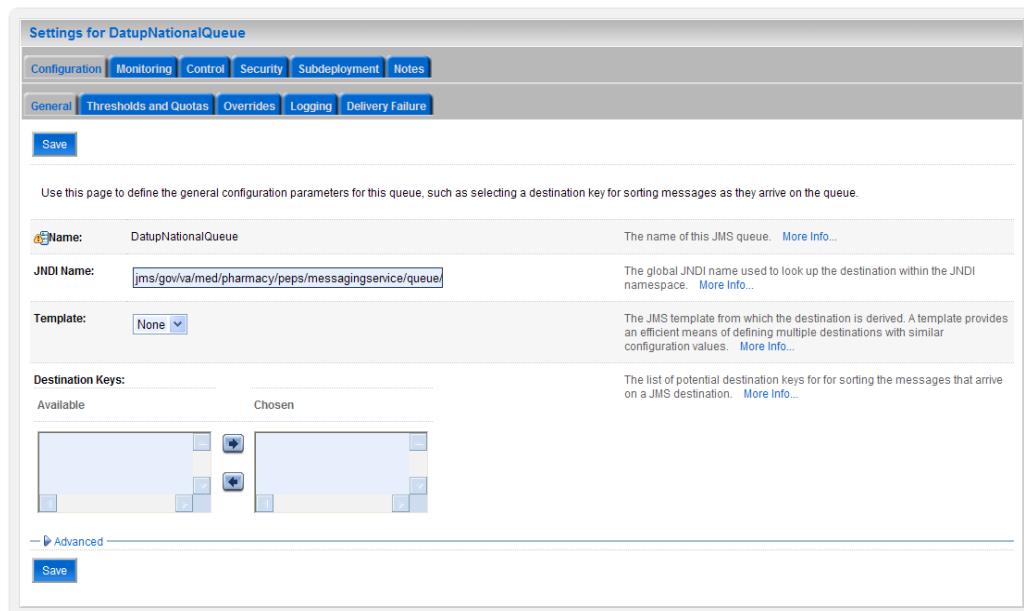


Figure 3-66. Settings for Queue

33. Click on the **Delivery Failure** Tab.

34. WebLogic will display the Delivery Failure settings in the right column of the console, for reference see Figure 3-67

Settings for DatupNationalQueue

Configuration Monitoring Control Security Subdeployment Notes

General Thresholds and Quotas Overrides Logging Delivery Failure

Save

Use this page to define message delivery failure parameters, like specifying redelivery limits, selecting a message expiration policy, and specifying an error destination for undeliverable or expired messages.

Redelivery Delay Override:	<input type="text" value="-1"/>	The delay, in milliseconds, before rolled back or recovered messages are redelivered, regardless of the RedeliveryDelay specified by the consumer and/or connection factory. Redelivered queue messages are put back into their originating destination; redelivered topic messages are put back into their originating subscription. The default value (-1) specifies that the destination will not override the RedeliveryDelay setting specified by the consumer and/or connection factory. More Info...
Redelivery Limit:	<input type="text" value="0"/>	The number of redelivery tries a message can have before it is moved to the error destination. This setting overrides any redelivery limit set by the message sender. If the redelivery limit is configured, but no error destination is configured, then persistent and non-persistent messages are simply dropped (deleted) when they reach their redelivery limit. More Info...
Expiration Policy:	<input type="text" value="Discard"/>	The message Expiration Policy to use when an expired message is encountered on a destination. The valid expiration policies are: More Info...
Expiration Logging Format:	<input type="text"/>	The policy that defines what information about the message is logged when the Expiration Policy is set to Log. The valid logging policy values are: More Info...
Error Destination:	<input type="text" value="None"/>	The name of the target error destination for messages that have expired or reached their redelivery limit. If no error destination is configured, then such messages are simply dropped. If a message has expired or reached its redelivery limit, and the Expiration Policy is set to Redirect, then the message is moved to the specified Error Destination. More Info...

Save

Figure 3-67. Delivery Failure Settings

35. Set the Redelivery Limit to 0
36. Click Save
37. Within the Change Center panel in the left column of the WebLogic console, click Activate Changes. For reference, see Figure 3-68.

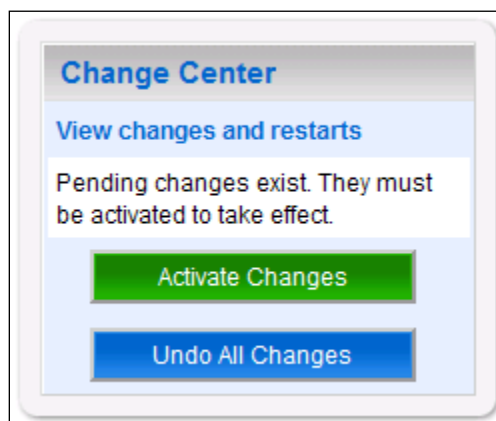


Figure 3-68. Activate Changes

JMS Message Topic

1. Open and log on to the WebLogic console, using an administrative user name and password. The WebLogic console is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-69.

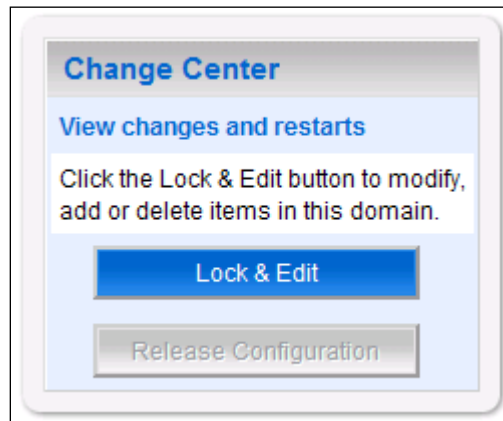


Figure 3-69. Change Center

3. Within the Domain Structure panel in the left column of the WebLogic console, click the Services > Messaging > JMS Modules node. For reference, see Figure 3-70.



Figure 3-70. Domain Structure

- WebLogic will now display the panel **JMS Modules** in the right column of the console, where the currently configured JMS servers will be found. For reference, see Figure 3-71.

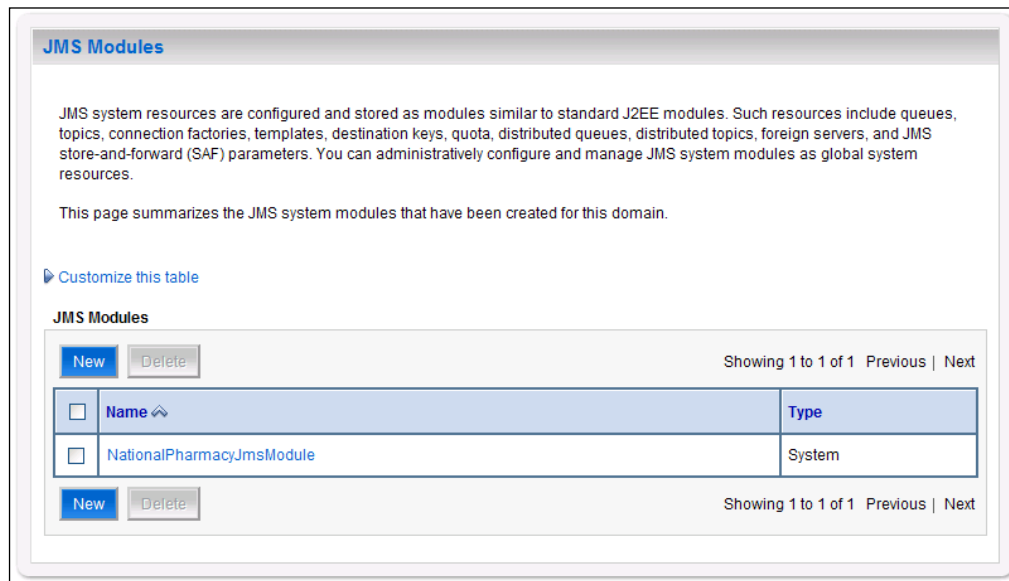


Figure 3-71. Domain Structure

- Click on the link to the JMS system module created in Section 0. For example, `NationalPharmacyJmsModule`.
- WebLogic will now display the panel **Settings** for `NationalPharmacyJmsModule` in the right column of the console. Within the panel is **Summary of Resources**, where the JMS module will be further configured. For reference, see Figure 3-72.

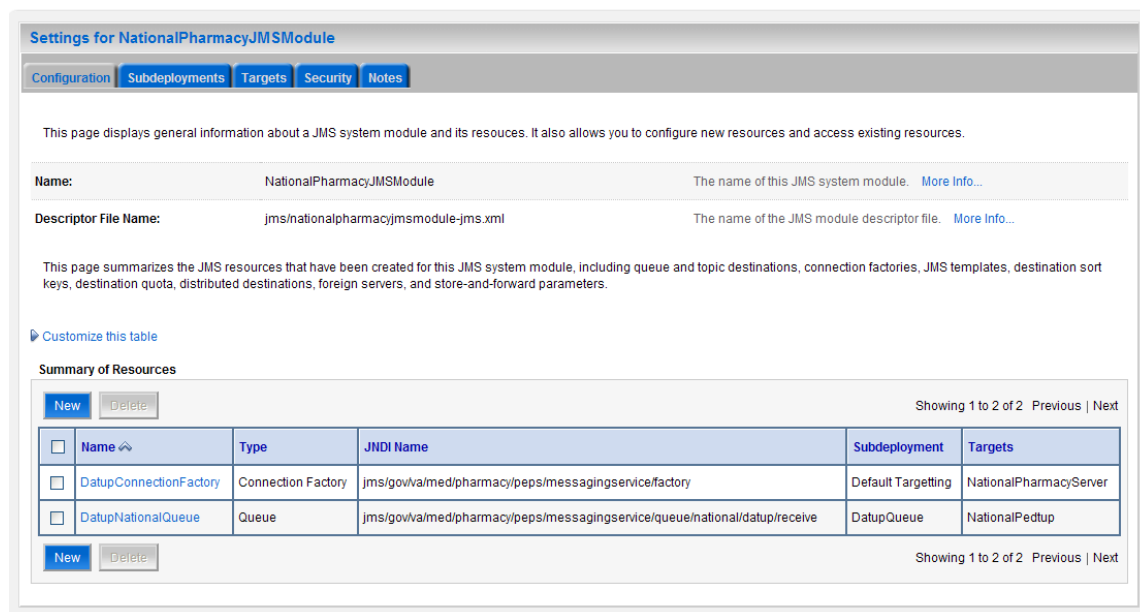


Figure 3-72. Summary of Resources

7. Click New.
8. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel is Choose the type of resource you want to create, where the JMS module will be further configured. For reference, see Figure 3-73.

Figure 3-73. Choose Type of Resource to Create

9. Select Topic.
10. Click Next.
11. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel is JMS Destination Properties, where the JMS module will be further configured. For reference, see Figure 3-74.

Figure 3-74. JMS Destination Properties

12. For Name, enter ExternalDatupTopic.
13. For JNDI Name, enter:
`jms/gov/va/med/pharmacy/peps/messaging-service/topic/external/datup.`
14. For Template, select None.
15. Click Next.
16. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel the following properties will be used to target your new JMS system module resource, where the JMS module will be further configured. For reference, see Figure 3-75.

The screenshot shows a web-based configuration panel titled "Create a New JMS System Module Resource". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below the buttons, a section titled "The following properties will be used to target your new JMS system module resource" contains a paragraph of explanatory text. This is followed by a label "Select the subdeployment you want to use. If you select (none), no targeting will occur." Below this is a "Subdeployments:" label, a dropdown menu currently showing "(none)", and a "Create a New Subdeployment" button. Further down, there is a label "What targets do you want to assign to this subdeployment?" followed by a "Targets:" label. At the bottom of the panel, there are four buttons: "Back", "Next", "Finish", and "Cancel".

Figure 3-75. Target JMS Topic

17. Click Create a New Subdeployment.
18. WebLogic will now display the panel Create a New Subdeployment in the right column of the console. Within the panel is Subdeployment Properties, where the JMS module will be further configured. For reference, see Figure 3-76.

The screenshot shows a web-based configuration panel titled "Create a New Subdeployment". At the top, there are two buttons: "OK" and "Cancel". Below the buttons is a section titled "Subdeployment Properties" with a paragraph of explanatory text. This is followed by a label "Subdeployment Name:" and a text input field containing the text "ExternalDatupTopic". At the bottom of the panel, there are two buttons: "OK" and "Cancel".

Figure 3-76. Subdeployment Properties

19. For Subdeployment Name, enter DatupQueue.
20. Click OK.
21. WebLogic will now display the panel Create a New JMS System Module Resource in the right column of the console. Within the panel the following properties will be used to target your new JMS system module resource, where the JMS module will be further configured. For reference, see Figure 3-77.

The screenshot shows a web-based configuration panel titled "Create a New JMS System Module Resource". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below the title bar, a section states: "The following properties will be used to target your new JMS system module resource". This is followed by a descriptive paragraph: "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." Below this, a line of text says: "Select the subdeployment you want to use. If you select (none), no targeting will occur." The "Subdeployments:" section contains a dropdown menu with "ExternalDatupTopic" selected and a "Create a New Subdeployment" button. A question "What targets do you want to assign to this subdeployment?" is followed by a "Targets:" label. Below this is a table with the header "JMS Servers" and one row containing a green circle icon and the text "NationalDatup". At the bottom of the panel, there are four buttons: "Back", "Next", "Finish", and "Cancel".

Figure 3-77. Target JMS Topic with Subdeployment

22. For Subdeployments, verify that the subdeployment just created is selected. For example, ExternalDatupTopic.
23. For Targets, verify that the JMS server created in JMS Server Section is selected. For example, NationalDatup.
24. Click Finish.

25. Within the Change Center panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-78.

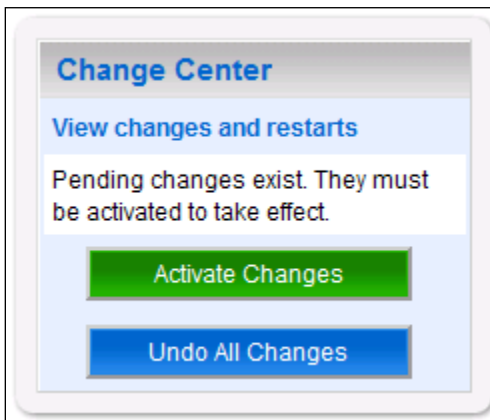


Figure 3-78. Activate Changes

26. Additional configuration for the topic may be needed for the consuming application of this topic, please consult the user guide of any external application that uses this message topic for any information on those settings.

3.4.7 Site Configuration Properties

In order to filter FDB drug-drug interactions replaced by custom VA drug-drug interactions, the `fdb_custom_ddimstrings` FDB-DIF table must be populated with a mapping between the FDB-DIF interaction to be replaced and the custom VA drug-drug interaction. One attribute of this mapping is a configurable category code, with a default of `FDB_ID`. A file, `gov.va.med.pharmacy.peps.siteConfig.properties`, can be placed within a folder on the Deployment Server's class path in order to override this default. Follow the BEA WebLogic documentation for adding folders to a server's class path. Each property is set via a key/value pair. For example, `fdb.id.category=FDB_ID`, where `fdb.id.category` is the key and `FDB_ID` is the value. Table 3-3 defines the optional property.

Table 3-3. Optional Site Configuration Properties

Key	Definition	Sample
<code>fdb.id.category</code>	Category code used within the <code>fdb_custom_ddimstrings</code> table for mapping FDB-DIF drug-drug interactions replaced by custom VA drug-drug interactions.	<code>FDB_ID</code>

3.4.8 DATUP Configuration Properties

In order to use the DATUP component, a configuration file must be configured for each WebLogic deployment. The location of this file was configured in Section 3.4.2 and is by default `/opt/fdb_datup_configuration.properties`. This file is self-documenting and contains the list of configurable properties for DATUP. See Appendix A for a sample version.

3.4.9 DATUP Cleanup Script

DATUP creates temporary zip files during the update process. A script has been provided in the `/scripts/datupcleanup.sh` file. This file provides a template to remove any files that DATUP creates during the update process. If the bash interpreter is not located at `/bin/bash` or the system's default temporary directory is not located at `/tmp`, the script file must be updated, comments in the example file show which lines to change.

To automate this process using the CRON scheduler, copy the file to the `/etc/cron.weekly/` directory for weekly execution. If you wish this script to run more often, it can be copied to the `/etc/cron.daily/` directory for daily execution. The script must be given execution permissions, so the command `chmod 755 datupcleanup.sh` must also be run on the command line.

3.4.10 Deployment

The following steps detail the deployment of the DATUP component. Prior to completing these steps, the WebLogic class path, the WebLogic database configurations, and the Deployment Server must be restarted to load the changed configuration. Please refer to Sections 3.4.1 and 3.4.3 for instructions concerning these configuration items. Complete the following steps to deploy DATUP:

1. Open and log into the WebLogic console. This is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Domain Structure panel in the left column of the WebLogic console, click the Deployments node. For reference, see Figure 3-79.

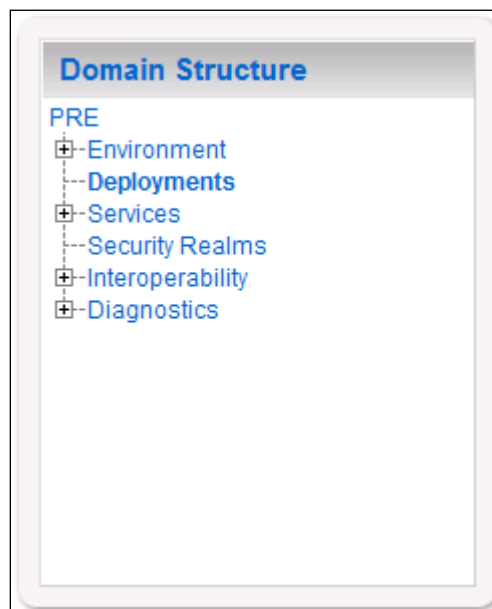


Figure 3-79. Domain Structure

3. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 3-80.

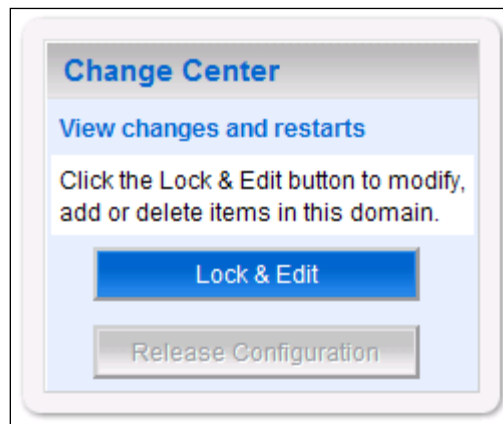


Figure 3-80. Change Center

4. Click Install found in the Deployments panel in the right column of the WebLogic console. For reference, see Figure 3-81.

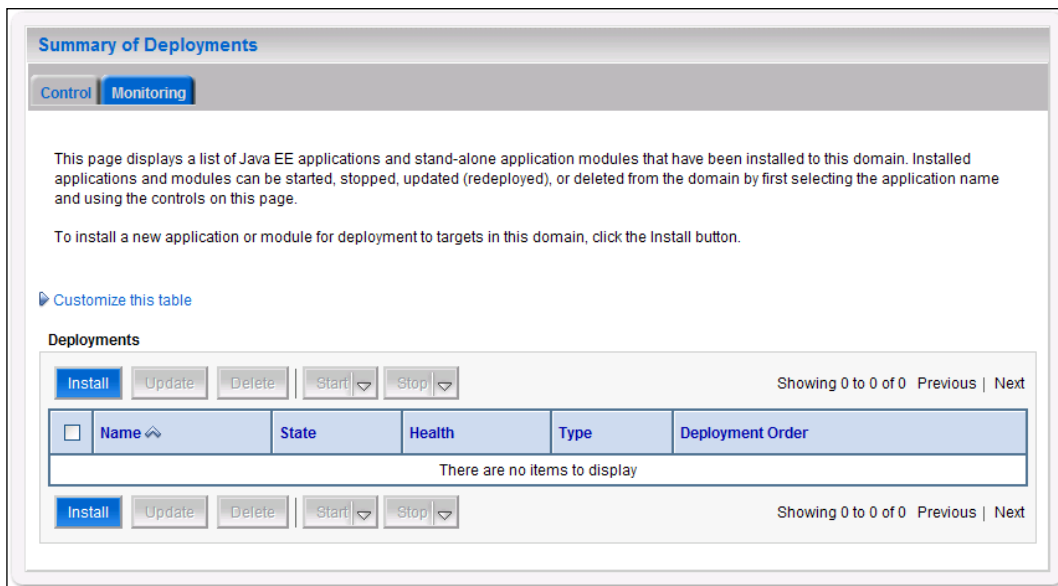


Figure 3-81. Deployments

5. WebLogic will now display the panel `Install Application Assistant` in the right column of the console, where the location of the DATUP deployment will be found. For reference, see Figure 3-82.

Install Application Assistant

Back Next Finish Cancel

Locate deployment to install and prepare for deployment

Select the file path that represents the application root directory, archive file, exploded archive directory, or application module descriptor that you want to install. You can also enter the path of the application directory or file in the Path field.

Note: Only valid file paths are displayed below. If you cannot find your deployment files, [upload your file\(s\)](#) and/or confirm that your application contains the required deployment descriptors.

Path:

Recently Used Paths:

- [/opt/bea/domains/PRE/servers/AdminServer/upload](#)
- [/opt/bea/domains/PRE/servers/AdminServer/upload/PREv05](#)

Current Location: [pre05-test-app](#) / [opt](#) / [bea](#) / [domains](#) / [PRE](#) / [servers](#) / [AdminServer](#) / [upload](#)

There are no files at the current location which are selectable. Choose a parent folder from the location links above or enter a new path.

Back Next Finish Cancel

Figure 3-82. Install Application Assistant

6. Select the DATUP deployment, select the `DATUP.National.2.0.00.001CM.ear` file. Replace the release number for the current release.
 - a) If the DATUP deployment has already been transferred to the Deployment Machine, navigate to the deployment file location using the links and file structure displayed within the Location panel within the Install Application Assistant in the right column of the console. For reference, see Figure 3-83.

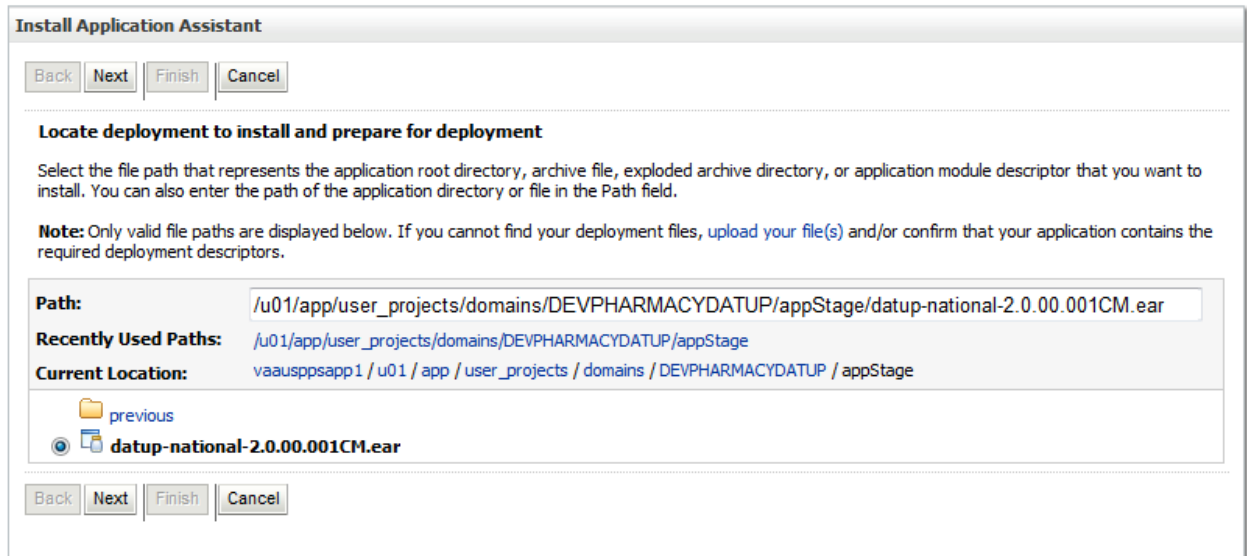


Figure 3-83. Locate Deployment to Install and Prepare for Deployment

- b) If the DATUP deployment has not been transferred to the Deployment Machine:
 - (1) Click on the `upload your file(s)` link in the Install Application Assistant panel in the right section of the console. For reference, see Figure 3-83.
 - (2) Click the Deployment Archive Browse to see the Choose file dialogue used to select the Deployment Archive.

- (3) Click Next in the Upload a Deployment to the admin server panel in the right column of the WebLogic console to return to the Locate deployment to install and prepare for deployment panel within the Install Application Assistant. For reference, see Figure 3-84.

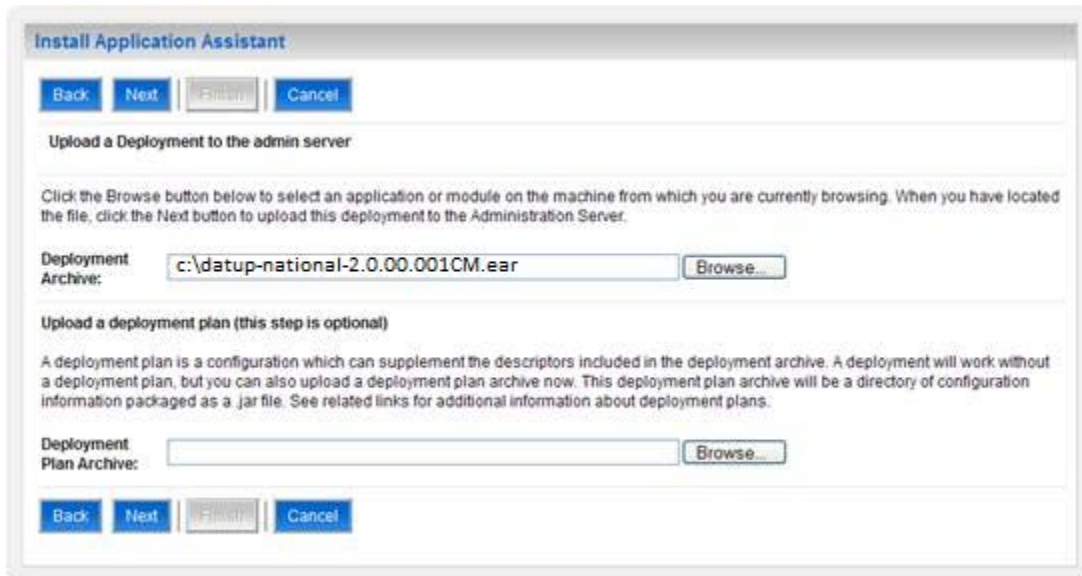


Figure 3-84. Upload a Deployment to the Admin Server

7. Once the DATUP deployment is located and selected, click Next.

8. WebLogic will now display the panel Choose targeting style within the Install Application Assistant in the right column of the console. Leave the default value selected, Install this deployment as an application, and click Next. For reference, see Figure 3-85.

The screenshot shows the 'Install Application Assistant' dialog box with the 'Choose targeting style' panel. At the top, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the buttons, the text reads: 'Choose targeting style' and 'Targets are the servers, clusters, and virtual hosts on which this deployment will run. There are several ways you can target an application.' There are three radio button options: 'Install this deployment as an application' (which is selected), 'Install this deployment as a library', and 'Install this deployment as an application, but target the components individually'. Below the third option, there is a note: 'Useful when one or more of the modules or components must have targets unique from the rest of the application.' At the bottom, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'.

Figure 3-85. Choose Targeting Style

9. Within the Install Application Assistant in the right column of the console, WebLogic will now display the panel Select deployment targets, where the Deployment Server will be selected as the target in the next step. For reference, see Figure 3-86.

The screenshot shows the 'Install Application Assistant' dialog box with the 'Select deployment targets' panel. At the top, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the buttons, the text reads: 'Select deployment targets' and 'Select the servers and/or clusters to which you want to deploy this application. (You can reconfigure deployment targets later).' Below this, there is a section titled 'Available targets for DATUP :'. It contains a table with two rows: 'AdminServer' and 'NationalPharmacyServer'. The 'NationalPharmacyServer' row has a checked checkbox. At the bottom, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'.

Figure 3-86. Select Deployment Targets

10. For the Target, select the Deployment Server. For example, NationalPharmacyServer

11. Click Next.
12. Within the Install Application Assistant, WebLogic will now display the panel Optional Settings in the right column of the console, where the name of the deployment and the copy behavior are chosen. For reference, see Figure 3-87.

Install Application Assistant

Back Next Finish Cancel

Optional Settings

You can modify these settings or accept the defaults

General

What do you want to name this deployment?

Name:

Security

What security model do you want to use with this application?

☒ DD Only: Use only roles and policies that are defined in the deployment descriptors.

☐ Custom Roles: Use roles that are defined in the Administration Console; use policies that are defined in the deployment descriptor.

☐ Custom Roles and Policies: Use only roles and policies that are defined in the Administration Console.

☐ Advanced: Use a custom model that you have configured on the realm's configuration page.

Source accessibility

How should the source files be made accessible?

☒ Use the defaults defined by the deployment's targets

Recommended selection.

☐ Copy this application onto every target for me

During deployment, the files will be copied automatically to the managed servers to which the application is targeted.

☐ I will make the deployment accessible from the following location

Location:

Provide the location from where all targets will access this application's files. This is often a shared directory. You must ensure the application files exist in this location and that each target can reach the location.

Back Next Finish Cancel

Figure 3-87. Optional Settings

13. Enter the Name for the deployment. For example, DATUP.
14. Verify that the following default option for Security is selected:
DD Only: Use only roles and policies that are defined in the deployment descriptors.

15. Verify that the following default option for Source accessibility is selected:
Use the defaults defined by the deployment's targets.
16. Click Next.
17. Within the Install Application Assistant in the right column of the console WebLogic will now display the panel Review your choices and click Finish, which summarizes the steps completed above. For reference, see Figure 3-88.

Install Application Assistant

Back Next Finish Cancel

Review your choices and click Finish

Click Finish to complete the deployment. This may take a few moments to complete.

Additional configuration

In order to work successfully, this application may require additional configuration. Do you want to review this application's configuration after completing this assistant?

☒ Yes, take me to the deployment's configuration screen.

☐ No, I will review the configuration later.

Summary

Deployment: /u01/app/user_projects/domains/DEVPHARMACYDATUP/appStage/datup-national-2.0.00.001CM.ear

Name: datup-national-2.0

Staging mode: Use the defaults defined by the chosen targets

Security Model: DDOnly: Use only roles and policies that are defined in the deployment descriptors.

Target Summary

Components	Targets
datup-national-2.0.00.001CM.ear	DATUP_MS1

Back Next Finish Cancel

Figure 3-88. Review Your Choices and Click Finish

18. Verify that the values match those entered in Steps 1 through 17 and click Finish.

19. WebLogic will now display the panel **Settings** for **DATUP**, in the right column of the console, where the values previously entered are available as well as a setting to change the deployment order. For reference, see Figure 3-89.

Settings for datup-national(... X)

Overview | Deployment Plan | Configuration | Security | Targets | Control | Testing | Monitoring | Notes

Use this page to view the general configuration of an Enterprise application, such as its name, the physical path to the application files, the associated deployment plan, and so on. The table at the end of the page lists the modules (such as Web applications and EJBs) that are contained in the Enterprise application. Click on the name of the module to view and update its configuration.

Name:	datup-national	The name of this Enterprise Application. More Info...
Archive Version:	2.0.00.001CM	The archive version, from the manifest or overridden during deployment. More Info...
Path:	/u01/app/user_projects/domains/DEVPHARMACYDATUP/appStage/datup-national-2.0.00.001CM.ear	The path to the source of the deployable unit on the Administration Server. More Info...
Deployment Plan:	(no plan specified)	The path to the deployment plan document on Administration Server. More Info...
Staging Mode:	(not specified)	The mode that specifies whether a deployment's files are copied from a source on the Administration Server to the Managed Server's staging area during application preparation. More Info...
Security Model:	DDOnly	The security model that is used to secure a deployed module. More Info...
Deployment Order:	<input type="text" value="100"/>	An integer value that indicates when this unit is deployed, relative to other deployable units on a server, during startup. More Info...
Deployment Principal Name:	<input type="text"/>	A string value that indicates what principal should be used when deploying the file or archive during startup and shutdown. This principal will be used to set the current subject when calling out into application code for interfaces such as ApplicationLifecycleListener. If no principal name is specified, then the anonymous principal will be used. More Info...

Modules and Components

Showing 1 to 1 of 1 Previous | Next

Name	Type
[-] datup-national (2.0.00.001CM)	Enterprise Application
[-] EJBs	
[-] DfReportServiceBean	EJB
[-] ReceiveFromLocalService	EJB
[-] Modules	
[-] DATUP	Web Application
[-] ps-dp-national-ejb.jar	EJB Module
[-] Web Services	
None to display	

Showing 1 to 1 of 1 Previous | Next

Figure 3-89. Settings for DATUP

20. Leave all the values as defaulted by WebLogic and click **Save**.
21. Within the **Change Center** panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 3-90.

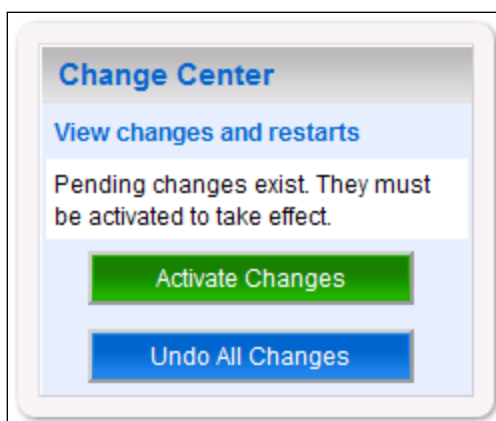


Figure 3-90. Activate Changes

22. Within the Domain Structure panel in the left column of the WebLogic console, click the PRE > Deployments node. For reference, see Figure 3-91.



Figure 3-91. Domain Structure

23. WebLogic will now display the panel **Summary of Deployments** in the right column of the console, where all deployments for the WebLogic domain are listed. For reference, see Figure 3-92.

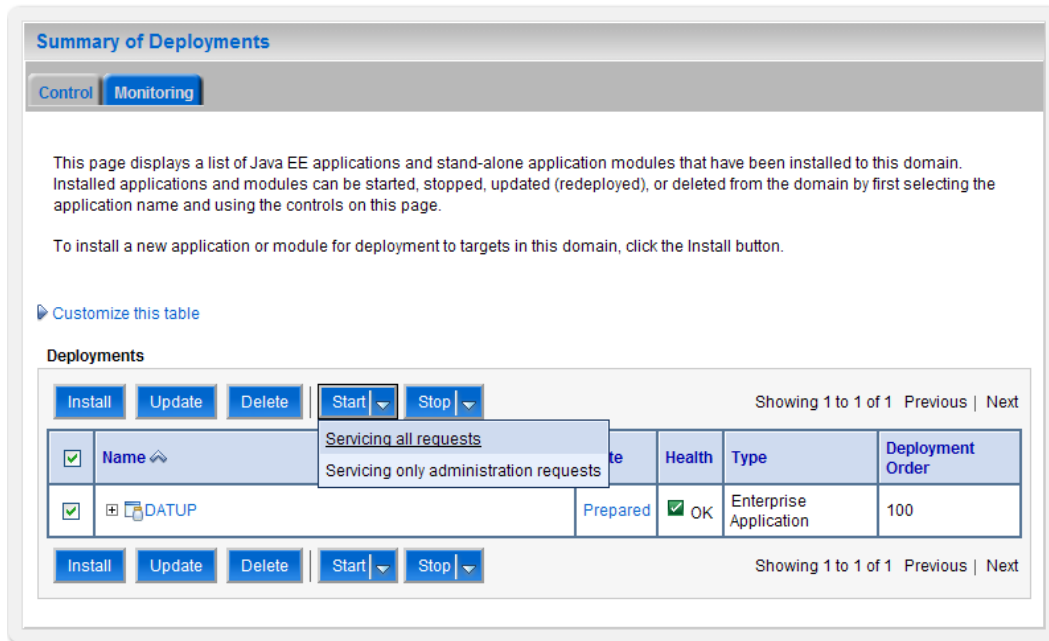


Figure 3-92. Summary of Deployments

24. Select the previously deployed DATUP deployment, click **Start**, and then select **Servicing all requests** from the drop-down list box.
25. WebLogic will now display the panel **Start Application Assistant** in the right column of the console for confirmation to start servicing requests. For reference, see Figure 3-93.

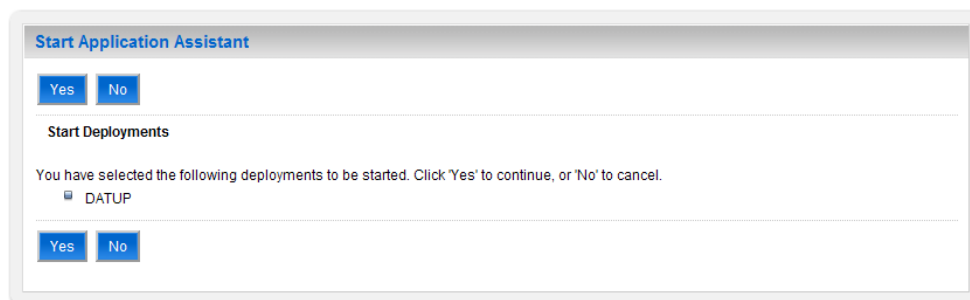


Figure 3-93. Start Application Assistant

26. Click **Yes** in the **Start Application Assistant** panel in the right column of the WebLogic console.

27. WebLogic now returns to the Summary of Deployments panel in the right column of the console. For reference, see Figure 3-94.

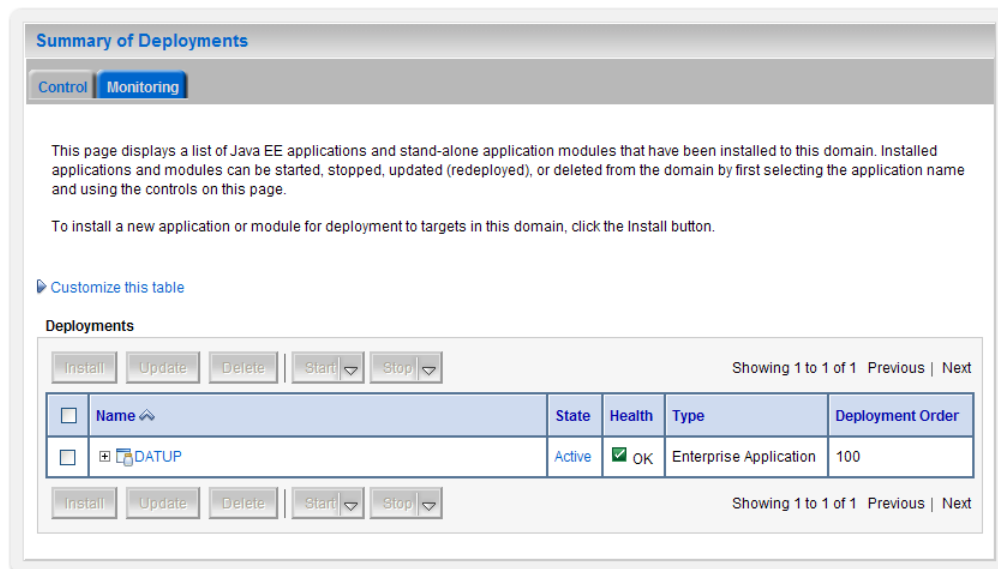


Figure 3-94. Summary of Deployments – DATUP Deployment Active

28. Verify that the State of the DATUP deployment is Active.

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4 Upgrade Installation Instructions

The following instructions detail the steps required to perform an installation of a release for the DATUP software when an existing release is already deployed at a national site. These steps assume a fresh installation has been completed, following the steps in Section 3.

4.1 Uninstall Previous Release

The following steps detail the un-installation of the DATUP application. Prior to completing these steps, the DATUP application must have been deployed following the steps in Section 3. Complete the following steps to un-deploy DATUP:

1. Open and log into the WebLogic console. This is located at: `http://<Deployment Machine>:7001/console`.
2. Within the Domain Structure panel in the left column of the WebLogic console, click the Deployments node. For reference, see Figure 4-1.



Figure 4-1. Domain Structure

3. Within the Change Center panel in the left column of the WebLogic console, click Lock & Edit. For reference, see Figure 4-2.

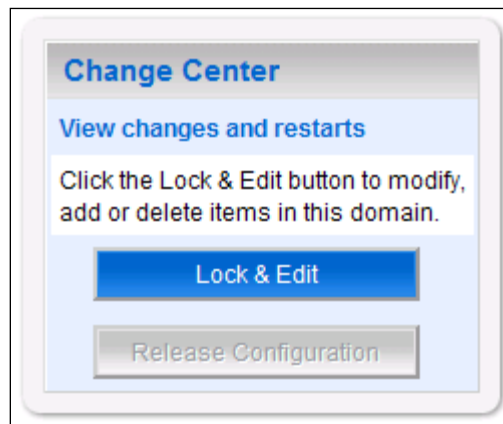


Figure 4-2. Change Center

4. WebLogic will now display the panel Summary of Deployments in the right column of the console, where all deployments for the WebLogic domain are listed. For reference, see Figure 4-3.

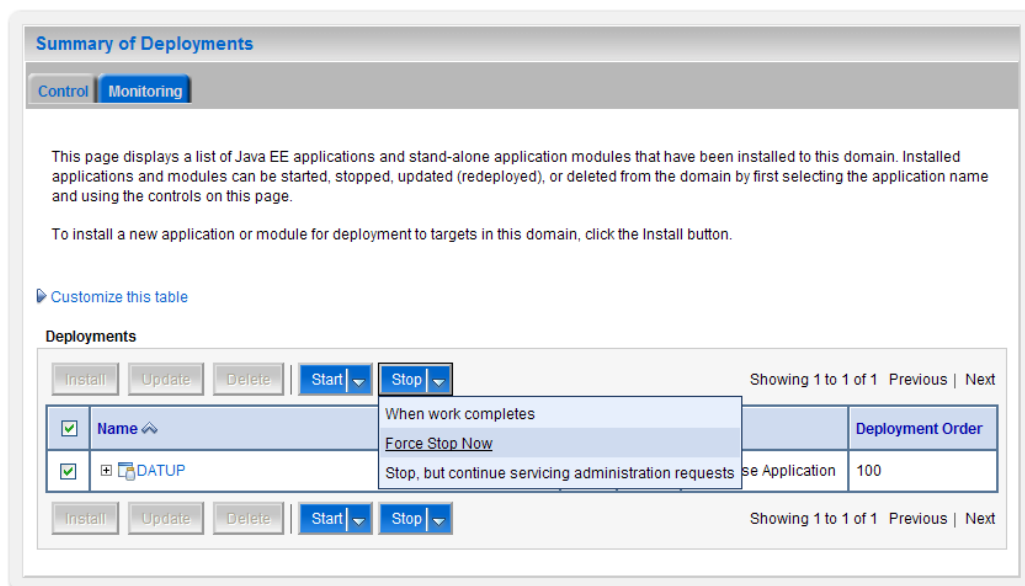


Figure 4-3. Summary of Deployments – Stopping DATUP

5. Select the previously deployed DATUP deployment, click Stop, and then select Force Stop Now from the drop-down list box.

- WebLogic will now display the panel **Force Stop Application Assistant** in the right column of the console for confirmation to start servicing requests. For reference, see Figure 4-4.

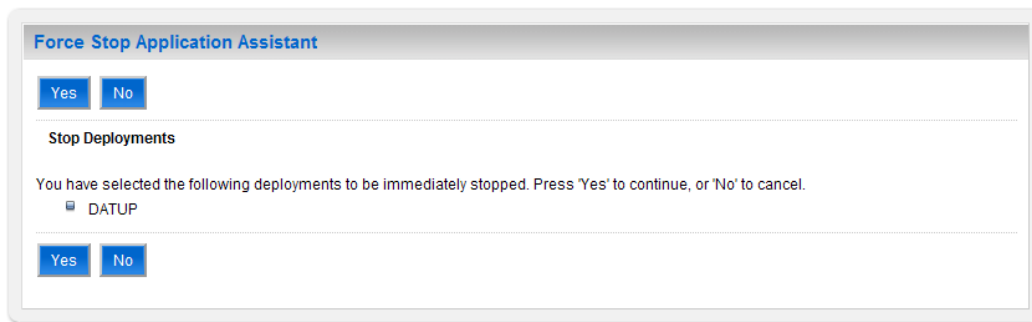


Figure 4-4. Force Stop Application Assistant

- Click **Yes** in the **Force Stop Application Assistant** panel in the right column of the WebLogic console.
- WebLogic now returns to the **Summary of Deployments** panel in the right column of the console. For reference, see Figure 4-5.

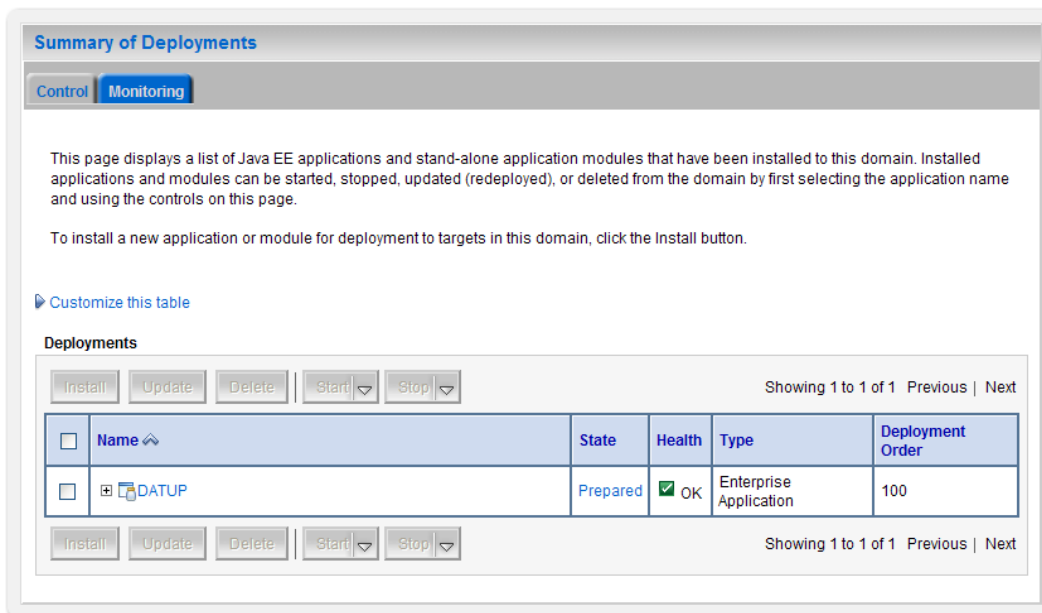


Figure 4-5. Summary of Deployments – DATUP Deployment Prepared

- Verify that the **State** of the DATUP deployment is **Prepared**.
- Select the previously deployed DATUP deployment, and then click **Delete**.

11. WebLogic will now display the panel Delete Application Assistant in the right column of the console for confirmation to start servicing requests. For reference, see Figure 4-6.

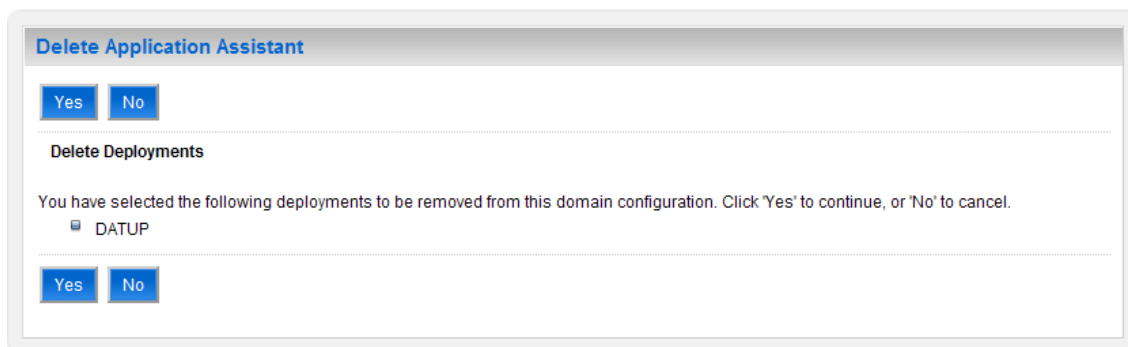


Figure 4-6. Delete Application Assistant

12. Click Yes in the Delete Application Assistant panel in the right column of the WebLogic console.
13. WebLogic now returns to the Summary of Deployments panel in the right column of the console. For reference, see Figure 4-7.

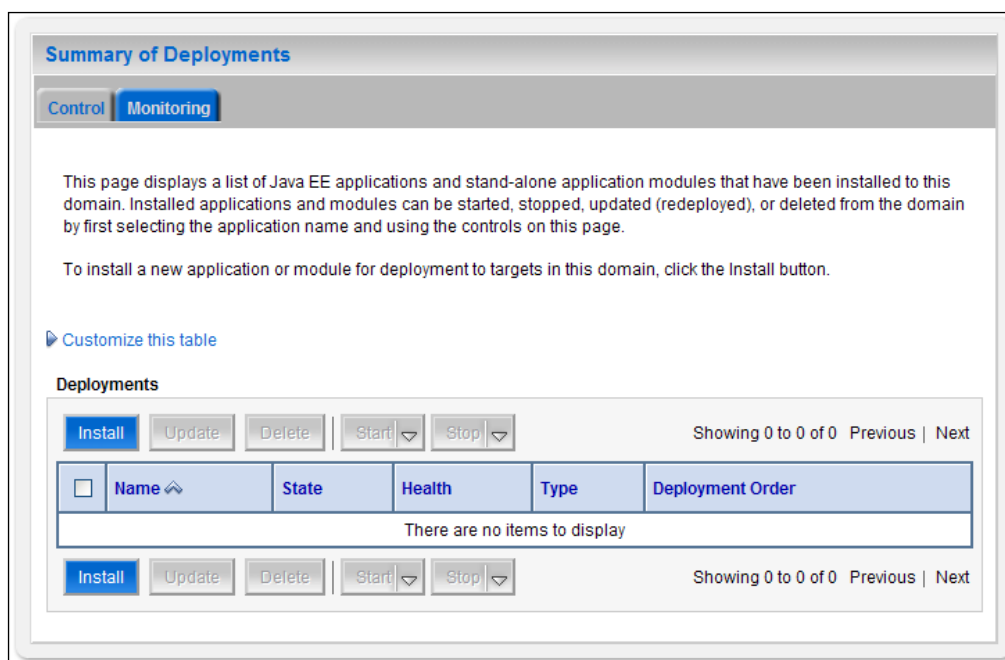


Figure 4-7. Summary of Deployments – DATUP Deployment Deleted

14. Verify that the DATUP deployment is deleted and no longer present.

15. Within the Change Center panel in the left column of the WebLogic console, click **Activate Changes**. For reference, see Figure 4-8.

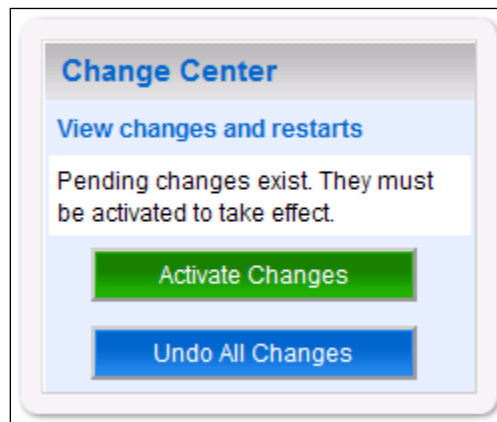


Figure 4-8. Activate Changes

4.2 Deploy New Release

To deploy the new release, follow the same deployment steps found in Section 3.4.10.

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5 System Verification

The following section will verify that the DATUP system is up and running at a national site.

5.1 Verification

To verify that the national DATUP installation is up and running, navigate a web-browser to the logs directory on your server, example `http://DATUP-n/logs/NationalDatupServer/logs`.

Verify that the `server.log` file has an entry indicating the next scheduled run time of the DATUP application. The `server.log` entry looks like:

```
DEBUG
[gov.va.med.pharmacy.peps.updater.common.utility.DifUpdateScheduler:scheduleNextTimer]
Next scheduled DIF update time: Thu, 08/26/2010, 02:45:00 PM, CDT
```

This line indicates that the system is running. In addition, the version report can be checked by navigating to the `/DATUP/` directory on the installed server, example `http://DATUP:8021/DATUP/`. This provides the versioning history report and indicates that the national DATUP instance is running.

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Appendix A

National DATUP Configuration

This appendix provides National configuration file examples based on the baseline `fdb_datup_configuration.properties` file.

Example National DATUP Configuration File

```
#####
#----- Scheduler -----
#####

#####
# Scheduled nightly update time (military time).
#
# For example, "0230" schedules the nightly update
# for 2:30 am.
#
# *This parameter applies to National and Local.
#####
scheduled.time=1405

#####
#----- FTP Server -----
#####

#####
# FTP server hostname
#
# Specify the anonymous FTP server hostname.
#
# *This parameter applies to National and Local.
#####
ftp.hostname=10.3.29.201

#####
# FTP server port number
#
# Specify the anonymous FTP server port number.
#
# *This parameter applies to National and Local.
#####
ftp.port=21

#####
# FTP server username/password.
#
# Specify the anonymous account username/password.
#
# *These parameters apply to National and Local.
#####
ftp.username=PECS
ftp.password=

#####
# FTP server working directory
#
# Specify the FTP working directory, relative to
# the FTP root directory.
#
# *This parameter applies to National and Local.
```

```

#####
ftp.directory.working=pharmacy_uft

#####
# Pending FDB-DIF update storage directory.
#
# Specify the pending directory, relative to the
# working directory, to the location where FDB-DIF
# full, incremental, and custom ZIP files will be
# placed for processing.
#
# *This parameter applies to National.
#####
ftp.directory.pending=fdb_dif

#####
#----- FDB DIF -----
#####

#####
# Number of random FDB-DIF verification tests
#
# Specify the number of random FDB-DIF verification
# tests to run. 10 is a reasonable number. However,
# do not specify a large number as it will cause an
# unacceptable delay for processing new VistA order
# checks during that time.
#
# *This parameter applies to National and Local.
#####
fdb.verification.test.count=5

#####
#----- Email Server -----
#####

#####
# Email server hostname
#
# *This parameter applies to National and Local.
#####
email.hostname=SMTP.VA.GOV

#####
# Email sender name
#
# For example, "noreply@va.gov".
#
# *This parameter applies to National and Local.
#####
email.sender=noreply_national_DATUP1.1_sqa@med.va.gov

#####
# Email username/password
#
# May be necessary to relay email.
#
# *These parameters apply to National and Local.
#####
email.username=
email.password=

#####
# Email list for success notifications
#
# Include individuals that should be notified about
# successful FDB/FDB-Custom updates.
#
# *This parameter applies to National and Local.
#####
email.list.success=SDDPREArch@med.va.gov

```

```

#####
# Email list for failure notifications
#
# Include individuals that should be notified about
# failed FDB/FDB-Custom updates.
#
# *This parameter applies to National and Local.
#####
#email.list.failure=Sachin.Sharma@va.gov
email.list.failure=SDDPREArch@med.va.gov

#####
# Email list for available update notifications
#
# Include individuals that should be notified about
# available FDB/FDB-Custom updates once they are
# applied and tested and National. This list should
# include the local site managers.
#
# *This parameter applies to National.
#####
email.list.update.available=SDDPREArch@med.va.gov

#####
#----- Locality -----
#####

#####
# Regional Data Center (RDC) name
#
# Specify the name of the RDC or leave blank if
# this installation is not part of a RDC.
#
# *This parameter applies to Local.
#####
locality.rdc.name=

#####
# Site number(s)
#
# Specify the site number(s) for this installation.
# If more than one site is associated with this
# installation, separate the site numbers with a
# comma (e.g., 423,512,211).
#
# *This parameter applies to Local.
#####
locality.site.number=

#####
# Number of retained FDB-DIF incremental archives
#
# Due to potential site outages, it is necessary
# to retain a certain number of FDB-DIF archives.
#
# *This parameter applies to National.
#####
fdb.retention=20

#####
# Number of statements to batch before commit
#
# Specify the number of statements to batch before
# a commit to the database. This value is database
# vendor and JDBC driver dependent. A reasonable
# batch size is 500. However, tests show that Cache
# may throw system errors with a batch size greater
# than 200.
#
# Specify a batch size of 0 to disable batching. A

```

```

# single commit will be issued at the end of the
# incremental update.
#
# *This parameter applies to National and Local.
#####
fdb.batch.commit.size=0

#####
#----- IMAGE PROCESSING-----
#This parameter specifies if Images will be processed
#or not.
#The Parameter is "TRUE" for National and "FALSE" for
#LOCAL by default.
#####
image.processing.national=TRUE
image.processing.local=FALSE
#####
# The location where the image files will be stored
#
#
# *This parameter applies to National only
#####
image.directory.national=/tmp/imaging/
#####
# The location where the image files will be stored
#
#
# *This parameter applies to local only
#####
image.directory.local=/tmp/imaging/
#####
# The email to send to names or group for Image
#Processing.
#This parameter can be blank
#
# *This parameter applies to National only
#####
image.email.sendto.national=
#image.email.sendto.national=SDDPREArch@med.va.gov
#image.email.sendto.national=sachin.sharma@va.gov
#####
# The email to send to names or group for Image
#Processing
#This parameter can be blank
#This parameter applies to local only
#####
image.email.sendto.local=SDDPREArch@med.va.gov

```


Appendix B

Combined DATUP / PECS Architecture

This appendix provides the combined DATUP / PECS architecture diagram for reference. The combined logical system components are:

1. DATUP – Implements the FDB-DIF update business logic.
2. Scheduler – Background process for scheduling DATUP.
3. WebLogic – Application server environment.
4. Configuration File – Defines the DATUP configuration settings.
5. Email Templates – Templated emails for notifications sent to National/Local Managers.
6. Anonymous FTP Server – FTP Server that hosts the FDB-DIF update archives.
7. Email Server – Email relay server.
8. PECS – Implements the FDB-Custom drug business logic.
9. CT Staging Database – Stores PECS FDB-Custom modifications.
10. DATUP Database – Stores DATUP site update history.
11. FDB-DIF Database – Stores the FDB-DIF drug database.
12. Legacy VistA – Existing VistA server.

Figure B-1 illustrates the logical system components for the National and Local environments. The National components are responsible for verifying and publishing FDB-DIF and FDB-Custom updates to the Anonymous FTP Server. The Local components then consume and apply the verified updates in an automated manner.

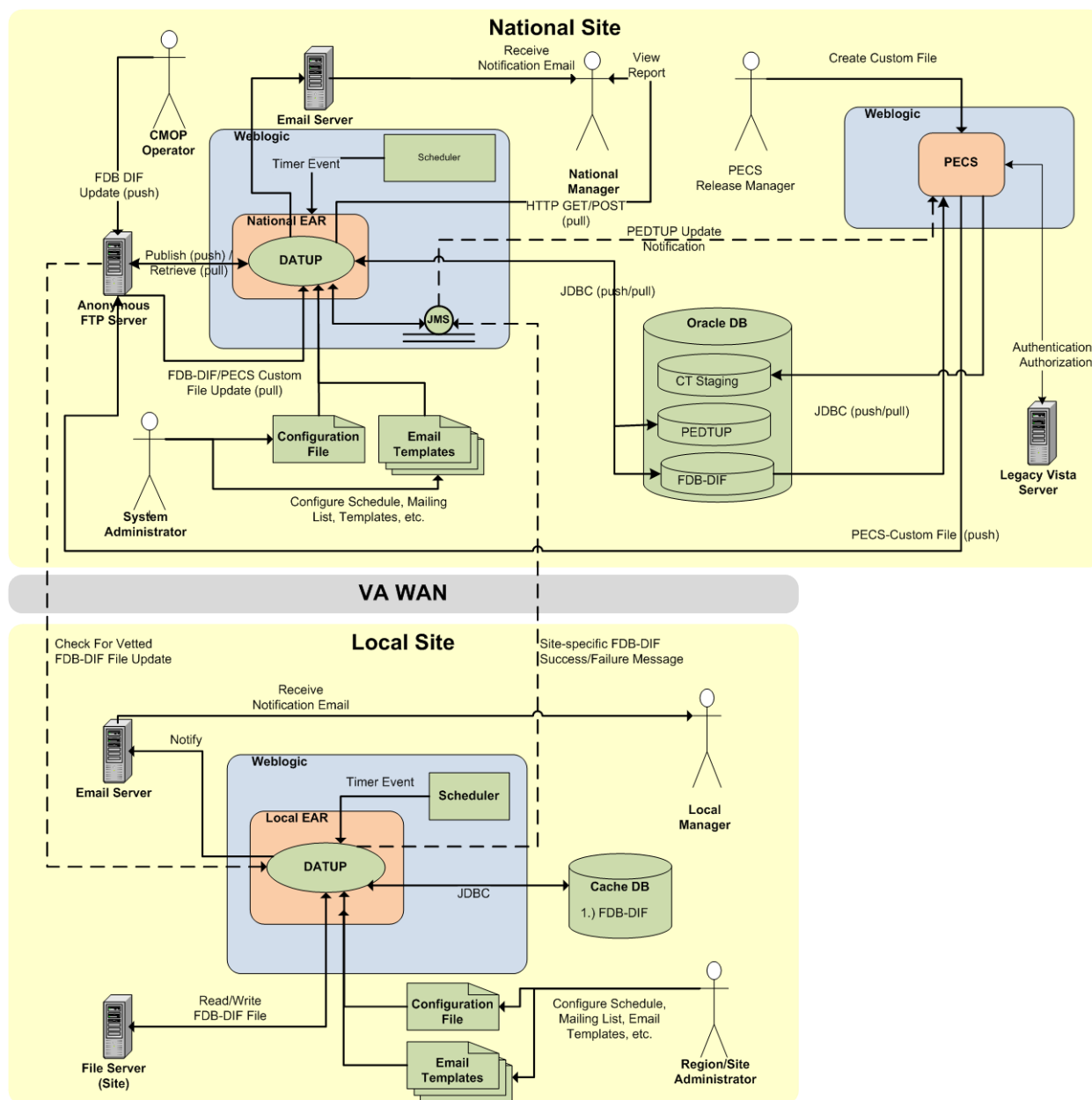


Figure B-1: Combined DATUP/PECS Architecture Diagram

Appendix C: log4j Properties

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE log4j:configuration SYSTEM "log4j.dtd">

<log4j:configuration xmlns:log4j="http://jakarta.apache.org/log4j/">

  <!-- APPENDERS -->
  <!-- Verbose file appenders.
       Log, among other things, class name, method name and line number
       where logging is coming from. -->
    <appender name="PepsAppender"
class="org.apache.log4j.RollingFileAppender">
      <param name="File" value="ppsndatupconfig/logs/peps.log"/>
      <param name="Append" value="false"/>
      <param name="MaxBackupIndex" value="10"/>
      <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{dd MMM yyyy hh:mm:ss a}
%-5p [%c:%M] %m%n"/>
      </layout>
    </appender>

    <appender name="SpringAppender"
class="org.apache.log4j.RollingFileAppender">
      <param name="File" value="ppsndatupconfig/logs/spring.log"/>
      <param name="Append" value="false"/>
      <param name="MaxBackupIndex" value="10"/>
      <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{dd MMM yyyy hh:mm:ss a}
%-5p [%c:%M] %m%n"/>
      </layout>
    </appender>

  <!-- LOGGERS -->
  <!-- DEBUG-level loggers for VistaLink packages, override ROOT logger level
       in production, usually turn on DEBUG level logging for troubleshooting
       specific problems only -->
    <logger name="org.springframework" additivity="false">
      <level value="error" />
      <appender-ref ref="SpringAppender"/>
    </logger>

    <logger name="gov.va.med.pharmacy.peps" additivity="false">
      <level value="error" />
      <appender-ref ref="PepsAppender"/>
    </logger>

  <!-- INFO-level logger: turn on to record timing audit information -->
    <logger name="gov.va.med.monitor.time.AuditTimer" additivity="false" >
      <level value="info" />
      <appender-ref ref="verboseDailyRollingFileAppender"/>
    </logger>
```

```
<!-- ROOT level logger: usually good to log all ERROR-level entries
regardless of source -->
  <root>
    <level value="error" />
    <appender-ref ref="verboseDailyRollingFileAppender"/>
  </root>
</log4j:configuration>
```

Appendix D: Workaround for Image Processing

(This temporary workaround is needed for PPS-National only).

Add this to WebLogic crontab:

```
# Crontab file for WebLogic cron jobs.
# Below calls a script to move DATUP images to PPSN FDB_Images directory and cleans DATUP
empty directories
# at 10 minutes and 05 hours, every day of the week, month & year.
10    5    *    *    *    $DOMAIN_HOME/ppsnDatup-config/moveDatupImages.sh    >>
$DOMAIN_HOME/ppsnDatup-config/moveDatupImages.log 2>&1
```

Place the below script under \$DOMAIN_HOME/ppsnDatup-config directory: (moveDatupImages.sh) :

```
##### This script is a temporary solution to move the DATUP images to PPSN FDB_Images folder
#####
echo "=====
date
cd $DOMAIN_HOME/FDB_Images
echo "Number of images in FDB_Images directory before the move:"
ls | wc -l
echo "Number of images in fdb DATUP directory:"
ls | grep fdb_image_*
ls fdb_image_* | wc -l
echo "Moving images from fdb DATUP directory to FDB_Images directory....."
find . -mindepth 2 -type f -iname *.jpg -exec mv "{}" . \;
echo "...Done"
echo "Number of images in FDB_Images directory after the move:"
ls | wc -l
echo "Cleaning fdb DATUP directory....."
rm -rf fdb_image_*
echo "Done"
```

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Appendix E: Rollback Process

If the installation process must be stopped when updating an environment from a previous version of DATUP National, follow the steps outlined in order to rollback the application.

1. Follow the PECS and PPS-N Rollback Process. The PECS Rollback Process is found in the *PECS_Installation_Guide.docx*. The PPS-N Rollback Process is found in the PPS-N Install Guide, titled *PPS-N_V1.1.10_IG.docx*. Both documents can be found on the PECS TSPR site: <http://tspr.vista.med.va.gov/warboard/anotebk.asp?proj=1474&Type=Active>
2. Deploy the old DATUP National EAR file.