Cisco Prime Service Catalog 12.1.1 Installation Guide

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Cisco Prime Service Catalog 12.1.1 Installation Guide

CONTENTS

Installation Overview

This guide describes the installation process using standalone installer. Cisco Prime Service Catalog comprises of two required component applications, Service Catalog and Service Link, and one optional component application called Reporting.

The installation is supported only on JBoss EAP application server and can be configured in a Cluster setup.

Note Installation of Cisco Prime Service Catalog is not supported on Wildfly and Weblogic in the 12.1.1 release.

Subsequent sections in this chapter describes various deployment topologies for JBoss EAP Application Server.

Note In this release, installation of Prime Service Catalog as a Virtual Appliance is not supported.

Note Upgrade from any previous release of Prime Service Catalog to 12.1.1 release is not supported.

Deployment Topology

Prime Service Catalog can be set up only in a cluster mode.

Note If you want to set up in standalone mode, install all the components on a single node.

The available topologies for cluster mode are:

- All Components
- Separate Component

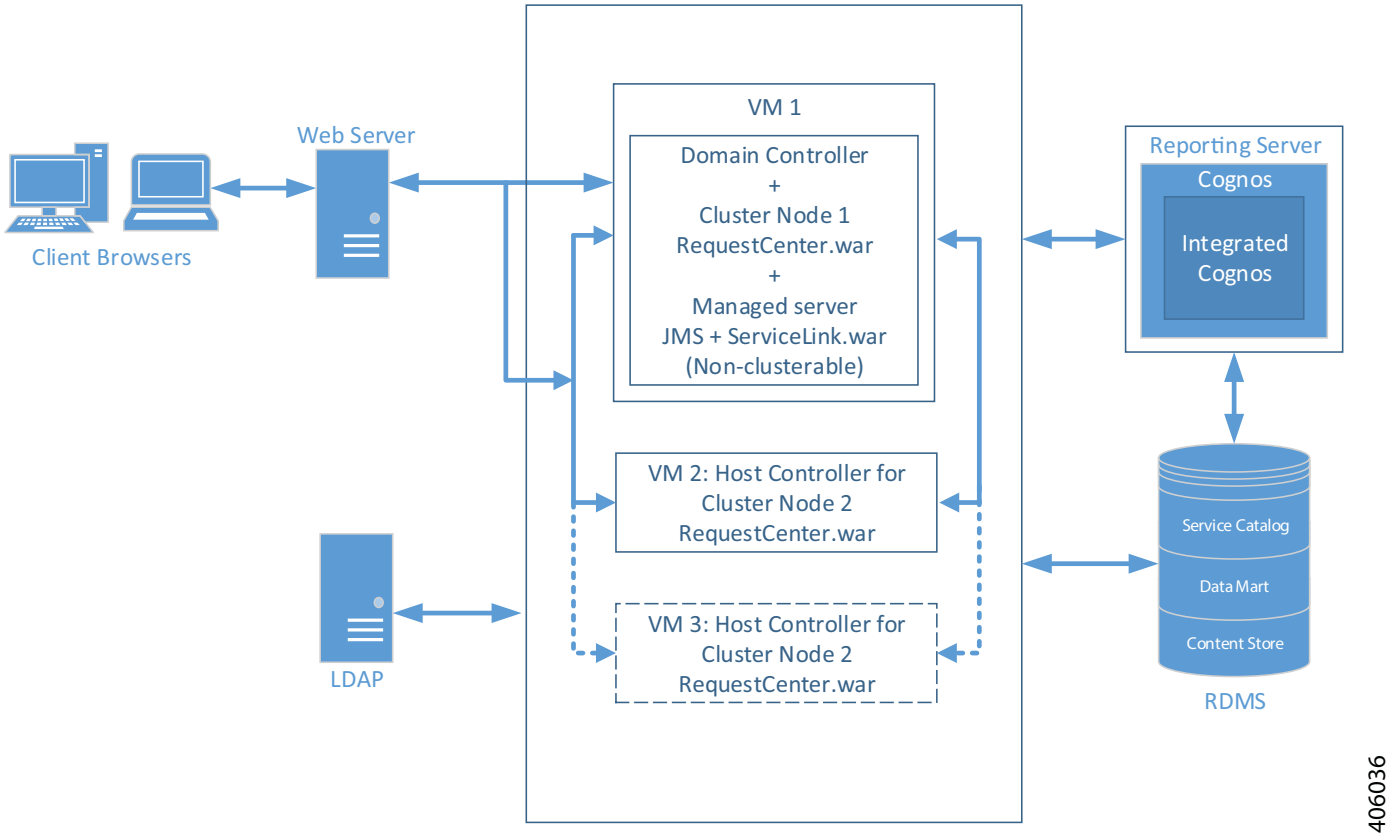
All Components Topology

The following diagram shows an example of a All Components topology that has two horizontal nodes (i.e. two separate hosts) in a JBoss EAP cluster configuration. One Node Contains the Domain Controller, Host Controller 1 with Service Catalog, Host Controller 1 Service Link and another node contains Host Controller 2 with Service Catalog.

The user can start with 2 nodes, and add more nodes (i.e. more hosts) to the cluster as desired.

Note The Prime Service Catalog Installer will support up to 6th node for the cluster. If the user wants to add a 7th node or more, see section Adding Subsequent Host Nodes Manually in JBoss Cluster.

Figure 1-1 All Components topology

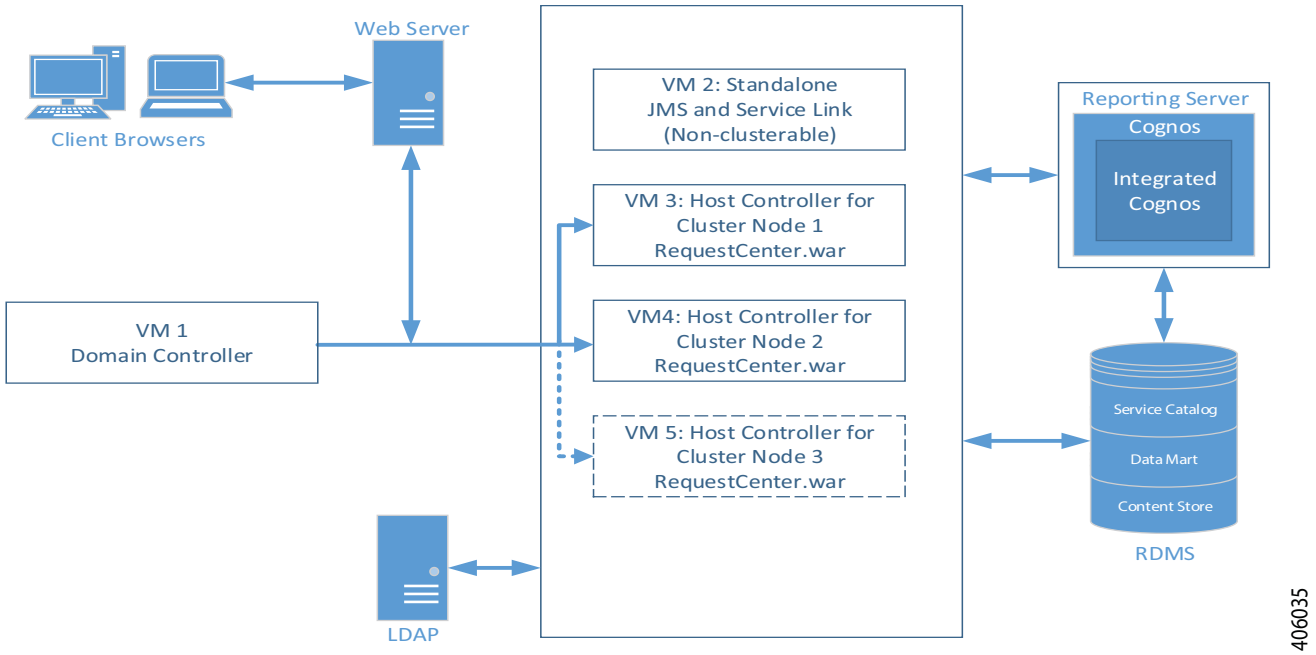


Separate Component Topology

The following diagram shows an example of a Separate Component topology that has an application server cluster with two nodes containing the Service Catalog component application, one with domain controller and another node with Service Link component application.

- VM 1 will have only the Domain Controller.
- VM 2 will have the Service Link and JMS server.
- VM 3 will be the Host 1 for Service Catalog.
- VM 4 will be the Host 2 for Service Catalog.

Figure 1-2 Separate Component Topology

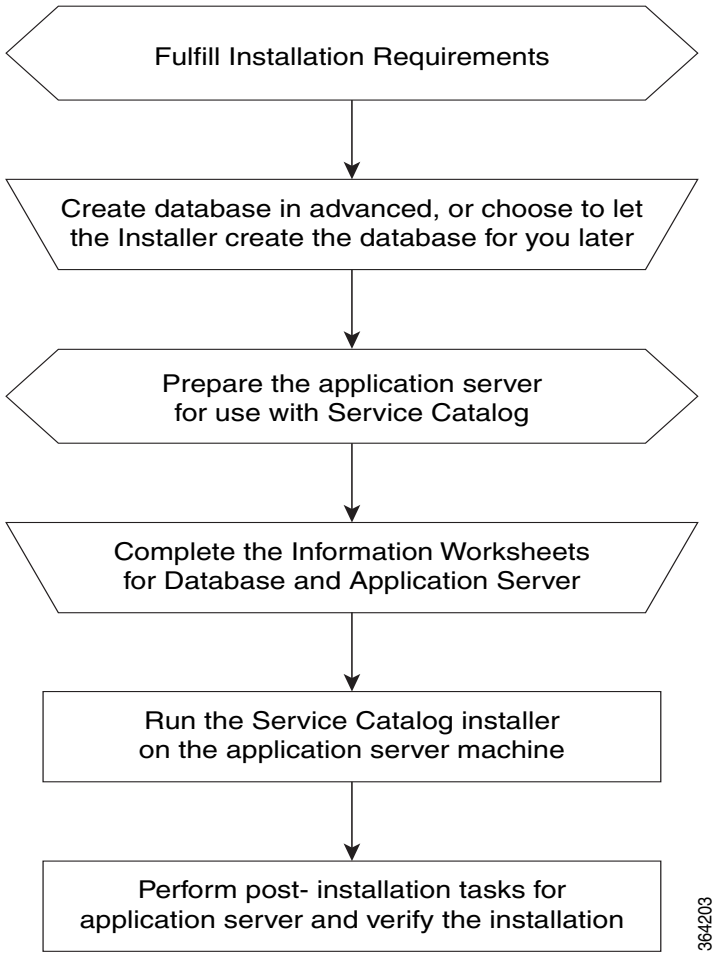


Next chapter describes the software and hardware requirements for a typical deployment topology.

High-level Installation Flow

The following flowchart provides a high level flow of Prime Service Catalog installation.

Figure 1-3 Common Installation Steps



High-level Installation Overview

This section provides a road map of the installation process for Prime Service Catalog:

Step 1 Follow the instructions provided in Installation Requirements to ensure that you have adequately addressed the minimum hardware and software requirements, and installed the prerequisite software.

Step 2 Create the Service Catalog database, as described in Configuring the Service Catalog Database and complete the Database Information Worksheet. You will need this information when running the Prime Service Catalog installation wizard.

Step 3 Prepare the application server for use with Prime Service Catalog, by performing the tasks described in section Preinstallation Tasks for JBoss EAP.

Complete the respective Application Server Information Worksheet as described in the Worksheets section. You will need this information when running the Prime Service Catalog installation wizard.

Step 4 Run the Prime Service Catalog installer on the application server machine, as described in the Installing Prime Service Catalog on JBoss EAP Application Server.

Step 5 Perform the post installation tasks for your application server and verify your installation as described in section Postinstallation Tasks for JBoss EAP.

Step 6 To enable the Reporting features, you also need to install the Reporting software module and the Cognos software, and configure the Cognos Server to integrate with the Prime Service Catalog application. When you are ready to do this, follow the instructions in Installing and Upgrading Reporting Module.

CHAPTER 2

Installation Requirements

Before installing Prime Service Catalog, review the licensing and the installation requirements described in this chapter.

About Prime Service Catalog Licensing

Cisco ONE Enterprise Cloud Suite is a part of the Cisco ONE for Data Center solution and consists of four components: Infrastructure Automation, Cloud Management, Big Data Automation and Service Management. Each component can be used individually, or all components can be used together to create an integrated hybrid cloud solution. All components were designed to work together, providing you with an incremental approach to hybrid cloud automation.

The Cisco ONE ECS Service Management package which includes Cisco Prime Service catalog and Cisco Process Orchestrator is sold as a one-year, three-year, or five-year subscription and a customer can order the Service Management Base bundle with an option to add-on the Service Management

For more information about licensing contact your account manager.

Software Requirements

The following table lists the supported third-party software for this release of Cisco Prime Service Catalog. Also refer to the "*Cisco Prime Service Catalog Compatibility Matrix*" document.

Table 2-1 Supported Software

Browser
Internet Explorer 11
Mozilla Firefox ESR 49.0.2 (or later ESR)
Chrome 54 (or later)-(*supported for the following modules only: Service Catalog, Order Management, My Services, Service Portal, Demand Management, Service Manager, Tenant Management)*
Safari 10.0.x(on MAC OS only) (*supported for the following modules only: Service Catalog, Order Management, My Services, Service Portal, Demand Management, Service Manager, Tenant Management)*
Browser Plugin

Table 2-1 Supported Software (continued)

The graph on the Service Link Home Page is optional and for informational purpose only. Adobe® Flash® Player is required to display the graph on the Service Link Home Page.
Web Server
Apache Http Server 2.4.6 or RedHat Http Server 2.4.6
Microsoft Internet Information Services (IIS) 8.5
Application Server + Java Development Kit
JBoss-EAP-7.0 + Oracle JDK 8 Update 131 (or higher Update) + JCE Unlimited Strength Policy Jars (on Windows Server)
Application Server Operating System
Red Hat Enterprise Linux Server 7.3 (64 bit)
Microsoft Windows Server 2012 R2 (64 bit)
Database
Oracle 12c, version 12.1.0.2 (Express Edition of Oracle Database is not supported)
Microsoft SQL Server 2016 (Express Edition of SQL Server is not supported)
LDAP
Microsoft Active Directory Server 2012
IBM Cognos® (Note: IBM Cognos software is only supported on Microsoft Windows Server 2012 R2 64-bit Operating System.)
IBM Cognos Business Intelligence Server, version 10.2.1, plus Fix Pack 2
IBM Cognos Data Manager, version 10.2.1, plus Fix Pack 2

Software Configuration Prerequisites

This section describes how to configure the software listed above for use with Prime Service Catalog.

Browser

The following settings must be configured on the web browser used to connect to the Prime Service Catalog application:

- Popup blocker is turned OFF.
- Cookies are enabled.
- Adobe Reader® is required on your web browser machine, if you plan to view and print reports.

Application Server

You need to obtain the licensed version of JBoss EAP 7.0 zip separately and place it in the same VM where you want to install Prime Service Catalog. This guide does not contain instructions for installing the JBoss EAP software. However, you will need to follow the instructions in the Preinstallation Tasks

for JBoss EAP to prepare your JBoss EAP Server for use with Prime Service Catalog.

Clustering Considerations

Prime Service Catalog can be configured only in a clustered environment. In case you require a standalone setup with all components on one VM, it is recommended that you select the option "All components" during installation.

Web Server

As a prerequisite, your web server must already be installed and running. Your web server does not have to be installed on the same machine as your application server, or on the machine where you plan to execute the Service Catalog installer.

The web server must have the plugin configuration necessary to communicate with your application server. For example, if you choose to use Apache web server with JBoss EAP Application Server for your deployment topology, then as a prerequisite, you need to manually configure the plugin for your Apache server to connect to your JBoss EAP server. The plugin between the web server and the application server will not be configured by the Service Catalog installer.

To ensure that the web server (in this case, Apache) does not disclose the web server type, version, and other vulnerable information, you must configure Apache to provide custom error responses.

For details, see:

http://httpd.apache.org/docs/current/custom-error.html

Internet Information Service (IIS) with JBoss EAP

In this release Prime Service Catalog does not allow automatic configuration of IIS web server plug-in. After you install Prime Service Catalog for JBoss EAP, refer to the section Configuring Plugin for IIS Web Server for additional instructions on how to manually configure IIS Plugin.

Java Development Kit

Java Development Kit is a prerequisite software on your application server machine. As listed in Table 2-1, only specific versions (and vendors) of JDK are supported for each type of application server. More information about how to configure Java for your application server is described in the Preinstallation Tasks for JBoss EAP.

Java 1.8 is also a prerequisite for the Cisco Prime Service Catalog installer. Therefore, if you plan to execute the Service Catalog installer on a machine different from your application server, then you need to install Oracle Java or OpenJDK on that machine. If you plan to execute the Service Catalog installer on the same machine where your application server is installed, then just set JAVA_HOME environment variable to the same Java that is used by your application server.

Prime Service Catalog supports AES algorithm and 256 bit symmetric keys. Therefore, if you use Oracle Java, you must also install the "JCE Unlimited Strength Crypto Policy" jar files on the JAVA_HOME directory to enable 2048 bit encryption. If you do not install JCE Unlimited Strength Crypto Policy for Oracle Java, the Application Server displays an error message and aborts the installation. For instructions on how to install the JCE Unlimited Strength Policy jar files, see the Oracle Website.

Note Red Hat OpenJDK already comes with unlimited strength policy so you don't need to install any additional jar files for OpenJDK.

Database

If you choose Oracle 12c as your RDBMS, you need to install the Oracle 12c Database Server software as a prerequisite (see Table 2-1 for specific version).

For database connection failover scenarios, you can use Oracle RAC 12C for your databases. For more information on configuring Oracle RAC 12C, see Configuring Oracle RAC 12C.

If you choose SQL Server 2016 as your RDBMS, then you need to install the respective Microsoft SQL Server software as a prerequisite (see Table 2-1 for specific version).

Do not install any SQL Server Client or Oracle Client connectivity software on your application server. You must use the JDBC driver that is bundled with the Cisco Prime Service Catalog product. For the JBoss EAP application server, the Cisco Prime Service Catalog installer automatically installs the appropriate JDBC driver and configures the JDBC datasource to use this driver.

Your database must be configured to enable TCP/IP for client connectivity.

The Configuring the Service Catalog Database contains instructions on how to create a database or schema for use with Prime Service Catalog.

LDAP

Prime Service Catalog can be integrated with your corporate LDAP server to access your company's employee directory. This integration feature is optional, so an LDAP server is not a prerequisite software for installing Prime Service Catalog.

If you plan to use the LDAP integration feature, see the *Cisco Prime Service Catalog Integration Guide*. Ensure that you use only one of the supported LDAP software listed in Table 2-1.

IBM Cognos

OEM IBM Cognos software is available as an additional purchase, which is used for the (optional) Reporting module. To enable all Reporting and Advanced Reporting features in the Prime Service Catalog application, the Cognos software must be installed in your deployment topology. This software can be installed after the Prime Service Catalog software is installed. The instructions for installing and configuring Cognos software can be found in Chapter 5, "Installing and Upgrading Reporting Module"

Other Miscellaneous Settings

X-Window or Xvfb

The Service Catalog installer is a GUI program. Therefore if you are on a Linux Operating System, you must have either an X-Window Server or an X11 emulator to display the installation wizard. The Service Catalog installer does not support console mode or CLI mode.

You must also have either X-Window Server or Xvfb (virtual framebuffer X server) installed and running on your application server machine, in order for the KPI Charts in the Reporting module to be displayed properly on the browser. If you are not using the KPI Charts feature in the Reporting module, then X-Window Server is not required for the application server machine.

Unzip Utility

You need to have an Unzip program (on Windows) or a GNU-compatible tar utility (on Linux) available on your machine to extract the Cisco Prime Service Catalog software installer package.

Network – TCP/IP

TCP/IP must be configured on all host computers.

SMTP

You should have access to an SMTP server that listens to port 25, and a valid email address, for email notifications from the Service Catalog to send out alerts to the system administrator. You must provide the SMTP address and a valid email address during the installation of the Prime Service Catalog software.The SMTP Server must not require user authentication.

Hardware Requirements

Sizing

We recommend a minimum of three computers for a typical (nonclustered) deployment topology:

- Web Server + Application Server together
- Database Server
- Reporting Server

Note If you have a clustered application server environment, the hardware requirements specified above are applicable for each node (that is, each machine) in your clustered environment.

Your hardware configuration depends on site-specific factors. Contact the Cisco Technical Assistance Center (TAC) if you need more sizing recommendations.

The variables that can affect your hardware configuration include the following:

- the number of people who will use the system
- the number and frequency of service requests that the installed product will handle
- the nature of the service requests (complexity, type, and so on)
- reporting frequency
- systems integration and system availability requirements

Minimum Hardware Requirements for Application Server Host

Your application server machine must meet the following minimum hardware requirements:

- 6 Core, 2 GHz (or faster) processor
- 10 GB RAM
- 100 GB *free* hard disk space
- There must be at least 2 GB of free disk space on the drive that contains the %TEMP% directory, if this is different from the drive when you plan to install the Cognos software.

Minimum Hardware Requirements for Web Server Host

If your web server resides on a different machine from your application server, then your web server machine must meet the following minimum hardware requirements:

- 4 Core, 2 GHz (or faster) processor
- 4 GB RAM
- 2 GB *free* hard disk space

Minimum Hardware Requirements for Database Host

Your database server machine must meet the following minimum hardware requirements:

- 8 Core, 2 GHz (or faster) processor
- 30 GB RAM
- Two hard disks with 500 GB *free* space. (Disk space requirement is dependent on the *projected* size of your Prime Service Catalog databases over time, to account for the growth in user data, service definitional data, transactional data, and reporting data.)

Minimum Hardware Requirements for Reporting Server Host

Your Cognos machine must meet the following minimum hardware requirements:

- 4 Core, 2 GHz (or faster) processor
- 8 GB RAM
- 50 GB *free* hard disk space

Note The IBM Cognos 10.2.1 software bundled with Prime Service Catalog can be installed only on a Microsoft Windows Server 2012 R2 (64-bit) Operating System.

Configuring the Service Catalog Database

The Cisco Prime Service Catalog product requires an OLTP database, which is referred to as the ServiceCatalog database.The ServiceCatalog database can be manually created by the DBA prior to executing the Cisco Prime Service Catalog installer, or automatically created by the installer if the user selects the "Create Database" option on the installation wizard. The following sub-sections contain the manual instructions for creating the ServiceCatalog database on either Oracle or SQL Server.

Note The installer does not automatically create the Oracle tablespaces for you. It only creates a ServiceCatalog schema with a fixed size of 500 MB in the tablespaces specified by you on the installation wizard. Thus, even if you decide to let the installer create the ServiceCatalog schema automatically, you may still want to follow the instructions in the subsequent sections to prepare your Oracle server with the appropriate tablespaces, prior to running the Cisco Prime Service Catalog installer.

Configuring Oracle

If you choose to use Oracle for your database, follow the instructions in this section to prepare the Oracle server and to create an Oracle user to be the owner of the ServiceCatalog schema.

Oracle Parameters

Configure the following Oracle parameters:

Step 1 Execute the following commands to find out the current values for the following Oracle parameters:

```
SHOW PARAMETER CURSOR_SHARING;

SHOW PARAMETERS PROCESSES;

SHOW PARAMETERS OPEN_CURSORS;
```

Step 2 If CURSOR_SHARING is not set to EXACT, use the following command to change it:

```
ALTER SYSTEM SET CURSOR_SHARING=EXACT SCOPE=BOTH SID='*';
```

Step 3 If OPEN_CURSORS is less than 1000, use the following command to change it:

```
ALTER SYSTEM SET OPEN_CURSORS = 1000 SID='*'  SCOPE=BOTH;
```

Step 4 If PROCESSES parameter is smaller than 500, then work with your DBA to bump up the PROCESSES parameter for your Oracle database to 500 (or higher).

Step 5 Restart the Oracle instance to make sure that the new parameters take effect.

catcio.sql Package

Step 1 Execute the following sql command as the Oracle “sys” user to find out if the catcio.sql package has been installed on the Oracle database:

```
select count(*) from all_tables where owner='SYS' and table_name like
'IND_ONLINE$';
```

Step 2 If the returned value is ZERO, then log in to Oracle database as “sys” user (connect as “sysdba”), and install the catcio.sql package. This needs to be done before you proceed with the Prime Service Catalog installation. The catcio.sql script is usually located in the $ORACLE_HOME/rdbms/admin directory.

Redo Logs

Allocate at least three groups of Redo logs with two files each of 200 MB for Oracle.

Unicode Character Set

For a new installation, you must configure the Oracle database to use one of the following Unicode characters sets: “AL32UTF8" or "AL16UTF16”.

To determine if the database character set is Unicode, execute the following sql command:

```
SELECT VALUE FROM NLS_DATABASE_PARAMETERS WHERE PARAMETER='NLS_CHARACTERSET';
```

If the value returned for the NLS_CHARACTERSET parameter is neither "AL32UTF8" nor "AL16UTF16", then you need to create a new Oracle database, and specify the character set to be either "AL32UTF8" or "AL16UTF16" at creation time.

Creating Tablespaces and Database Schema for Hosting Service Catalog Data

For a new installation, you can prepare the tablespaces and database schema as described in this section before executing the Service Catalog installer, or you can let the Service Catalog installer create the database schema on the default tablespaces for you by selecting the "Create Database" option presented by the installation wizard. The "Create Database" option of the Service Catalog installer is described in more detail in the section Installing Prime Service Catalog on JBoss EAP Application Server.

To create tablespaces and database schema:

Step 1 Create a new tablespace named **SERVICECATALOG**, with initial size of 500 MB and AUTOEXTEND ON.

Step 2 Create a new temporary tablespace named **SERVICECATALOG_TEMP**, with initial size of 30 MB and AUTOEXTEND ON.

Step 3 Create a database user named **CPSCUser**, with default tablespace set to SERVICECATALOG and temporary tablespace set to SERVICECATALOG_TEMP. **CPSCUser** should be granted QUOTA UNLIMITED on the SERVICECATALOG tablespace.

Step 4 Log in to the Oracle server as the "sys" user, and execute the following commands to grant the permissions to "CPSCUser":

```
GRANT
CREATE SESSION,
CREATE TABLE,
CREATE PROCEDURE,
CREATE SEQUENCE,
CREATE TRIGGER,
CREATE VIEW,
CREATE MATERIALIZED VIEW,
CREATE SYNONYM,
ALTER SESSION
TO CPSCUser;

GRANT EXECUTE ON DBMS_LOB TO CPSCUser;

COMMIT;
```

Step 5 The permissions listed above are required for the normal operation of the Service Catalog application. There are some special permissions needed for the application to monitor and automatically recover from long-running queries that may affect the performance of the product. If these additional permissions are not granted to "CPSCUser", the product will not fail; but the user may see an error message in the application server's log file that is similar to the following.

```
ERROR [com.newscale.bfw.udkernel.udsql.UdSqlBean] (ajp--0.0.0.0-8009-1)
COR-ID=-7123843321231324051::SQL Exception while getting open session:
java.sql.SQLSyntaxErrorException: [newscale][Oracle JDBC Driver][Oracle]ORA-00942: table
or view does not exist
```

(Optional) To grant these special permissions, log in to the Oracle server as the "sys" user, and execute the following commands:

```
GRANT ALTER SYSTEM TO CPSCUser;
GRANT SELECT ON v_$session TO CPSCUser;
GRANT SELECT ON v_$mystat to CPSCUser;
COMMIT;
```

Note As an additional validation, the installer verifies if the database user is granted the optional privileges and if not, a warning message shows up indicating the missing privileges. Click OK to continue without the optional privileges or click Cancel to exit the installation. Not having the optional privileges does not cause the application to fail but limits its functionality.

Configuring Oracle RAC 12C

If you want to perform database connection failover, you can use Oracle RAC 12C for your databases. For instructions to install Oracle RAC 12c, see Oracle documentation.

After you set up Oracle RAC , note down the cluster SCAN name and the service name. These parameters are required while configuring database during the Prime Service Catalog installation.

If you cannot use a DNS server or the DNS server is inaccessible on the Prime Service Catalog server, you must manually map the SCAN IP addresses to the SCAN name in the /etc/hosts file in that server. The following is an example of this mapping in the /etc/hosts file:

```
# SCAN Name to SCAN IP Mapping
<scan_ip-1>   <scan_name>
<scan_ip-2>   <scan_name>
<scan_ip-3>   <scan_name>
```

Where:

scan_ip-x is the SCAN IP address and *scan_name* is the SCAN name.

Configuring Microsoft SQL Server

If you choose to use Microsoft SQL Server for your databases, follow the instructions in this section to prepare the SQL Server, and to create the ServiceCatalog database.

Default Instance or Named Instance

The SQL Server can be set up as a Default Instance or a Named Instance. The port number for each instance must be unique per database host.

Mixed-Mode Authentication

The SQL Server must be configured to use mixed-mode authentication. This is because the Prime Service Catalog Installer needs to connect to the SQL Server as the "sa" user in order to create the Service Catalog schema.

Creating ServiceCatalog Database and Login User

For a new installation, you can prepare the ServiceCatalog database and login user as described in this section before executing the Service Catalog installer, or you can let the Service Catalog installer create the database and login user for you by selecting the "Create Database" option presented by the installation wizard. The "Create Database" option of the Service Catalog installer is described in more detail in the Installing Prime Service Catalog on JBoss EAP Application Server.

To create the ServiceCatalog database and login user:

Step 1 Create a database named **ServiceCatalog** in the SQL Server, with the following settings for the data file

- Initial size = 1 GB.
- Autogrowth = 500 MB, unlimited

Step 2 Set the collating sequence for the ServiceCatalog database to case-insensitive.

Step 3 Put the ServiceCatalog database in SINGLE-USER mode, and execute the following command:

ALTER DATABASE ServiceCatalog SET READ_COMMITTED_SNAPSHOT ON.

Step 4 Put the ServiceCatalog database back in MULTI-USER mode.

Step 5 Create a SQL Server Login named **CPSCUser**, with the Default Database property set to "ServiceCatalog".

Note CPSCUser must be a SQL Server login account that authenticates to the SQL Server using SQL Server authentication method, and not Windows authentication method.

Step 6 Ensure that the "Enforce Password Policy" option is unchecked in the Security setting properties for CPSCUser. Furthermore, the password for CPSCUser must contain only alphanumeric characters. For example, enter only letters and numbers for password. Do not enter any special characters like underlines, asterisks, brackets, and so on. Some combinations of these special characters may cause the installer to fail at product installation time with a "Database Connection Test failed" error message.

Step 7 Assign this CPSCUser to be the **db_owner** of the "ServiceCatalog" database. Verify your setting to ensure that:

- The user name "CPSCUser" in the ServiceCatalog database is mapped to the login name "CPSCUser" in the SQL Server
- The default schema is "dbo"
- The user name "CPSCUser" has the "db_owner" database role membership.

Step 8 There are some special permissions needed for the application to monitor and automatically recover from long-running queries that may affect the performance of the product. If these additional permissions are not granted to "CPSCUser", the product will not fail; but the user may see some error messages in the application server's log file that are similar to the following:

```
ERROR [com.newscale.bfw.udkernel.udsql.UdSqlBean]
(org.springframework.scheduling.quartz.SchedulerFactoryBean#0_Worker-3) SQL Exception
while getting open session: java.sql.SQLException: [newscale][SQLServer JDBC
Driver][SQLServer]The user does not have permission to perform this action.
Error: Error while validation policiesjava.lang.Exception: Connection SessionId could
not be obtained exiting policy check for service item subscription
```

(Optional) To grant these special permissions, log in to the SQL Server as the "sa" user, and execute the following commands:

```
EXEC sp_addsrvrolemember 'CPSCUser', 'sysadmin'
GRANT ALTER ANY CONNECTION TO CPSCUser
GO
```

Adding -T272 Property to SQL Server Database

When SQL Server is restarted, the requisition identity value jumps by 1000 after each restart of SQL Server. To resolve this issue, add the -T272 as the database property for the SQL Server database. This will force the identity column value to increment by 1 instead of 1000 each time the SQL Server is restarted.

Step 1 Open SQL Server Configuration Manager.

Step 2 Click on the **SQL Server Services** in the left pane.

Step 3 Right click on the SQL Server (MSSQLSERVER) to open the properties window.

Step 4 In the **Startup Parameters** tab, enter -T272 in the **Specify a startup parameter** filed and click **Add**.

Step 5 Click **OK** to close the properties window.

Step 6 For the changes to take effect, you must restart the SQL Server.

Setting Up JBoss EAP Application Server

Cisco Prime Service Catalog is not bundled with the JBoss-EAP-7.0 software distribution. You must separately obtain the licensed version of JBoss EAP Application Server software zip and place it in the same system where you wish to install Prime Service Catalog. The Cisco Prime Service Catalog installer will install and deploy only the Service Catalog applications.

The JBoss EAP application server can be configured only in a cluster setup. For setting up JBoss EAP application server in cluster for the failover scenarios, see Setting Up JBoss EAP Clustered Application Servers. The subsequent sections in this chapter describes various deployment topologies for JBoss EAP Application Servers.

The JMS service is configured in the JBoss EAP server where the Service Link component application resides.

Follow the instructions in the Preinstallation Configuration for JBoss EAP section of this chapter to prepare your machine. Then after you execute the Cisco Prime Service Catalog installer, follow the Postinstallation Configuration for JBoss EAP section of this chapter to verify your installation.

Preinstallation Tasks for JBoss EAP

This section contains instructions for preparing your computer, prior to installing Prime Service Catalog with JBoss EAP application server.

This release of Prime Service Catalog supports JBoss EAP Application Server on the following Operating Systems, web servers, and Java Development Kit:

Table 4-1 JBoss EAP Supported Operating System, Web Server, and Java

JBoss EAP Application Server	Operating System	Web Server	Java
JBoss-EAP-7.0	Red Hat Enterprise Linux Server 7.3 (64-bit)	Red Hat Http Server 2.4.6	Red Hat OpenJDK 8 (version 1.8.0_131 or higher 1.8.0_x)
JBoss-EAP-7.0	Windows Server 2012 R2 (64-bit)	Microsoft Internet Information Services (IIS) 8.5	Oracle JDK 8 Update 131 (or higher update)

Preinstallation Checklist

- Review the Installation Requirements to ensure that you have adequately addressed the minimum hardware and software requirements for running the system.
- Ensure that you have performed the database tasks described in the Configuring the Service Catalog Database, and completed the Database Information Worksheet.
- Ensure that you have performed the preinstallation tasks for your type of application server and completed the Application Server Information Worksheet in Appendix A, "Worksheets".
- The Cisco Prime Service Catalog installer requires Java 1.8. For the prerequisite details, see "Installing Java" section on page 4-3.
- If you are on a Windows Operating System, stop the IIS web server.
- Extract the electronic software distribution file that you downloaded from the Cisco web site to your computer, if you have not already done so. For more information, see Downloading Prime Service Catalog Software Image, page 4-5.
- Add the %JAVA_HOME%\bin (or $JAVA_HOME/bin if you are on Linux) to the beginning of the PATH environment variable on your machine, where %JAVA_HOME% points to the correct JDK directory.
- The Cisco Prime Service Catalog installer is a GUI program. On Linux Operating System, you will need a graphical display, such as X-window. The installer does not support console mode or CLI mode.
- During the installation, you will be asked to specify the destination directory for the software.

  On Windows, the default destination directory is "C:\CiscoPrimeServiceCatalog".

  On Linux, the default destination directory is "/opt/CiscoPrimeServiceCatalog". Ensure that there is at least 2 GB free disk space in the destination directory; otherwise, the installer will display the following error message:

  ```
  Not enough disk space.
  The installation requires 2048 MB of free disk space, but there are only 182 MB
  available at C:\CiscoPrimeServiceCatalog.
  Please free the required space to proceed with the installation.
  ```

- During installation, the installer requires an additional 2 GB of free disk space in the TMP directory, where it extracts some temporary files. The TMP directory is different for different Operating Systems and/or user profiles.

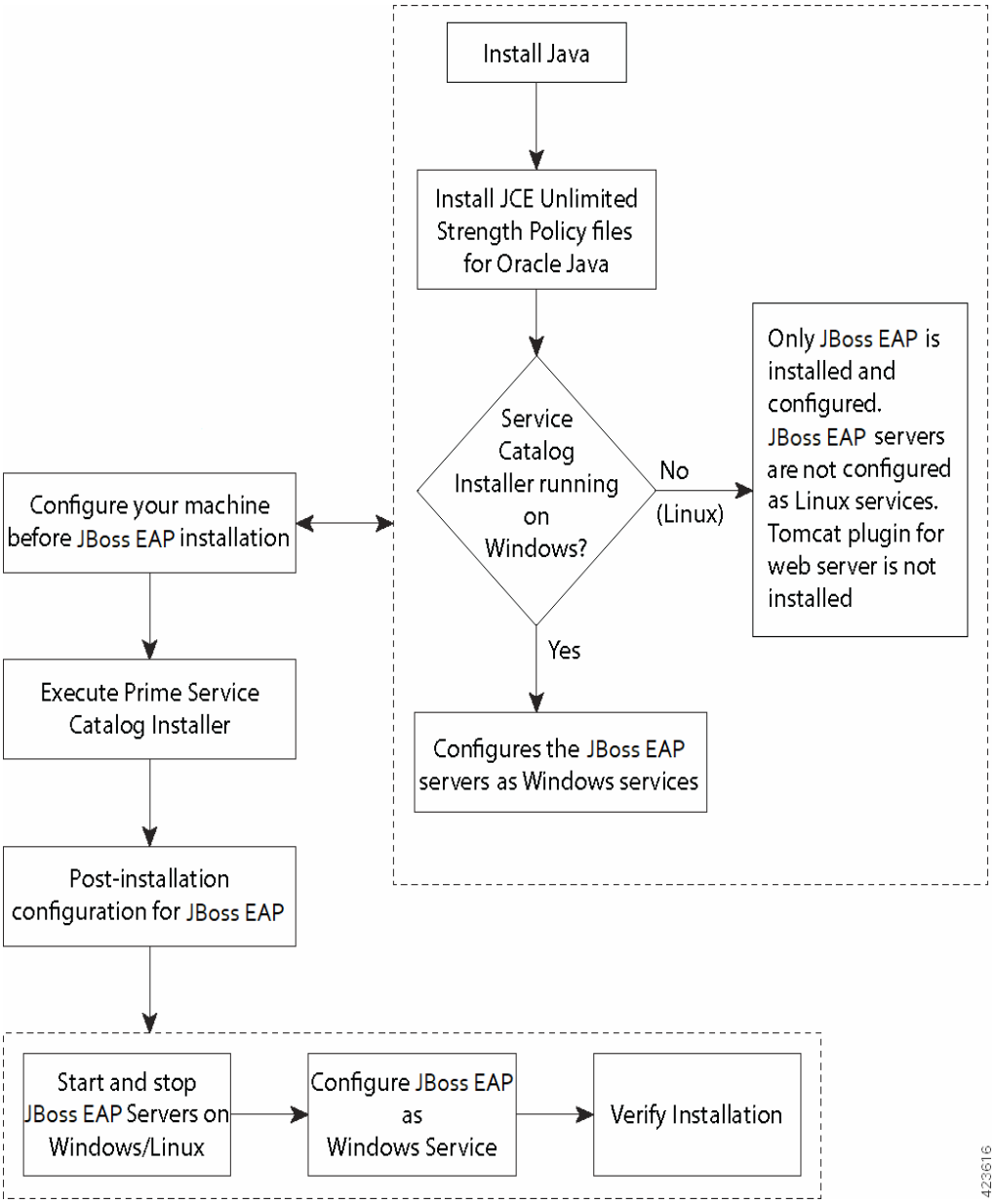
  On Windows, the TMP directory is the %TMP% or %TEMP% environment variable for the user profile.

  On Linux, the TMP directory is usually either /tmp or /var/tmp directory.
- Ensure that you size your application server machine based on defined parameters listed in section Minimum Hardware Requirements for Application Server Host, page 2-5.
- Ensure that JBOSS_HOME is not set as an environment variable in the system.

JBoss EAP Installation Flow

The following figure illustrates steps to install Prime Service Catalog on JBoss EAP Application Server.

Figure 4-1 Installation Flow for JBoss EAP Application Server



Installing Java

In this section, you will install JDK as a prerequisite, and prepare the environment variables on your computer.

Note If you are on Windows Server, you must install Oracle JDK as a prerequisite, plus the JCE Unlimited Strength Policy jar files. If you are on Red Hat Enterprise Linux Server, you must install Red Hat OpenJDK as a prerequisite. You don't need JCE Unlimited Strength Policy jars for Red Hat OpenJDK.

Oracle JDK

Step 1 Download Oracle JDK 8 Update 77 (or higher Update) from the Oracle website. Ensure that you download the correct version of JDK 8. Only Update 77 or later is supported.

Note The installer does not use the JAVA_HOME path that you enter in this screen to launch its own Java process, but uses the Java executable that it finds in the PATH environment variable of the Operating System. Ensure that Java path selected is JDK during installation and not the JRE.

Step 2 Copy the unlimited strength JCE policy files to the %JAVA_HOME%\jre\lib\security directory, overwriting the existing files. The unlimited strength policy files are "local_policy.jar" and "US_export_policy.jar", which can be downloaded from the following link:

http://www.oracle.com/technetwork/java/javase/downloads/jce8-download-2133166.html

Step 3 Add the <path_to_oracle_jdk_1.8_java_executable> to the PATH environment variable. You may have multiple Java installation on your machine. Make sure that the path to the Java executable for Oracle JDK 1.8.0_x is first in the PATH environment variable. This is what the Prime Service Catalog installer will use when it is first launched.

Note By default, after successful installation of JDK 1.8, the value *C:\ProgramData\Oracle\Java\javapath* is updated in the path variable (environment variables). You must remove this manually and add the appropriate installed java folder.
For example:
set JAVA_HOME=C:\jdk1.8.0_77
set PATH=%JAVA_HOME%\bin;%PATH%

Red Hat OpenJDK

Step 1 Install OpenJDK on your Red Hat Enterprise Linux Server by executing the "yum install java-1.8.0-openjdk-devel" command.

Note You must have Red Hat license and subscription in order to do "yum install".

Step 2 Add the <path_to_openjdk_1.8_java_executable> to the PATH environment variable. You may have multiple Java installation on your machine. Just make sure that the path to the Java executable for OpenJDK 1.8.0_x is first in the PATH environment variable. This is what the Prime Service Catalog installer will use when it is first launched.

For example:

- export JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.85-2.6.1.2.el7_1.x86_64
- export PATH=$JAVA_HOME/bin:$PATH

Preparing IIS Web Server

Before you run the Service Catalog installer, ensure that you prepare the IIS web server. However, IIS web server must be configured manually after installing Prime Service Catalog. For more information, see section Configuring Plugin for IIS Web Server, page B-8.

Downloading Prime Service Catalog Software Image

In this section, you will download the electronic software distribution for Prime Service Catalog.

Step 1 Access the Cisco product download web site and authenticate with the user name and password provided to you.

Step 2 Search by product name, or navigate within the product selector to locate the product you want to download. (Navigation: **Downloads Home > Products > Cloud and Systems Management > Service Catalog > Prime Service Catalog**).

Step 3 A list of different releases is displayed. Locate Prime Service Catalog 12.1.1 and click it.

Step 4 Click the Prime Service Catalog Software link. Then click the link for the appropriate operating system.

Step 5 Download file CPSC_12.1.1_win.zip for the Windows Operating System, or file CPSC_12.1.1_linux.tar.gz for the Linux Operating System.

Step 6 Extract the software image to a directory on your application server machine.

Note The CPSC_12.1.1_linux.tar.gz file must be untarred using a GNU-compatible tar utility. Older tar utilities may have problems unzipping tar files that contain filenames longer than 100 characters.

Installing Prime Service Catalog on JBoss EAP Application Server

After your JBoss EAP environment is prepared, proceed to configure JBoss EAP application server in clustered mode.

Setting Up JBoss EAP Clustered Application Servers

The Prime Service Catalog JBoss EAP cluster configuration comprises of Domain Controller, Service Link with JMS service, and Service Catalog. You can add up to six Service Catalog nodes that host the RequestCenter.war file.

The installer wizard provides the following options during installation:

- Domain Controller
- Service Link
- Service Catalog
- All Components

Prime Service Catalog supports two types of cluster topologies for JBoss EAP application server.

- **All Components Topology:**

  Choose **All Components** option in the installer to set up this topology. This requires minimum of two virtual machines: In this configuration, first virtual machine includes a Domain Controller, Host Controller 1 with Service Catalog, and Host Controller 1 Service Link. Second virtual machine includes only a Host Controller 2 with Service Catalog. You can add up to five nodes (Host 2, Host 3, Host 4, Host 5. and Host 6). For more information on setting this type of cluster, see Performing JBoss EAP Cluster Installation for All Components Topology.

- **Separate Component Topology**:

  Choose individual components from the installer one by one to set up this topology. This requires a minimum of four virtual machines: In this configuration, first virtual machine is for the Domain Controller, second virtual machines for the Service Link Component with JMS service, third virtual machine is for the host controller for the Host 1, and fourth virtual machine is for the host controller for the Host 2. For more information on setting this type of cluster, see Performing JBoss EAP Cluster Installation for Separate Component Topology.

Note After you initiate the installation of a particular topology type, you cannot modify the configurations at a later stage. You can only add new nodes for the host controllers.

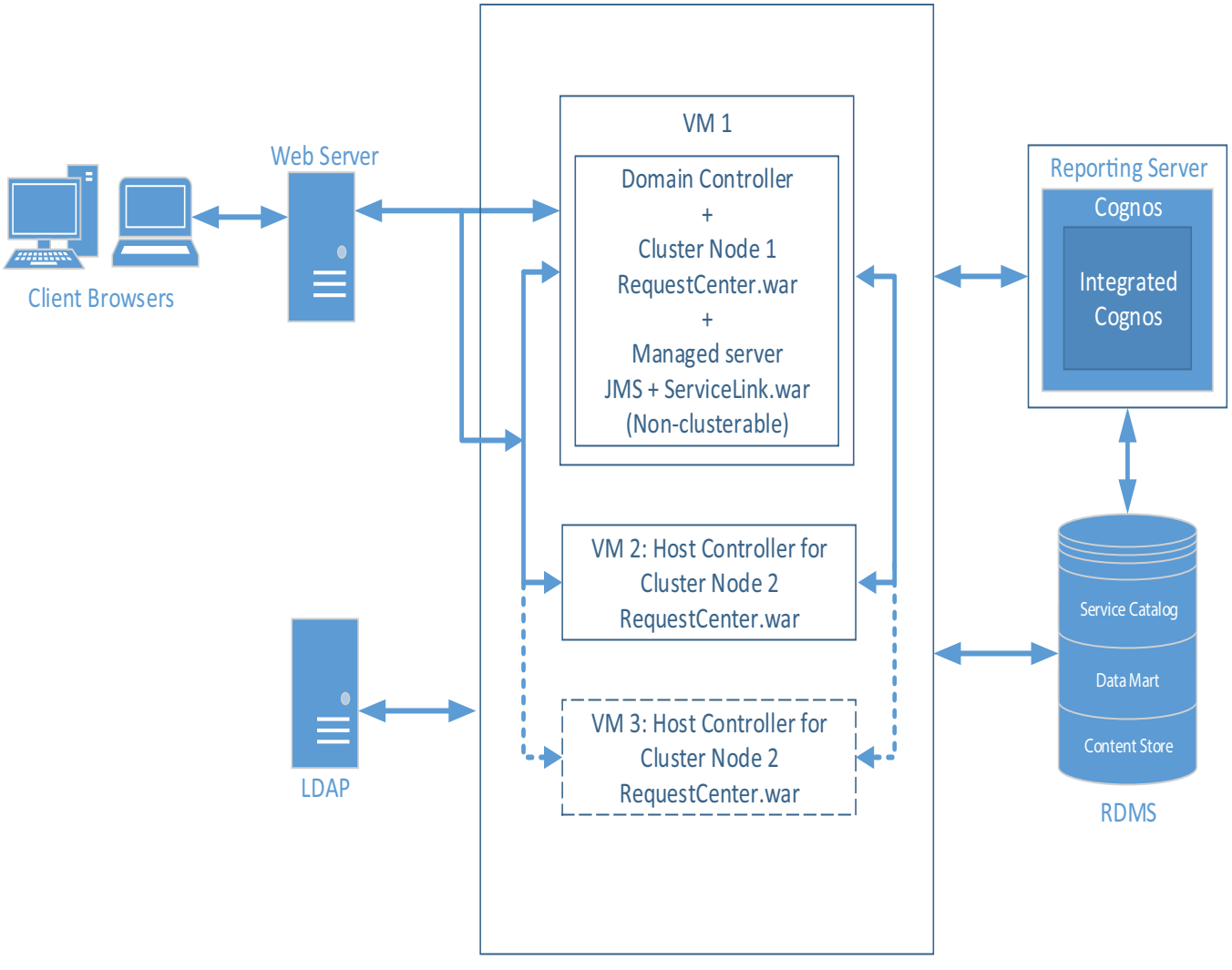
You can start with two nodes, and add more nodes (i.e. more hosts) to the cluster, if desired. The Prime Service Catalog Installer will support only up to 6th node for the cluster. To add a 7th node or more, please contact Cisco TAC for manual instructions.

Performing JBoss EAP Cluster Installation for All Components Topology

Note This is an overview procedure for setting up All Components topology and the detailed setup instructions are described in the subsequent sections. To complete the setup, you must perform all the steps described in this overview procedure.

In the All Components topology, Domain Controller, Host Controller for Host 1, Service Link application with JMS service are installed on the first virtual machine and Host Controller for Host 2 is installed on the second virtual machine. The All Components topology diagram is shown below.

Figure 4-2 All Components Topology



Before You Begin

Verify all the other preinstallation tasks are completed before proceeding with the installation. The preinstalltion tasks are summarized in Preinstallation Checklist, page 4-2.

Procedure

Step 1 Prepare the database server.

Make sure database server meets all the requirements. For more information, see Configuring the Service Catalog Database, and completed the Database Information Worksheet.

Step 2 Prepare the virtual machines.

Make sure both the virtual machines meet all the hardware and software requirements. For more information, see the Installation Requirements. Plan the requirements such that Host 1 and Host 2 can include the following components:

- Host 1: Domain Controller, Service Catalog, Service Link and JMS
- Host 2: Service Catalog

Step 3 Set up Host 1. For more information on how to set up the Host 1, see the instructions in Setting Up the Host 1 in All Components Topology procedure.

Step 4 Set up Host 2. For more information on how to set up the Host 2, see the instructions in Setting Up the Host 2 in All Components Topology procedure.

Step 5 Install the Web Server.

Install the Apache web server, and configure it to point to the Cluster JBoss EAP server group where RequestCenter.war was deployed. You must have a web server that acts as a load balancer on top of the cluster. All client connection to Service Catalog must go through the web server. Thus, the URL for Service Catalog will be

http://<web_server_host>:<web_server_port>/RequestCenter

You can install the web server on its own VM, or if you'd like, you can install it on any of the existing VM because it won't interfere with the configuration of the other components that you have already installed in the previous steps.

Note Prime Service Catalog Installer does not install or configure the web server. You have to install the web server on your own. For configuring the Apache web server as a common web server for Service Catalog and Service Link, see Setting Up Apache Web Server on JBoss EAP.

If you selected the "Configure Windows Service" option during the installation, stop all the JBoss EAP servers on VM1, VM2 and start them up again as windows services.

To stop the JBoss EAP servers on VM1 or VM2, open the Command Prompt window, where startServiceCatalogCluster.cmd is running, and press **Control-C** to stop the process and start the windows service called - **Cisco Prime Service Catalog Cluster**.

Step 6 (Optional) Add another node to the cluster.

If you want to add a third node to the cluster, repeat Step 4 for setting up Host 3. After setting up Host 3, modify the Plugin settings for the web server that you set up in Step 5, so that it is aware of the third cluster node.

Note You can execute the Prime Service Catalog Installer to add up to a 4th node to the cluster. If you want to add a 7th node or more, you need to contact Cisco TAC for manual instructions.

Setting Up the Host 1 in All Components Topology

Step 1 On the machine designated for Host 1, launch the web interface installation wizard:

- On Windows Operating System, log in as a user with administrator rights and double-click setup.cmd.
- On Linux Operating System, log in as the root user and execute./setup.sh from a graphical interface, such as X-window.

Step 2 When the Introduction panel appears, click **Next** to begin.

Step 3 In the **Choose Install Folder** panel, enter a directory path (or click the Choose button to select a directory) as the destination folder for Service Catalog, and click **Next**.

- On Windows, the default value for destination folder is ***C:\CiscoPrimeServiceCatalog***.
- On Linux, the default value is ***/opt/CiscoPrimeServiceCatalog***. The value for destination directory must not contain any space character.

Throughout this document, this destination folder is referred to as <*ServiceCatalog_Install_Dir*>.

This directory is also where the Service Catalog installer installs and the JBoss EAP Application Server software is configured.

Step 4 Browse and choose the JBoss EAP zip file for this installation.

Step 5 On the Gathering Setup Details panel, select **All components** radio button and click **Next**.

This option will install the Domain Controller, Service Catalog, Service Link and JMS on the Host 1.

Step 6 On the Database Selection panel, select a database platform (Microsoft SQL Server or Oracle) and click **Next**. The subsequent panels may look different depending on which database platform you select at this point. Refer to the Database Information Worksheet that you filled out in Appendix A to determine your database platform.

Step 7 On the Service Catalog Database Creation panel:

- If you have not created the database in advance, select **Yes**.

  By selecting **Yes**, you are telling the installer to create the database automatically for you. In the next panel, you will be prompted for the information that the installer will use to create the database user and database schema for Service Catalog. Refer to the Database Information Worksheet for the description of each field on this panel.

- If you have already created your database or if you want to upgrade to an existing database, then select **No.**

  In the next panel, you will be prompted for the information of the existing database user and database schema. Refer to the Database Information Worksheet for the description of each field on this panel.

Step 8 On the Service Catalog Database panel, enter the information for the Service Catalog database.

- If you selected **Yes** in Step 7, you will see a **Create Database** button on this panel, and the **Next** button is grayed out.

  Notice that you need to enter the password for either the "sys" user (for Oracle) or the "sa" user (for SQL Server) which the installer will use to connect to your database server. Once you enter the information on this panel, click the **Create Database**. If you get the message "*Service Catalog database created successfully*," click **OK** to close the message. The **Next** button is now enabled.

- If you selected **No** in Step 7, you just need to fill out the information for the existing Service Catalog database, and select the **Execute database scripts** check box.

Note The "Create Database" feature creates a very basic Service Catalog database that meets the minimum requirements for the Service Catalog application to operate. This feature is recommended for a Demo or Test system. For a Production system, contact your DBA in advance, to create the Service Catalog database which meets all of the product requirements as described in the Configuring Databases section, as well as any performance, reliability, and security requirements that adhere to your corporate policy.

Step 9 Click **Next** to continue. The installer connects to the database to validate the required settings for the database. If the installer created the database for you, then it would meet all of the required settings, and the validation test would pass. If you provided the information for an existing database, then the installer may report a validation error if any database setting is missing. See the Software Requirements for the database requirements. If a database validation error occurs, you can do the following:

- Close the error dialog and click **Cancel** to exit the installation wizard.
- Fix the missing database setting on a separate database connection session. Then come back to this screen, close the error dialog, and click **Next** again. At this point, the installer will repeat the validation test, and if the test passes, it will let you move to the next panel.

Step 10 In the Master Key Password panel, enter the master key password, if you selected **Yes** in step 8. Otherwise, enter the path to an existing KEK file that contains the Master Key Password for the existing database that you want to upgrade.

As part of the security requirement, a master key password must be provided that would be used to encrypt all the passwords that are available in the application. The password provided must match the password rules, as described on the panel.

The master key password is saved in two files, kek_new.txt and kek_old.txt, under the <ServiceCatalog_Install_Dir>/dist directory. The kek_new.txt and kek_old.txt files must be backed up and stored in a safe location. The application server cannot login to the ServiceCatalog database without the master key password files. If you lose these master key password files, please contact Cisco TAC for help.

Step 11 On Choose Java Virtual Machine panel, select the correct Java version for your platform. Click the **Search Another Location** button to navigate to the correct location of Java on your computer and click **Next.**

Note You must specify the location of Java for JBoss EAP because the installer will install the JBoss EAP Application Server software on your computer, and it will set the JAVA_HOME variable in the JBoss EAP configuration to use this particular Java.

Step 12 On the Service Catalog Configuration panel, enter the information for the JBoss EAP server (IP address of this machine, i.e, Host 1) where the Service Catalog application (i.e. RequestCenter.war) will be deployed and Service Link URL, that is, IP address of Host 1.

Refer to the Service Catalog Configuration Table for JBoss EAP for the description of each field on this panel. Click **Next**.

Step 13 On the Service Link Configuration panel, enter the information for the JBoss EAP server (IP address of this machine, i.e, Host 1) where Service Link application (i.e. ISEE.war) will be deployed. Refer to the Service Link Configuration Table for JBoss EAP for the description of each field on this panel. Click **Next**.

Step 14 On the Messaging Configuration panel, enter the information for the JMS Queue server and click **Next**. Refer to the Messaging Configuration Table for the description of each field on this panel.

Remember the Queue password value that you would fill in the Messaging Configuration panel, as you need to enter same password when you install the 2nd node on VM 2 later.

Step 15 On the Service Catalog Administration Configuration panel, enter the information for the SMTP server, and the password for the Site Administrator. Refer to the Service Catalog Administration Configuration Table for the description of each field on this panel. Click **Next**.

Step 16 Click **Install** in the Preinstallation Summary panel to begin installation.

The installer will display the progress bar. It may take up to 30 minutes for the installer to complete. Do not interrupt or abort the installer during this process.

Step 17 If the installation process completes successfully, the **Install Complete** panel appears. Click **Done** to exit the installation wizard.

Step 18 Start the Domain Controller and all managed servers on the Host 1.

Note

- For the first time after the installation, each JBoss EAP server must be started as an application by executing the start script provided by Cisco, as also described in this step. DO NOT use the windows service called Cisco Prime Service Catalog Cluster to start the server.
- This start script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service.

To start the cluster services for the first time on any of the nodes, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

```
cd <ServiceCatalog_Install_Dir>\bin
```

b. Execute the following command to start the Domain Controller, Service Catalog, and Service Link:

[For Windows]:

```
startServiceCatalogCluster.cmd
```

[For Linux]

```
startServiceCatalogCluster.sh
```

This command will automatically start a total of 4 JVM processes on the Host 1:

- The Domain Controller
- The Process Controller
- A managed server for Service Catalog. This managed server belongs to a cluster server group called “main-server-group”. (Note that for this configuration, there is no need to have a separate Host Controller server since the Domain Controller will also act as a Host Controller for the managed server.)
- A managed server for Service Link. This managed server belongs to another server group called “other-server-group”. JMS is configured on this server.

Step 19 Deploy RequestCenter.war and ISEE.war on Host 1. To start the cluster services for the first time on VM1, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

b. Execute the following command to the RequestCenter.war:

[For Windows]:

```
deployServiceCatalogCluster.cmd ALL
```

[For Linux]

```
deployServiceCatalogCluster.sh ALL
```

This command will push the RequestCenter.war to the cluster server group.

At this point, RequestCenter.war is deployed into a cluster server group called “main-server-group”. This cluster server group already contains one managed server. Thus, RequestCenter.war will be deployed immediately to the managed server for Service Catalog.

ISEE.war is deployed into a server group called “other-server-group”. This server group already contains one managed server. Thus, ISEE.war will be deployed immediately to the managed server for Service Link.

You can start and stop individual servers in a cluster. For information on the other start and stop scripts available with the installer for the JBoss EAP cluster environment, see JBoss EAP Scripts. To stop the domain controller and all the managed servers on Host 1, execute the **shutdownAllOnHC1** script to stop both the domain controller, process controller, and the managed server for Service Catalog and Service Link.

Next Step

Proceed to setting up the second node in the cluster. See Setting Up the Host 2 in All Components Topology.

Setting Up the Host 2 in All Components Topology

Step 1 On the machine designated for Host 2, launch the web interface installation wizard:

- On Windows Operating System, log in as a user with administrator rights and double-click setup.cmd.
- On Linux Operating System, log in as the root user and execute./setup.sh from a graphical interface, such as X-window.

Step 2 When the Introduction panel appears, click **Next** to begin.

Step 3 In the **Choose Install Folder** panel, enter a directory path (or click the Choose button to select a directory) as the destination folder for Service Catalog, and click **Next**.

- On Windows, the default value for destination folder is ***C:\CiscoPrimeServiceCatalog***.
- On Linux, the default value is ***/opt/CiscoPrimeServiceCatalog***. The value for destination directory must not contain any space character.

Throughout this document, this destination folder is referred to as <*ServiceCatalog_Install_Dir*>.

For JBoss EAP, this directory is also where the Service Catalog installer installs and configures the JBoss EAP Application Server software.

Step 4 Browse and choose the JBoss EAP licensed software zip file and click **Next**.

Step 5 On the Gathering Setup Data panel, select **Service Catalog** radio button and click **Next**.

Step 6 On the Host Controller Selection panel, select **Host2** radio button and click **Next.**

Note Host 1 is the first node where Domain Controller, Service Link were installed. Second machine is the Host 2 in this cluster topology, so it is important that you select Host 2 here.

Step 7 Enter the Domain Controller IP Address to establish connection to the first machine where domain controller is installed.

Step 8 On Choose Java Virtual Machine panel, select the correct Java JDK version for your platform. Click the **Search Another Location** button to navigate to the correct location of Java on your computer and click **Next.**

Note You must specify the location of Java for JBoss EAP because the installer will install the JBoss EAP Application Server software on your computer, and it will set the JAVA_HOME variable in the JBoss EAP configuration to use this particular Java.

Step 9 On the Service Catalog Configuration panel, enter the information for the JBoss EAP server (IP address of this machine, i.e, Host 2) where the Service Catalog application (i.e. RequestCenter.war) will be deployed and enter the Service Link URL, that is, IP Address of Host 1. Refer to the Service Catalog Configuration Table for JBoss EAP for the description of each field on this panel. Click **Next**.

Step 10 On the Messaging Configuration panel, enter the information for the JMS Queue server (IP address of VM1) and click **Next**. Refer to the Messaging Configuration Table for the description of each field on this panel.

In the Queue password field, enter the same password that you entered for "Queue password" during the installation of the Domain Controller on Host 1.

Step 11 Click **Install** in the Preinstallation Summary panel to begin installation.

The installer will display the progress bar. It may take up to 30 minutes for the installer to complete. Do not interrupt or abort the installer during this process.

Step 12 If the installation process completes successfully, the **Install Complete** panel appears. Click **Done** to exit the installation wizard.

Step 13 Start the Host Controller for Host 2.

Note

- For the first time after the installation, each JBoss EAP server must be started as an application by executing the start script provided by Cisco, as also described in this step. DO NOT use the windows service called Cisco Prime Service Catalog to start the server.
- This start script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service.

To start the cluster services for the first time on any of the nodes, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

```
cd <ServiceCatalog_Install_Dir>\bin
```

b. Execute the following command to start the Domain Controller, Service Catalog, and Service Link:

[For Windows]:

```
startServiceCatalogCluster.cmd
```

[For Linux]

```
startServiceCatalogCluster.sh
```

The Host Controller will in turn, automatically start the managed server that belongs to the server group “main-server-group”. Since RequestCenter.war was already deployed in the “main-server-group” on the Domain Controller, it will also be automatically deployed onto this managed server.

You can start and stop individual servers in a cluster. For information on the other start and stop scripts available with the installer for the JBoss EAP cluster environment, see JBoss EAP Scripts. To stop the host controller for VM2, execute the **`forceStopeAllOnHC`** script to stop both the process controller and the managed server for Service Catalog.

Next Step

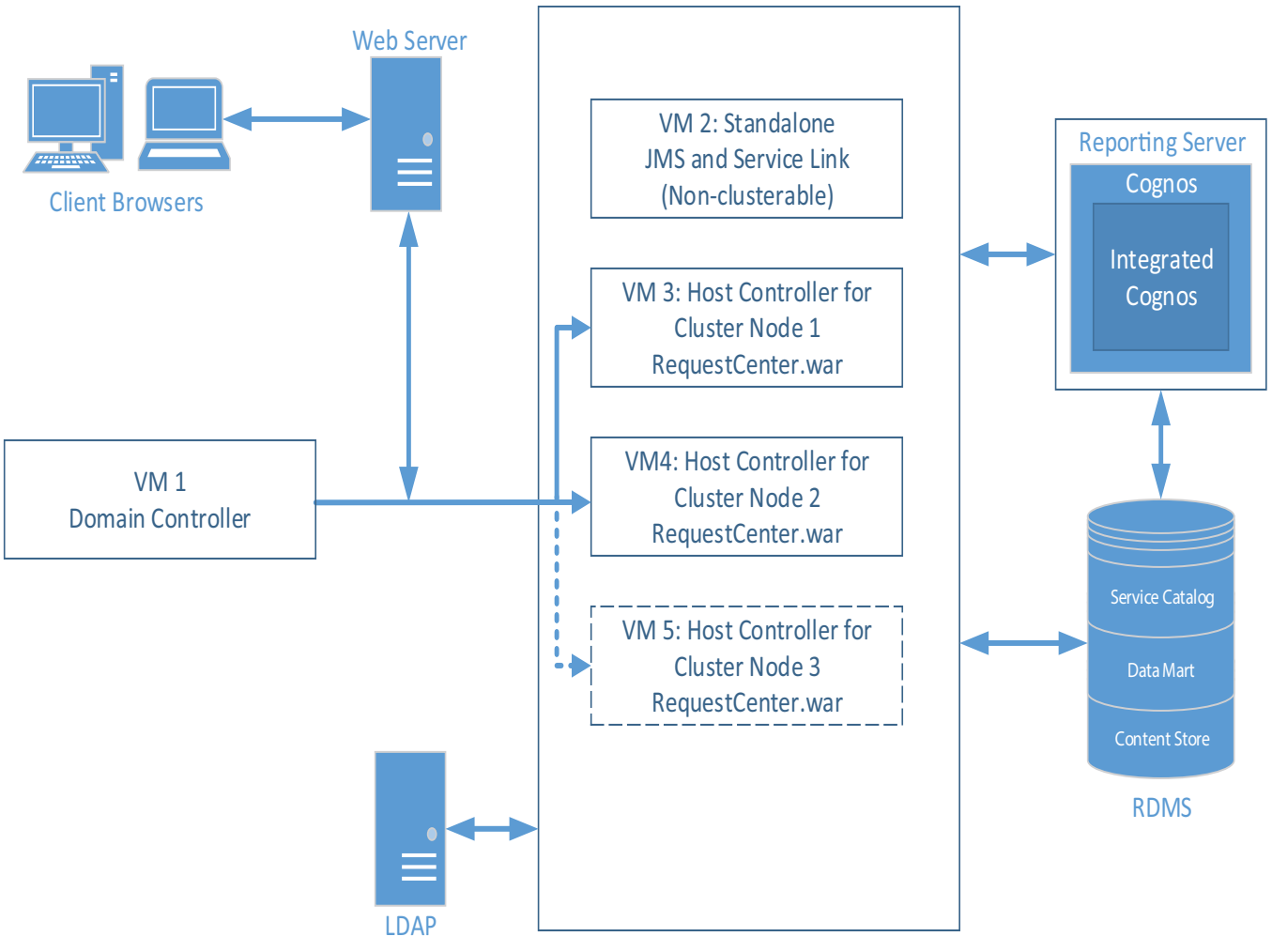
Set up web server. See Step 5 of Performing JBoss EAP Cluster Installation for All Components Topology.

Performing JBoss EAP Cluster Installation for Separate Component Topology

Note This is an overview procedure for setting up Separate Component topology and the detailed setup instructions are described in the subsequent sections. To complete the setup, you must perform all the steps described in this overview procedure.

In the Separate Component topology, Domain Controller, Host Controller for Host 1 and Host 2, Service Link application with JMS service are installed on separate virtual machines. The Separate Component topology diagram is shown below.

Figure 4-3 Separate Component Topology



Before You Begin

Verify all the other preinstallation tasks are completed before proceeding with the installation. The preinstalltion tasks are summarized in Preinstallation Checklist, page 4-2.

Procedure

Step 1 Prepare the database server.

Make sure database server meets all the requirements. For more information, see Configuring the Service Catalog Database, and completed the Database Information Worksheet.

Step 2 Prepare the virtual machines.

Make sure all the virtual machines meet all the hardware and software requirements. For more information, see the Installation Requirements. Plan the requirements such that following can be installed on each of the VMs:

- VM1:Domain Controller

- VM2: Service Link and JMS
- VM3: Host Controller 1 for Service Catalog
- VM4: Host Controller 2 for Service Catalog

Step 3 Set up VM 1 as Domain Controller. For more information on how to set up domain controller, see the instructions in Setting Up the Domain Controller Node (VM 1) in a Separate Component Topology.

Step 4 Set up VM 2 for Service link and JMS. For more information on how to set up Service Link and JMS node, see the instructions in Setting Up the Service Link and JMS Node (VM 2) in a Separate Component Topology.

Step 5 Set up VM3 as Host Controller 1 for Service Catalog. For more information on how to set up Host Controller 1 for cluster nodes, see the instructions in Setting Up Host Controller and Service Catalog For Cluster Nodes in a Separate Component Topology.

Step 6 Set up VM4 as Host Controller 2 for Service Catalog. For more information on how to set up Host Controller 2 for cluster nodes, see the instructions in Setting Up Host Controller and Service Catalog For Cluster Nodes in a Separate Component Topology.

Step 7 (Optional) Set up VM5 as Host Controller 2 for Service Catalog. For more information on how to set up Host Controller 2 for cluster nodes, see the instructions in Adding Subsequent Host Nodes Manually in JBoss Cluster.

Step 8 Install the Web Server.

Install the Apache web server, and configure it to point to the Cluster JBoss EAP server group where RequestCenter.war was deployed. You must have a web server that acts as a load balancer on top of the cluster. All client connection to Service Catalog must go through the web server. Thus, the URL for Service Catalog will be

http://<web_server_host>:<web_server_port>/RequestCenter

You can install the web server on its own VM, or if you'd like, you can install it on any of the existing VM because it won't interfere with the configuration of the other components that you have already installed in the previous steps.

Note Prime Service Catalog Installer does not install or configure the web server. You have to install the web server on your own. For configuring the Apache web server as a common web server for Service Catalog and Service Link, see Setting Up Apache Web Server on JBoss EAP.

If you selected the "Configure Windows Service" option during the installation, stop all the JBoss EAP servers on VM1, VM3, VM4 and start them up again as windows services.

To stop the JBoss EAP servers on these JBoss EAP servers, open the Command Prompt window, where startServiceCatalogCluster.cmd is running, and press **Control-C** to stop the process and start the windows service called - **Cisco Prime Service Catalog**

Step 9 (Optional) Add another node to the cluster.

If you want to add a third node to the cluster, repeat Step 5 for setting up Node 3. After setting up Node 3, modify the Plugin settings for the web server that you set up in Step 8, so that it is aware of the third cluster node.

Note You can execute the Prime Service Catalog Installer to add up to a 6th node to the cluster. If you want to add a 7th node or more, see section Adding Subsequent Host Nodes Manually in JBoss Cluster.

Next Step

Proceed to setting up the domain controller node on VM1. See Setting Up the Domain Controller Node (VM 1) in a Separate Component Topology.

Setting Up the Domain Controller Node (VM 1) in a Separate Component Topology

Step 1 On the machine designated for installing Domain Controller (in this case VM 1), launch the web interface installation wizard:

- On Windows Operating System, log in as a user with administrator rights and double-click setup.cmd.
- On Linux Operating System, log in as the root user and execute./setup.sh from a graphical interface, such as X-window.

Step 2 When the Introduction panel appears, click **Next** to begin.

Step 3 In the **Choose Install Folder** panel, enter a directory path (or click the Choose button to select a directory) as the destination folder for Service Catalog, and click **Next**.

- On Windows, the default value for destination folder is ***C:\CiscoPrimeServiceCatalog***.
- On Linux, the default value is ***/opt/CiscoPrimeServiceCatalog***. The value for destination directory must not contain any space character.

Throughout this document, this destination folder is referred to as <*ServiceCatalog_Install_Dir*>.

For JBoss EAP, this directory is also where the Service Catalog installer installs and configures the JBoss EAP Application Server software.

Step 4 Browese and select the JBoss EAP zip. and click **Next**.

Step 5 On the Node Type Selection panel, select the **Domain Controller Node** radio button and click **Next**. This option will install the Domain Controller on the VM 1.

Step 6 On the Database Selection panel, select a database platform (Microsoft SQL Server or Oracle) and click **Next**. The subsequent panels may look different depending on which database platform you select at this point. Refer to the Database Information Worksheet that you filled out in Appendix A to determine your database platform.

Step 7 On the Service Catalog Database Creation panel:

- If you have not created the database in advance, select **Yes**.

  By selecting **Yes**, you are telling the installer to create the database automatically for you. In the next panel, you will be prompted for the information that the installer will use to create the database user and database schema for Service Catalog. Refer to the Database Information Worksheet for the description of each field on this panel.

- If you have already created your database or if you want to upgrade to an existing database, then select **No.**

  In the next panel, you will be prompted for the information of the existing database user and database schema. Refer to the Database Information Worksheet for the description of each field on this panel.

Step 8 On the Service Catalog Database panel, enter the information for the Service Catalog database.

- If you selected **Yes** in Step 7, you will see a **Create Database** button on this panel, and the **Next** button is grayed out.

Notice that you need to enter the password for either the "sys" user (for Oracle) or the "sa" user (for SQL Server) which the installer will use to connect to your database server. Once you enter the information on this panel, click the **Create Database**. If you get the message "*Service Catalog database created successfully*," click **OK** to close the message. The **Next** button is now enabled.

- If you selected **No** in Step 7, you just need to fill out the information for the existing Service Catalog database, and select the **Execute database scripts** check box.

Note The "Create Database" feature creates a very basic Service Catalog database that meets the minimum requirements for the Service Catalog application to operate. This feature is recommended for a Demo or Test system. For a Production system, contact your DBA in advance, to create the Service Catalog database which meets all of the product requirements as described in the Configuring Databases section, as well as any performance, reliability, and security requirements that adhere to your corporate policy.

Step 9 Click **Next** to continue. The installer connects to the database to validate the required settings for the database. If the installer created the database for you, then it would meet all of the required settings, and the validation test would pass. If you provided the information for an existing database, then the installer may report a validation error if any database setting is missing. See the Software Requirements for the database requirements. If a database validation error occurs, you can do the following:

- Close the error dialog and click **Cancel** to exit the installation wizard.
- Fix the missing database setting on a separate database connection session. Then come back to this screen, close the error dialog, and click **Next** again. At this point, the installer will repeat the validation test, and if the test passes, it will let you move to the next panel.

Step 10 In the Master Key Password panel, enter the master key password, if you selected **Yes** in step 8. Otherwise, enter the path to an existing KEK file that contains the Master Key Password for the existing database that you want to upgrade.

As part of the security requirement, a master key password must be provided that would be used to encrypt all the passwords that are available in the application. The password provided must match the password rules, as described on the panel.

The master key password is saved in two files, kek_new.txt and kek_old.txt, under the <ServiceCatalog_Install_Dir>/dist directory. The kek_new.txt and kek_old.txt files must be backed up and stored in a safe location. The application server cannot login to the ServiceCatalog database without the master key password files. If you lose these master key password files, please contact Cisco TAC for help.

Step 11 On Choose Java Virtual Machine panel, select the correct Java version for your platform. Click the **Search Another Location** button to navigate to the correct location of Java on your computer and click **Next.**

Note You must specify the location of Java for JBoss EAP because the installer will install the JBoss EAP Application Server software on your computer, and it will set the JAVA_HOME variable in the JBoss EAP configuration to use this particular Java.

Step 12 On the Domain Controller Configuration panel, enter the information for the JBoss EAP server (IP address of this machine, i.e, VM 1) and Service Link URL (IP Address of VM2 where SL is planned to install). Refer to the Service Catalog Configuration Table for JBoss EAP for the description of each field on this panel. Click **Next**.

Step 13 On the Messaging Configuration panel, enter the information for the JMS Queue server (IP address of VM 2, where you will be installing Service Link next), and click **Next**. Refer to the Messaging Configuration Table for the description of each field on this panel.

Remember the Queue password value that you would fill in the Messaging Configuration panel, as you need to enter same password when you install the Service Link later on VM 2.

Step 14 On the Service Catalog Administration Configuration panel, enter the information for the SMTP server, and the password for the Site Administrator. Refer to the Service Catalog Administration Configuration Table for the description of each field on this panel. Click **Next**.

Step 15 Click **Install** in the Preinstallation Summary panel to begin installation.

The installer will display the progress bar. It may take up to 30 minutes for the installer to complete. Do not interrupt or abort the installer during this process.

Step 16 If the installation process completes successfully, the **Install Complete** panel appears. Click **Done** to exit the installation wizard.

Step 17 Start the Domain Controller and all managed servers on the Host 1.

Note

- For the first time after the installation, each JBoss EAP server must be started as an application by executing the start script provided by Cisco, as also described in this step. DO NOT use the windows service called Cisco Prime Service Catalog to start the server.
- This start script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service.

To start the start the domain controller on Host 1, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

```
cd <ServiceCatalog_Install_Dir>\bin
```

b. Execute the following command to start the Domain Controller, Service Catalog, and Service Link:

[For Windows]:

```
startServiceCatalogCluster.cmd
```

[For Linux]

```
startServiceCatalogCluster.sh
```

To stop the domain controller, execute the **`stopDomainController`** script. For information on the other scripts available with the installer for the cluster environment, see JBoss EAP Scripts.

Next Steps

- Keep the following handy:
  - IP Address of VM 1 where the Domain Controller was installed.
  - Queue password that was set in the Messaging Configuration panel.
  - Location of the licensed JBoss EAP software zip file downloaded on the VM.
- Proceed to setting up the Service Link and JMS node on VM2. See Setting Up the Service Link and JMS Node (VM 2) in a Separate Component Topology.

Setting Up the Service Link and JMS Node (VM 2) in a Separate Component Topology

Step 1 Install Service Link and JMS node on VM2. Launch the web interface installation wizard.

- On Windows Operating System, log in as a user with administrator rights and double-click setup.cmd.
- On Linux Operating System, log in as the root user and execute./setup.sh from a graphical interface, such as X-window.

Step 2 When the Introduction panel appears, click **Next**.

Step 3 In the **Choose Install Folder** panel, enter a directory path (or click the Choose button to select a directory) as the destination folder for Service Catalog, and click **Next**.

- On Windows, the default value for destination folder is ***C:\CiscoPrimeServiceCatalog***.
- On Linux, the default value is ***/opt/CiscoPrimeServiceCatalog***. The value for destination directory must not contain any space character.

Throughout this document, this destination folder is referred to as <*ServiceCatalog_Install_Dir*>.

Step 4 Browse and select the JBoss EAP zip file and click **Next**.

Step 5 On the Gathering Setup Details panel, select the **Service Link** radio button and click **Next**.

Step 6 Enter the Domain Controller IP address to establish connection to the VM1 where domain controller is installed.

Step 7 On Choose Java Virtual Machine panel, select the correct Java version for your platform. Click the **Search Another Location** button to navigate to the correct location of Java on your computer and click **Next.**

Note You must specify the location of Java for JBoss EAP because the installer will install the JBoss EAP Application Server software on your computer, and it will set the JAVA_HOME variable in the JBoss EAP configuration to use this particular Java.

Step 8 On the Service Link Configuration panel, enter the following information:

- Enter the IP address of this VM in the **Service Link Host IP Address** field.
- Enter a password in the **JBoss admin password** field.
- Re-enter the same password in the **Confirm password** field.
- If the **Configure as windows service** option is displayed on the screen, select it.

Step 9 On the Messaging Configuration panel, enter the information for the JMS Queue server (IP address of this VM) where the Service Link will be deployed, and click **Next**. Refer to the Messaging Configuration Table for the description of each field on this panel. See the note below for the queue password field.

Note For the Queue password value, use the same password that you entered for “Queue password” during the installation of the Domain Controller on VM 1.

Step 10 On the Service Catalog Administration Configuration panel, enter the information for the SMTP server, and the password for the Site Administrator. Refer to the Service Catalog Administration Configuration Table for the description of each field on this panel. Click **Next**.

Step 11 Click **Install** in the Preinstallation Summary panel to begin installation.

The installer will display the progress bar. It may take up to 30 minutes for the installer to complete. Do not interrupt or abort the installer during this process.

Step 12 If the installation process completes successfully, the **Install Complete** panel appears. Click **Done** to exit the installation wizard.

Step 13 Start the Service Link server on the VM 2. To start the Service Link and JMS services, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

```
cd <ServiceCatalog_Install_Dir>\bin
```

b. Execute the following command to start Service Link:

[For Windows]:

```
startServiceCatalogCluster.cmd
```

[For Linux]

```
startServiceCatalogCluster.sh
```

On the Windows operating system, you can also start or stop the Service Link server, by starting or stopping the following Windows service:

Cisco Prime Service Catalog Cluster

To stop the service link, execute the **`ForcestoponALLHC`** script. For information on the other scripts available with the installer for the cluster environment, see JBoss EAP Scripts.

Next Steps

- Keep the following handy:
  - IP Address of VM 1 where the Domain Controller was installed.
  - IP address of VM 2, where the Service Link server and JMS were installed.
  - Queue password that was entered during the installation of the Domain Controller on VM 1.
  - Location of the licensed JBoss EAP software zip file downloaded on the VM.
- Proceed to setting up the VM3 and VM4 as Host Controller 1 and Host Controller 2 respectively. See Setting Up Host Controller and Service Catalog For Cluster Nodes in a Separate Component Topology.

Setting Up Host Controller and Service Catalog For Cluster Nodes in a Separate Component Topology

Step 1 On the machine designated for Cluster Host 1, launch the web interface installation wizard:

- On Windows Operating System, log in as a user with administrator rights and double-click setup.cmd.
- On Linux Operating System, log in as the root user and execute./setup.sh from a graphical interface, such as X-window.

Step 2 When the Introduction panel appears, click **Next** to begin.

Step 3 In the **Choose Install Folder** panel, enter a directory path (or click the Choose button to select a directory) as the destination folder for Service Catalog, and click **Next**.

- On Windows, the default value for destination folder is ***C:\CiscoPrimeServiceCatalog***.

- On Linux, the default value is ***/opt/CiscoPrimeServiceCatalog***. The value for destination directory must not contain any space character.

Throughout this document, this destination folder is referred to as <*ServiceCatalog_Install_Dir*>.

Step 4 Browse and choose the JBoss EAP zip file and click **Next**.

Step 5 On the Node Type Selection panel, select **Host Controller Node** radio button and click **Next**.

Step 6 On the Host Controller Selection panel, do the following:

- Choose **Host1** radio button if this machine should be set up as the first node of the cluster.
- Choose **Host2** radio button if this machine should be set up as the second node of the cluster.

Note The Prime Service Catalog Installer will support only up to six nodes for the cluster. To add 7th node or more, please contact Cisco TAC.

Step 7 Enter the Domain Controller IP Address to establish connection to the first machine (VM 1) where domain controller is installed.

Step 8 On Choose Java Virtual Machine panel, select the correct Java version for your platform. Click the **Search Another Location** button to navigate to the correct location of Java on your computer and click **Next.**

Note You must specify the location of Java for JBoss EAP because the installer will install the JBoss EAP Application Server software on your computer, and it will set the JAVA_HOME variable in the JBoss EAP configuration to use this particular Java.

Step 9 On the Service Catalog Configuration panel, enter the following information, and click **Next**:

- Service Catalog Host IP address: IP address of this machine, i.e, of the Cluster Host 1.
- In the Service Link URL field, enter http://<*SL_Address*>:6080, where <*SL_Address*> is the IP address of VM 2, where the Service Link server resides.
- If the “Configure as windows service” option is displayed on the screen, select it.

Step 10 On the Messaging Configuration panel, enter the following information for the JMS Queue server, and click **Next**:

- Enter the IP address of VM 2 in the **Queue Host IP Address** field.
- In the **Queue password** field, enter the same password that you entered for **Queue password** during the installation of the Domain Controller on VM 1.

Refer to the Messaging Configuration Table for the description of each field on this panel.

Step 11 On the Service Catalog Administration Configuration panel, enter the information for the SMTP server, and the password for the Site Administrator. Refer to the Service Catalog Administration Configuration Table for the description of each field on this panel. Click **Next**.

Step 12 Click **Install** in the Preinstallation Summary panel to begin installation.

The installer will display the progress bar. It may take up to 30 minutes for the installer to complete. Do not interrupt or abort the installer during this process.

Step 13 If the installation process completes successfully, the **Install Complete** panel appears. Click **Done** to exit the installation wizard.

Step 14 Start the Host Controller for Cluster Host 1.

Note

- For the first time after the installation, each JBoss EAP server must be started as an application by executing the start script provided by Cisco, as also described in this step. DO NOT use the windows service called Cisco Prime Service Catalog to start the server.
- This start script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service.

To start the Host Controller, do the following:

a. Access the <*ServiceCatalog_Install_Dir*>\bin directory.

```
cd <ServiceCatalog_Install_Dir>\bin
```

b. Execute the following command to start the Domain Controller, Service Catalog, and Service Link:

[For Windows]:

```
startServiceCatalogCluster.cmd
```

[For Linux]

```
startServiceCatalogCluster.sh
```

The Host Controller will in turn, automatically start the managed server that belongs to the server group "main-server-group". Since RequestCenter.war was already deployed in the "main-server-group" on the Domain Controller, it will also be automatically deployed onto this managed server.

Step 15 Deploy RequestCenter.war. To deploy, do the following:

Note Ensure all nodes are up and running before you deploy RequestCenter.war.

a. Access the ServiceCatalog_Install_Dir\bin directory.

b. Execute the following command to the RequestCenter.war:

[For Windows]:

```
deployServiceCatalogCluster.cmd ALL
```

[For Linux]

```
deployServiceCatalogCluster.sh ALL
```

Step 16 Verify that you can connect to the following URL:

http://<VM3_or_VM4_IP_address>:8080/RequestCenter.

To stop the Host Controller and the Service Catalog server on both Host 1 and Host 2, execute the **forceStopAllOnHC** script. You can start and stop individual servers in a cluster. For information on the other start and stop scripts available with the installer for the JBoss EAP cluster environment, see JBoss EAP Scripts.

Next Steps

Set up web server. See Step 8 of Performing JBoss EAP Cluster Installation for Separate Component Topology.

Postinstallation Tasks for JBoss EAP

The Service Catalog installer installs and configures JBoss EAP for the Service Catalog and Service Link services on your computer, but it will not automatically start up the JBoss EAP service. This section contains instructions for starting and stopping the JBoss EAP services for Service Catalog and Service Link and other postinstallation tasks for cluster JBoss EAP setup.

Postinstallation Tasks for JBoss EAP Clustered Application Servers

The following section includes the postinstallation tasks for clustered application servers for JBoss EAP.

To start and stop individual servers in a cluster, see JBoss EAP Scripts for information on the scripts available with the installer for the JBoss EAP cluster environment.

Note For JBoss EAP cluster setup on Windows, keep the following in mind:

- For the first time after the installation, each JBoss EAP server must be started as an application by executing the start script provided by Cisco. This script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service. Before starting the servers as windows service, you need to stop the servers, if they are already running with the help of the scripts provided by Cisco.
- When a JBoss EAP server is started using the script provided by Cisco, the server runs in the foreground instead of background. As a result, if a user accidentally logs off from the machine where the JBoss EAP server is running, the JBoss EAP server process will be terminated.
- Because you start the JBoss EAP servers using command scripts, if you log out of the Windows Operating System, the JBoss EAP servers will be automatically killed when your login session is ended. So make sure that you don't log off the session where the JBoss EAP servers are running. Follow the instructions in the section Configure JBoss EAP as Windows Service if you want to configure the JBoss EAP servers as windows services after the installation. When the JBoss EAP servers are running as windows services, they will not be killed when you log out of Windows Operating System.

Configure JBoss EAP as Windows Service

Perform the following steps to configure JBoss EAP as Windows service:

Step 1 It is assumed that your installation directory is "C:\CiscoPrimeServiceCatalog". Open a Command Prompt window, and navigate to the "C:\CiscoPrimeServiceCatalog\bin" directory. Execute the script "installProcessControllerClusterService.cmd" to configure the JBoss EAP server for Cluster Service as a Windows service. The service will be named "Cisco Prime Service Catalog Cluster".

Step 2 To remove the Windows services: First you need to manually stop the "Cisco Prime Service Catalog Cluster" and execute the script "uninstallServiceCatalogService.cmd".

Setting Up Apache Web Server on JBoss EAP

This section describes how to configure the httpd.conf file as a proxy server for the Service Catalog and Service Link servers. This procedure uses the "mod_proxy" that comes with the installation of Apache (or Httpd) web server.

Procedure

Step 1 Stop the Apache web server:

```
service httpd stop
```

Step 2 Replace the IP addresses in the httpd.conf file to the corresponding servers in your environment.

In the example below, replace the IP addresses in the httpd.conf, with the actual IP addresses of the following servers:

Web server's IP address = 10.78.0.100

Service Link's IP address = 10.78.0.200

Host 1 of Service Catalog's IP address = 10.78.0.300

Host 1 of Service Catalog's IP address = 10.78.0.400

```
ServerName 10.78.0.100

ServerRoot "/etc/httpd" Listen 80

Include conf.modules.d/*.conf
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so LoadModule
proxy_ftp_module modules/mod_proxy_ftp.so LoadModule proxy_http_module
modules/mod_proxy_http.so LoadModule proxy_fcgi_module modules/mod_proxy_fcgi.so
LoadModule proxy_scgi_module modules/mod_proxy_scgi.so
LoadModule proxy_wstunnel_module modules/mod_proxy_wstunnel.so LoadModule
proxy_ajp_module modules/mod_proxy_ajp.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so LoadModule
proxy_express_module modules/mod_proxy_express.so

User apache Group apache
ServerAdmin root@localhost

<Directory /> AllowOverride none Require all denied
</Directory>

DocumentRoot "/var/www/html"

#
# Relax access to content within /var/www.
#
<Directory "/var/www"> AllowOverride None
# Allow open access: Require all granted
</Directory>

# Further relax access to the default document root:
<Directory "/var/www/html"> Options Indexes FollowSymLinks AllowOverride None
Require all granted
</Directory>

<IfModule dir_module> DirectoryIndex index.html
</IfModule>
```

```
<Files ".ht*"> Require all denied
</Files>

ErrorLog "logs/error_log" LogLevel warn

<IfModule log_config_module>
LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\"" combined
LogFormat "%h %l %u %t \"%r\" %>s %b" common

<IfModule logio_module>
# You need to enable mod_logio.c to use %I and %O
LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" %I %O"
combinedio
</IfModule>
CustomLog "logs/access_log" combined
</IfModule>

<IfModule alias_module>
ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"
</IfModule>

<Directory "/var/www/cgi-bin"> AllowOverride None Options None
Require all granted
</Directory>

<IfModule mime_module> TypesConfig /etc/mime.types AddType application/x-compress .Z
AddType application/x-gzip .gz .tgz
AddType text/html .shtml AddOutputFilter INCLUDES .shtml
</IfModule> AddDefaultCharset UTF-8
<IfModule mime_magic_module> MIMEMagicFile conf/magic
</IfModule> EnableSendfile on
IncludeOptional conf.d/*.conf

<VirtualHost *:80>

ServerName 10.78.0.100
ProxyRequests Off
ProxyPreserveHost On
ProxyTimeout 1200
LimitRequestFieldSize 65536
ProxyIOBufferSize 65536

<Location /balancer-manager>
SetHandler balancer-manager
Order allow,deny
Allow from all
</Location>

Header add Set-Cookie "ROUTEID=.%{BALANCER_WORKER_ROUTE}e; path=/"
env=BALANCER_ROUTE_CHANGED

<Proxy balancer://mycluster>
BalancerMember http://10.78.0.300:8080 route=1
BalancerMember http://10.78.0.400:8080 route=2
ProxySet stickysession=ROUTEID
</Proxy>

ProxyPass / balancer://mycluster/
ProxyPassReverse / balancer://mycluster/

</VirtualHost>
```

Step 3 To connect the server to a specific port (for ex:8080), run the below command:

```
semanage port -?a -?t http_port_t -?p tcp 8080
```

Step 4 To allow the server to access the different IP's and ports defined in the load balancer settings, execute the below command:

```
setsebool -?P httpd_can_network_connect 1
```

Step 5 Start the Apache web server, using the below command:

```
service httpd start
```

Enabling SSL on Apache Web Server and IIS Server

If you need Prime Service Catalog to be accessed securely, configure the existing virtual host for SSL on Apache web server as described below.

In the *domain.xml file*, modify scheme value to "https" for both RC and service link nodes.

Note The scheme value must be modified at both places in the domain.xml file to enable SSL.

Example:

"<ajp-listener name="ajp" socket-binding="ajp" scheme="https" max-ajp-packet-size=65536/>"

Applying Patch or Customizations on Windows Platform

- For All Components Setup Cluster Topology
- For Separate Component Cluster Topology

For All Components Setup Cluster Topology

Perform the following steps on a All Components Setup to apply a patch or customizations.

Step 1 Perform the following steps on the Domain Controller.

a. Login to Prime Service Catalog component (Ensure that the systems are up and running).

b. Execute the `./pre-customizationOnDC.sh` script from the location */opt/cisco/psc/bin* with arguments - ['ALL'/'RC'/'SL] based on your requirements. To customize both RC and SL or either of the two use the below scripts:

- `./pre-customization.cmd ALL` or
- `./pre-customization.cmd RC` or
- `./pre-customization.cmd SL`

Unzipped version of RequestCenter.war and/or ISEE.war is now placed at *SC_Install_Dir/tmp* folder.

c. Manually customize the files in the *SC_Install_Dir/tmp* folder as needed.

d. Execute the script `./post-customizationOnDC.cmd` from *SC_Install_Dir/tmp*.

Note Wait for server to start up fully on DC.

e. Run the following scripts one after the other:
   - Undeploy script and wait till the process is complete.
   - Deploy script and wait till the process is complete.
   - script `./killalljava.cmd`

Step 2 Run the apply-customization script on the Host Controller.

Note Ensure that the server is up and running before you run the script.

- for RC `./apply-customizationOnRC.bat`

Step 3 Start the servers on Domain Controller and Host controllers one after the other. You should see the "Deployed RequestCenter.war" message in the server log of both DC and HC.

For Separate Component Cluster Topology

Perform the following steps on a Separate Component to apply a patch or customizations.

Step 1 Perform the following steps on the Domain Controller.

a. Login to Prime Service Catalog component.

b. Execute the `./pre-customizationOnDC.sh` script from the location */opt/cisco/psc/bin* with arguments - ['ALL'/'RC'/'SL] based on your requirements. To customize both RC and SL or either of the two use the below scripts:
   - `./pre-customization.cmd ALL` or
   - `./pre-customization.cmd RC` or
   - `./pre-customization.cmd SL`

   Unzipped version of RequestCenter.war and/or ISEE.war is now placed at */opt/cisco/psc/tmp* folder.

c. Manually customize the files in the */opt/cisco/psc/tmp* folder as needed.

d. Execute the script `./post-customizationOnDC.cmd` from */opt/cisco/psc/bin*.

Note Wait for server to start up fully on DC.

e. Run the following scripts one after the other:
   - Undeploy script and wait till the process is complete.
   - Deploy script and wait till the process is complete.
   - script `./killalljava.cmd`

Step 2 Run the following script on RC Host Controller and SL Host Controller.

Note Ensure that the server is up and running before you run the apply-customization script.

- `./apply-customizationRC.bat`
- `./apply-customizationSL.bat`

Step 3 Start the servers on Domain Controller and Host controllers one after the other, in the sequence: Domain Controller > Service Link > Request Center.

Applying Patch or Customizations on Linux Platform

For All Components Setup Cluster Topology

Perform the following steps on a All Components Setup for applying a patch or any customizations.

Note This procedure is based on the assumption that all servers are still running on both VM1 and VM2 for All Components topology.

Step 1 Login to VM1 and access the <ServiceCatalog_Install_Dir>\bin directory.

Step 2 Undeploy the .war file:

a. Remove the RequestCenter.war and ISEE.war from all the host controllers, by executing the following command:

```
undeployServiceCatalogCluster.cmd ALL
```

b. If you want to undeploy just RequestCenter.war, then execute the following command:

```
undeployServiceCatalogCluster.cmd RC
```

c. if you want to undeploy just ISEE.war, then execute the following command:

```
undeployServiceCatalogCluster.cmd SL
```

Step 3 Shutdown all the servers by executing the following commands on VM1:

```
shutdownAllOnHC2.cmd
shutdownAllOnHC1.cmd
```

Step 4 Backup the original dist/RequestCenter.war and dist/ISEE.war, if you plan to change it. To do so, execute the following command:

```
md temp_dir\RequestCenter.war
md temp_dir\ISEE.war
```

Step 5 Extract the appropriate WAR file(s) that you want to customize:

a. Extract the original dist/RequestCenter.war to a temporary directory, such as /temp/RequestCenter.war by executing the following command:

```
cd temp_dir\RequestCenter.war
jar xvf <ServiceCatalog_Install_Dir>\dist\RequestCenter.war > nul
```

b. Extract the original dist/ISEE.war to a temporary directory, such as /temp/ISEE.war

```
cd temp_dir\RequestCenter.war
jar xvf <ServiceCatalog_Install_Dir>\dist\ISEE.war > nul
```

Step 6 Apply the customizations:

a. Apply the customizations by modifying or overwriting the files in the /temp_dir/RequestCenter.war directory.

b. Apply the customization by modifying or overwriting the files in the /temp_dir/ISEE.war directory.

Step 7 Zip up the RequestCenter.war file and ISEE.war file:

a. To zip up the /temp_dir/RequestCenter.war directory into a RequestCenter.war file, execute the following commands:

```
cd temp_dir\RequestCenter.war
jar -cvf RequestCenter.war.\META-INF\MANIFEST.MF *
```

A compressed version of RequestCenter.war is created in temp_dir\RequestCenter.war.

b. To zip up the /temp_dir/ISEE.war directory into a ISEE.war file, execute the following commands:

```
cd temp_dir\ISEE.war
jar -cvf ISEE.war.\META-INF\MANIFEST.MF *
```

A compressed version of ISEE.war is created in temp_dir\ ISEE.war.

Step 8 Overwrite the new versions of the war files in the "dist" directory:

a. Copy the new version of RequestCenter.war into the <ServiceCatalog_Install_Dir>\dist directory, overwriting the existing file.

b. Copy the new version of ISEE.war into the <ServiceCatalog_Install_Dir>\dist directory, overwriting the existing file.

Step 9 Delete the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/content directory on VM1.

Step 10 Remove the domain/servers/<servername>/tmp/* on VM1:

a. Delete everything under <ServiceCatalog_Install_Dir>/jboss-eap-7.0/domain/servers/server-host1-RC/tmp directory.

b. Delete everything under <ServiceCatalog_Install_Dir>/jboss-eap-7.0/domain/servers/server-host1-SL/tmp directory.

Step 11 Start the servers on VM1. To do this execute the following commands on VM1.

```
startServiceCatalogCluster.cmd
```

Step 12 Deploy the latest war files on VM1:

- To deploy the latest version of RequestCenter.war followed by ISEE.war, execute the following command:

```
deployServiceCatalogCluster.cmd ALL
```

- To deploy just RequestCenter.war, execute the following command:

```
deployServiceCatalogCluster RC
```

- To deploy just ISEE.war, execute the following command:

```
deployServiceCatalogCluster SL
```

Step 13 On VM2, do the following:

a. Copy the new version of RequestCenter.war on VM1 into the <ServiceCatalog_Install_Dir>\dist directory on VM2, overwriting the existing file on VM2.

b. Login to VM2.

c. Delete the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/content directory on VM2.

d. Delete everything under the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/domain/servers/server-host2-RC/tmp directory.

e. Start all the servers on VM2 by executing the following command:

```
startServiceCatalogCluster.cmd
```

This script will automatically recreate the missing <ServiceCatalog_Install_Dircontent/content/RequestCenter.war directory on this VM.

Note After applying the patch, each JBoss EAP server must be started as an application by executing the start script provided by Cisco. This script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service. Before starting the servers as windows service, you need to stop the servers, if they are already running with the help of the scripts provided by Cisco.

For Separate Component Cluster Topology

Perform the following steps on a Separate Component topology for applying a patch or any customizations.

Note This procedure is based on the assumption that all servers are still running on both VM1, VM3, and VM4 for a Separate Component topology.

Step 1 Login to VM1 and access the <ServiceCatalog_Install_Dir>\bin directory.

Step 2 Remove the RequestCenter.war from all the Host Controllers by executing the following command on VM1:

```
undeployServiceCatalogCluster.cmd RC
```

Step 3 Stop all the servers on VM3 by executing the following command on VM1:

```
shutdownAllOnHC1.cmd
```

Step 4 Stop all the servers on VM4 by executing the following command on VM1:

```
shutdownAllOnHC2.cmd
```

Step 5 Backup the original dist/RequestCenter.war file.To do so, execute the following command:

```
md temp_dir\RequestCenter.war
```

Step 6 Extract the original dist/RequestCenter.war to a temporary directory, such as /temp/RequestCenter.war. To do so, execute the following command:

```
cd temp_dir\RequestCenter.war
jar xvf <ServiceCatalog_Install_Dir>\dist\RequestCenter.war > nul
```

Step 7 On VM1, apply the customizations by modifying or overwriting the files in the /temp_dir/RequestCenter.war directory.

Step 8 Zip up the /temp_dir/RequestCenter.war directory into a RequestCenter.war file as follows:

```
cd temp_dir\RequestCenter.war
jar -cvf RequestCenter.war.\META-INF\MANIFEST.MF *
```

A compressed version of RequestCenter.war is created in temp_dir\RequestCenter.war.

Step 9 Copy the new version of RequestCenter.war into the <ServiceCatalog_Install_Dir>\dist directory, overwriting the existing file.

Step 10 On VM1, deploy the latest version of RequestCenter.war in all host controllers. To do this execute the following commands on VM1.

```
deployServiceCatalogCluster.cmd RC
```

Step 11 On VM2 (Service Link Server), apply the customization in the ISEE.war directory by doing the following:

a. Login to VM2.

b. Stop the Service Link Server by executing the following command:

```
stopServiceLink.cmd
```

c. Backup <ServiceCatalog_Install_Dir>/jboss-eap-7.0/ServiceLinkServer/deployments/ISEE.war directory to a temporary directory. To do so, execute the following command:

```
md temp_dir\ISEE.war
cd temp_dir\ISEE.war
jar xvf <ServiceCatalog_Install_Dir>\ServiceLinkServer\deployments\ISEE.war > nul
```

d. Apply the customization directly in the <ServiceCatalog_Install_Dir>\ServiceLinkServer\deployments\ISEE.war directory.

e. Delete everything under the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/ServiceLinkServer/tmp directory.

f. Start the Service Link server by executing the following command:

```
startServiceLink.cmd
```

Step 12 Copy new version of RequestCenter.war from <ServiceCatalog_Install_Dir>\dist directory on VM 1 to the <ServiceCatalog_Install_Dir>\dist directory, overwriting the existing file on VM3 and VM4.

Step 13 Log in to VM3.

Step 14 Delete the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/content directory.

Step 15 Delete everything under the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/domain/servers/server-host1-RC/tmp directory.

Step 16 Start all the servers on VM3 by executing the following script:

```
startServiceCatalogCluster.cmd
```

Step 17 Log in to VM4.

Step 18 Delete the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/content directory.

Step 19 Delete everything under the <ServiceCatalog_Install_Dir>/jboss-eap-7.0/domain/servers/server-host2-RC/tmp directory.

Step 20 Start all the servers on VM3 by executing the following script:

```
startServiceCatalogCluster.cmd
```

This script will automatically recreate the missing <ServiceCatalog_Install_Dir/content/*.war directory on both VM3 and VM4.

Note After applying the patch, each JBoss EAP server must be started as an application by executing the start script provided by Cisco. This script will create the content folder and generate necessary files in the installation directory. After this is done, then from the next time you can directly start the servers as windows service. Before starting the servers as windows service, you need to stop the servers, if they are already running with the help of the scripts provided by Cisco.

When both Request Center and Service Link applications are deployed, they are in preparation state, they must be moved to Active state by starting them in following order:

First start Service Link. Only after Service Link is in the Active state, start RequestCenter. Make sure it is in active state before you try verifying the installation.

Verifying Your Installation

Verify your installation by performing the following tasks:

Step 1 Open a browser, and connect to the following URL: http://<hostname>:<port>/RequestCenter where

<hostname> = The fully qualified domain hostname or the IP address of the computer where you installed the JBoss EAP server for Service Catalog.

<port> =The HTTP Port number assigned to the JBoss EAP server for Service Catalog. The default value for HTTP Port number is 8080.

Step 2 Log in as the Site Administrator. For a new installation of Service Catalog, the username for the Site Administrator is "admin" and the password is the value you entered on the Service Catalog Administration Configuration panel of the installation wizard.

Step 3 Navigate to the Service Link module.

Step 4 On the left hand side of the panel, under Service Link Status, verify that the connection has a green status.

You have completed the installation for Cisco Prime Service Catalog on JBoss EAP.

CHAPTER 5

Installing and Upgrading Reporting Module

This chapter describes how to install the Reporting module, and to use the various installer utilities developed by Cisco to install the Cognos software components and integrate them with the Cisco Prime Service Catalog application.

Cognos environment is comprised of an application server and a database server.

- An application server is the computer where you install the IBM Cognos software, and execute the configuration scripts to integrate Cognos with the Cisco Prime Service Catalog application.
- A database server is the computer where the Data Mart and Content Store databases reside.

The following sections describe the prerequisites for the Cognos application server and database server.

Prerequisites for Installing Reporting

Cognos Application Server Requirements

Operating Systems

- IBM Cognos software must be installed on a computer that runs Windows Server 2012 R2 (64-bit) operating system.
- It is recommended but not required that the Cognos application server is a separate computer from the Cisco Prime Service Catalog application. However, if the Cisco Prime Service Catalog application is running on a Linux computer, then the Cognos application server must be a separate machine with the Windows operating system.

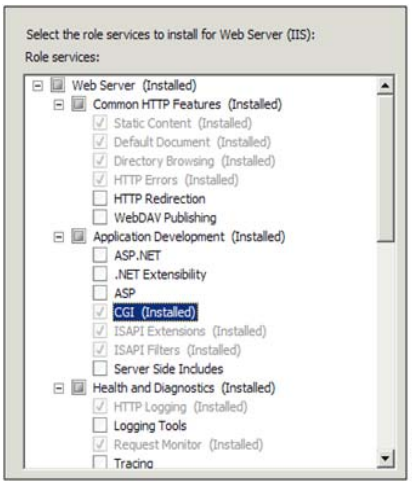
Memory and Disk Space

- The application server must have at least 8 GB RAM and 50 GB of free disk space.
- There must be at least 2 GB of free disk space on the drive that contains the %TEMP% directory, if this is different from the drive when you plan to install the Cognos software.

Internet Information Services (IIS)

- The “Web Server (IIS)” role must be installed on the Cognos application server.
- The “World Wide Web Publishing Service” is configured to start up automatically.
- IIS must have a site named “Default Web Site”.
- The following role services must be enabled for IIS:
  - CGI
  - ISAPI Extensions
  - ISAPI Filters

Figure 5-1 Select Role Services for Web Server



Internet Explorer

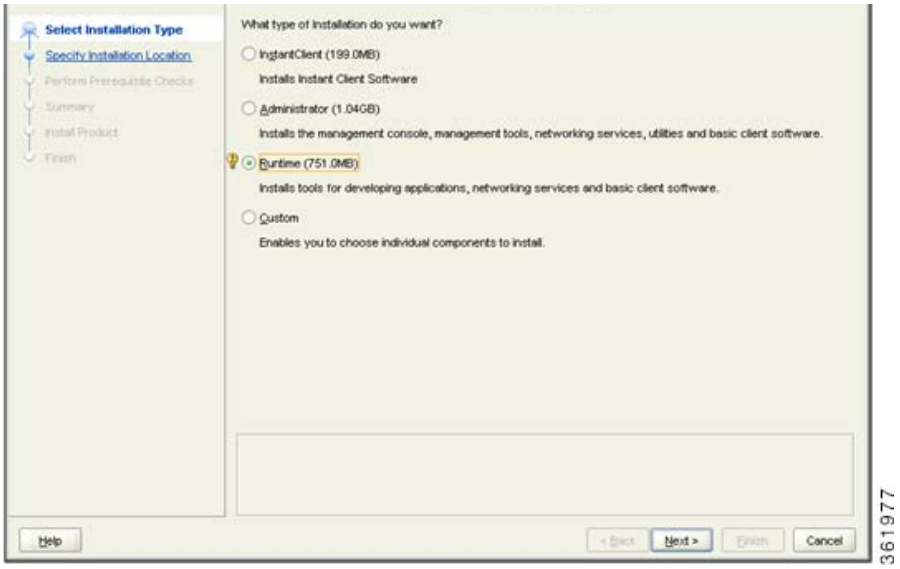
- Microsoft Internet Explorer (IE) version 11 and FireFox 49.0.2.xesr (or later) are supported. Use IE11, FireFox 49.0.x esr browser when accessing the Cognos UI or the “Advanced Reporting” module inside of the Cisco Prime Service Catalog.
- The following browser settings must be enabled:
  - Accept third-party cookies
  - JavaScript
  - Run ActiveX controls and plug-ins
  - Script ActiveX controls marked safe for scripting
  - Active scripting
  - Allow META REFRESH

Database Client Connectivity

The appropriate Database Client Connectivity software must be installed on the Cognos application server, and preconfigured to connect to all three databases: Request Center database, Data Mart database, and Content Store database.

- **For Oracle 12c**: The Oracle Client 12.1.0.2(32-bit) software is required (note that the 32-bit version of Oracle 12c Client software must be used, even though the Windows Server 2012 R2 operating system is a 64-bit version). The Cognos software installation is not bundled with the necessary JDBC driver to connect to an Oracle database. Thus, if the Content Store database is on Oracle, you must install the Oracle Client software on the Cognos application server. When installing Oracle Client 12.1.0.2, choose the "Runtime" option:

Figure 5-2 Select Installation Type



- **For Microsoft SQL Server 2016**: The SQL Server Client Connectivity software is not required. The Cognos installation is already bundled with the necessary JDBC driver to connect to the SQL Server database server.

Other Requirements

- You must log in as a user with administrative privileges on the application server to install the Cognos software. This user must also have read and write permission to the %TEMP% directory.
- The following machines must all be set to the same timezone:
  - The Cisco Prime Service Catalog application server
  - The Cognos application server
  - The database server where the following databases reside: Service Catalog, Data Mart, and Content Store

- A domain name system (DNS) should have been configured for the computer. The Primary DNS suffix of the hostname must be assigned to an appropriate value (for example, *mydomain.com*) and the hostname should resolve to the fully qualified domain name (for example, "ping *myserver*" should resolve to *myserver.mydomain.com*).
- The Service Catalog application server and the Cognos application server must belong in the same domain. For example, if the Service Catalog application server was installed on a computer in the domain called *mydomain.com*, then the Cognos application server must also belong in the same domain *mydomain.com*.
- Throughout this installation process, whenever you have to enter a host name or a server name, you must enter it as a fully qualified domain name. For example, do not enter "*localhost*," or *"cognosserver"*; instead, enter *"cognosserver.mydomain.com"*. When you connect to Service Catalog, you must also enter the fully qualified domain name in the URL, for example, *http://servicecatalog.mydomain.com/RequestCenter*.
- Throughout this installation process, whenever you open a Command Prompt window to execute any script, make sure you increase the Command History Buffer Size (to something like 999) so that you can view the entire output on the Command Prompt window. Not all output is captured in the installation log file.

Cognos Database Server Requirements

The Reporting module requires access to three databases:

- The Service Catalog database
- The Data Mart database
- The Content Store database

In addition to the Service Catalog database, the Reporting module requires two more databases, Data Mart and Content Store. The next section describes how to create the Data Mart and Content Store database on either Oracle 12c or SQL Server 2016.

The Data Mart and Content Store database must be on the same type and version of RDBMS as the Service Catalog database. For example, if the Service Catalog database is on Oracle 12c, then the Data Mart and Content Store databases must also be created on Oracle 12c. If the Service Catalog database is on SQL Server 2016, then the Data Mart and Content Store databases must also be created on respective version of SQL Server.

The database server must be configured to support TCP/IP protocol for client connectivity, and must be accessible from the Cognos application server.

The database administrator must back up the Data Mart and Content Store database regularly because they contain all of the Cognos data, including custom reports and views as well as saved reports. To ensure the security and integrity of the databases, it is also important to protect the databases from unauthorized or inappropriate access.

Creating Data Mart and Content Store Databases for Oracle

For a new installation, you can prepare the tablespaces and users for the Data Mart and Content Store databases manually as described in this section before executing the Reporting installer, or you can let the Reporting installer create the database users on the default tablespaces for you by selecting the "Create Database" option presented by the installation wizard. The "Create Database" option of the Reporting installer is described in more detail in the "Installing Reporting" section.

To create tablespace and users for the Data Mart and Content Store database:

Step 1 The Oracle database must be configured to use a Unicode character set (that is, either UTF-8 or UTF-16). To determine if the database character set is Unicode, execute the following sql command:

```
SELECT VALUE FROM NLS_DATABASE_PARAMETERS WHERE PARAMETER='NLS_CHARACTERSET';
```

If the returned value for the NLS_CHARACTERSET parameter is either AL32UTF8 or AL16UTF16, then your Oracle database supports Unicode. Otherwise, you need to create a new Oracle database, and specify the character set to be either AL32UTF8 or AL16UTF16 at creation time.

Step 2 The ORACLE parameter CURSOR_SHARING must be set to EXACT and the parameter PROCESSES must be set to 500 (or higher). Execute the following commands to find out the current values of CURSOR_SHARING and PROCESSES:

```
SHOW PARAMETER CURSOR_SHARING;

SHOW PARAMETERS PROCESSES;
```

Step 3 If CURSOR_SHARING is not set to EXACT, you can use the following command to change it:

```
ALTER SYSTEM SET CURSOR_SHARING=EXACT SCOPE=BOTH SID='*';
```

Step 4 If the PROCESSES and SESSION parameters are smaller than 600, then work with your DBA to bump up these parameters for your Oracle database to 600 (or higher).

Step 5 Create a new tablespace named DATAMART, with initial size of 500 MB and AUTOEXTEND ON.

Step 6 Create a new temporary tablespace named DATAMART_TEMP, with initial size of 30 MB and AUTOEXTEND ON.

Step 7 Create a database user named DMUser,with default tablespace set to DATAMART and temporary tablespace set to DATAMART_TEMP. DMUser should be granted QUOTA UNLIMITED on the DATAMART tablespace. DMuser will be the owner of the Data Mart schema.

Step 8 Grant the following permissions to DMUser:

```
GRANT
  CREATE SESSION,
  CREATE TABLE,
  CREATE PROCEDURE,
  CREATE SEQUENCE,
  CREATE TRIGGER,
  CREATE VIEW,
  CREATE MATERIALIZED VIEW,
  CREATE SYNONYM,
  ALTER SESSION
TO DMUser;
```

Step 9 Create another database user named CSUser, with default tablespace set to DATAMART and temporary tablespace set to DATAMART_TEMP. CSUser should be granted QUOTA UNLIMITED on the DATAMART tablespace. CSUser will be the owner of the Content Store schema.

Step 10 Grant the following permissions to CSUser:

```
GRANT
CREATE SESSION,
CREATE TABLE,
CREATE PROCEDURE,
CREATE SEQUENCE,
CREATE TRIGGER,
```

```
CREATE VIEW
TO CSUser;
```

Creating Data Mart and Content Store Databases for MS SQL Server

For new installation, you can prepare the Data Mart and Content Store databases and login users as described in this section before executing the Reporting installer, or you can let the Reporting installer create the databases and login users for you by selecting the "Create Database" option presented by the installation wizard. The "Create Database" option of the Reporting installer is described in more detail in the "Installing Reporting" section.

To create the Data Mart and Content Store databases and login users:

Step 1 SQL Server can be installed as Default Instance or a Named Instance.

Step 2 SQL Server must be configured with mixed-mode authentication (that is, allows both SQL Server authentication and Windows authentication).

Step 3 Create two separate databases called "Datamart" and "ContentStore", each with initial size of 500 MB and autogrowth by 10 percent. The collating sequence of each database must be case-insensitive.

Step 4 Create two separate database login accounts named "DMUser" and "CSUser".

Note DMUser and CSUser must be SQL Server login accounts that authenticate to the SQL Server using SQL Server authentication method, and not Windows authentication method.

Step 5 Assign the database user account "DMUser" as the db_owner of the "Datamart" database. Verify your settings to ensure that a) the user "DMUser" in the Data Mart database is mapped to the login account "DMUser" in the SQL Server, b) the default schema is "dbo", and c) the user "DMUser" has the "db_owner" database role membership.

Step 6 Assign the database user account "CSUser" as the db_owner of the "ContentStore" database. Verify your settings to ensure that a) the user "CSUser" in the Content Store database is mapped to the login account "CSUser" in the SQL Server, b) the default schema is "dbo", and c) the user "CSUser" has the "db_owner" database role membership.

Sizing the Content Store Database

The size of the Content Store database depends on a number of factors:

- Number of concurrent users
- Number of saved reports (plus number of pages/rows/images per report)
- Number of saved report views (plus number of pages/rows per report)
- Format of the reports (PDF, HTML, and so on)

The following guidelines, adapted from an article published in the Cognos Knowledge Base, may help you estimate database sizing requirement, based on usage estimates from the above parameters.

Content Store sizing is a function of:

- System space: transaction logs; Cognos estimates 3,000,000 KB for a database with 250 active users.
- Temporary space: required to generate reports; estimate 100,000 KB per concurrent user.
- Data space: required to hold reports and views saved by users; user folders; and the Framework Manager models on which the reports are based.
- The total number of saved reports and views is a major factor in terms of Content Store sizing, and the most difficult to predict. This can be partially controlled by Cognos Administrators limiting the number of versions of a report that can be saved by each user.
- The size of each saved report is based on the number of report pages. Factors that may influence the average size of a report include number of pages; formatting and text selection; and the inclusion of images. Cognos estimates that following requirements for saved objects which users may create.
- Cognos also estimates the number of each of these saved objects that a "typical" user is likely to maintain. Multiplying these numbers by the storage requirements for each object yields an estimate for volume- (user-)dependent storage requirements for data space within the Content Store.

Object	Storage Requirements (Estimate)	# Per User
Saved Report, PDF format, 1–10 pages	340 KB	2
Saved Report, PDF format, 10–100 pages	440 KB	9
Saved View, 1–100 rows	250 KB	3
Saved View, 100–1000 rows	350 KB	8
Schedule (daily or weekly)	30 KB	2

- You need only multiply these requirements by the number of Cognos users to estimate this most volatile aspect of disk usage.

Installing Cognos Software

This section describes how to install Cognos 10.2.1.

Note You must log in as a user with administrative privileges to perform the installation tasks described in this section.

Downloading Cognos Software

Perform the following tasks to download Cognos software:

Step 1 Access the Cisco product download web site and authenticate with the user name and password provided to you.

Step 2 Search for the product name "Cisco Prime Service Catalog Reporting", or navigate within the product selector to locate the Cognos Business Intelligence installer and fixed packs.

Step 3 Choose **Business Intelligence Install** and download the following files under version 10.2.1 to your Cognos application server machine:

File to download	Description
bi_svr_64b_10.2.1_win_ml.tar.gz	Cognos 10.2.1 Business Intelligence Server (64-bit)
bi_dmgr_64b_10.2.1_win_en.tar.gz	Cognos 10.2.1 Data Manager (64-bit)
up_bisrvr_winx64h_10.2.5002.78_ml.tar.gz	FixPack2 for Cognos 10.2.1

Step 4 Extract the Cognos Business Intelligence Server zip file into a temporary directory such as C:\cognos_bi_software. Extract the Cognos Data Manager zip file into a temporary directory such as C:\cognos_dm_software. Extract the Cognos FixPack zip file into a temporary directory such as C:\cognos_fixpack.

Step 5 Delete the JAVA_HOME environment variable, if it exists on the Cognos machine. This is because Cognos installation program will use its embedded Java, which may conflict with the version of Java defined for JAVA_HOME environment variable. After you install Cognos software, you will then set the JAVA_HOME environment variable to point to the Java directory under the Cognos installation directory.

Installing Cognos Business Intelligence Server

Perform the following tasks to install Cognos business intelligence server:

Step 1 (Assuming that you extracted the Cognos BI software under the C:\cognos_bi_software directory) Open the folder C:\cognos_bi_software\winx64h.

Step 2 Double-click **issetup.exe** to launch the Cognos Setup program.

Step 3 Walk through the installation wizard by choosing all default values presented on the screen, until you get to the Component Selection screen.

Step 4 Choose only the following components, and deselect all other components:

- Application Tier Components
- Gateway
- Content Manager

Step 5 Click **Next** and proceed with the rest of the installation wizard, until you get to the Finish screen.

Step 6 Uncheck the “Start IBM Cognos Configuration” option, and then click **Finish**.

Installing Cognos Data Manager

Perform the following steps to install Cognos data manager:

Step 1 Go to C:\cognos_dm_software\winx64h directory (assuming that the Cognos Data Manager software is extracted to this location).

Step 2 Double-click **issetup.exe** to launch the Cognos Setup program.

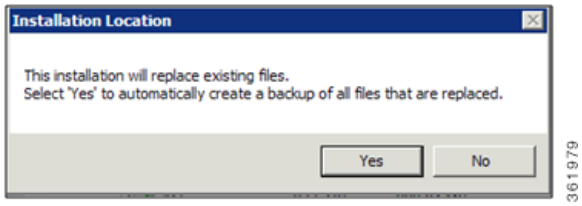
Step 3 Walk through the installation wizard by choosing all default values presented on the screen, until you get to the Installation Location screen.

Step 4 Enter the same folder name where you have installed the Cognos Business Intelligence Server (for example, C:\Program Files\cognos\c10_64). Then click **Next**.

Step 5 If you see the message "*Warning: You are installing to the same location as a previous installation. Do you want to continue?"*, click **Yes** to proceed.

Step 6 If the following message appears, click **No** to proceed:

Figure 5-3 Installation Location Warning Message



Step 7 When the Component Selection screen appears, choose only the following component, and deselect all other components:

- Data Manager Engine

Step 8 Click **Next** and proceed with the rest of the installation wizard, until you get to the Finish screen.

Step 9 Uncheck the "Start IBM Cognos Configuration" option, and then click **Finish**.

Installing Cognos Fix Pack

Perform the following steps to install Cognos fix pack:

Step 1 Assuming that you extracted the Cognos software under the C:\cognos_fixpack folder, go to the folder "C:\cognos_fixpack\winx64h".

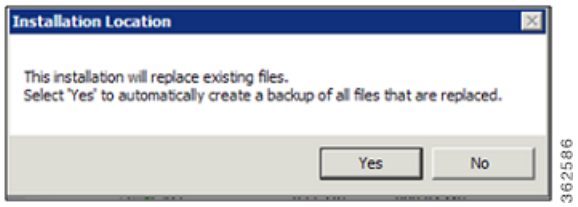
Step 2 Double-click **issetup.exe** to launch the Cognos Setup program.

Step 3 Walk through the installation wizard by choosing all default values, until you get to the Installation Location screen.

Step 4 Enter the same folder name where you have installed the Cognos Business Intelligence Server (for example, C:\Program Files \cognos\c10_64). Click **Next**.

Step 5 If the following message appears, click No to proceed:

Figure 5-4 Installation Location Warning Message



Step 6 Click **Next** and proceed with the rest of the installation wizard, until you get to the Finish screen.

Step 7 Click **Finish**.

Installing Reporting

This section describes how to install and configure Cisco Prime Service Catalog Reporting. You must log in as a user with administrative privileges to perform the installation tasks described in this section.

Note Reporting Installer uses the Cognos in-built JRE 7 and you must not have the Oracle JDK 1.8 or 1.7 installed on the same system.

Executing Reporting Setup

Reporting is installed by running a setup program which installs and launches an installation wizard.

To execute the setup program:

Step 1 On the Cognos machine, set or modify the JAVA_HOME environment variable to "<COGNOS_HOME>\bin64\jre\7.0", where <COGNOS_HOME> is the installation directory for Cognos (i.e. C:\Program Files\cognos\c10_64). Then, add "%JAVA_HOME%\bin" to the beginning of the PATH environment variable. This will ensure that the Java executable under <COGNOS_HOME>\bin64\jre\7.0\bin will be used.

Step 2 Copy the unlimited strength JCE policy files from <Build_No>\reporting\ibm_jre_7.0_policy to the %JAVA_HOME%\jre\lib\security directory, overwriting the existing files. The unlimited strength policy files are "local_policy.jar" and "US_export_policy.jar".

Step 3 Extract the Cisco Prime Service Catalog software that you downloaded from the Cisco web site to your computer, if you have not already done so.

Step 4 Double-click **reporting_setup.cmd** to launch the installation wizard.

A progress bar appears, when complete, the first page of the installation wizard appears.

How to Use the Installation Wizard

The installation configuration options are case-sensitive, so ensure that you enter a value, such as a database name or a JMS queue name, with case sensitivity; otherwise, your installation may fail.

Running the Reporting Installation Wizard

This section provides instructions for running the Reporting installation wizard.

Prerequisite

Copy the kek_new.txt and kek_old.txt files from the <*ServiceCatalog_Install_Dir*>\dist directory to C:\temp or any other folder on the reporting machine. During the installation, you will be prompted for the master key file and you must navigate to this path in that window and select the kek_new.txt file.

Step 1 Stop the IIS web server.

Step 2 Launch the installation wizard (see Executing Reporting Setup).

Step 3 On the first page of the installation wizard, click **Next** to begin.

Step 4 On the Choose Install Folder panel, enter a destination folder for the installation and click **Next**.

The default destination folder is “C:\CiscoPrimeServiceCatalog”. If desired, enter a different destination folder, or click Choose to locate and select another folder (or create a new one). The path name for the destination folder must not contain any spaces. Throughout this document, this destination folder is referred to as <*Reporting_Install_Dir* >.

Step 5 Enter the Cognos root directory. This is where you installed the Cognos 10.2.1 software. The default Cognos root directory is "C:\Program Files\ibm\cognos\c10_64". If needed, enter a different root directory, or click Browse to locate and choose the directory. Click **Next**.

Step 6 In the Database Selection panel, choose the database platform (Microsoft SQL Server or Oracle) and click **Next**.

Refer to your Database Information Worksheet that you filled out earlier to determine your database platform.

Step 7 In the Service Catalog Database panel, enter your Service Catalog database configuration values. For more information on updating the values on the Service Catalog Database panel, see Table 5-1. Use your Database Information Worksheet that you filled out earlier to help you determine what configuration values to enter.

Table 5-1 Request Center Database Table for Reporting

Field	SQL Server	Oracle Server
Host IP Address	Enter the IP address of the server where the Service Catalog database resides.	Enter the IP address of the server where the Service Catalog schema resides. When using Oracle RAC use Scan IP Address only.
Port	Enter the TCP/IP Port Number used by your Database Server. Valid port numbers are from 1 to 65535. The default value is 1433.	Enter the TCP/IP Port Number used by the Database Server. The default value is 1521.
Database Name	Enter the name of the RequestCenter database. By default, the value is “Service Catalog”. Enter only alphanumeric characters. Do not use any space characters.	Not Applicable
Database SID or Database Service Name	Not Applicable	If you use SID to connect to your Oracle database, then select the SID radio button, and enter the Oracle SID value. If you use Service Name to connect to your Oracle database, then select the Service Name radio button, and enter the Service Name value. When using Oracle RAC use the Service Name only.
Username	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username is the login ID and the db_owner of the "Service Catalog" database. The default value is "CPSCUser".	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username is the login ID and schema name for the database schema. The default value is "CPSCUser".
Password	Enter the password for the Database Username.	Enter the password for the Database Username.

Step 8 Click **Next** to proceed to the next page of the wizard.

The installer performs a connection test to your Service Catalog database using the configuration values you entered and checks that the prerequisites for your database platform have been fulfilled.

If the database connection test fails, a "Database Test Connection Failed" dialog box message appears. If you get this message, click **OK** to close the dialog box, and make any necessary modifications to the information on the Service Catalog Database panel. If you want to abort the installation wizard at this point, click **Cancel**.

If the database connection test passes, the Master Key File panel appears.

Step 9 In the Master Key File panel, enter (or browse to) the full path to the kek_new.txt file that you copied to C:\Temp earlier.

Step 10 Click Next.

The Prime Service Catalog installer will verify that the master key in the specified kek_new.txt file matches with the Service Catalog database that you entered in the last panel. If the master key file does not match, the installer will raise an error and will not let you proceed to the next step.

Step 11 In the DataMart Database Creation panel:

- If you have already created your database, then select **No** here and click **Next** to continue. You will be prompted for the information of your existing database. Refer to the Data Mart Database Table for Reporting to enter the database information.
- If you have not created the database in advance, select **Yes** to let the installer create the database for you and click **Next**. You will be prompted for the connection information to your database server so that the installer can create the database on the fly. Enter the database information on the Data Mart Database panel and click **Create Datamart**.

  If the database creation is successful, the Data Mart database successful message dialog appears. Click **OK** to close the message dialog box. Refer to the Data Mart Database Table for Reporting below to enter the database information.

Note This "Create Datamart" feature will create a very basic Data Mart database that meets the minimum requirements for the Service Catalog Reporting module to operate. This feature is recommended for a Demo or Test system, but for a Production system, it is advisable that you work with your DBA to create the Data Mart database in advance which meets all of the product requirements as described in the Configuring Databases section, as well as any performance, reliability and security requirements that adhere to your corporate policy.

Note The fields in the Data Mart Database panel varies depending on whether you clicked **Yes** or **No** in the Data Mart Database Creation panel. Use the Table 5-2 accordingly.

Table 5-2 Data Mart Database Table for Reporting

Field	SQL Server	Oracle Server
Host IP Address	Enter the IP address of the Database Server.	Enter the IP address of the Database Server. When using Oracle RAC use Scan IP Address only.
Port	Enter the TCP/IP Port Number used by the Database Server. The default value is 1433.	Enter the TCP/IP Port Number used by the Database Server. The default value is 1521.

Table 5-2 Data Mart Database Table for Reporting

Field	SQL Server	Oracle Server
Database name	Enter the name of the database for the Data Mart. Enter only alphanumeric characters. Do not include any space characters. The default value is "Datamart"	Not Applicable
sa password	To create the database in SQL Server, the installer must connect to SQL Server as the "sa" user. Enter the password for the "sa" user here.	Not Applicable
sys password	Not Applicable	Enter the password for the “sys” user.
Database SID or Database Service Name	Not Applicable	If you use SID to connect to your Oracle database, then select the SID radio button, and enter the Oracle SID value. If you use Service Name to connect to your Oracle database, then select the Service Name radio button, and enter the Service Name value. When using Oracle RAC use the Service Name only.
Username	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username will be the login ID and the db_owner of the "Datamart" database. The default value is "DMUser".	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username will be the login ID and schema name for the database schema. The default value is "DMUSER".
Password	Enter the password for the Database Username.	Enter the password for the Database Username.
Confirm Password	Re enter the password for the Database Username.	Re enter the password for the Database Username.
User tablespace	Not Applicable	(**Optional value**) If you have a specific Oracle tablespace name, enter it here. The default tablespace for the shema will be set to this value. If you leave this value blank, then the installer will use whatever the default USER tablespace that the Oracle server provides.
Temp tablespace	Not Applicable	(**Optional value**) If you have a specific Oracle temp tablespace name, enter it here. The temp tablespace for the shema will be set to this value. If you leave this value blank, then the installer will use whatever the default TEMP tablespace that the Oracle server provides.

Step 12 In the Data Mart Database panel, click the **Next** button to continue. The installer will connect to the database to validate the required settings for the database. If the installer created the database for you, then it would meet all of the required settings, and the validation test would pass. If you provided the information for an existing database, then the installer may report a validation error if it detects that a certain required database setting is missing. If a database validation error occurs, the installer will not allow you to move on. You can do one of the following:

a. Close the error dialog and click **Cancel** to exit the installation wizard, or

b. Fix the missing database setting on a separate database connection session. Then come back to this screen, close the error dialog, and click **Next** again. At this point, the installer will repeat the validation test, and if the test passes, it will let you move to the next page.

If the database validation passes, the Content Store Database Creation panel appears.

Step 13 For a new installation, you can prepare the database in advance as described in the Cognos Database Server Requirements section.

- If you have already created your database, then select **No** and click **Next** to continue. You will be prompted for the information of your existing database.

  Refer to the Content Store Database Table for Reporting below to enter the database information. Click **Next**.

- If you have not created the database in advance, select **Yes** to let the installer create the database for you and click **Next.** You will be prompted for the connection information to your database server so that the installer can create the database on the fly. Enter the database information on the Content Store Database Creation panel and click **Create Content Store**. If the database creation is successful, the Content Store Database successful message dialog will appear.

Note The Create Database feature will create a very basic Content Store database that meets the minimum requirements for the Service Catalog Reporting module to proceed. This feature is recommended for a Demo or Test system, but for a Production system, it is advisable that you work with your DBA to create the Content Store database in advance which meets all of the product requirements as described in the Cognos Database Server Requirements section, as well as any performance, reliability and security requirements that adhere to your corporate policy.

Refer to the Table 5-3 below to enter the database information. Click **Next**.

Note The fields in the Content Store Database panel varies depending on whether you clicked Yes or No in the Content Store Database Creation panel. Use the Content Store Database Table for Reporting accordingly.

Table 5-3 Content Store Database Table for Reporting

Field	SQL Server	Oracle Server
Host IP Address	Enter the IP address of the Database Server.	Enter the IP address of the Database Server. When using Oracle RAC use Scan IP Address only.
Port	Enter the TCP/IP Port Number used by the Database Server. The default value is 1433.	Enter the TCP/IP Port Number used by the Database Server. The default value is 1521.

Table 5-3 Content Store Database Table for Reporting

Field	SQL Server	Oracle Server
Database name	Enter the name of the database for the Content Store. Enter only alphanumeric characters. Do not include any space characters. The default value is "ContentStore"	Not Applicable
sa password	To create the database in SQL Server, the installer must connect to SQL Server as the "sa" user. Enter the password for the "sa" user here.	Not Applicable
Database SID or Database Service Name	Not Applicable	If you use SID to connect to your Oracle database, then select the SID radio button, and enter the Oracle SID value. If you use Service Name to connect to your Oracle database, then select the Service Name radio button, and enter the Service Name value. When using Oracle RAC use the Service Name only.
Username	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username will be the login ID and the db_owner of the "ContentStore" database. The default value is "CSUser".	Enter the database username. Enter only alphanumeric characters. Do not include any space characters. This username will be the login ID and schema name for the database schema. The default value is "CSUSER”.
Password	Enter the password for the Database Username.	Enter the password for the Database Username.
Confirm Password	Re enter the password for the Database Username.	Re enter the password for the Database Username.
User tablespace	Not Applicable	(**Optional value**) If you have a specific Oracle tablespace name, enter it here. The default tablespace for the shema will be set to this value. If you leave this value blank, then the installer will use whatever the default USER tablespace that the Oracle server provides.
Temp tablespace	Not Applicable	(**Optional value**) If you have a specific Oracle temp tablespace name, enter it here. The temp tablespace for the shema will be set to this value. If you leave this value blank, then the installer will use whatever the default TEMP tablespace that the Oracle server provides.

Step 14 Click the **Next** button on the Content Store Database panel to continue. The installer will connect to the database to validate the required settings for the database. If the installer created the database for you, then it would meet all of the required settings, and the validation test would pass. If you provided the information for an existing database, then the installer may report a validation error if it detects that certain required database setting is missing. If a database validation error occurs, the installer will not allow you to move on. You can do one of the following:

a. Close the error dialog and click **Cancel** to exit the installation wizard, or

b. Fix the missing database setting on a separate database connection session. Then come back to this screen, close the error dialog, and click **Next** again. At this point, the installer will repeat the validation test, and if the test passes, it will let you move to the next page.

If the database validation passes, the Content Store Root Directory page appears.

Step 15 Click **Next** to proceed. The Cognos Settings page appears.

Step 16 Enter the following information for Cognos server.

- **Cognos Server Name**: Enter the fully qualified domain hostname (not IP address) of the computer where the Cognos software is installed.
- **Configure IIS?**: Do not deselect this option. The installer will automatically configure the Cognos application on the IIS web server on this computer.
- IIS Web Site: Do not change the default value of "Default Web Site".

Step 17 Click the **Advanced Options** button. The Advanced Options dialog box appears.

Specify if you want to execute the database scripts as part of the installation by selecting the **Execute SQL Scripts** checkbox. This checkbox is selected by default.

You should deselect this setting only in exceptional circumstances such as:

- If a separate review of the scripts by internal personnel is required before they execute. In this case, you will need to step through this wizard again, this time selecting the checkbox, in order to execute the scripts and complete the installation.
- A previous installation attempt successfully executed these scripts but failed later during the installation process. In this case, you can save time during the installation process the second time through by deselecting the checkbox, since execution of the scripts takes some time and if they have already executed, there is no need to do so again.

Step 18 Click **Next** to proceed.

The Form Data Reporting panel appears.

Step 19 Enter your Form Data Reporting Tables settings as described in Form Data Reporting Tables. Should you decide that you need to modify some of these settings after the installation, there is a utility for you to do so. See the Modifying Form Data Reporting Configuration section of *Cisco Prime Service Catalog Reporting Guide* for more information.

Table 5-4 Form Data Reporting Tables

Field	Definition
Dictionary table prefix	The prefix for the names of the Dictionary Tables. Default value is "DM_FDR_DICTIONARY_." It is recommended to go with this prefix. If you must change the prefix, use only alphabetic characters and the underscore character. Do not use any numeric or special characters.
Service table prefix	The prefix for the names of the Service Tables. Default value is "DM_FDR_SERVICE_." It is recommended to go with this prefix. If you must change the prefix, use only alphabetic characters and the underscore character. Do not use any numeric or special characters.
Table columns prefix	The prefix for the field names in each table. Default value is "FIELD." It is recommended to use the default value unless there is absolute necessity to change it. This name is used to create tables with field name like FIELD1, FIELD2, …, FIELDn.
Text column max length	This parameter indicates the maximum size of dictionary and service table object varchar field size. The default value is 200.

Step 20 Click **Next** to proceed. The Form Data Reporting Dictionary Settings panel appears.

Step 21 Enter Form Data Reporting Dictionary Settings as described in Form Data Reporting Dictionary Settings Table.

Table 5-5 Form Data Reporting Dictionary Settings Table

Field	Definition
Dictionary tables	Number of tables required in the Data Mart database to store the data for reportable dictionaries. One table is needed per reportable dictionary. The default value is 50, which is also the minimum value allowed.
Text Fields	Number of Text type fields that are used in dictionaries based on the customer form reporting analysis. The default value is 40.
Numeric fields	Number of Numeric fields that are used in dictionaries based on the customer form reporting analysis. The default value is 10.
Date fields	Number of Date fields that are used in dictionaries based on the customer form reporting analysis. The default value is 10

Step 22 Click **Next** to proceed. The Form Data Reporting Service Settings page appears.

Step 23 Enter your Form Data Reporting Service Settings as described in Form Data Reporting Service Settings Table.

Table 5-6 Form Data Reporting Service Settings Table

Field	Definition
Service tables	Number of tables required in the Data Mart database to store the data for reportable dictionaries. One table is needed per reportable dictionary. The default value is 50, which is also the minimum value allowed.
Text Fields	Number of Text type fields that are used in dictionaries based on the customer form reporting analysis. The default value is 80.
Numeric fields	Number of Numeric fields that are used in dictionaries based on the customer form reporting analysis. The default value is 20.
Date fields	Number of Date fields that are used in dictionaries based on the customer form reporting analysis. The default value is 20.

Step 24 Click **Next**. The SMTP Settings panel appears.

Step 25 Enter your SMTP settings as described in SMTP Settings Table.

Table 5-7 SMTP Settings Table

Field	Definition
SMTP hostname	The Hostname or IP address of the SMTP server.
SMTP port	The SMTP Port Number used by the SMTP server. Valid port numbers are from 1 to 65535. The default value is 25.
SMTP username	(Optional) The authenticated user for the SMTP server.
SMTP password	(Optional) The password for the SMTP username.
Sender email	The sender email address to be used for system generated notifications.

Step 26 (Optional) Click the "**Test SMTP"** button to verify the connection to the SMTP server. If the test connection fails, the installer will still let you move on to the next page.

Step 27 Click **Next** to proceed. The Pre-Installation Summary panel appears.

The installation wizard has enough information to start the installation process. Review the settings that appear on this panel. If you need to make any changes, click Previous to go back to a particular panel and make the necessary changes. If they are correct, click Install to begin the installation of Reporting.

The installation process may take up to 20 minutes to complete. Do not interrupt the installation wizard during this process. If the installation process completes successfully, the Install Complete panel of the installation wizard appears.

Step 28 Click **Done** to exit the installation wizard.

Executing create_datasource.cmd

Perform the following steps to execute create_datasource.cmd:

Step 1 Open a Command Prompt window, and navigate to the <*Reporting_Install_Dir*>\ cognos\bin directory.

Step 2 Execute **create_datasource.cmd**.

Step 3 After create_datasource.cmd completes successfully, open a browser on the Cognos machine, and connect to the URL **http://localhost/cognos10**.

Step 4 Enter the User ID and Password of the Service Catalog Site Administrator user, then click **OK** to log in.

Step 5 In the UI, click the **My home** link.

Step 6 In the top right corner of the UI, click the **Launch** link, and click the **IBM Cognos Administration** drop-down menu.

Step 7 Click the **Configuration** tab.

Step 8 In the left pane, click the **Data Source Connections** link.

Step 9 In the right pane, click on "RequestCenter".

Step 10 Skip this step if your database is SQL Server. If your database is Oracle, you must perform the steps a to f described below to modify the JDBC connection parameters.

a. Click the "**Set properties - RequestCenter**" icon under the Actions column as shown below:

Figure 5-5 Set Properties - Request Center

b. Click the Connection tab, and click the "**Edit connection string**" icon, which appears next to Connection string text box.

c. Under the OCI tab, copy the value in the "**SQL*Net connect string**" text box.

d. Open the JBDC tab, then select the Thin radio button for Driver type, paste the connection string copied in the above step to the "**Oracle Net Descriptor**" text box as shown below:

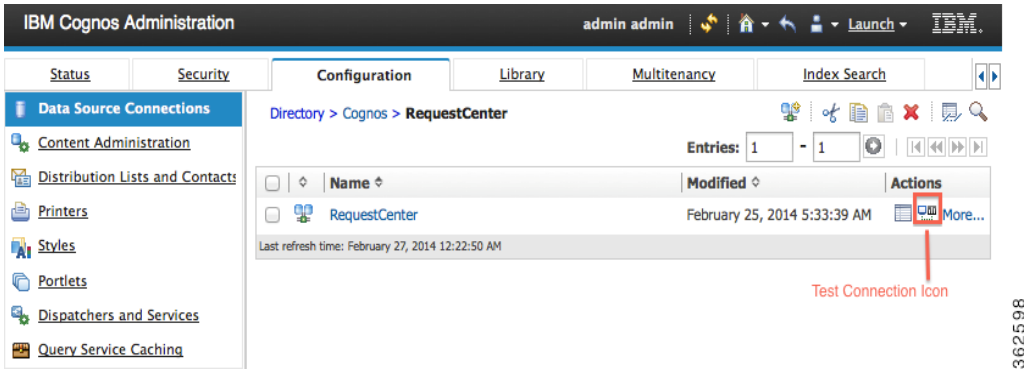
Figure 5-6 Driver Type Selection Window

e. Click the OK button to save the changes.

f. Click OK button again to close the "Set properties - RequestCenter" page.

Step 11 Perform this step for both SQL Server and Oracle. Click the "Test the connection" icon under the Actions column for RequestCenter.

Figure 5-7 Test the Connection Window



Step 12 On the next page, click the **Test** button.

Step 13 Verify that the status show “Succeeded” for both JDBC entries on the screen. You can now proceed to the next section.

Importing Service Catalog Reports

Perform the following tasks to configure and import the Service Catalog Standard Reports Archive to the Cognos environment.

Step 1 Open a Command Prompt window and navigate to the <*Reporting_Install_Dir*>\ cognos\bin directory.

Step 2 Execute **import_reports.cmd.**

Step 3 Execute **update_datamart_std.cmd**.

Note This script may take several minutes to complete.

Restart the Service Catalog Application

Perform the following steps to restart the service catalog application:

Step 1 **Restart the Service Catalog application**. This will allow the Service Catalog application server to pick up the new configuration which enables it to integrate with the Cognos application server. Restart the entire application server where the Request Center application is running.

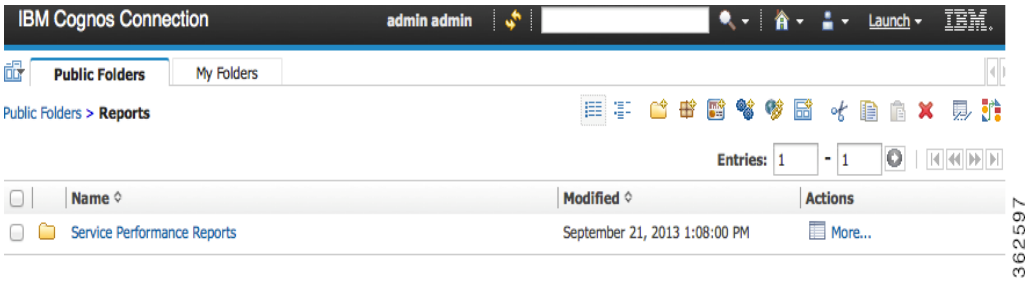
Step 2 Once the application server is started, connect to the URL using the IP address (for example, http://”IP Address”/RequestCenter). Log in as the Site Administrator user.

Step 3 Choose the **Reporting** module.

Step 4 Click the **Reports** tab.

Step 5 Verify that the Public Folders tab appears with a folder named "Service Performance Reports". This is a good indication that the Reporting module of Service Catalog is integrated successfully with the Cognos application server.

Figure 5-8 The Report Tab



Step 6 Proceed to "Configuring Advanced Reporting".

Configuring Advanced Reporting

Execute the following scripts to set up the Advanced Reporting components. If you do not want Advanced Reporting, skip to the Postinstallation Tasks.

Step 1 On the Cognos machine, open a Command Prompt window, and navigate to the <*Reporting_Install_Dir*>\cognos\bin directory.

Step 2 Execute **update_datamart.cmd**. This script may take several minutes to complete.

Step 3 Execute **create_model.cmd**.

Step 4 Execute **publish_fdr_pkg.cmd**. This script may take several minutes to complete.

Step 5 Log out of the Service Catalog UI, then log back in as Site Administrator user. Remember that you must enter the IP address on the URL, for example, http://"IP Address"/RequestCenter.

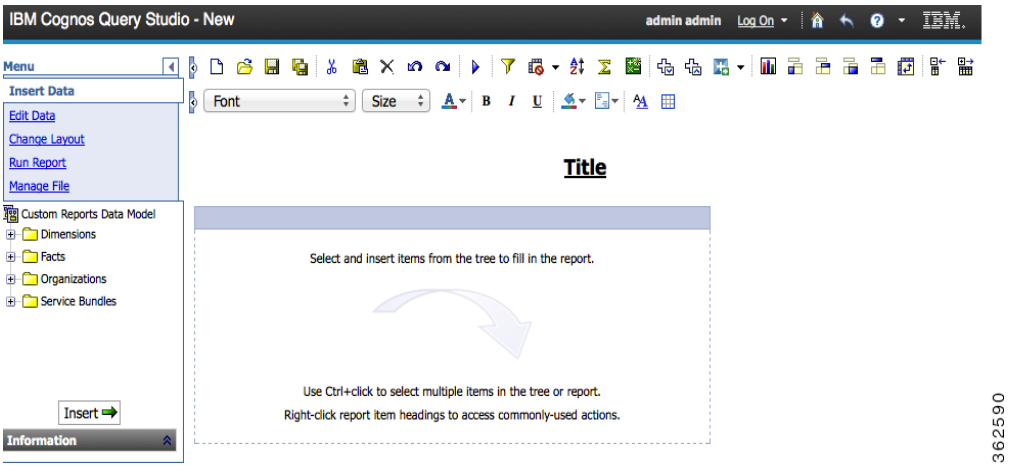
Step 6 Choose the **Advanced Reporting** module.

Step 7 Click the **Ad-Hoc Reports** tab.

Step 8 Click the **Custom Report Data Models** link.

Step 9 If you see the Query Studio window, then it is a good indication that the Advanced Reporting module of Service Catalog is integrated successfully with the Cognos application server.

Figure 5-9 Query Studio Window



Postinstallation Tasks

The postinstallation tasks consist of scheduling the ETL processes to be run. The amount of time each process takes to complete is proportional to the amount of data in the Request Center database which must be extracted and transmitted to the Data Mart database.

Postinstallation Tasks for Reporting

Set up the following script as scheduled tasks on the Cognos machine. All scripts reside in the <*Reporting_Install_Dir*>\cognos\bin directory.

Standard Report Script	Description
update_datamart_std.cmd	This script extracts the data from the Service Catalog database and transmits it to the Data Mart database. This data is used to refresh the Service Catalog Standard Reports. This script can be scheduled to run however often you want Standard Reports to be refreshed. Normally, this script can be scheduled to run once a day, at off-peak hours.

Postinstallation Tasks for Advanced Reporting

If you have Advanced Reporting, then you must also perform the tasks described in this section.

Step 1 On the Cognos machine, set up the following scripts as scheduled tasks. All scripts reside in the <*Reporting_Install_Dir*>\cognos\bin directory.

Advanced Report Scripts	Description
update_datamart.cmd	This script updates fact tables and dimensions in the Data Mart database.
create_model.cmd	This script creates the framework model used by the Cognos reporting tools (Query Studio and Report Studio).
publish_fdr_pkg.cmd	This script publishes the Cognos framework for Service Catalog.

Note We recommend scheduling the advanced report scripts in the table above to run once daily during off-peak hours. The data in the Data Mart database are available during this time, however performance may be adversely affected.

Allow 40 minutes per 10,000 new or changed requisitions between update_datamart.cmd and create_model.cmd. Allow 30 minutes per 10,000 new or changed requisitions between create_model.cmd and publish_fdr_pkg.cmd.

The scripts must be run without overlapping. If the scripts overlap, you may encounter data inconsistency.

Using Reporting Module with Oracle RAC Database

When installing the Reporting module with Oracle RAC database, enter the Oracle Service Name and the IP address of the Scan Host on the installation wizard to connect to the database. After the installation, follow the steps described below to replace the Scan Host's IP address with the Scan Name. Perform these steps before you start executing the reporting configuration scripts.

Step 1 Add the Scan Name and its set of mapped IP addresses to the machine's hosts file.

Step 2 Stop the IBM Cognos service.

Step 3 Replace the Scan Host's IP address with the Scan Name in all files, located in the <*Reporting Install folder*> directory and the <*Cognos Install Folder*>\c10_64 directory. The best way to do this is to use a third party software like grepWin to search which files in those directories containing the Scan Host's IP address, then use a text editor to modify those files.

Step 4 Overwrite file ojdbc6.jar with ojdbc7.jar (which is the Oracle 12c JDBC driver) in the following directories:

<*Reporting Install folder*>\cognos\lib

<*Cognos Install Folder*>\c10_64\webapps\p2pd\WEB-INF\lib

Step 5 Replace the string "%JAVA_HOME%\bin\java" with "%JAVA_HOME%\bin\java -Doracle.jdbc.autoCommitSpecCompliant=false" in all scripts located in the <*Reporting Install folder*>\cognos\bin directory. The best way to do this is to use a third party software such as grepWin to search which files in that directory containing the string JAVA_HOME, then use a text editor to modify those files.

Note Do not replace any string that looks like "%JAVA_HOME%\bin\java.exe”.

Step 6 Use a text editor to remove the string "%DEBUG_OPTS%" in the script "update_datamart_std.cmd".

Step 7 Start the IBM Cognos service.

Upgrading Reporting

Performing Preupgrade Tasks for Reporting

Backing Up Data Mart and Content Store Artifacts

To back up the Data Mart and Content Store artifacts:

Step 1 Back up the Data Mart database (If there are any custom Data Mart tables, they can be referred from this backup) and the Content Store database.

Step 2 Back up all custom-defined views that are used by Advanced Reporting from the Service Catalog database.

Step 3 Export all the backed up custom-defined views that are used by Advanced Reporting from the Service Catalog database.

Uninstalling Cognos 8.4.x Components

This release of Service Catalog uses Cognos version 10.2.1. You can install Cognos 10.2.1 software on a brand new machine. But if you plan to install the Cognos 10.2.1 software on the same machine where you already have Cognos 8.4.x software, then you must first uninstall the Cognos 8.4.x software, by performing the following steps:

Step 1 From your system Start button, choose **Programs > IBM Cognos 8 > Uninstall IBM Cognos 8**.

Step 2 Choose the display language and click **Next**.

Step 3 Choose all the components from the package list, and proceed with the rest of the installation wizard until you get to the Finish screen.

Step 4 Reboot the system once all the components have been uninstalled successfully.

Installing Cognos 10.2.1 Software

See Installing Cognos Software for more details on how to install Cognos 10.2.1

Running the Reporting Installer for Upgrade

Perform the following steps to run the reporting installer for upgrade:

Step 1 Run the Reporting installation wizard as described in the Installing Reporting.

Step 2 After entering values for your Data Mart Database, click **Next** to proceed to the next page of the wizard.

The Existing Installation Detected dialog box appears,

Step 3 Click **Upgrade Existing Database**.

Step 4 Continue with the Reporting installation wizard as described in the Running the Reporting Installation Wizard. You cannot edit the settings in the Form Data Reporting Tables, Form Data Reporting Dictionary Settings, and Form Data Reporting Service Settings pages. On these pages, just click **Next** to continue. Should you decide that you need to modify some of these settings after the upgrade, there is a utility for you to do so. See the Modifying Form Data Reporting Configuration section of *Cisco Prime Service Catalog Reporting Guide* for more information.

Performing Post-upgrade Tasks for Advanced Reporting

Perform the tasks described in Postinstallation Tasks.

Migrating Custom Reports

Custom reports are automatically upgraded during the Cognos upgrade to 10.1. If you wish, you could manually upgrade the reports from the Prime Service Catalog.

Step 1 Log into Service Catalog as a user with the Report Administrator role.

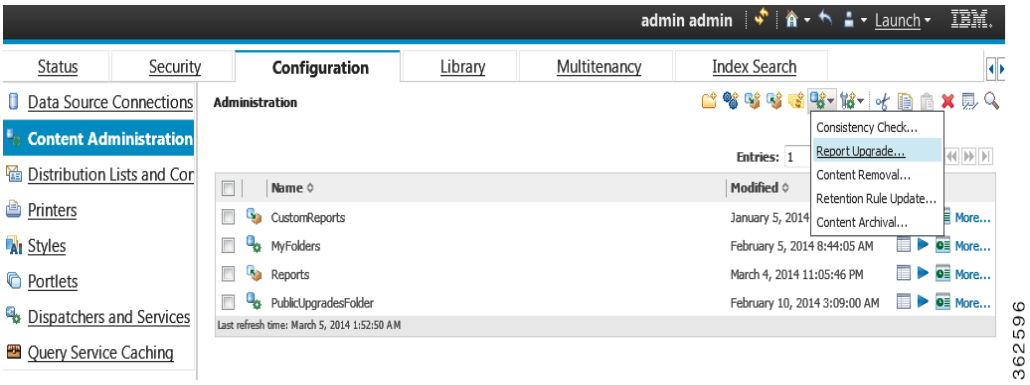
Step 2 Choose **Advanced Reporting** module from the drop-down.

Step 3 Go to **Launch** on the right hand side top corner and click **IBM Cognos Administration**.

Step 4 Click the **Configuration** tab.

Step 5 Go to **Content Administration** from the left pane, click on the **New Content Maintenance** icon and select **Report Upgrade**, as shown below.

Figure 5-10 Content Administration Window



Step 6 Enter the Name, Description (optional) and Screen Tips (optional) for the New Content Maintenance task. And click **Next**.

Step 7 In the Report upgrade screen, click **Add**. Select folders that need to be upgraded, click **Add**, and then at the bottom, click **OK**.

Step 8 Click **Next**.

Step 9 Select any of the below actions:

- Save and run once.
- Save and schedule
- Save only

Step 10 Click **Finish**.

Step 11 Select the time to run the report upgrade and click **OK.**

Step 12 To view the result of the job select the check box “View the details of this content maintenance task after closing the dialog”.

Step 13 Click **OK.**

Step 14 Click **Refresh** to view the status. Click **Close**.

Reporting Upgrade Issue and its Workaround

While upgrading from any earlier release to 10.1, except for 10.0 and 10.0-R2, certain roles under the Permission tab of the Reports, show up as Unavailable. This happens if the role is either deprecated or renamed in 10.1. This change does not impact the reporting functionality but might create confusion for the user. To avoid this, you could delete the affected roles and add them back if the role is renamed.

To delete and then add a role:

Step 1 Log in to Service Catalog UI, and navigate to the **Advanced Reporting** module.

Step 2 Navigate to your custom report under your folder name.

Step 3 Click **More** under the **Actions** column for your custom report.

Step 4 Click **Set properties** under **Available** actions.

Step 5 Click on the **Permissions** tab. If any roles are displayed as Unavailable, it is because those roles were deprecated or renamed. You can either remove these roles if you no longer need them, or rename it to an appropriate role name based on the list of new roles that are available in this release.

Step 6 To remove a role: Select the check box in front on the role that is displayed as Unavailable, then click the **Remove** link at the bottom of the table.

Step 7 The add a new role: Click the **Add** link at the bottom of the table, click **newScale**, select one or more roles from the Available entries table, click the add arrow to move these roles to the Selected entries table, then click the **OK** button. Next, you have to set the appropriate permissions for the new roles that you just added. After you are done, click the **OK** button to close the Set properties page.

These instructions for modifying roles are only applicable for a custom report. You cannot modify a standard report that came along with Prime Service Catalog.

Uninstalling Reporting

To uninstall the reporting module you need to first uninstall the IBM Cognos software and then the Cisco Prime Service Catalog Reporting module.

To uninstall IBM Cognos:

Step 1 From the **Start** menu select **IBM Cognos 10-64 > Uninstall IBM Cognos**.

Step 2 In the Uninstall Wizard window, click **Select All** to select both the modules.

Step 3 Click **Next**.

Step 4 In the Uninstall Wizard window, it is recommended that you select the second option to uninstall all the folders.

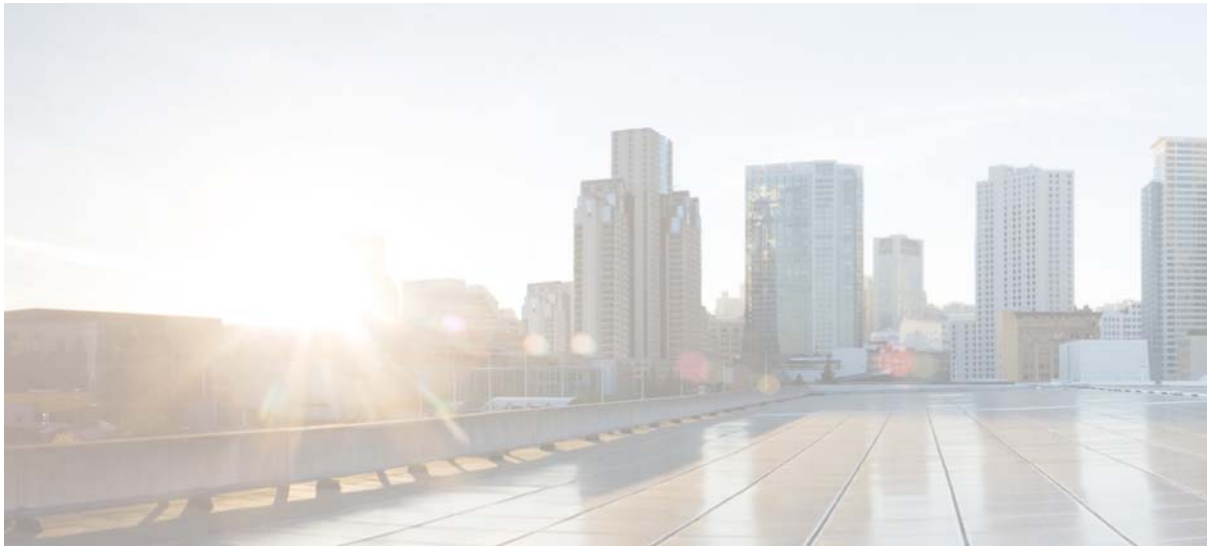
Step 5 After the uninstallation is complete, in File Explorer, go to the folder where IBM Cognos is installed and manually delete the folder to clean up all Cognos files from the machine.

To uninstall Cisco Prime Service Catalog Reporting module

Step 1 In File Explore, navigate to the Cisco Prime Service Catalog Reporting folder and right click and select **Uninstall/Change**.

Step 2 In the Uninstall Options window, select **Complete Uninstall**.

Step 3 After the uninstallation is complete, if you still see Cisco Prime Service Catalog Reporting folder, delete it manually.



PART 1

Appendices

Worksheets

Database Information Worksheet

Complete the following database information worksheet by entering your configuration values in the value column. You will need the information in this worksheet when you run the Prime Service Catalog and Reporting installation wizards.

Table A-1 Database Information Worksheet

Field	Description	Value
RequestCenter Database		
Database Type	The type of RDBMS. Enter **Microsoft SQL Server** or **Oracle**.	
Host IP Address	IP address of the Database Server for the Service Catalog database.	
Port	The TCP/IP Port Number used by your Database Server. Valid port numbers are from 1 to 65535. For Microsoft SQL Server, the default value is 1433. For Oracle, the default value is 1521.	
Database Name (**Microsoft SQL Server only**)	The name of the ServiceCatalog database. By default this is ServiceCatalog.	
Database SID or Database Service Name (**Oracle only**)	The SID or Service Name of the Oracle server where the ServiceCatalog database resides. By default this is ORCL. Also, write down whether this value is an SID or a Service Name. When using Oracle RAC use the Service Name only.	
Username	The username that the Prime Service Catalog application uses to authenticate with the ServiceCatalog database at runtime. The default username is CPSCUser.	
Password	The password for the Database User.	
Oracle Advanced Options only		
Enable multiple tablespaces?	Check the check box to enable multiple tablespaces. Enter the names of the tablespaces below. This is unchecked by default.	
Default tablespace	If you checked “Enable multiple tablespaces?” above, enter the Default tablespace. The default is CCPDATA01.	
Directory tablespace	If you checked “Enable multiple tablespaces?” above, enter the Directory tablespace. The default is CCPDATA02.	

Table A-1 Database Information Worksheet (continued)

Field	Description	Value
Transaction tablespace	If you checked “Enable multiple tablespaces?” above, enter the Transaction tablespace. The default is CCPDATA03.	
Index tablespace	If you checked “Enable multiple tablespaces?” above, enter the Index tablespace. The default is CCPINDX.	

JBoss EAP Application Server Information Worksheet

Complete the following “Application Server Information Worksheet” by entering your configuration values in the "Value" column. The information in this worksheet will be needed when you run the Service Catalog or the Reporting installer.

Table A-2 Application Server Information Worksheet

Field	Description	Value
Service Catalog Host IP Address	Enter the IP address of the current machine. The installer should detect the IP address of the current machine automatically, and display that value as the default value.	
Service Link Host IP Address	The IP address of the computer where you plan to execute the installer, and choose to install the Service Link application. If you choose to install both Service Catalog and Service Link applications on the same computer, the installer will automatically set this value to the same value as the "Service Catalog Host IP Address".	
IIS Website	The name of the IIS website on your computer where you want the installer to configure the tomcat plugin. The Default value is “Default Web Site”. You can use customized website. To add a customized website, you will have to add the customized website first in the Internet Information Services (IIS) Manager and bind them to appropriate port e.g. 88 ,90.	
Queue hostname	The IP address of the computer where the JBoss EAP JMS service is running. Since the JMS service is always configured in the same JBoss EAP server where the Service Link component resides, this value should be the same as the "Service Link Host IP Address" above.	
Custom content archive	If you plan to install "custom content", enter the path to the custom content archive file. **Note** The archive must be in the Zip format.	
SMTP hostname	The fully qualified domain hostname or IP address of the SMTP server. Ensure that your computer can connect to this SMTP server.	
SMTP port	The SMTP server must listen to port 25.	
System email address	The sender email address to be used for system generated notifications.	

Supported Time Zone

The Cisco Prime Service Catalog Reporting installer automatically sets the time zone of the Cognos server to match the time zone of the Service Catalog application. The following table shows the supported time zones for the Service Catalog application. The installer will automatically map the Service Catalog time zone to an equivalent Cognos time zone that has the same GMT offset.

Time Zone Name	Computer Time Zone Description (GMT)
Etc/GMT+12	(GMT-12:00) International Date Line West
Pacific/Apia	(GMT-11:00) Samoa
US/Hawaii	(GMT-10:00) Hawaii
US/Aleutian	(GMT-10:00) Hawaii Aleutian Daylight Time
US/Alaska	(GMT-09:00) Alaska
America/Tijuana	(GMT-08:00) Pacific Time (US and Canada); Tijuana
America/Chihuahua	(GMT-07:00) Chihuahua, La Paz, Mazatlan
US/Arizona	(GMT-07:00) Arizona
Canada/Mountain	(GMT-07:00) Mountain Time (US and Canada)
Canada/Saskatchewan	(GMT-06:00) Saskatchewan
US/Central	(GMT-06:00) Central America
Canada/Central	(GMT-06:00) Central Time (US and Canada)
America/Mexico_City	(GMT-06:00) Guadalajara, Mexico City, Monterrey
America/Bogota	(GMT-05:00) Bogota, Lima, Quito
Canada/Eastern	(GMT-05:00) Eastern Daylight Time (US and Canada)
America/Jamaica	(GMT-05:00) Eastern Time (US and Canada)
US/East-Indiana	(GMT-05:00) Indiana (East)
America/Antigua	(GMT-04:00) Atlantic Time (Canada)
Canada/Atlantic	(GMT-04:00) Atlantic Daylight Time (Canada)
America/Manaus	(GMT-04:00) Manaus
America/Santiago	(GMT-04:00) Santiago
America/Caracas	(GMT-04:30) Caracas
America/La_Paz	(GMT-04:00) La Paz (Bolivia)
America/Sao_Paulo	(GMT-03:00) Brasilia
America/Godthab	(GMT-03:00) Greenland
America/Argentina/Buenos_Aires	(GMT-03:00) Buenos Aires
America/Guyana	(GMT-04:00) Georgetown
America/St_Johns	(GMT-03:30) Newfoundland and Labrador
Atlantic/South_Georgia	(GMT-02:00) Mid-Atlantic
Atlantic/Azores	(GMT-01:00) Azores
Atlantic/Cape_Verde	(GMT-01:00) Cape Verde Islands
Etc/Greenwich	(GMT) Greenwich Mean Time: Dublin, Edinburgh,
Africa/Casablanca	(GMT) Casablanca, Monrovia
Europe/Sarajevo	(GMT+01:00) Sarajevo, Skopje, Warsaw, Zagreb
Europe/Brussels	(GMT+01:00) Brussels, Copenhagen, Madrid, Paris
Africa/Brazzaville	(GMT+01:00) West Central Africa
Europe/Amsterdam	(GMT+01:00) Amsterdam, Berlin, Bern, Rome,

Europe/Belgrade	(GMT+01:00) Belgrade, Bratislava, Budapest,
Africa/Cairo	(GMT+02:00) Cairo
Europe/Helsinki	(GMT+02:00) Helsinki, Kiev, Riga, Sofia, Tallinn,
Europe/Minsk	(GMT+02:00) Minsk
Europe/Athens	(GMT+02:00) Athens, Bucharest, Istanbul
Asia/Jerusalem	(GMT+02:00) Jerusalem
Africa/Windhoek	(GMT+02:00) Windhoek
Africa/Harare	(GMT+02:00) Harare, Pretoria
Asia/Baghdad	(GMT+03:00) Baghdad
Africa/Nairob	(GMT+03:00) Nairobi
Europe/Moscow	(GMT+03:00) Moscow, St. Petersburg, Volgograd
Asia/Kuwait	(GMT+03:00) Kuwait, Riyadh
Asia/Tehran	(GMT+03:30) Tehran
Asia/Baku	(GMT+04:00) Baku
Asia/Muscat	(GMT+04:00) Abu Dhabi, Muscat
Asia/Yerevan	(GMT+04:00) Yerevan
Asia/Tbilisi	(GMT+04:00) Tbilisi
Asia/Kabul	(GMT+04:30) Kabul
Asia/Karachi	(GMT+05:00) Islamabad, Karachi, Tashkent
Asia/Yekaterinburg	(GMT+05:00) Ekaterinburg
Asia/Kolkata	(GMT+05:30) Chennai, Kolkata, Mumbai, New Delhi
Asia/Kathmandu	(GMT+05:45) Kathmandu
Asia/Dhaka	(GMT+06:00) Astana, Dhaka
Asia/Novosibirsk	(GMT+07:00) Novosibirsk
Asia/Colombo	(GMT+05:30) Sri Jayawardenepura
Asia/Rangoon	(GMT+06:30) Yangon (Rangoon)
Asia/Bangkok	(GMT+07:00) Bangkok, Hanoi, Jakarta
Asia/Krasnoyarsk	(GMT+08:00) Krasnoyarsk
Asia/Irkutsk	(GMT+09:00) Irkutsk
Asia/Kuala_Lumpur	(GMT+08:00) Kuala Lumpur, Singapore
Asia/Taipei	(GMT+08:00) Taipei
Australia/Perth	(GMT+08:00) Perth
Asia/Chongqing	(GMT+08:00) Beijing, Chongqing, Hong Kong SAR,
Asia/Seoul	(GMT+09:00) Seoul
Asia/Tokyo	(GMT+09:00) Osaka, Sapporo, Tokyo
Asia/Yakutsk	(GMT+09:00) Yakutsk
Australia/Darwin	(GMT+09:30) Darwin
Australia/Adelaide	(GMT+09:30) Adelaide
Australia/Hobart	(GMT+10:00) Hobart
Australia/Canberra	(GMT+10:00) Canberra, Melbourne, Sydney
Australia/Brisbane	(GMT+10:00) Brisbane
Asia/Vladivostok	(GMT+10:00) Vladivostok
Pacific/Guam	(GMT+10:00) Guam, Port Moresby
Pacific/Guadalcanal	(GMT+11:00) Solomon Islands, New Caledonia
Pacific/Auckland	(GMT+12:00) Auckland, Wellington

Pacific/Fiji	(GMT+12:00) Fiji Islands
Pacific/Tongatapu	(GMT+13:00) Nuku alofa

Note The Europe/Moscow, Pacific/Fiji, Pacific/Apia, Asia/Yakutsk, and Asia/Vladivostok Time Zones currently do not support Daylight Saving Time. Thus, if you have to use one of these Time Zone Names, then either use one of the other Time Zone Names that has the same GMT offset, or consult with the Cisco Technical Assistance Center (TAC).

Reference Tables for Installation Procedures

Note The installation configuration options are case-sensitive, so ensure that you enter a value, such as a database name or a JMS queue name, with case sensitivity; otherwise, your installation may fail.

Table A-3 Database Information Worksheet

Field	Definition for Oracle	Definition for SQL Server
Host IP Address	IP address of the database server.	IP address of the database server
Port	TCP/IP Port number used by the database server. The default value is 1521.	TCP/IP Port number used by the database server. The default value is 1433.
Database name	Not Applicable	The name of the database for the Prime Service Catalog application. Enter alphanumeric characters and do not include any space characters. The default value is “ServiceCatalog”.
sa Password	Not Applicable	To create the database in SQL Server, the installer must connect to SQL Server as “sa” user. Enter the password for the sa user.
Username	Database username is the login ID and the schema name for the database schema. The default value is “CPSCUser”.	Database username is the login ID and the db_owner of the “ServiceCatalog” database. The default value is “CPSCUser”.
Password	Password for the database username.	Password for the database username.
Confirm Password	Re-enter the password for the database username.	Re-enter the password for the database username.

Field	Definition for Oracle	Definition for SQL Server
Oracle Service Name or Oracle SID	The SID or Service Name of the Oracle server where the ServiceCatalog database resides. By default this is ORCL. Also, write down whether this value is an SID or a Service Name. When using Oracle RAC use the Service Name only.	Not Applicable
SYS Password	To create the database schema in Oracle, the installer must connect to Oracle as the “sys” user. Enter the password for “ sys” user.	Not Applicable
User tablespace	Enter a tablespace name if you already have a specific Oracle tablespace name. The default tablespace name will be set to this value. If you leave this value blank, then the installer will use the default user tablespace provided by the Oracle server.	Not Applicable
Temp tablespace	Enter a temp tablespace name if you already have a specific Oracle tablespace name. The default temp tablespace name will be set to this value. If you leave this value blank, then the installer will use the default temp user tablespace name provided by the Oracle server.	Not Applicable
Execute database scripts?		The option is enabled only if you have clicked **No** in the ServiceCatalog Database Creation panel. This option should always be selected, which tells the installer to execute the sql scripts to either create a brand new schema in the ServiceCatalog database in the case of a new installation. When you want to reinstall the product WAR files without overwriting the existing ServiceCatalog database, you can deselect this option. Make sure you understand its implication before deselecting this option.

Table A-4 Service Catalog Configuration Table for JBoss EAP

Field	Definition
Service Catalog Host IP Address	Enter the IP address of the current machine. The installer should detect the IP address of the current machine automatically, and display that value as the default value.
JBoss admin username	Since the installer will install the JBoss EAP 7.0 AS software automatically for you, it presets the JBoss admin username to "adminuser". This username can be used to connect to the JBoss EAP Admin Console should you need to perform any administration tasks for the JBoss EAP installation. This value is grayed out so you can't overwrite it.
JBoss admin password	Enter a password for the JBoss EAP “adminuser”. Enter only alphanumeric characters with no spaces.
Confirm password	Re-enter a password for the JBoss EAP “adminuser”.
Service Link URL	**Note** You will see this option if you have selected to install only the Service Catalog server on your computer. Enter the http address that includes the hostname and portnumber of Service Link server. The default port number used by Service Link on JBoss EAP in 6080.
Configure as windows service	(For Windows only) On Windows Operating System, the installer can automatically configure the JBoss EAP server as a windows service. Select this option if you would like the installer to configure the JBoss EAP server as a service named "Cisco Prime Service Catalog”. This service will be configured to start up automatically at boot time. But right after the installation is completed, the service will not be started up for you. You will have to open the Microsoft Windows Services Console to start the “Cisco Prime Service Catalog” service for the first time after the installation. The service however will be started automatically when the Windows Operating System is rebooted. **Note** However, for cluster JBoss EAP it is recommended to start the server as an application, instead of service, by executing the start script provided by Cisco. For information on starting these services, see Postinstallation Tasks for JBoss EAP Clustered Application Servers.
Install Storefront service content	Prime Service Catalog can be installed with sample Storefront content. Select this option if you want these sample content to be imported automatically into your ServiceCatalog database during the installation. Deselect this option if you do not want to include the sample content for your installation. If you are upgrading from a previous Prime Service Catalog release, you should deselect this option. There is a chance that the sample Storefront content may clash with your existing data.

Table A-5 Service Link Configuration Table for JBoss EAP

Variable	Definition
Service Link Host IP Address	This value is preset to the same value that you entered for the Service Catalog host IP address field on the Service Catalog Configuration panel. This is because both JBoss EAP servers, one for Service Catalog application and one for Service Link application, will be running on the same machine. This value is grayed out so you can't overwrite it.
JBoss admin username	The installer has preset the JBoss admin username to "adminuser" because it will install the JBoss EAP AS software automatically for you. This username can be used to connect to the JBoss EAP Admin Console if you need to perform any administration tasks for the JBoss EAP installation. This value is grayed out so you can't overwrite it. **Note** Field "JBoss admin password" is not presented on this panel. This is because the password is preset to the same value that you entered for the JBoss admin password field on the Service Catalog Configuration panel.
Configure as windows service	(For Windows only) On Windows Operating System, the installer can automatically configure the JBoss EAP server as a windows service. Select this option if you would like the installer to configure the JBoss EAP server as a service named "Cisco Prime Service Link". This service will be configured to start up automatically at boot time. But right after the installation is completed, the service will not be started up for you. You will have to open the Microsoft Windows Services Console to start the "Cisco Prime Service Link" service for the first time after the installation. The service however will be started automatically when the Windows Operating System is rebooted.

Table A-6 Messaging Configuration Table

Field	JBoss EAP
Queue Host IP Address	Enter the Enter the IP address of the machine where Service Link is installed, because JMS service resides on the Service Link node.
Queue Port	Port number for communicating to the Service Link node.
Queue connection factory	Value of JMS Queue Connection Factory for JBoss EAP is preset to “jms/RemoteConnectionFactory”, and is grayed out.
Queue username	Username that can have read/write access to JMS Queues. This Value for JBoss EAP is preset to “jmsuser”, and is grayed out.
Queue password	For JBoss EAP, enter a password for the "jmsuser". The "jmsuser" will be created by the installer when it installs the JBoss EAP software.
Confirm password	This field is applicable for JBoss EAP only. Re-enter the password for the “jmsuser”.

Table A-7 Service Catalog Administration Configuration Table

Field	Definition
SMTP hostname	Enter the fully qualified domain hostname or IP address of the SMTP server. The Service Catalog application will connect to this SMTP server to send out all email notifications. **Note** There is an optional Test SMTP button on this panel. After you enter the SMTP hostname and system email address, you can click the Test SMTP button to verify the connection to the SMTP server. The installer will display a message dialog which shows whether the Test connection to the SMTP server succeeds or fails. If the STMP server test connection fails, the installer will still let you move on to the next step. Just close the message dialog, then Click Next to continue.
SMTP Port	The SMTP server must be listening to port 25.
System email address	Enter the email address of the system administrator. This is used as the sender's email address for all system-level email notifications.
Service Catalog Site Administrator Password	Enter the password for the Site Administrator of the application. The password cannot be blank. Enter alphanumeric characters for the password. **Note** The Site Administrator's username is preset to "admin" and can not be changed.
Confirm Password	Re-enter the password for Site Administrator.

Table A-8 Database Information Table for Advanced Installation

Field	Definition for SQL Server	Definition for Oracle
Hostname	Hostname or IP address of the database server	Hostname or IP address of the database server
Port	TCP/IP Port number used by the database server. The default value is 1433.	TCP/IP Port number used by the database server. The default value is 1521.
Oracle Service Name or Oracle SID	Not Applicable	If you use Service Name to connect to your Oracle database, then select the Service Name radio button, and enter the Service Name value. If you use SID to connect to your Oracle database, then select the SID radio button, and enter the Oracle SID value.
Username	Database username is the login ID and the db_owner of the “ServiceCatalog” database. The default value is “CPSCUser”.	Database username is the login ID and the schema name for the database schema. The default value is “CPSCUser”.
Password	Password for the database username.	Password for the database username.

Field	Definition for SQL Server	Definition for Oracle
Execute Database Scripts?	The option is enabled only if you have clicked **No** in the ServiceCatalog Database Creation panel. This option should always be selected, which tells the installer to execute the sql scripts to either create a brand new schema in the ServiceCatalog database in the case of a new installation. When you want to reinstall the product WAR files without overwriting the existing ServiceCatalog database, you can deselect this option. Make sure you understand its implication before deselecting this option.	
Advanced Options (for Oracle only)	This button is available in the ServiceCatalog Database window for Oracle only. When you click this button, Advanced Options window with the following files is displayed. Click **Close** after you enter the required details in the Advanced Options window.	
Enable multiple tablespace? (for Oracle only)	Select this option if your existing ServiceCatalog database was created on multiple table spaces on Oracle.	
Default tablespace (for Oracle only)	The name of the tablespace where all of the definitional-data tables are created. Definitional-data tables have names that start with DEF. The default value is CCPDATA01	
Directory tablespace (for Oracle only)	The name of the tablespace where all of the directory-data tables are created. Directory-data tables have names that start with DIR. The default value is CCPDATA02	
Transaction tablespace (for Oracle only)	The name of the tablespace where all of the transactional-data tables are created. Transactional-data tables have names that start with TX. The default value is CCPDATA03. Any tables whose names are different from DEF, DIR or TX are stored in the Default tablespace	
Index tablespace (for Oracle only)	The name of the tablespace where all of the table indexes are created. The default value is CCPINDX.	

Table A-9 Advanced Options Table for Service Catalog Configuration panel

Field	Definition
Enable clustering	This option is not available for JBoss EAP and is grayed out.
Multicast address	This option is not available for JBoss EAP and is grayed out.

Field	Definition
Custom content?	Select this option if you want to insert custom contents into the RequestCenter.war during the installation. After the installation your deployed RequestCenter.war directory will contain the custom contents, such as ISF and custom stylesheets. This is an optional step. If you don't install Custom Content at installation time, then after the installation, you can always extract the Content zip file manually on top of the deployed RequestCenter.war directory.
Custom content archive	Enter the location of the zip file that contains the custom contents. The zip file must adhere to the directory structure underneath RequestCenter.war directory. For example, inside the content.zip file, there are the following contents: • isfcode* • custom\mystyle* • images* Everything will be extracted under the RequestCenter.war stage directory, keeping the same directory structure intact.

Table A-10 Service Link Configuration Table for Custom Installation using JBoss EAP Server

Variable	Definition
Service Link Hostname	This value is preset to the same value that you entered for the Service Catalog hostname field on the Service Catalog Configuration panel. This is because both JBoss EAP servers, one for Service Catalog application and one for Service Link application, will be running on the same machine. This value is grayed out so you cannot overwrite it.
JBoss admin username	The installer has preset the JBoss admin username to "adminuser" because it will install the JBoss EAP AS software automatically for you. This username can be used to connect to the JBoss EAP Admin Console if you need to perform any administration tasks for the JBoss EAP installation. This value is grayed out so you can't overwrite it.
JBoss admin password	If you chose to install only Service Link server on this computer, then the installer will prompt you to enter the password for the JBoss EAP administrator user. This field will not be shown if you chose the "Both" option instead. This is because the password is preset to the same value that you entered for the JBoss admin password field on the Service Catalog Configuration panel.

Variable	Definition
Confirm password	Re-enter the password for the JBoss EAP administrative user. This field will not be shown if you chose the "Both" option.
Configure as windows service	(For Windows only) On Windows Operating System, the installer can automatically configure the JBoss EAP server as a windows service. Select this option if you would like the installer to configure the JBoss EAP server as a service named "Cisco Prime Service Link". This service will be configured to start up automatically at boot time. But right after the installation is completed, the service will not be started up for you. You will have to open the Microsoft Windows Services Console to start the "Cisco Prime Service Link" service for the first time after the installation. The service however will be started automatically when the Windows Operating System is rebooted.

Table A-11 Messaging Configuration Table for Custom Installation

Field	Definition for JBoss EAP
Queue hostname	Enter the fully qualified domain hostname or IP address of the JMS server. The JMS server is same as the Service Catalog server.
Queue port	Enter the JNDI Port assigned to the Service Catalog server. The default value is 4447.
Queue connection factory	For JBoss EAP, this value is preset to "jms/RemoteConnectionFactory", and thus is grayed out
Queue Username	Username that can have read/write access to JMS Queues. This Value for JBoss EAP is preset to “jmsuser”, and is grayed out.
Queue password	For JBoss EAP, enter a password for the "jmsuser". The "jmsuser" will be created by the installer when it installs the JBoss EAP software.
Confirm Password	This field is applicable for JBoss EAP only. Re-enter the password for the “jmsuser”.

JBoss EAP Scripts

Scripts for JBoss Cluster Application Server

Cluster setup for JBoss can be configured in All Components Setup or Separate Component topology.

All Components topology:

- VM 1 is Domain Controller, Host Controller, and Service Link for Host 1
- VM 2 is Host Controller for Host 2

Separate Component topology:

- VM 1 is Domain Controller
- VM 2 is Service Link
- VM 3 is Host Controller for Host 1
- VM 4 is Host Controller for Host 2

Table B-1 Scripts for JBoss EAP Cluster Application Server

Scripts	Execute On	Description
All Components Setup Cluster Topology: **VVM1 is Domain Controller, Host 1 with RC and Service Link on HostSL and VM2 is Host2 with RC**		
startServiceCatalogCluster	VM1	Start the following servers on VM1: a) Domain Controller, b) Process Controller, c) Managed server for Service Link, d) Managed server for Service Catalog. **Note** startServiceCatalogCluster script is used to check whether the exploded $JBOSS_HOME/content/RequestCenter.war and $JBOSS_HOME/content/ISEE.war are already available. If yes, then the script will not create the content folder. If not, then it will explode the WAR files from /dist folder and create the content folder under these directories. This is applicable for VM1 and VM2 in All Components topology and for VM 3 and VM 4 in Separate Component topology.

Table B-1 Scripts (continued) for JBoss EAP Cluster Application Server

Scripts	Execute On	Description
startServiceCatalogOnHC1	VM1	Start the Managed server for Service Catalog on VM1
startServiceLinkOnHC1	VM1	Start the Managed server for Service Link on VM1.
startServiceCatalogOnHC2	VM1	Start the Managed server for Service Catalog on VM2.
startServiceCatalogOnHC3	VM1	Start the Managed server for Service Catalog on VM3. (Reserved for when user wants to add Host Controller 3.)
startServiceCatalogOnHC4	VM1	Start the Managed server for Service Catalog on VM4. (Reserved for when user wants to add Host Controller 4.)
startServiceCatalogOnHC5	VM1	Start the Managed server for Service Catalog on VM5. (Reserved for when user wants to add Host Controller 5.)
startServiceCatalogOnHC6	VM1	Start the Managed server for Service Catalog on VM6. (Reserved for when user wants to add Host Controller 6.)
deployServiceCatalogCluster all	VM1	Deploy the followings: a) ISEE.war, b) RequestCenter.war
deployServiceCatalogCluster RC	VM1	Deploy RequestCenter.war
deployServiceCatalogCluster SL	VM1	Deploy ISEE.war
shutdownAllOnHC1	VM1	Stop the following servers on VM1: a) Domain Controller, b) Process Controller, c) Managed server for Service Link, d) Managed server for Service Catalog. **Note** After running this script, a message “press a key to continue” is displayed at the end of console log of host controller saying. To shutdown the HC, press any key and to exit this window hit Ctrl+C.
forceStopAllOnHC	VM1	If for some reasons, the shutDownAllOnHC1 script doesn't work, then execute this script to force stop the following servers on VM1: a) Domain Controller, b) Process Controller, c) Managed server for Service Link, d) Managed server for Service Catalog
stopServiceCatalogOnHC1	VM1	Stop the Managed server for Service Catalog on VM1.
stopServiceLinkOnHC1	VM1	Stop the Managed server for Service Link on VM1.
stopServiceCatalogOnHC2	VM1	Stop the Managed server for Service Catalog on VM2.
shutdownAllOnHC2	VM1	Stop both the Process Controller and the Managed server on VM2.
stopServiceCatalogOnHC3	VM1	Stop the Managed server for Service Catalog on VM3. (Reserved for when user wants to add HC3.)
shutdownAllOnHC3	VM1	Stop both the Process Controller and the Managed server on VM3. (Reserved for when user wants to add HC3.)
stopServiceCatalogOnHC4	VM1	Stop the Managed server for Service Catalog on VM4. (Reserved for when user wants to add HC4.)
shutdownAllOnHC4	VM1	Stop both the Process Controller and the Managed server on VM4. (Reserved for when user wants to add HC4.)
stopServiceCatalogOnHC5	VM1	Stop the Managed server for Service Catalog on VM5. (Reserved for when user wants to add HC5.)

Table B-1 Scripts (continued) for JBoss EAP Cluster Application Server

Scripts	Execute On	Description
shutdownAllOnHC5	VM1	Stop both the Process Controller and the Managed server on VM5. (Reserved for when user wants to add HC5.)
stopServiceCatalogOnHC6	VM1	Stop the Managed server for Service Catalog on VM6. (Reserved for when user wants to add HC6.)
shutdownAllOnHC6	VM1	Stop both the Process Controller and the Managed server on VM6. (Reserved for when user wants to add HC6.)
undeployServiceCatalogCluster all	VM1	Undeploy the followings: a) ISEE.war, b) RequestCenter.war
undeployServiceCatalogCluster RC	VM1	Undeploy RequestCenter.war
undeployServiceCatalogCluster SL	VM1	Undeploy ISEE.war
pre-customizationOnDC.cmd ALL	VM1	Take a backup of the RC.war and/or new ISEE.war. Create a folder */temp* under the installation directory and unzips the RC and ISEE for customization.
post-customizationOnDC.cmd	VM1	Delete the RC and ISEE from dist and the old content directory. Create a new RC.war and ISEE.war using the customized files in */temp*. Move the newly created RC.war and ISEE war to dist folder. Create content folders with new RC.war and new ISEE.war
killalljava	VM1	Kill all running Java processes
startServiceCatalogCluster	VM2	Start the following servers: a) Process Controller, b) Managed server for Service Catalog. The script is used to check whether the exploded $JBOSS_HOME/content/RequestCenter.war and $JBOSS_HOME/content/ISEE.war are already available. If yes, then the script will not create the content folder. If not, then it will explode the WAR files from /dist folder and create the content folder under these directories.
forceStopAllOnHC	VM2	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC	VM2	Apply all new RC.war content in the Node2 RC.war
If customer adds another VM as HC3		
startServiceCatalogCluster	VM3	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.
forceStopAllOnHC	VM3	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC.cmd	VM3	Apply all new RC.war content in the Node2 RC.war
If customer adds another VM as HC4		
startServiceCatalogCluster	VM4	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.

Table B-1 Scripts (continued) for JBoss EAP Cluster Application Server

Scripts	Execute On	Description
forceStopAllOnHC	VM4	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC.cmd	VM4	Apply all new RC.war content in the Node2 RC.war
If customer adds another VM as HC5		
startServiceCatalogCluster	VM5	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.
forceStopAllOnHC	VM5	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC.cmd	VM5	Apply all new RC.war content in the Node2 RC.war
If customer adds another VM as HC6		
startServiceCatalogCluster	VM6	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.
forceStopAllOnHC	VM6	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC.cmd	VM6	Apply all new RC.war content in the Node2 RC.war
Separate Component Cluster Topology: **VM1 is Domain Controller, VM2 for Service Link, VM3 is HC1, VM4 is HC2**		
startServiceCatalogCluster	VM1	Start the Domain Controller on VM1.
startServiceCatalogOnHC1	VM1	Start the Managed server for Service Catalog on VM3.
startServiceCatalogOnHC2	VM1	Start the Managed server for Service Catalog on VM4.
startServiceCatalogOnHC3	VM1	Start the Managed server for Service Catalog on VM5. (Reserved for when user wants to add HC3.)
startServiceCatalogOnHC4	VM1	Start the Managed server for Service Catalog on VM6. (Reserved for when user wants to add HC4.)
deployServiceCatalogCluster RC	VM1	Deploy RequestCenter.war
stopDomainController	VM1	Stop the Domain Controller on VM1.
stopServiceCatalogOnHC1	VM1	Stop the Managed server for Service Catalog on VM3.
shutdownAllOnHC1	VM1	Stop both the Process Controller and the Managed server on VM3.
stopServiceCatalogOnHC2	VM1	Stop the Managed server for Service Catalog on VM4.
shutdownAllOnHC2	VM1	Stop both the Process Controller and the Managed server on VM4
stopServiceCatalogOnHC3	VM1	Stop the Managed server for Service Catalog on VM5. (Reserved for when user wants to add HC3.)
shutdownAllOnHC3	VM1	Stop both the Process Controller and the Managed server on VM5. (Reserved for when user wants to add HC3.)
stopServiceCatalogOnHC4	VM1	Stop the Managed server for Service Catalog on VM6. (Reserved for when user wants to add HC4.)
shutdownAllOnHC4	VM1	Stop both the Process Controller and the Managed server on VM6. (Reserved for when user wants to add HC4.)

Table B-1 Scripts (continued) for JBoss EAP Cluster Application Server

Scripts	Execute On	Description
undeployServiceCatalogClusterRC	VM1	Undeploy RequestCenter.war
startServiceLinkOnHC1	VM1	Start Service Link from Domain Controller.
stopServiceLinkOnHC1	VM1	Stop Service Link from Domain Controller.
killalljava	VM1	Kill all running Java processes
VM1 is Domain Controller, VM2 for Service Link, VM3 is HC1, and VM4 is HC2		
apply-customizationOnSL	VM2	Apply customization on Node.
startServiceCatalogCluster	VM2	Start Service Link on VM2.
forceStopAllOnHC	VM2	Force stop: a) Process Controller, b) Managed server for Service Catalog.
VM1 is Domain Controller, VM2 for Service Link, VM3 is HC1, and VM4 is HC2		
startServiceCatalogCluster	VM4	Start the following servers: a) Process Controller, b) Managed server for Service Catalog. The script is used to check whether the exploded $JBOSS_HOME/content/RequestCenter.war and $JBOSS_HOME/content/ISEE.war are already available. If yes, then the script will not create the content folder. If not, then it will explode the WAR files from /dist folder and create the content folder under these directories.
forceStopAllOnHC	VM4	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC	VM4	Apply customization on Node.
If customer adds another VM as HC3		
startServiceCatalogCluster	VM5	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.
forceStopAllOnHC	VM5	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC	VM5	Apply customization on Node.
If customer adds another VM as HC4		
startServiceCatalogCluster	VM6	Start the following servers: a) Process Controller, b) Managed server for Service Catalog.
forceStopAllOnHC	VM6	Force stop: a) Process Controller, b) Managed server for Service Catalog.
apply-customizationOnRC	VM6	Apply customization on Node.

Adding Subsequent Host Nodes Manually in JBoss Cluster

Before You Begin

1. Run the GUI Installer for the host controller setup on the subsequent node, vm<N>, where N is the number of the node.

2. Select the Host Controller in the Node Type Selection panel followed by Host1 as the cluster node.
3. Do not run any of the startup-scripts.

Step 1 Rename host1.xml to host<N>.xml. The file, host1.xml is present under the *InstallationDirectory/jboss-eap-7.0/domain/configuration* directory.

Step 2 Follow the below steps to create a new user:

a. Execute **add-user.sh** or **add-user.bat** script from *InstallationDirectory/jboss-eap-7.0/bin* location.

b. Enter a to select the Management User.

c. Provide **HOST<N>** as the Username.

d. Provide **HOST<N>** as the Password.

e. Enter yes to use the entered password.

f. Re-Enter **HOST<N>** for Password confirmation.

g. Press **Enter** to pass the management group information

h. Enter **yes** to add the user 'HOST<N>' for realm 'ManagementRealm'.

i. Enter **no** for the interconnection of AS process.

Note
- The new user needs to be created in the machine having host Controller(host<N>) and domain controller (host1) as well.
- Verify that the user is added in the *InstallationDirectory/jboss-eap-7.0/domain/configuration/mgmt-users.properties*

Step 3 Perform the following changes in host<N>.xml:

a. Change the name of Host from HOST1 to HOST<N>.location for host<N>.xml. This file is available in the C:\Installation_directory\jboss-eap-7.0\domain\configuration

```
<host name="HOST5" xmlns="urn:jboss:domain:2.2″>
```

b. Change the secret value in the <server-identities> section. The secret value can be obtained from the website *www.motobit.com*:

```
<secret value="SE9TVDU=“/>
```

Enter the URL http://www.motobit.com/util/base64-decoder-encoder.asp

•Enter HOST<N> in the text box (without any extra space or newline).

•Click on Convert the Source Data button.

c. Change the name of the server instance from server-host1-RC to server-host<N>-RC to avoid name conflicts:

```
<server name="server-host<N>-RC" group="main-server-group" auto-start="true″>
```

d. Change the CONTROLLER_TYPE from host1 to host<N> in setEnv.cmd script in *InstallationDirectory/bin* directory.

e. Delete the logs and servers directories from *InstallationDirectory/jboss-eap-7.0/domain*, if exists.

Step 4 The following changes need to be done in startServiceCatalogCluster.cmd script in *InstallationDirectory/bin* directory.

a. Add the following code snippet in BOLD in the script file:

```
#Below if condition is applicable for the windows OS platform

if "%CONTROLLER_TYPE%"=="host<N>" (
    if exist "%JBOSS-EAP_BASE_DIR%\configuration\domain.xml" rename
"%JBOSS-EAP_BASE_DIR%\configuration\domain.xml" "domain_backup.xml"
)

#Below if condition is applicable for the Linux OS platform

#pause 'Press [Enter] key to continue6...'
FILE=${JBOSS-EAP_BASE_DIR}/configuration/host<N>.xml
if [ "${CONTROLLER_TYPE}" == "host<N>" ]
then
    if [  -f "$FILE" ]
    then
        /bin/mv -i ${JBOSS-EAP_BASE_DIR}/configuration/host<N>.xml
${JBOSS-EAP_BASE_DIR}/configuration/host.xml
    fi
fi
```

b. Add the following code snippet in BOLD in the script file:

```
if "%CONTROLLER_TYPE%" =="host<N>" if exist
"%JBOSS-EAP_BASE_DIR%\configuration\host<N>.xml" rename
"%JBOSS-EAP_BASE_DIR%\configuration\host<N>.xml" "host.xml"

If the Platform is Linux OS , skip the step b and proceed. above if condition only
applicable for the windows OS platform.
```

Step 5 Start the server with startServiceCatalogCluster.cmd or sh and once it is up, verify from the JBoss EAP admin server console under the domain whether the host<N> is registered.

Step 6 Addition of scripts for both 4-VM Cluster and 2-VM Cluster in the VM-1 machine (machine containing the domain controller)

a. Copy *shutdownAllOnHC1.cmd* and rename the copied script as *shutdownAllOnHC<N>.cmd*

b. Copy *startServiceCatalogOnHC1.cmd* and rename the copied script as *startServiceCatalogOnHC<N>.cmd*

c. Copy *stopServiceCatalogOnHC1.cmd* and rename the copied script as *stopServiceCatalogOnHC<N>.cmd*

Note In the Linux platform if new scripts does not have the read/write permission, you should manually assign the read/write permission before executing.

d. Perform the below operations in the *stopServiceCatalogOnHC<N>.cmd* script file cautiously:

- Rename HOST1 to HOST<N>.
- Rename host1 to host<N>.

Configuring Plugin for IIS Web Server

This section provides information on how to configure the plugin for IIS web server (version 8.x) on a Windows Server 2012 R2 machine to redirect to clustered JBoss EAP application servers (version 10.1.0.Final).

To configure plugin got IIS Web Server:

Step 1 Add Web Server Role for IIS.

Step 2 Install Tomcat Plugin.

Step 3 Copy WAR Directories.

Step 4 Create Virtual Directories for IIS.

Step 5 Modify Plugin Properties.

Step 6 Configure Instance-ID for JBoss EAP.

Step 7 Test IIS.

Add Web Server Role for IIS

Step 1 Navigate to **Service Manager Dashboard > Manage Tab > Add Roles and Features**.

Step 2 Add the role **Web Server (IIS)** on your Windows Server 2012 R2 operating system.
Make sure you select the **ISAPI Extensions** and **ISAPI Filters** role services when adding IIS.

Step 3 After adding the **Web Server (IIS) Role**, start the **World Wide Web Publishing Service**.

Step 4 Launch a browser and connect to **URL = http://localhost**.
You should see the **Welcome IIS 8.x** page.

Install Tomcat Plugin

Step 1 Download the **PSC 12.x** software package from cisco.com and extract it.

Step 2 Cd to **<PSC_Software_Extract_Dir>\isapi** directory.

Step 3 Copy file **tomcat-isapi-redirector-v1.2.37.zip** to your IIS web server machine and extract it under the **C:\inetpub\isapi directory**.

Note Create the *isapi* sub-directory under C:\inetpub first if necessary.

Step 4 Cd to **C:\inetpub\isapi** and rename the file **isapi_redirect-1.2.37-win64.dll** to **isapi_redirect.dll**.

Copy WAR Directories

If you have JBoss EAP installation and your IIS is on a separate machine from JBoss EAP, then perform the following steps to copy WAR directories:

Clustered JBoss EAP installation with Separate Component Topology

Step 1 On the JBoss EAP machine where one of the cluster nodes for **RequestCenter** is running, **cd** to the **<PSC_Install_Dir>\jboss-eap-7.0\content** directory.

Step 2 Copy the entire **RequestCenter.war** sub-directory from this machine to the IIS machine and place it under the **C:\inetpub\WAR** directory.

Step 3 On the JBoss EAP machine where the **ServiceLink server** is running, **cd** to the **<PSC_Install_Dir>\jboss-eap-7.0\ServiceLinkServer\deployments** directory.

Step 4 Copy the entire **ServiceLink.war** sub-directory from this machine to the IIS machine and place it under the **C:\inetpub\WAR** directory.

Clustered JBoss EAP installation with All Components Topology

Step 1 On the JBoss EAP machine that is the primary cluster node for **RequestCenter, cd** to the **<PSC_Install_Dir>\jboss-eap-7.0\content** directory.

Step 2 Copy the entire **RequestCenter.war** sub-directory from this machine to the IIS machine, and place it under the **C:\inetpub\WAR** directory.

Step 3 On the same JBoss EAP machine, **cd** to the **<PSC_Install_Dir>\jboss-eap-7.0\content** directory.

Step 4 Copy the entire **ISEE.war** sub-directory from this machine to the IIS machine and place it under the **C:\inetpub\WAR** directory.

Step 5 Rename the folder to **C:\inetpub\WAR\ServiceLink.war**.

Create Virtual Directories for IIS

Step 1 On the IIS machine, launch **Internet Information Services** (IIS) **Manager**.

Step 2 Choose **Hostname > Sites > Default Web Site**.

Step 3 Right click on the **Default Web Site** and select **Add Virtual Directory**.

Step 4 On the pop up window, enter the following values, and then click **OK**:

```
Alias = RequestCenter
Physical path = <Click the browse button, and select the
"C:\inetpub\WAR\RequestCenter.war" directory.>
```

Step 5 Right click on **Default Web Site** and select **Add Virtual Directory** to add another directory.

Step 6 On the pop up window, enter the following values, and then click **OK**:

```
Alias = IntegrationServer
Physical path = <Click the browse button, and select the
"C:\inetpub\WAR\ServiceLink.war" directory.>
```

Step 7 Right click on **Default Web Site** and select **Add Virtual Directory** to add another directory.

Step 8 On the display window, enter the following values, and then click **OK**:

```
Alias = tomcat
Physical path = C:\inetpub\isapi
```

Step 9 Click on **Default Web Site** node. And on the right pane, double click **ISAPI Filters**.

Step 10 Click **Add** link under the **Actions** column on the right pane.

Step 11 On the pop up window, enter the following values, and then click **OK**:

```
Filter name = tomcat
Executable = C:\inetpub\isapi\isapi_redirect.dll
```

Step 12 Click on **Default Web Site** node. And on the right panel, double click **Handler Mappings**.

Step 13 Click the **Edit Feature Permissions** link under the **Actions** column on the right pane.

Step 14 On the pop up window, select **all Read**, **Script** and **Execute** check boxes, and then click **OK**.

Step 15 Click on the **Hostname** node. On the right panel, double click on **ISAPI and CGI Restrictions**.

Note The *Hostname* node is the parent node of sites.

Step 16 Click the **Add** link under the **Actions** column on the right most pane.

Step 17 On the display window, enter the following values, and then click **OK**:

```
ISAPI or CGI path = C:\inetpub\isapi\isapi_redirect.dll
Description = Tomcat ISAPI Filter
Select the checkbox “Allow extension path to execute”.
```

Modify Plugin Properties

Step 1 Modify the file **C:\inetpub\isapi\isapi_redirect.properties** as follows:

```
# Configuration file for the Jakarta ISAPI Redirector
# The path to the ISAPI Redirector Extension, relative to the website
# This must be in a virtual directory with execute privileges
extension_uri=/tomcat/isapi_redirect.dll
# Full path to the log file for the ISAPI Redirector
log_file=C:\inetpub\isapi\logs\isapi_redirect.log
# Log level (debug, info, warn, error or trace)
log_level=error
# Full path to the workers.properties file
worker_file=C:\inetpub\isapi\conf\workers.properties
# Full path to the uriworkermap.properties file
worker_mount_file=C:\inetpub\isapi\conf\uriworkermap.properties
```

Step 2 Modify the file **C:\inetpub\isapi\conf\uriworkermap.properties** as follows:

```
/RequestCenter=router1
/RequestCenter/*=router1
/RequestCenter/servlet/*=router1

/IntegrationServer=router2
/IntegrationServer/*=router2
/IntegrationServer/servlet/*=router2
```

```
/private/admin/jkstatus=jkstatus
```

Step 3 If you have a clustered JBoss EAP installation (regardless of 4-VM Topology or 2-VM Topology), then modify the file **C:\inetpub\isapi\conf\workers.properties** as follows:

Note The following is an example for a JBoss EAP installation with 2 cluster nodes of *RequestCenter.*

- That is there are 2 *RequestCenter servers* running on two separate VM's.
- If you have 3 or 4 cluster nodes, you just need to follow this example and add a section for *rcnode3* and for *rcnode4* appropriately.

```
# Define list of workers that will be used for mapping requests
worker.list=router1,router2,jkstatus

# Define Node1 worker for RequestCenter
worker.node1.port=8009
worker.node1.host=<IP_Address_of_RC1_host>
worker.node1.type=ajp13
worker.node1.lbfactor=1
worker.node1.max_packet_size=65536

# Define Node2 worker for RequestCenter
worker.node2.port=8009
worker.node2.host=<IP_Address_of_RC2_host>
worker.node2.type=ajp13
worker.node2.lbfactor=1
worker.node2.max_packet_size=65536

# Load-balancing behaviour
worker.router1.type=lb

# For clustering, set the line below to node1, node2 etc
worker.router1.balance_workers=node1, node2

# Define node worker for SL

worker.slnode.port=6009
worker.slnode.host=<IP_Address_of_SL_host>
worker.slnode.type=ajp13
worker.slnode.lbfactor=1
worker.node2.max_packet_size=65536
worker.router2.type=lb
worker.router2.balance_workers=slnode

# Define a 'jkstatus' worker using status
worker.jkstatus.port=8009
worker.jkstatus.host=<IP_Address_of_IIS_host>
worker.jkstatus.type=status
worker.jkstatus.max_packet_size=65536
worker.status.type=status
```

Step 4 Restart **World Wide Web Publishing Service**.

Note If you have clustered JBoss EAP installation, continue to the next section Configure instance-id for JBoss EAP.

Configure Instance-ID for JBoss EAP

For Separate Component Topology

You must perform the following steps for clustered JBoss EAP installation with Separate Component topology:

Step 1 Log on to the **JBoss EAP Domain Controller** machine, and stop all JBoss EAP servers.

Step 2 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration\domain.xml** and search for the following line:

```
<subsystem xmlns="urn:jboss:domain:undertow:3.1">
```

Replace it with the following value:

```
<subsystem xmlns="urn:jboss:domain:undertow:3.1" instance-id="${jboss.web.instanceId}">
```

Note This should be replaced at two places in domain.xml file.

Step 3 Log on to the **Host Controller 1** for **RequestCenter**, and stop all JBoss EAP servers.

Step 4 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration\host1_backup.xml**, and search for the following section:

```
<servers>
<server name="server-host1-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
</server>
</servers>
```

Replace it with the following:

```
<servers>
<server name="server-host1-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
```

```
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
<system-properties>
   <property name="jboss.web.instanceId" value="rcnode1"/>
</system-properties>
</server>
</servers>
```

Step 5 Log on to the **Host Controller 2** for **RequestCenter**, and stop all JBoss EAP servers.

Step 6 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration\host2_backup.xml**, and search for the following section:

```
<servers>
<server name="server-host2-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
</server>
</servers>
```

Replace it with the following:

```
<servers>
<server name="server-host2-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
```

```
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
<system-properties>
   <property name="jboss.web.instanceId" value="rcnode2"/>
</system-properties>
</server>
</servers>
```

Step 7 Login to SL Node for Service Link and stop all JBoss EAP Servers.

Step 8 Open File **\PSC_install_Dir\jboss-eap-7.0\domain\configuration\hostsl_backup.xml** and search for following section:

```
servers
server name="server-host1-SL" group="other-server-group" auto-start="true"

jvm name="default"
heap size="2048m" max-size="2048m"/
jvm-options
option value="-server"/
option value="-XX:NewRatio=1"/
option value="-XX:+HeapDumpOnOutOfMemoryError"/
option value="-XX:HeapDumpPath=domain/servers/server-host1-SL/log"/
/jvm-options
/jvm
socket-bindings socket-binding-group="standard-sockets" port-offset="0"/
/server
/servers
/host
```

Replce with the following:

```
<servers>
<server name="server-host1-SL" group="other-server-group" auto-start="true">
<system-properties>
<property name="jboss.web.instanceId" value="slnode"/>
</system-properties>
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<jvm-options>
<option value="-server"/>
<option value="-XX:NewRatio=1"/>
<option value="-XX:+HeapDumpOnOutOfMemoryError"/>
<option value="-XX:HeapDumpPath=domain/servers/server-host1-SL/log"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="standard-sockets" port-offset="0"/>
</server>
</servers>
</host>
```

Note If you have more than 2 cluster nodes, then repeat Step 5 through Step 8 for each subsequent node. For example,

- On the 3rd node, you need to modify the file *host3_backup.xml* and add the system-properties for *rcnode3*.
- On the 4th node, you need to modify the file *host4_backup.xml* and add the system-properties for *rcnode4*.

Step 9 Start up JBoss EAP servers on the **Domain Controller** machine and on each **Host Controller** machine.

Go to the section Test IIS.

For All Components Topology

Perform the steps in this section only if you have a clustered JBoss EAP installation with All Components topology:

Step 1 Log on to the **JBoss EAP Domain Controller** machine, and stop all JBoss EAP servers.

Step 2 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration\domain.xml** and search for the following line:

```
<subsystem xmlns="urn:jboss:domain:undertow:3.1">
```

Replace it with the following value:

```
<subsystem xmlns="urn:jboss:domain:undertow:3.1" instance-id="${jboss.web.instanceId}">
```

Note This should be replaced at two places in domain.xml file.

Step 3 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration \hostva_ backup.xml**, and search for the following section:

```
<servers>
<server name="server-host1-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
</server>
<server name="server-host1-SL" group="other-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<option value="-server"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="standard-sockets" port-offset="0"/>
</server>
</servers>
```

Replace it with the following:

```
<servers>
<server name="server-host1-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
<system-properties>
   <property name="jboss.web.instanceId" value="rcnode1"/>
</system-properties>
</server>
<server name="server-host1-SL" group="other-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<option value="-server"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="standard-sockets" port-offset="0"/>
<system-properties>
   <property name="jboss.web.instanceId" value="slnode"/>
</system-properties>
</server>
</servers>
```

Step 4 Log on to the **Host Controller 2** for **RequestCenter**, and stop all JBoss EAP servers.

Step 5 Open file **<PSC_Install_Dir>\jboss-eap-7.0\domain\configuration\host2_backup.xml**, and search for the following section:

```
<servers>
<server name="server-host2-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
</server>
</servers>
```

Replace it with the following:

```
<servers>
<server name="server-host2-RC" group="main-server-group" auto-start="true">
<jvm name="default">
<heap size="2048m" max-size="2048m"/>
<permgen size="512m" max-size="512m"/>
<jvm-options>
<!--<option value="-Xrunjdwp:transport=dt_socket,address=8787,server=y,suspend=n"/>-->
<option
value="-XX:CompileCommand=exclude,com/newscale/bfw/signon/filters,AuthenticationFilter"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xml/dtm/ref/sax2dtm/SAX2DTM,startElement"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option value="-XX:CompileCommand=exclude,org/exolab/castor/xml/Marshaller,marshal"/>
<option
value="-XX:CompileCommand=exclude,org/apache/xpath/compiler/XPathParser,UnionExpr"/>
</jvm-options>
</jvm>
<socket-bindings socket-binding-group="ha-sockets" port-offset="0"/>
<system-properties>
   <property name="jboss.web.instanceId" value="rcnode2"/>
</system-properties>
</server>
</servers>
```

Note If you have more than 2 cluster nodes, then repeat Step 4 and Step 5 for each subsequent node. For example,

- On the 3rd node, you need to modify the file *host3_backup.xml* and add the system-properties for *rcnode3*.
- On the 4th node, you need to modify file *host4_backup.xml* and add the system-properties for *rcnode4*.

Step 6 Start up JBoss EAP servers on the **Domain Controller** machine and on the **Host Controller 2** machine.

Go to the section Test IIS.

Test IIS

The following section provides information on verifying the connection to Prime Service Catalog.

Step 1 Verify by connecting to the URL **http://<IP_Address_of_IIS_Host>/RequestCenter**.
If you connected you can see the Login Page of Prime Service Catalog.

Step 2 For clustered JBoss EAP installation with 2 nodes, stop one of the nodes.
And verify that you can still connect to the URL **http://<IP_Address_of_IIS_Host>/RequestCenter**.

Configuring Data Source for SQL in JBoss EAP

Step 1 Log on to the JBoss EAP Admin console (URL example below) with you credentials and click **OK**. This will take you to JBoss EAP Application administrator console.

URL example:

http://<hostname>:<port>/RequestCenter

where,

<hostname> = The fully qualified domain hostname or the IP address of the computer where you installed the JBoss EAP server for Service Catalog.

<port> =The HTTP Port number assigned to the JBoss EAP server for Service Catalog. The default value for HTTP Port number is 8080.

Step 2 Click on **Configuration** tab > Profiles > HA > Data sources > Non XA, to be able to edit and make changes.

Step 3 Click **Add** to add a new data source.

Step 4 Choose driver as **Custom** from the list.

Step 5 Enter **Name**: **SERVICECATALOGDS** and **JNDI Name: java:/<Name of the data source>**

Step 6 Click **Next**

Step 7 Select driver from the Detected Drivers tab as "**Microsoft"** and click **Next**.

Step 8 Enter the connection URL: jdbc:sqlserver://<db_server>:1433;DatabaseName=VM236_RCDB_RC4

Step 9 Enter your credentials.

Step 10 Fill up the various fields under different tabs as mentioned in the table below:

Tab Name	Fieldname	Value
Security	Secure Domain	CiscoSecureDataSource
Connection	**Use JTA** and **Use CCMsECURITY**	Both these options should be checked.
Properties	1. SelectMethod: 2. sendStringParametersAsUnicode:	1. Direct 2. True
Pool	Minimum size is 20, maximum size is 80 and other values set to False.	
Validation		
	Background Validation	False
	Validation Millis	90000
	Validate on Match	False

Step 11 Click **Enable > Confirm**.

Note (Applicable only for JBoss EAP cluster) If the datasource is still disabled, set the datasoure to <enabled = true> in domain.xml file and restart the domain.

Step 12 In the Connection Tab test the connection and you will see the confirmation message: "Successfully created the JDBC connection."

Step 13 Restart the JBoss EAP server.

Configuring Data Source for Oracle in JBoss EAP

Step 1 Log on to the JBoss EAP Admin console (URL example below) with you credentials and click **OK**. Click on **Configuration** tab to be able to edit and make changes.

URL example:

http://<hostname>:<port>/RequestCenter

where,

<hostname> = The fully qualified domain hostname or the IP address of the computer where you installed the JBoss EAP server for Service Catalog.

<port> =The HTTP Port number assigned to the JBoss EAP server for Service Catalog. The default value for HTTP Port number is 8080.

Step 2 Click on **Configuration** tab > Profiles > HA > Data sources > Non XA, to be able to edit and make changes.

Step 3 Click **Add** to add a new data source.

Step 4 Enter **Name**: **SERVICECATALOGDS** and **JNDI Name: java:/<Name of the data source>**

Step 5 Click **Next**

Step 6 Choose driver from the list as **Custom.**

Step 7 Select driver from the detected drivers tab as "**oracle-thin"** and click **Next**.

Step 8 Enter the connection URL:
jdbc:oracle:thin:@//<db_server>:1433;DatabaseName=VM236_RCDB_RC4

Step 9 Enter your credentials.

Step 10 Fill up the various fields under different tabs as mentioned in the table below:

Tab Name	Fieldname	Value
Security	Secure Domain	CiscoSecureDataSource
Connection	**Use JTA** and **Use CCM**	Both these options should be checked.

Properties	1. SelectMethod: 2. sendStringParametersAsUnicode:	1. Direct 2. True
Pool	Minimum size is 20, maximum size is 80 and other values set to False.	
Validation		
	Background Validation	False
	Validation Millis	90000
	Validate on Match	False

Step 11 Click **Enable > Confirm**.

Note (Applicable only for JBoss EAP cluster) If the datasource is still disabled, set the datasoure to <enabled = true> in domain.xml file and restart the domain.

Step 12 In the Connection Tab test the connection and you will see the confirmation message: "Successfully created the JDBC connection."

Step 13 Restart the JBoss EAP server.

Port Usage for Prime Service Catalog

This chapter covers the standard ports used by Prime Service Catalog during installation. For the specific application it must be ensured that the ports listed in the table Port Information are open. You can also refer to the csp.properties file located at *C:\<Install_Directory>* for most the ports used in the system.

All the authorized ports come with the configuration file (domain.xml) that comes with the particular version of JBoss EAP. These can be viewed by clicking the button during the installation process.

Note All other ports can be protected by firewalls such as, iptables,

Table C-1 Port Information

App/Web Servers	Port Numbers
Web Server Tier	If the webserver is hosted on same server as the application server • 80 for HTTP • 443 for HTTPS
Application Server Tier	• 8080 (HTTP) and 8443 (HTTPS) for direct access to the application server • 8009 for AJP connection from web tier, if web tier is hosted on separate server • 6080 (HTTP) and 6443 (HTTPS) for Service Link if is on a separate host from Service Catalog • 6009 for AJP connection from Service Link if is on a separate host from Service Catalog
Reporting Web Server	80 and/or 443
Database	• 1433 for MS-SQL • 1521 for Oracle

App/Web Servers	Port Numbers
Management Console	For RC • 9990: Management HTTP port • 9993: Management HTTPS port • 9999: management.native.port For SL • 7990: Management HTTP port • 7443: Management HTTPS port • 7999: management.native.port
IBM Cognos	9300 9362 9399
RabbitMQ	15672
JMS message and queue configuration ports	RC_APPSERVER_JACORB_PORT=3528 RC_APPSERVER_JACORB_SSL_PORT=3529 RC_APPSERVER_MANAGEMENT_OSGI_HTTP_PORT=8090 RC_APPSERVER_MESSAGING_PORT=5445 RC_APPSERVER_MESSAGING_THROUGHPUT_PORT=5455 RC_APPSERVER_TXN_RECOVERY_ENVIRONMENT_PORT=4712 RC_APPSERVER_TXN_STATUS_MANAGER_PORT=4713 SL_APPSERVER_JACORB_PORT=2528 SL_APPSERVER_JACORB_SSL_PORT=2529 SL_APPSERVER_MANAGEMENT_OSGI_HTTP_PORT=6090 SL_APPSERVER_MESSAGING_PORT=3445 SL_APPSERVER_MESSAGING_THROUGHPUT_PORT=3455 SL_APPSERVER_TXN_RECOVERY_ENVIRONMENT_PORT=3712 SL_APPSERVER_TXN_STATUS_MANAGER_PORT=3713 RC_JNDI_PORT=6080