



Junos[®] Space

IBM[®] Systems Director[™] and Junos Space Launch
in Context (LiC) User Guide



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About The Documentation

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Junos Space Documentation and Release Notes

For a list of related Junos Space documentation, see

http://www.juniper.net/techpubs/en_US/release-independent/junos-space/index.html .

If the information in the latest release notes differs from the information in the documentation, follow the *Junos Space Release Notes*.





To obtain the most current version of all Juniper Networks technical documentation, see the technical documentation page at the Juniper Networks website at

<http://www.juniper.net/techpubs/> .

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books> .

Documentation Conventions

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html> .

PART 1

Getting Started

- Overview on page 3

CHAPTER 1

Overview

- IBM Systems Director and Junos Space Integration Overview on page 3
- IBM Systems Director and Junos Space Integration System Requirements on page 4

IBM Systems Director and Junos Space Integration Overview

You can integrate IBM® Systems Director™ and Juniper Networks Junos Space software to manage Juniper Networks devices. You must have administrator privileges.

The integrated software provides the following features:

- Launch in Context (LiC)
- Single Sign On (SSO)

Launch in Context—By registering Junos Space with IBM Systems Director's LiC feature, you can navigate directly from the IBM Systems Director user interface to actions in Junos Space for managing Juniper devices. See “Launching Junos Space Actions from IBM Systems Director” on page 59.

Single Sign On—Using the SSO feature, you can access actions in Junos Space directly from IBM Systems Director without having to re-enter your user credentials. See “IBM Systems Director and Junos Space Single Sign On Setup Overview” on page 31.

From IBM Systems Director, you can launch Junos Space actions, including:

- View device physical inventory. See “Launching Junos Space Device Physical Inventory from IBM Systems Director” on page 59
- View device logical inventory. See “Launching Junos Space View Logical Inventory from IBM Systems Director” on page 61.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - Launching Junos Space Actions from IBM Systems Director on page 59

IBM Systems Director and Junos Space Integration System Requirements

For IBM® Systems Director™ to launch Juniper Networks Junos Space to manage Juniper Networks devices, the following software and hardware are required:

- IBM Systems Director Release 6.2
- Junos Space Release 1.4 running on a Junos Space JA1500 Appliance or Junos Space Virtual Appliance. You must log in as the default Super Administrator or System Administrator to upgrade Junos Space.
- Juniper Networks MX Series Edge Routers and the EX 4200 Ethernet Switch running Junos OS Release 10.0 and above
- The minimum Junos Space predefined user role for the integration is Device Manager.

- Related Topics**
- IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

PART 2

System Setup

- Installation and Configuration on page 7
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CHAPTER 2

Installation and Configuration

- IBM Systems Director and Junos Space Integration Setup Overview on page 7
- Installing IBM Systems Director on page 8
- Upgrading the Junos Space Software on page 8
- Deploying a Junos Space Virtual Appliance on page 11
- Discovering Junos Space from IBM Systems Director on page 27
- Downloading and Registering the Juniper Launching Template in IBM Systems Director on page 28

IBM Systems Director and Junos Space Integration Setup Overview

Perform the following tasks for IBM® Systems Director™ to launch Juniper Networks Junos Space to manage Juniper Networks devices.

1. Install IBM Systems Director 6.2.
See “Installing IBM Systems Director” on page 8.
2. Install Junos Space 1.4
See “Upgrading the Junos Space Software” on page 8.
See “Deploying a Junos Space Virtual Appliance” on page 11
3. Discover Junos Space from IBM Systems Director.
See “Discovering Junos Space from IBM Systems Director” on page 27.
4. Download and register the Juniper Networks launching template to IBM Systems Director.
See “Downloading and Registering the Juniper Launching Template in IBM Systems Director” on page 28.
5. Setup SSO in Junos Space and IBM Systems Director.
See “IBM Systems Director and Junos Space Single Sign On Setup Overview” on page 31.
6. Setup LiC in Junos Space and IBM Systems Director,
See “IBM Systems Director and Junos Space LiC Setup Overview” on page 45.

After you have set up Junos Space and IBM Systems Director, you can manage Juniper Networks devices from IBM Systems Director to manage Juniper Networks devices.

For more information, see “Launching Junos Space Actions from IBM Systems Director” on page 59.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

Installing IBM Systems Director

Install IBM Systems Director Release 6.2 so that IBM Systems Director launches Juniper Networks Junos Space to manage Juniper Networks devices.

Install IBM Systems Director from the IBM Support Portal:

To install IBM Systems Director:

- Use the following URL:
<http://www-03.ibm.com/systems/software/director/downloads/integration.html>

To refer to the IBM Systems Director documentation:

- Use the following URL: <http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp>

- Related Topics**
- Upgrading Junos Space Software
 - Deploying a Junos Space Virtual Appliance on page 11
 - IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

Upgrading the Junos Space Software

Junos Space administrator can upgrade software for the JA1500 Junos Space appliance by downloading the Junos Space Upgrade image file from the Juniper Networks software download site onto the local client file system. Once downloaded, upload the Junos Space software to Junos Space using Platform > Administration > Manage Applications Upgrade Platform action. Thereafter, Junos Space upgrades the selected software. When you perform an upgrade, all appliances (nodes) in the fabric are upgraded with the new software.



CAUTION: The Junos Space Upgrade supports only two consecutive releases. You can not directly upgrade from Junos Space release 1.0 or release 1.1. to release 1.4. Instead, you must indirectly upgrade from Junos Space release 1.0 or Release 1.1 to release 1.2 or release 1.3 before upgrading to release 1.4.

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- Upgrading from Junos Space Release 1.2 to Release 1.4 on page 10
- Upgrading Junos Space Release 1.3 to Release 1.4 on page 11

Junos Space 1.4 Release Highlights

The Junos Space Upgrade Release 1.4 includes:

Junos Space Release 1.4 Contents

- Network Application Platform Release 1.4 (The platform provides the operating environment for Junos Space, therefore upgrade using the Platform > Administration > Manage Application Upgrade Platform action.)
- Service Now Release 1.4

Available Hot-Pluggable Applications

The following applications are hot-pluggable in Junos Space Release 1.4. Hot-pluggable applications mean that adding removing, and upgrading occurs while Junos Space is still running, and without service interruption. A hot-pluggable application is packaged separately and has an separate image file for installing and upgrading.

- Network Activate Release 1.4
- Service Now Release 1.4
- Virtual Control Release 1.4
- Security Design Release 1.4
- Ethernet Design Release 1.4

Upgrade to Junos Space Release 1.4 Scenarios

- Upgrade Junos Space release 1.2 to release 1.4 using **Platform > Administration > Manage Software > Upload Software**.
- Upgrade Junos Space release 1.3 to release 1.4 using **Platform > Administration > Manage Application > Upgrade Platform**.

Before You Begin

Before you upgrade the Junos Space Software, ensure that you are aware of the following:

- Upgrading to Junos Space release 1.4 clears existing user preferences set using the User Preference global action icon at the right in the title bar of Application Chooser.

- We recommend that you:
 - Back up the Junos Space database before you begin the upgrade process. See also Junos Space Software Upgrade Overview.
 - Clear the Web browser cache before logging in to the upgraded Junos Space software.
- You must log in as the default super administrator or system administrator to upgrade Junos Space.

Upgrading from Junos Space Release 1.2 to Release 1.4

This procedure describes how to upgrade the Junos Space software from release 1.2 to release 1.4.



NOTE: When upgrading Junos Space from release 1.2 to release 1.4, the Network Application Platform and Service Now application are upgraded only. Ethernet Activator and Campus Builder applications are disabled. You must upgrade these applications to release 1.4 (see the *Junos Space Network Platform User Guide*).

To add or upgrade software:

1. Download the latest Junos Space software file from the Juniper Networks software download Web site to the local appliance. See <https://www.juniper.net/support/products/space/#sw>.
2. In the current version of the Junos Space software, navigate to **Platform > Administration > Manage Software > Upload Software**.
The **Upload Software** dialog box appears.
3. Use the **Browse** button to navigate to the latest Junos Software release file.
4. Click **Upload** to upload the software image.
Wait until the software uploading is complete.
5. Select **Platform > Administration > Manage Software**.
The **Manage Software** inventory page appears displaying the Junos Space software file that you uploaded.
6. Select the Junos Space software file.
7. Choose **Install Software** from the **Actions** drawer.
The **Install Software** confirmation window appears.
8. Select the file, and click **Install**.
Junos Space prompts you to enter a user name and password to enter maintenance mode. The user name is **maintenance**; the password is one that the administrator created during the initial installation process.
9. Enter the maintenance mode user name and password in the text field.
10. Click **OK**.

Junos Space displays a status window during the software upgrade process

11. When the software upgrade completes, click the **Return to Maintenance Menu** link.
The Maintenance Mode Actions window appears.
12. Click the **Log Out and Exit from Maintenance Mode** link.
The installation progress window appears.



NOTE: The software upgrade can take a few minutes to complete.

When the installation is complete, the Junos Space login prompt is displayed.



NOTE: If a blank page is displayed instead of the login prompt, click Refresh. The login prompt is then displayed.



NOTE: We recommend that you clear the Web browser cache before logging in to the upgraded software. After clearing the cache, close the Web browser and reopen it.



NOTE: We also recommend that you perform a functional audit on all deployed services after upgrading.

13. Log in to Junos Space and begin using the upgraded software.

Upgrading Junos Space Release 1.3 to Release 1.4

The Platform provides the running environment for all Junos Space applications, so upgrading it causes operation interruption.



NOTE: When upgrading Junos Space from release 1.3 to release 1.4, the Network Application Platform and Service Now application are upgraded only. Junos Space release 1.3 applications are disabled. You must upgrade release 1.3 disabled applications to release 1.4 (see the *Junos Space Network Application Platform User Guide*. Do not add disabled Junos Space Release 1.4 applications using Platform > Administration > Manage Applications > Add Application.

To upgrade Junos Space from release 1.3 to release 1.4, see Upgrading the Network Application Platform.

Deploying a Junos Space Virtual Appliance

You use the VMware vCenter Converter to deploy one or more Junos Space virtual appliances on a VMware ESX server.

The Junos Space Virtual Appliance requires a VMware ESX server, version 3.5 or later, that can support a virtual machine with the following configuration:

- 64-bit quad processor with at least 2.66 GHz
- 8 GB memory



NOTE: The ESX host server must be configured to support the creation and operation of a virtual machine allocated with 8 GB memory. If the ESX server does not support this requirement, you will not be able to successfully deploy the Junos Space Virtual Appliance. The Junos Space OVF file is initially configured with 4 GB memory; however, during the configuration of the Virtual Appliance you must increase memory to 8 GB.

- One RJ-45 10/100/1000 Network Interface Connector
- 45 GB hard disk (5 GB initial disk resources + 40 GB disk resources to be added)



NOTE: The ESX host server must include an Enterprise edition license, which might not be installed on ESX server by default. The Enterprise edition license provides the privileges that are required for adding disk resources to the Junos Space Virtual Appliance.

This topic includes the following tasks:

1. Installing the VMware ESX Server on page 12
2. Extracting Files from the Junos Space Virtual Appliance Package on page 13
3. Converting a Virtual Appliance to a Virtual Machine by Using the VMware Converter on page 13
4. Increasing RAM and Virtual Processors (CPU) for a Junos Space Virtual Appliance on page 19
5. Adding Disk Resources for a Junos Space Virtual Appliance on page 22

Installing the VMware ESX Server

To download the installation package for the VMware ESX server, go to <http://www.vmware.com/download/vi/>.

To view installation instructions for the VMware ESX server, go to http://www.vmware.com/support/pubs/vi_pubs.html.



NOTE: You install the VMware Infrastructure client when you install the VMware ESX server.

Extracting Files from the Junos Space Virtual Appliance Package

The Junos Space Virtual Appliance is created in the Open Virtualization Format (OVF) 1.0. The Junos Space package, named *.tar.gz, contains the OVF file and corresponding disk files.

To extract files from the Junos Space Virtual Appliance package:

1. Create a directory for the extracted Junos Space package files.

For example, from a Linux computer, use the following command:

```
mkdir Space
```

2. Use an extraction utility to extract all compressed files from the **space-1.4R1.x.tar.gz** package into the directory you created, for example:

```
tar xvfz space-1.4R1.x.tar.gz /Space
```

This command creates a new directory named space-1.4R1.x.

3. Verify that the Junos Space package files have been extracted to the new directory, for example:

```
cd Space/space-1.4R1.x  
ls
```

The space-1.4R1.x directory includes the files described in Table 2 on page 13.

Table 2: Files in the space-1.4R1.x Directory

File Name	Description
space-1.4R1.x.mf	The manifest file.
space-1.4R1.x.ovf	The virtual appliance source file that is required to convert the virtual appliance to a virtual machine.
space-1.4R1.x-disk1.vmdk	The virtual disk file— a virtual partition with data and installed operating system (Microsoft Windows, Linux, Mac OS X, and so forth) that VMware uses to run as a virtual machine under the host operating system.

Converting a Virtual Appliance to a Virtual Machine by Using the VMware Converter

To deploy a Junos Space Virtual Appliance to an ESX server, you use the VMware vCenter Converter Standalone application, version 4.01. You convert the Junos Space Virtual Appliance (source) to a VMware Infrastructure virtual machine (destination) to deploy the Junos Space Virtual Appliance on a VMware ESX Server.



NOTE: Refer to the VMware vCenter Converter Standalone User's Guide at http://www.vmware.com/pdf/converter_standalone_guide401.pdf for complete information on converting your Junos Space Virtual Appliance. For instructions on installing the VMware Converter Standalone, see Chapter 3, "Installing and Uninstalling VMware vCenter Converter Standalone" in the User's Guide. For complete information about converting a Junos Space Virtual Appliance to a VMware Infrastructure virtual machine, see Chapter 4, "Converting Machines" in the User's Guide.

To convert a Junos Space Virtual Appliance to a virtual machine:

1. Start the VMware vCenter Converter Standalone application.
The Conversion wizard is displayed.
2. Click **Convert Machine** from the application menu.
The Specify Source page is displayed.
3. Select **Virtual appliance** from the **Select source type** drop-down menu.
4. From the **Location** drop-down menu, select the location of the source space-1.4R1.x.ovf file.
 - If the file is on your hard drive or a network location, select **File System**.
 - If the file is on a Web server, select **URL** and enter the URL in the **Enter the web location** field.
5. Browse to the space-1.4R1.x.ovf file.

The following illustration shows the Specify Source/Machine Type page.

The screenshot shows the 'Specify Source' page of the VMware vCenter Converter Standalone wizard. The 'Machine Type' tab is active, and 'Virtual appliance' is selected in the 'Select source type' dropdown. Below this, the 'Location' is set to 'File System', and the 'Browse to virtual appliance file:' field contains the path 'C:\Program Files\Space\space-1.xR1.1.ovf'. A 'Browse...' button is located to the right of the file path. On the right side of the window, there is a 'Virtual Appliance' information panel with a description and a link to the VMware website. At the bottom of the window, there are buttons for 'Help', '< Back', 'Next >', and 'Cancel'.

6. Click **Next**.
The Appliance details page displays the download size.
7. Click **Next**.
The Specify Destination/Destination Type page is displayed.

8. From the Select destination type drop-down menu, select **VMware Infrastructure virtual machine**.
9. From the Server drop-down menu, select the VMware server , or enter the IP address or host name for the server.
10. Enter the User name and Password for the VMware server.

The following illustration shows the Specify Destination/Destination Type page.

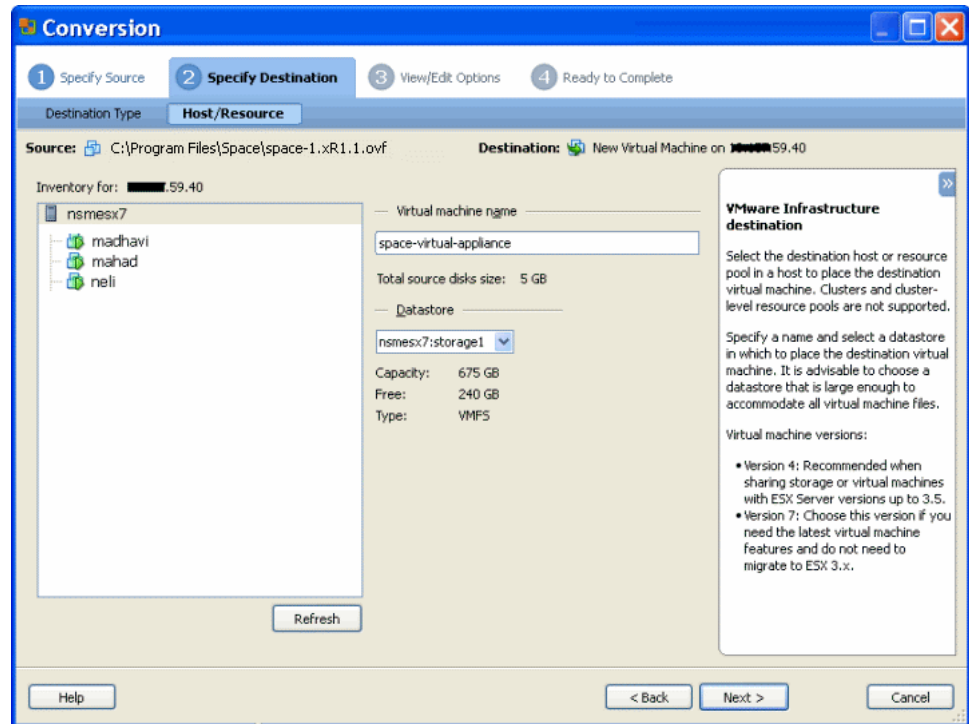
11. Click **Next**.

The Host/Resource page is displayed.

12. Enter a name for the virtual machine.
13. From the drop-down menu, select a datastore.

The datastore capacity appears under the drop-down menu. Choose a datastore that can accommodate all files of the source virtual machine. The source size is displayed above the selected datastore.

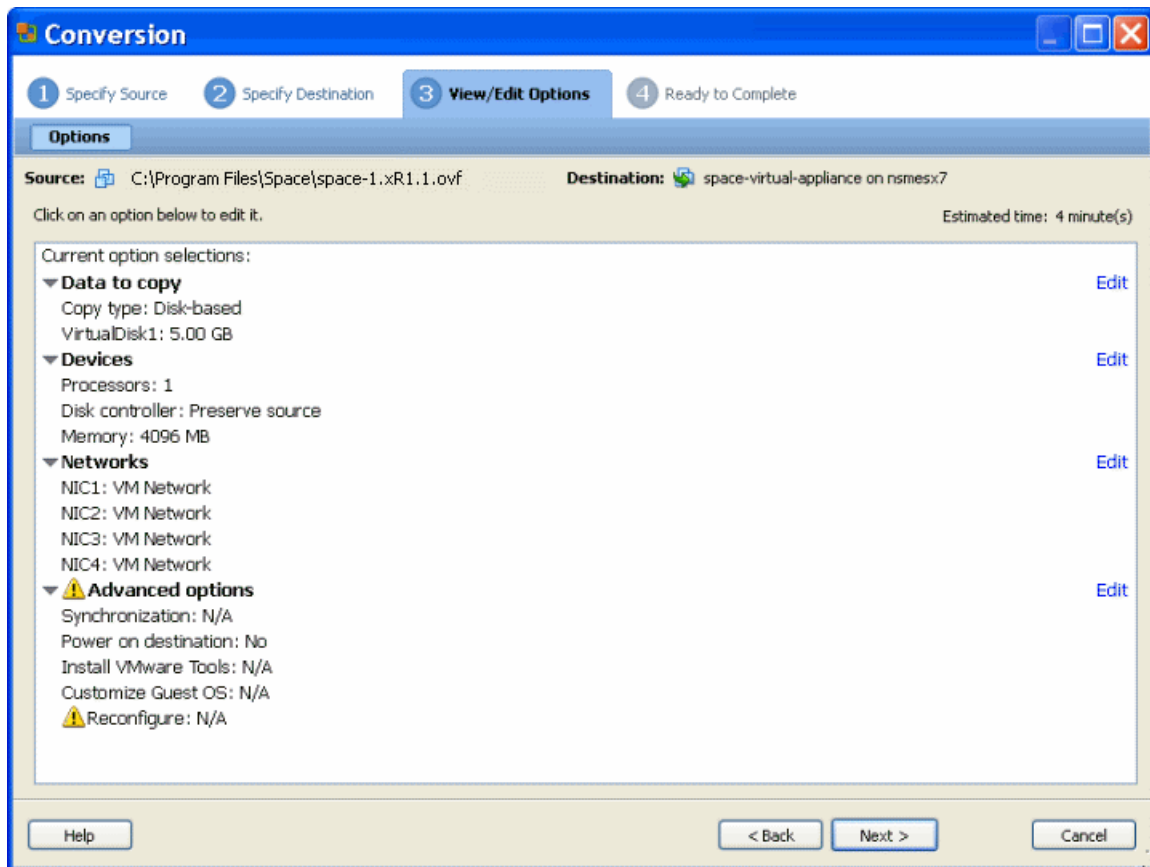
The following illustration shows the **Specify DestinationHost/Resource** page.



14. Click **Next** to create a virtual machine to run on an ESX server host that vCenter Server or a standalone ESX host manages.

The View/Edit Options page is displayed.

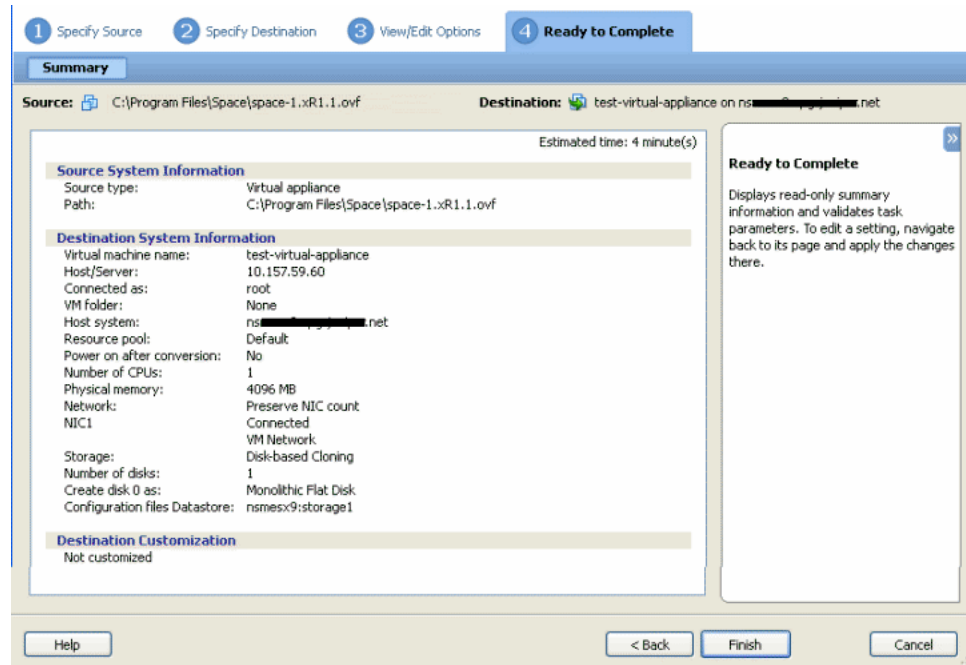
15. Optional: You can make more precise settings to the virtual machine conversion task from the View/Edit Options page. The following illustration shows the configuration options that are available from the View/Edit Options page.



16. (Optional) Select one or more options to edit and make your changes.

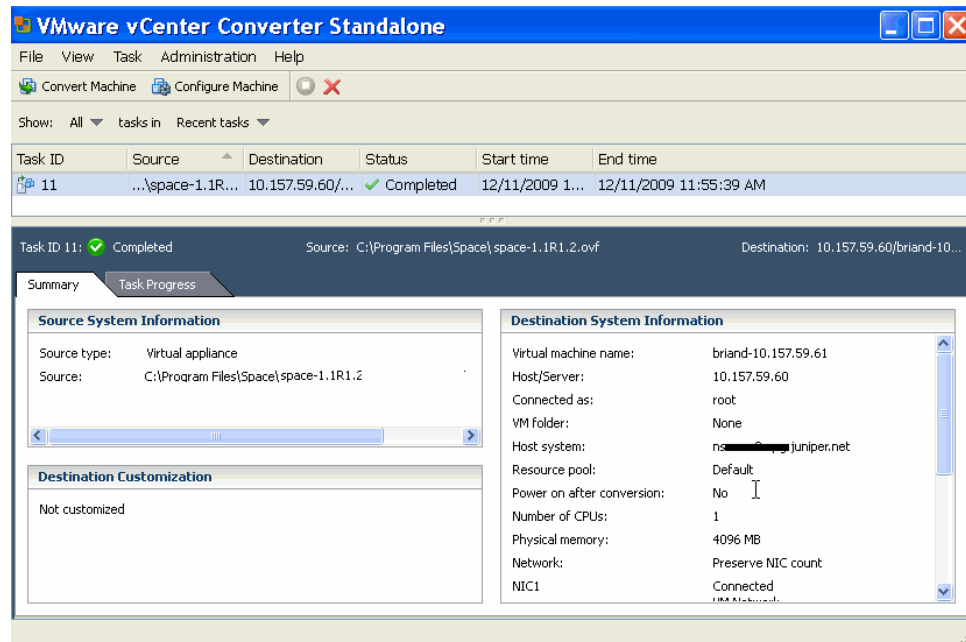
17. After you have made the changes you want, click **Next**.

The Ready to Complete page is displayed, as shown in the following example.



18. Verify that the virtual machine conversion configuration shown in the Ready to Complete box is complete and accurate. Click **Finish** to convert the Junos Space Virtual Appliance to a virtual machine.

When the virtual machine conversion finishes, the VMware Converter Standalone displays the status. In the following illustration, the Status column displays "Completed", which indicates the conversion was successful.

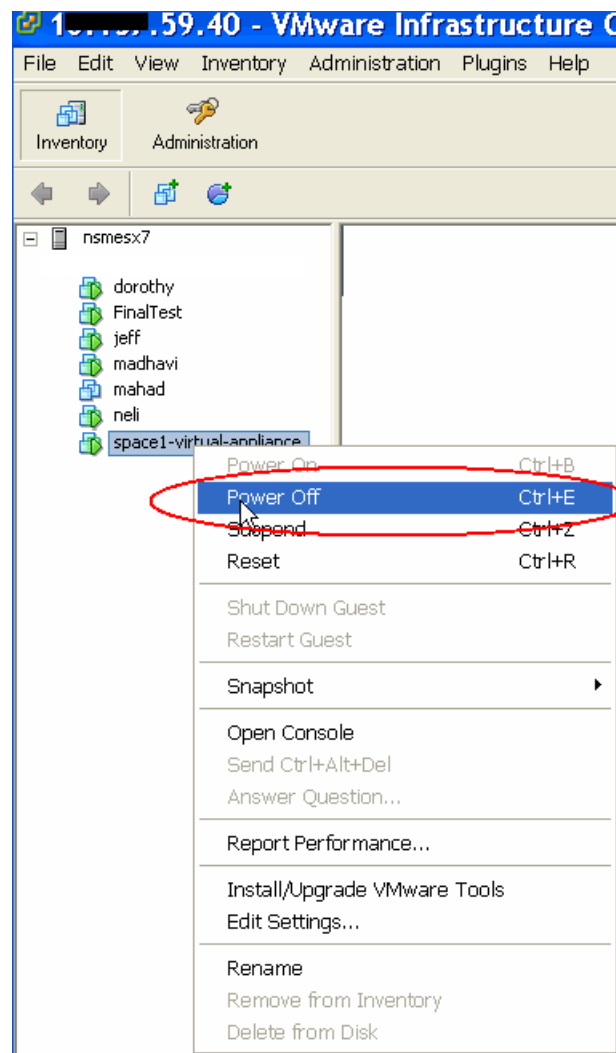


Increasing RAM and Virtual Processors (CPU) for a Junos Space Virtual Appliance

The distributed Junos Space Virtual Appliance files are created with 4 GB of RAM and one virtual processor (CPU). To support Junos Space functionality, after deploying the Junos Space Virtual Appliance to the VMware ESX server, you must increase RAM and add virtual processors for the Junos Space Virtual Appliance.

To increase RAM and add virtual processors for the Junos Space Virtual Appliance:

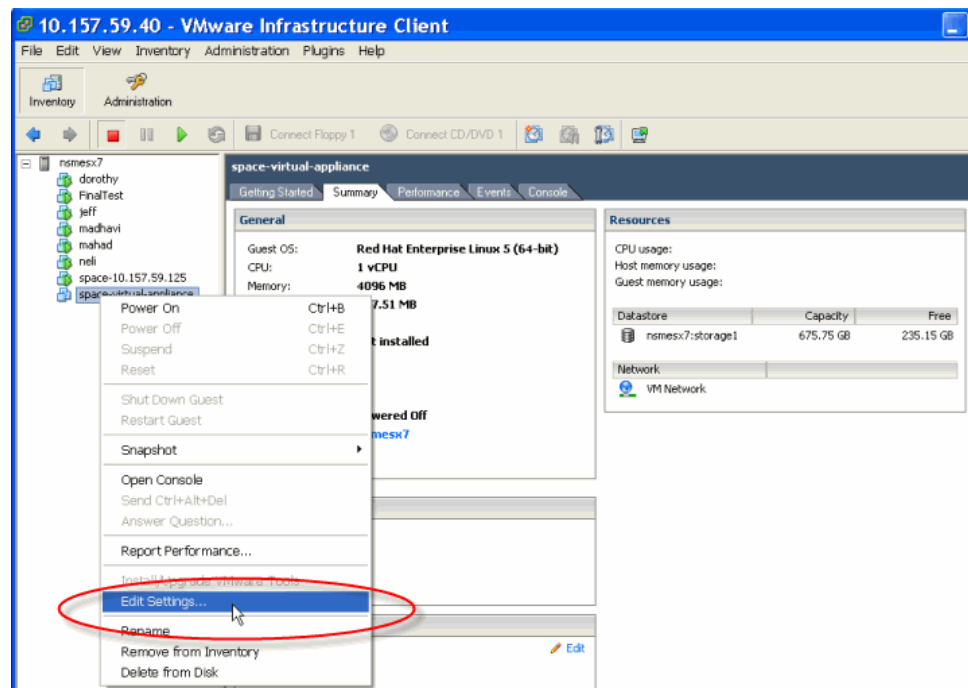
1. Launch the VMware Infrastructure client that is connected to the ESX Server where the Junos Space Virtual Appliance is deployed.
2. Select the Junos Space Virtual Appliance from the inventory view.
3. If the Junos Space Virtual Appliance is powered on, you must power off the appliance to configure RAM and increase the number of virtual processors (CPUs). To power off the Virtual Appliance, right-click the Junos Space Virtual Appliance icon, and select **Power Off**.



4. Select the **Summary** tab to view the Junos Space virtual machine settings for CPU and memory.

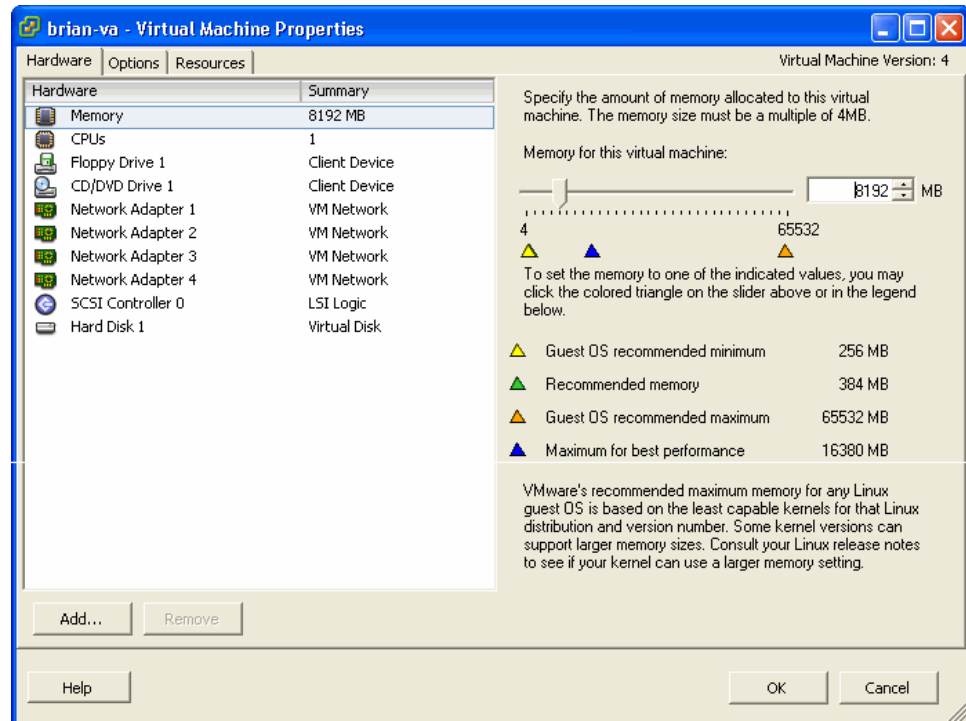
The default CPU setting is **1**. The default memory setting is **4096 MB**.

5. Right-click the Junos Space Virtual Appliance icon, and select **Edit Settings** from the drop down menu.

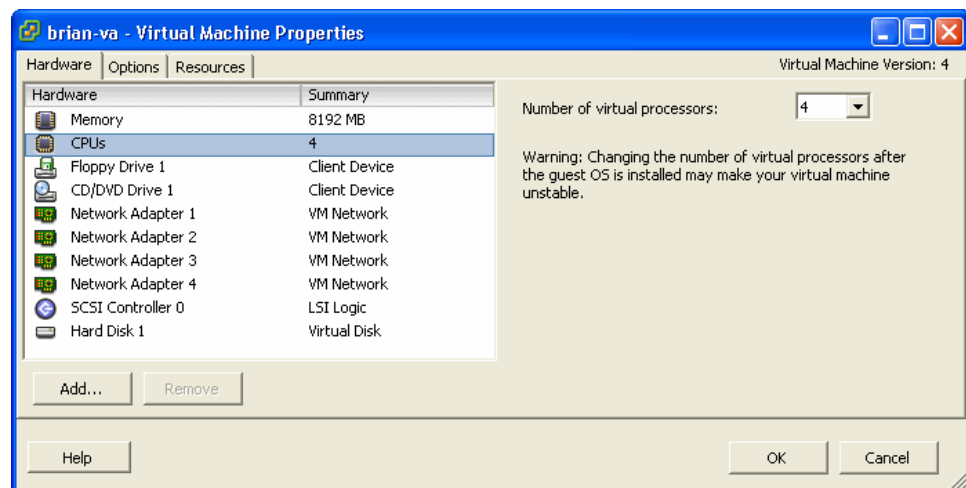


The Virtual Machine Properties dialog box appears.

6. Select the **Hardware** tab.
7. Select **Memory**.
8. Drag the slider to increase memory to **8192 MB**.



9. Click **OK**.
10. Right-click the Junos Space Virtual Appliance icon, and select **Edit Settings** from the drop down menu.
11. From the **Hardware** tab, and select **CPU**s.
12. Set the value for **Number of virtual processors** field to **4**, as shown in the following illustration.



13. Click **OK**.

The number of virtual processors (CPU) for your Junos Space Virtual Appliance is increased to 4.

Adding Disk Resources for a Junos Space Virtual Appliance

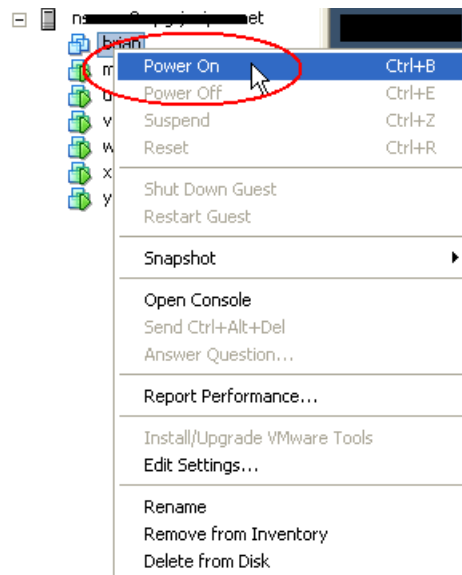
The distributed Junos Space Virtual Appliance files are created with 5 GB of disk space. To support Junos Space functionality, after deploying the Junos Space Virtual Appliance to the VMware ESX server, you must add disk resources for the Junos Space Virtual Appliance.



NOTE: You must *add* a disk resource to increase disk space for a Junos Space Virtual Appliance. You cannot resize the existing disk by assigning a new size.

To add disk resources for the Junos Space Virtual Appliance:

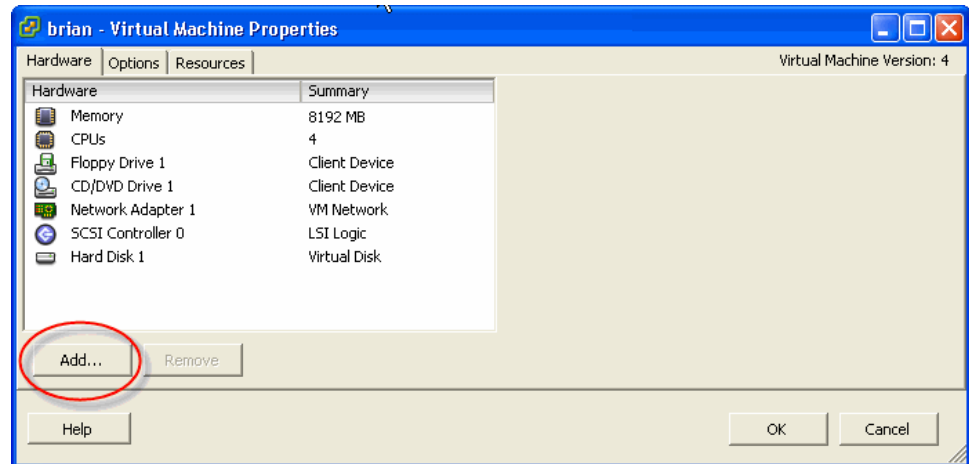
1. In the VMware Infrastructure client, right-click the Junos Space Virtual Appliance icon, and select **Power On**, as shown in the illustration. The Junos Space Virtual Appliance must be powered on to add disk resources.



2. In the VMware Infrastructure client, right-click the Junos Space Virtual Appliance icon, and select **Edit Settings** from the drop down menu.

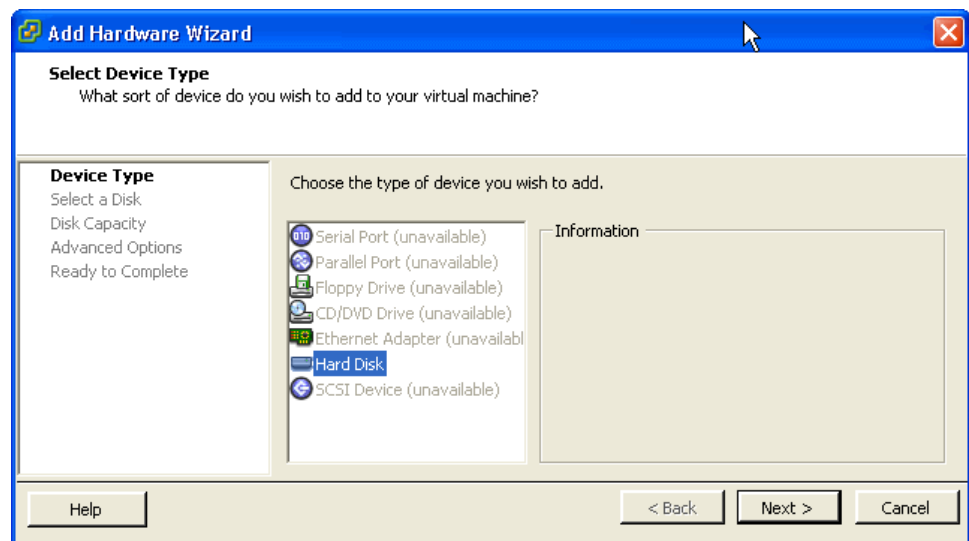
The Virtual Machine Properties window is displayed.

3. Select the Hardware tab, and click **Add**, as shown in the following illustration.



The Select Device Type window is displayed.

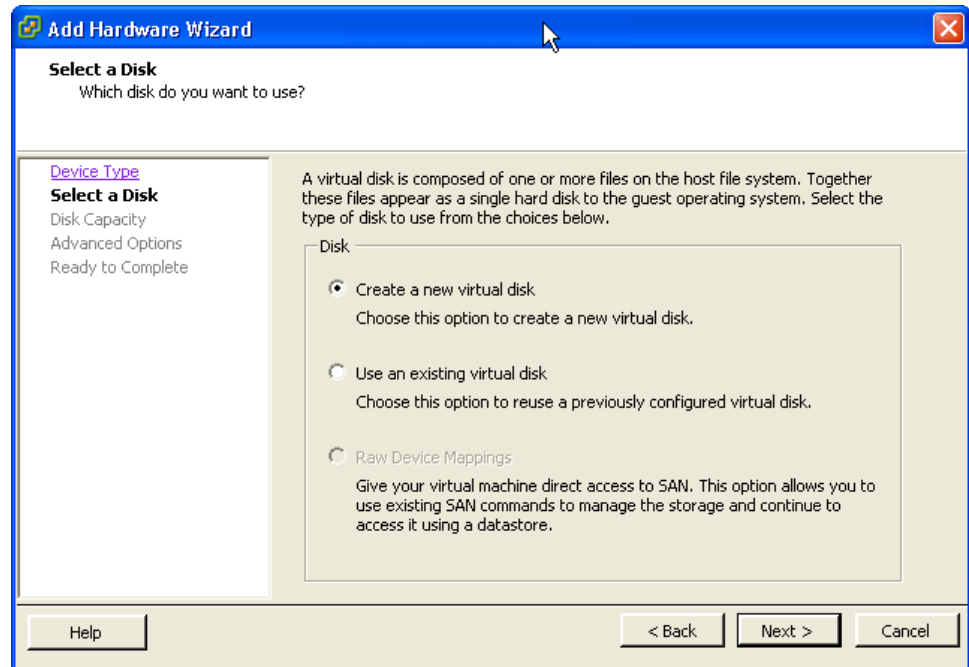
4. Select **Hard Disk**, as shown in the following illustration.



5. Click **Next**.

The Select a Disk window appears.

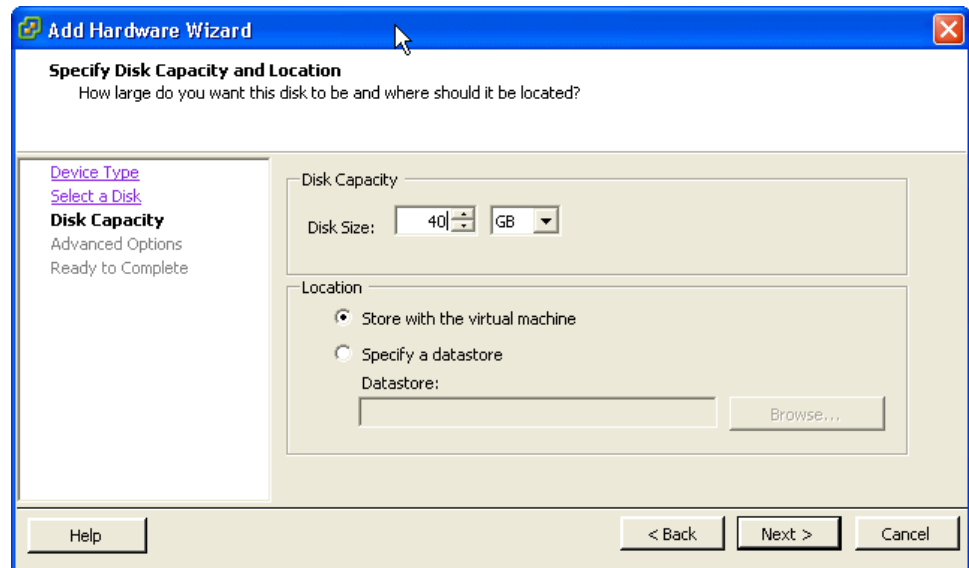
6. Select **Create a new Virtual disk**.



7. Click **Next**.

The Specify Disk Capacity and Location window appears.

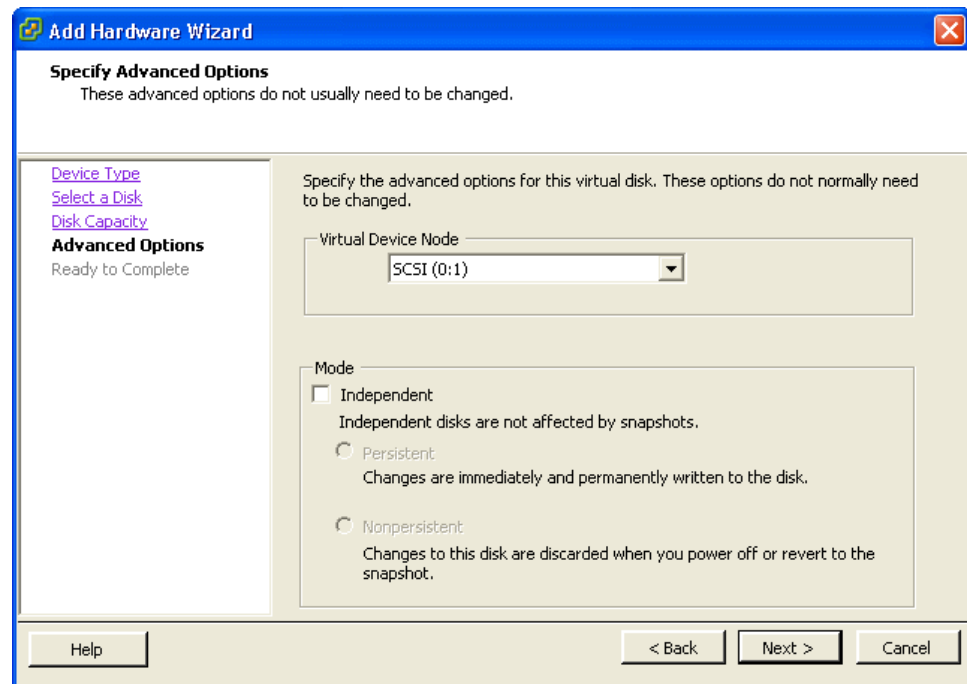
8. Set the Disk Size field to **40 GB**.



The Location option should remain at the default setting **Store with the virtual machine**.

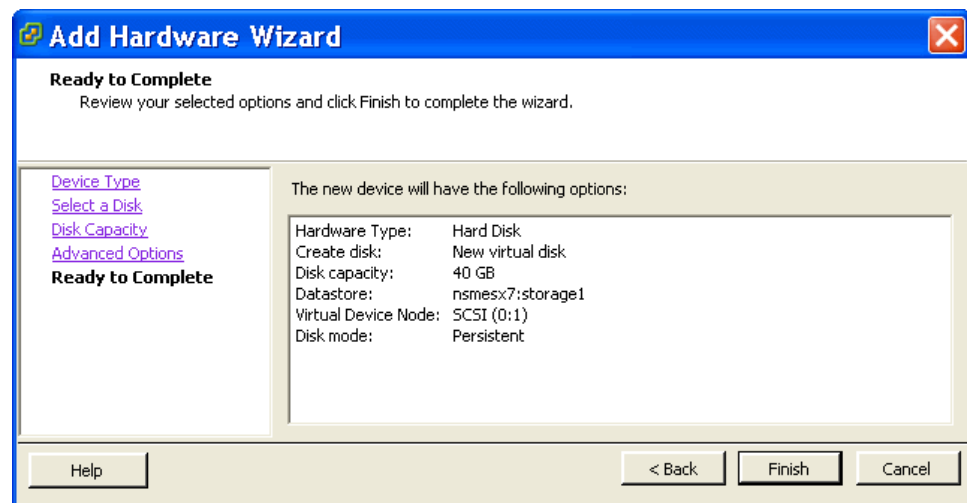
9. Click **Next**.

The Specify Advanced Options window is displayed.



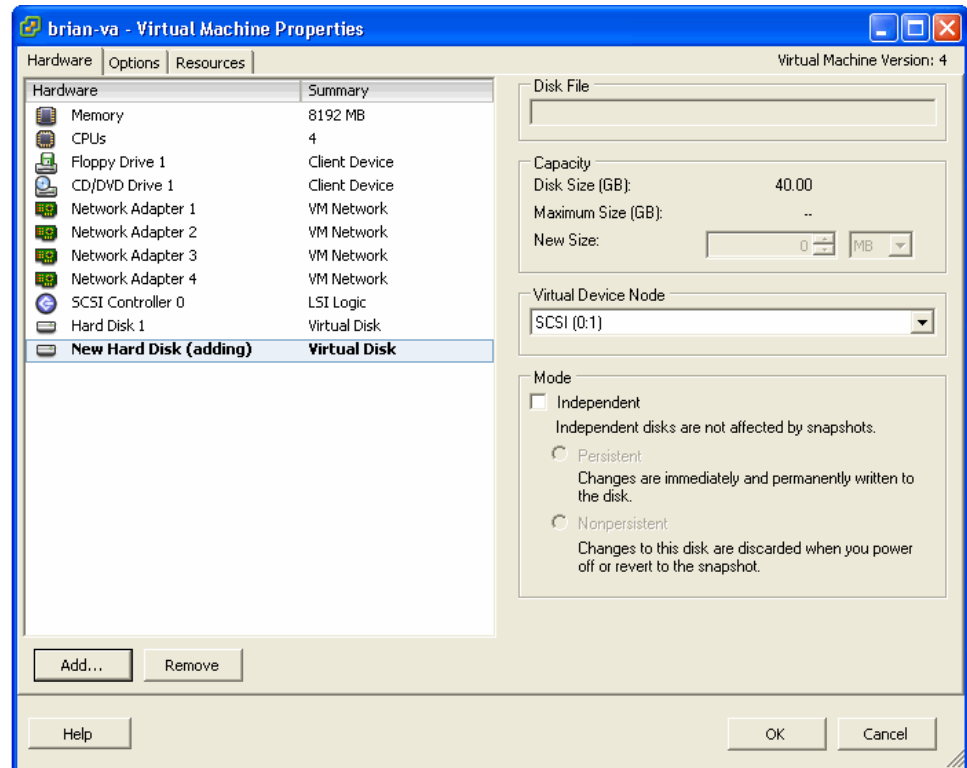
10. Leave the default settings unchanged, and click **Next**.

The Ready to Complete window is displayed.



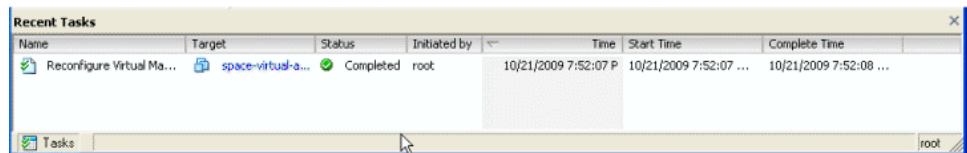
11. Review your selected options, and click **Finish**.

The Virtual Machine Properties window displays the new virtual disk is displayed in the Hardware list.



12. Click **OK** to create the new virtual disk.

A status bar shows progress at the bottom of the window.



NOTE: After the new virtual disk is created, the Junos Space node must be scanned to detect the additional disk space that you added. To start the scan for additional disk space, you select the **Expand VM Drive Size** option in the Junos Space Settings Menu, immediately after you configure basic settings for your Junos Space Virtual Appliance.

The next step is to configure basic settings for your deployed Junos Space Virtual Appliance. To configure basic settings for the appliance, you access the console in the VMware Infrastructure Client.

To deploy another Junos Space Virtual Appliance, you complete the all the preceding steps (and configure basic settings) for each Junos Space Virtual Appliance that you want to create.

- Related Topics**
- Configuring Basic Settings for a Junos Space Virtual Appliance
 - Junos Space Virtual Appliance Overview

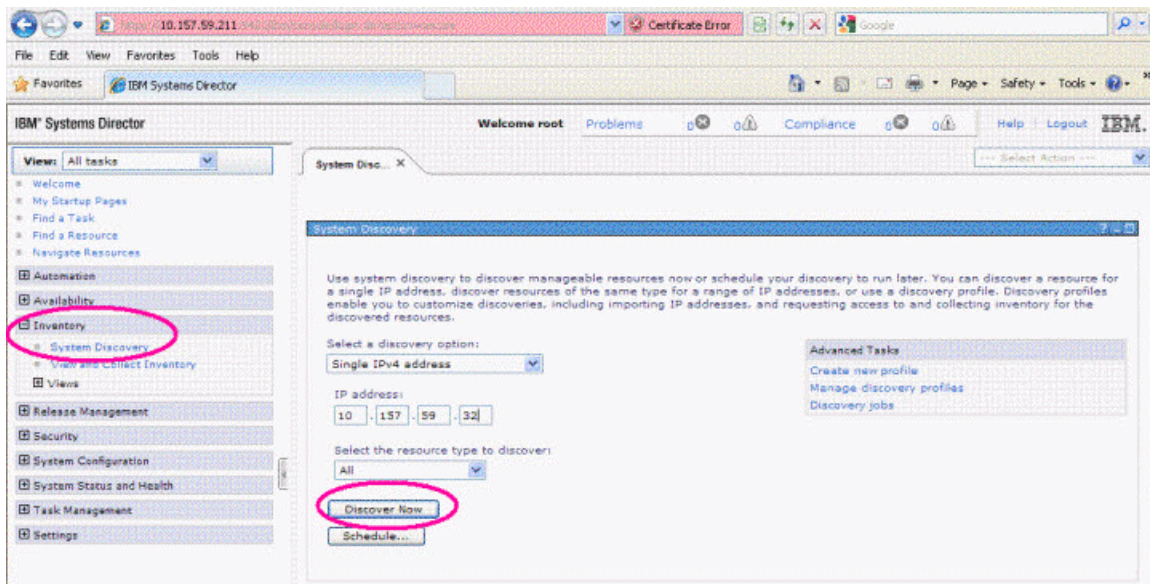
- Adding a Fabric Node
- Viewing Nodes in the Fabric

Discovering Junos Space from IBM Systems Director

You must discover the Junos Space server from IBM Systems Director to manage Juniper Networks devices.

To discover Junos Space from IBM Systems Director:

1. Start IBM Systems Director.
2. Log in to IBM Systems Director.
3. From the task list in the left pane, click **Inventory** and **System Discovery**.
4. On the **System Discovery** tab in the right pane, enter the IP address of the Junos Space server.
5. On the **System Discovery** tab in the right pane, click **Discover Now**.



The Junos Space server appears in the **Discovered Manageable Systems** table.

6. From the task list in the left pane, select **Navigate Resources**.
7. From the **Groups** table on the **Navigate Resources** tab, select **All Systems**.

The Junos Space server appears as an entry in the **Groups > All Systems** table.

Select	Name	Type	Access	Problems	Compliance	IP Addresses
<input type="checkbox"/>	10.155.64.5	Operating System	OK	OK	OK	10.155.64.5
<input type="checkbox"/>	10.157.59.32	Operating System	OK	OK	OK	10.157.59.32, fe80::...
<input type="checkbox"/>	42276eef-df59-9d1d-c02e-4	Virtual Server	OK	OK	OK	10.157.59.211
<input type="checkbox"/>	50079505-7558-ccca-c8a3-9	Virtual Server	OK	OK	OK	fe80::0:0:0:250:...
<input type="checkbox"/>	Ajax	Switch	OK	OK	OK	10.155.64.5, 128...
<input type="checkbox"/>	cookies-lnx.spg.juniper.net	Operating System	OK	OK	OK	10.157.59.211

- Related Topics**
- IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM System Director Overview

Downloading and Registering the Juniper Launching Template in IBM Systems Director

You must download and register the Juniper Networks launching template into the IBM Systems Director server as part of setting up the system for launching Junos Space actions.

To download and register the Juniper Networks launching template:

1. Open a Web browser on the IBM Systems Director server.
2. Enter the URL of the template file:

https://a.b.c.d/templates/juniper_launch_template.json

Where *a.b.c.d* is the Junos Space server IP address.

3. Save the template file into the IBM Systems Director file system.
4. Register the template by typing the following command in IBM Systems Director:

```
/install_dir/smcli importextlps -f template_file_path
```

Where *install_dir* is the IBM Systems Director installation directory that has a default value of `/opt/ibm/director/bin` on the Linux platform, and *template_file_path* is the filename or the qualified filename, including the path.

5. Type the following command in the IBM Systems Director server to verify the installed launch points.

```
/install_dir/smcli listextlps -A JUNOSSPACE For example:
```

```
user@host# /opt/ibm/director/bin/smcli listextlps -A JUNOSSPACE
```

The output of the command appears as follows:

```
Name: Junos Space Physical Inventory
Application ID: JUNOSSPACE
Launch point ID: physical_inventory_launch_point
Type: URI
URI Base: https://10.157.59.32/mainui
URI Extension: /
```

```
Name: Junos Space Logical Inventory
Application ID: JUNOSSPACE
Launch point ID: logical_inventory_launch_point
Type: URI
URI Base: https://10.157.59.32/mainui
URI Extension: /
```

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

CHAPTER 3

Single Sign On (SSO) Setup

- IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
- Creating Users on page 31
- Predefined Administrator Roles on page 33
- Configuring the SSO Credentials in IBM Systems Director on page 40

IBM Systems Director and Junos Space Single Sign On Setup Overview

Single Sign On (SSO) provides the capability for a launched application to authenticate a user by user name and password transparently using credentials provided by IBM® Systems Director™.

For SSO to work properly, you, as the network administrator must:

- Create a user account in Junos Space. See “Creating Users” on page 31.
See also “Predefined Administrator Roles” on page 33.
- Configure SSO credentials in IBM Systems Director.
See “Configuring the SSO Credentials in IBM Systems Director” on page 40.

Related Topics

- IBM Systems Director and Junos Space Integration System Requirements on page 4
- IBM Systems Director and Junos Space Integration Setup Overview on page 7
- IBM Systems Director and Junos Space LiC Setup Overview on page 45
- Launching Junos Space Actions from IBM Systems Director on page 59

Creating Users

The Create User task allows you, the Super Administrator and the User Administrator to create Junos Space user accounts that specify the credentials and predefined roles allowing users to log in and use Junos Space applications, workspaces, and tasks. Each user account must include a login ID, password, first name, and last name.

For each user, you can assign roles that define the tasks and objects (devices, users, services, and so forth) that the user can access and manage. You can assign multiple roles to a single user and assign the same role to multiple users.

The Use Same Roles Assigned To option, allows you to quickly create multiple user accounts without having to reselect the same predefined roles. To see the available predefined user roles, open the **Create User** dialog box by navigating to **Platform > Users > Manage Users > Create User** task.



NOTE: A user can access all the objects within the workspace that the assigned role controls.

- Creating a New User Account on page 32

Creating a New User Account

To create a new user account:

1. Navigate to **Platform > Administration > Users > Create User** task. The **Create User** dialog box appears.
2. In the **Login ID** field, enter a login ID for the new Junos Space user account.
The login ID cannot exceed 32 characters. Allowable characters include dash (-), underscore (_), letters, and numbers.
3. In the **Password** field, enter a password for the user account.
The password must include at least two numbers or symbols and must be from 6 to 31 characters.



NOTE: All passwords in Junos Space are case-sensitive.

4. In the **Confirm Password** field, reenter the password you entered.
5. In the **First Name** field, enter the user's first name.
The name cannot exceed 32 characters.
6. In the **Last Name** field, enter the user's last name. The name cannot exceed 32 characters.
7. In the **Email** field, enter the user's e-mail address.
8. In the **Image File** field, upload the user's photo ID:
 - a. Use the **Browse** button to locate the user's photo ID file.
You can upload BMP, GIF, JPG, and PNG image file formats.
 - b. Click **Upload**.
Junos Space uploads and saves the photo ID file for the user account.



NOTE: If you do not want to assign the user roles at this point, you can click **Create** to create the user account without assigning any roles. You can use the **Platform > Users > Manage Users** workspace later to modify the user account and assign roles. If you want to assign user roles now, proceed to the next step.

9. To assign roles to the new user, do one of the following:

- Select the **Use Same Roles Assigned to** check box and select the name of an existing user whose roles you want to assign to the new user.



TIP: Enter one or more characters of the existing user's name in the **Use Same Roles Assigned to** drop-down list box text field to open the drop-down list box and select a user's name. The assigned roles appear in the **Selected roles** list box. You can modify the new user's role assignments by adding or removing roles from the **Selected Roles** column.

- Use the double list box to select predefined roles for the user. Select one or more roles from the **Available** list box. Selected roles appear in the **Selected** list box. Use the right arrow to move the selected roles to the **Selected** list box. Use the left arrow to remove roles from the **Selected** list box back to the **Available** list box. You can also double-click a role to select or remove it. You see the details of selected roles appear to the right pane of the page.

You can also create user-defined roles for users. For more information, see [Creating a User-Defined Role](#).



NOTE: The minimum role required for configuring a user for IBM Systems Director and Junos Space Launch in Context (LiC) is **Device Manager**.

10. Click **Create** to create the user account with the assigned roles.

The new user account is created in the Junos Space database. You see the new user account on the **Manage Users** inventory page.

Predefined Administrator Roles

Junos Space provides predefined roles that you can assign to users to define administrative responsibilities and specify the management tasks that a user can perform within applications and workspaces.



NOTE: The predefined roles that appear in the Junos Space release that you are using depends on the Junos Space applications that you have installed. For the most current predefined user roles, see the **Platform > Users > Manage Users > Create User** page or the **Platform > Users > Manage Roles** inventory page.

To assign roles to other users in Junos Space, a user must be a Super Administrator or User Administrator.

Each predefined role defines a set of tasks for a single workspace, except the super administrator role, which defines all tasks for all workspaces. By default, Junos Space provides Read privileges on all objects associated with the task groups defined in a predefined role.

Table 3 on page 34 shows the Junos Space predefined roles and corresponding tasks available for installed Junos Space applications.



NOTE: For the latest Predefined roles, see [Platform > Users > Manage Users > Create User](#) or [Platform > Users > Manage Roles](#).

Table 3: Predefined Roles for the Network Application Platform

Predefined Role	Task Group and Tasks	Application > Workspace
Audit Log Administrator	<ul style="list-style-type: none"> View Audit Logs Archive/Purge 	Platform > Audit Logs
Device Image Manager	<ul style="list-style-type: none"> Devices <ul style="list-style-type: none"> Manage Device Adapter <ul style="list-style-type: none"> Upload Adapter Install Adapter Delete Adapter Device Images <ul style="list-style-type: none"> Manage Images <ul style="list-style-type: none"> Upload Image MD5 Validation Result Delete Images Modify Images Stage Images Verify Checksum Deploy Images 	Platform > Devices
Device Images Read Only User	Manage Images	Platform > Device Images

Table 3: Predefined Roles for the Network Application Platform (*continued*)

Device Manager	<ul style="list-style-type: none"> • Discover Devices <ul style="list-style-type: none"> • Discover Targets • Specify Probes • Specify Credentials • Manage Devices <ul style="list-style-type: none"> • Delete Devices • Change Device Credentials • View Physical Inventory • Export Physical Inventory • View Interfaces • Resynchronize with Network • SSH to Device • Secure Console • Add Deployed Devices <ul style="list-style-type: none"> • Add Device • Deploy Devices <ul style="list-style-type: none"> • Add Devices • Connection Profiles <ul style="list-style-type: none"> • Create 	Platform > Devices
Device Script Manager	<ul style="list-style-type: none"> • Manage Scripts <ul style="list-style-type: none"> • View Scripts • Import Scripts • Modify Script • Delete Scripts • Deploy Scripts on Device • Verify Scripts on Device • Enable Scripts on Device • Disable Scripts on Device • Remove Scripts from Device • Execute Script on Device • Export Script 	Platform > Scripts
Device Script Read Only User	<ul style="list-style-type: none"> • Scripts <ul style="list-style-type: none"> • Manage Scripts • View Scripts • Export Scripts 	Platform > Scripts
Job Manager	<ul style="list-style-type: none"> • Manage Jobs <ul style="list-style-type: none"> • Cancel Job • View Recurrence 	Platform > Job Management
Super Administrator	All Junos Space task groups and tasks (See Platform > Users > Create Users user interface for the current roles.)	All Junos Space workspaces (See Platform > Users > Create Users user interface for the current roles.)

Table 3: Predefined Roles for the Network Application Platform (*continued*)

System Administrator	<ul style="list-style-type: none"> • Manage Fabric <ul style="list-style-type: none"> • Add Fabric Node • Manage Databases <ul style="list-style-type: none"> • Backup Database • Delete Database Backup • Restore Database • Troubleshoot Space • Manage Applications <ul style="list-style-type: none"> • Modify Application Settings • Add Application • Uninstall Application • Upgrade Application • Upgrade Platform • Manage Licenses <ul style="list-style-type: none"> • Upload License • Manage Tags <ul style="list-style-type: none"> • Share Tag • Rename Tags • Delete Tags • Apply Tag 	Administration
Tag Administrator	<ul style="list-style-type: none"> • Manage Tags <ul style="list-style-type: none"> • Rename Tag • Delete Tag • Share Tag • Create Tags 	Platform > Administration > Manage Tags
Template Design Manager	<ul style="list-style-type: none"> • Devices <ul style="list-style-type: none"> • Manage Template Definition <ul style="list-style-type: none"> • Create Template Definition • Modify Template • Clone Template • Publish Template • Delete Template 	Platform > Devices
Template Manager	<ul style="list-style-type: none"> • Manage Templates <ul style="list-style-type: none"> • Create Template • Modify Template • Clone Template • Deploy Template 	Platform > Devices

Table 3: Predefined Roles for the Network Application Platform (*continued*)

Topology Manager	<ul style="list-style-type: none"> • Topology Visualization <ul style="list-style-type: none"> • Discover Topology <ul style="list-style-type: none"> • Specify Target • Specify SNMP Probes • View Topology 	Platform > Topology Manager
User Administrator	<ul style="list-style-type: none"> • Manage Users <ul style="list-style-type: none"> • Create User • Modify User • Delete Users • Manage Roles <ul style="list-style-type: none"> • Create Role • Modify Role • Delete Role 	Platform > Users

Table 4 on page 37 shows the Junos Space predefined roles for the Network Activate application.

Table 4: Predefined Roles for Network Activate Application

Predefined Role	Task Group and Tasks	Workspace
Service Designer	<ul style="list-style-type: none"> • Manage Service Definitions <ul style="list-style-type: none"> • Create P2P Service Definition • Custom Service Definition • Create VPLS Service Definition • Publish Service Definition • Unpublish Service Definition 	Service Design
Service Manager	<ul style="list-style-type: none"> • Manage Device Roles <ul style="list-style-type: none"> • Rules • Discovery Roles • Unassign NPE Role • Manage Device UNIs • Delete UNI • Add Device UNIs • Assign UNI • Assign Roles • Modify Loopback Address • Manage Device UNIs • Exclude from UNI Role • Exclude from NPE Role • Assign NPE Role 	Prestage Devices

Table 4: Predefined Roles for Network Activate Application (*continued*)

Service Activator	<ul style="list-style-type: none">• Manage Customers<ul style="list-style-type: none">• Create Customer• Modify Customer• Delete Customers• Manage Service Orders<ul style="list-style-type: none">• Create P2P Service Order• Deploy Service Order• Delete Service Order• Create VPLS Service Order• Manage Services<ul style="list-style-type: none">• Modify Service• Decommission Service• View Configuration Audit Results• Perform Configuration Audit• View Functional Audit Results• Perform Functional Audit• View Service Configuration	Service Provisioning
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Table 5 on page 38 shows the Junos Space predefined roles for the Service Now application.

Table 5: Predefined Roles for Service Now Application

Predefined Role	Task Group and Tasks	Workspace
-----------------	----------------------	-----------

Table 5: Predefined Roles for Service Now Application (*continued*)

Service Now Administrator	<ul style="list-style-type: none"> Administration <ul style="list-style-type: none"> Service Now Devices <ul style="list-style-type: none"> Add Devices Script Bundles <ul style="list-style-type: none"> Add Script Bundle Organizations <ul style="list-style-type: none"> Add Organization Global Settings <ul style="list-style-type: none"> SNMP Configuration Proxy Server Configuration Service Contract Device Groups <ul style="list-style-type: none"> Create Device Group Service Central <ul style="list-style-type: none"> Incidents <ul style="list-style-type: none"> View Tech Support Cases View End Customer Cases JMB Errors Information <ul style="list-style-type: none"> Messages Device Snapshots Notifications <ul style="list-style-type: none"> Create Notifications 	All workspaces
Service Now Unrestricted User	<ul style="list-style-type: none"> Administration <ul style="list-style-type: none"> Service Now Devices Service Central <ul style="list-style-type: none"> Incidents <ul style="list-style-type: none"> View Tech Support Cases JMB Errors Information <ul style="list-style-type: none"> Messages Device Snapshots Notifications <ul style="list-style-type: none"> Create Notifications 	Administration Service Central

Table 5: Predefined Roles for Service Now Application (*continued*)

Service Now Read Only User	• Administration	Administration
	• Service Now Devices	Service Central
	• Service Central	
	• Incidents	
	• View Tech Support Cases	
	• JMB Errors	
	• Information	
	• Messages	
	• Device Snapshots	
	• Notifications	

Table 6 on page 40 shows the Junos Space predefined roles for the Ethernet Design application.

Table 6: Predefined Roles for Ethernet Design Application

Predefined Role	Task Group and Tasks	Workspace
Network Engineer	<ul style="list-style-type: none"> • Port Profiles • Create Port Profile • Provision Port Profile 	EZ Campus Design

- Related Topics**
- Role Based Access Control Overview
 - Understanding How to Configure Users to Manage Objects in Junos Space
 - Managing Roles
 - Creating a User-Defined Role
 - Modifying User-Defined Roles
 - Deleting User-Defined Roles
 - Creating Users on page 31
 - Viewing Users
 - Viewing User Statistics

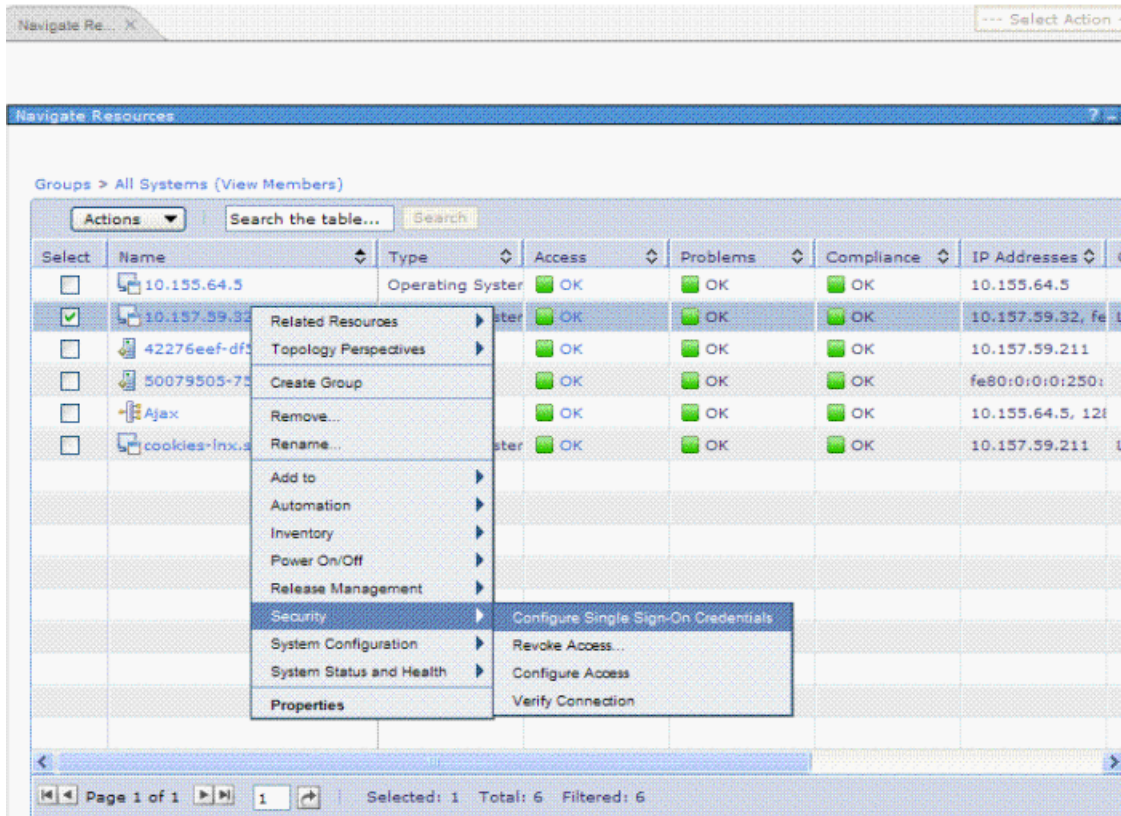
Configuring the SSO Credentials in IBM Systems Director

You must configure Single Sign On credentials in IBM Systems Director to launch Junos Space actions from IBM Systems Director.

To configure Single Sign On credentials in IBM Systems Director:

1. Log in to IBM Systems Director.
2. From the task list in the left pane, select **Navigate Resources**.
3. From the **Groups** table on the **Navigate Resources** tab, select **All Systems**.

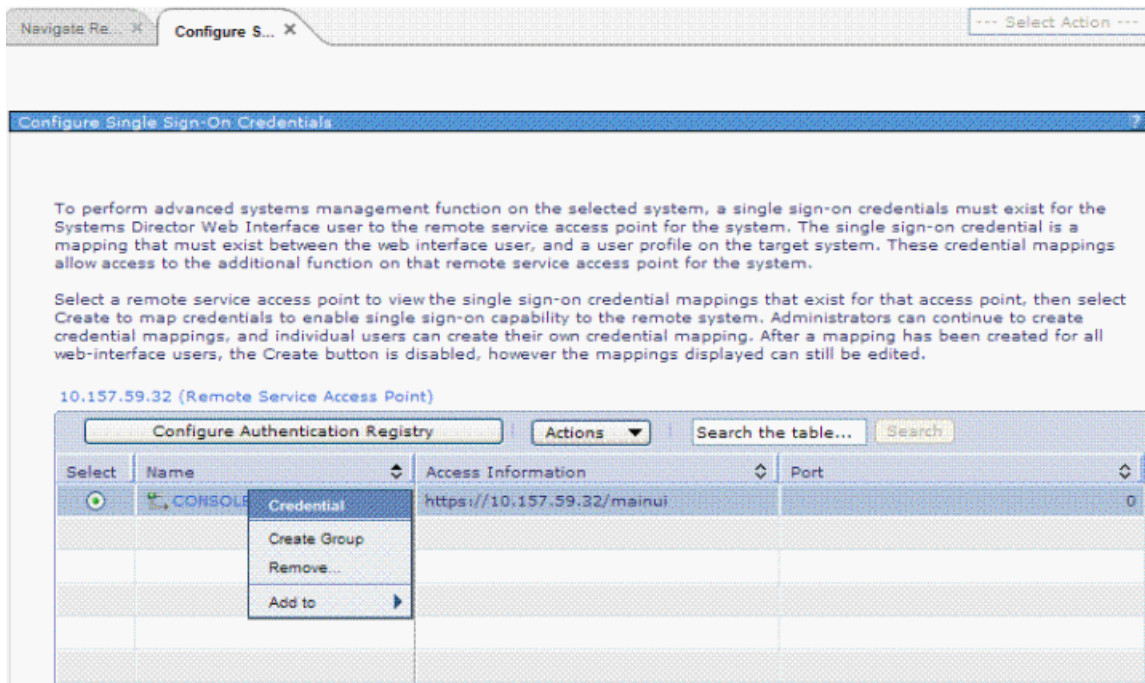
4. In the **Group > All Systems** table, right-click the Junos Space server entry.
5. From the **Security** menu, select **Configure Single Sign-On Credentials**.



The **Configure Single Sign-On Credentials** tab appears.

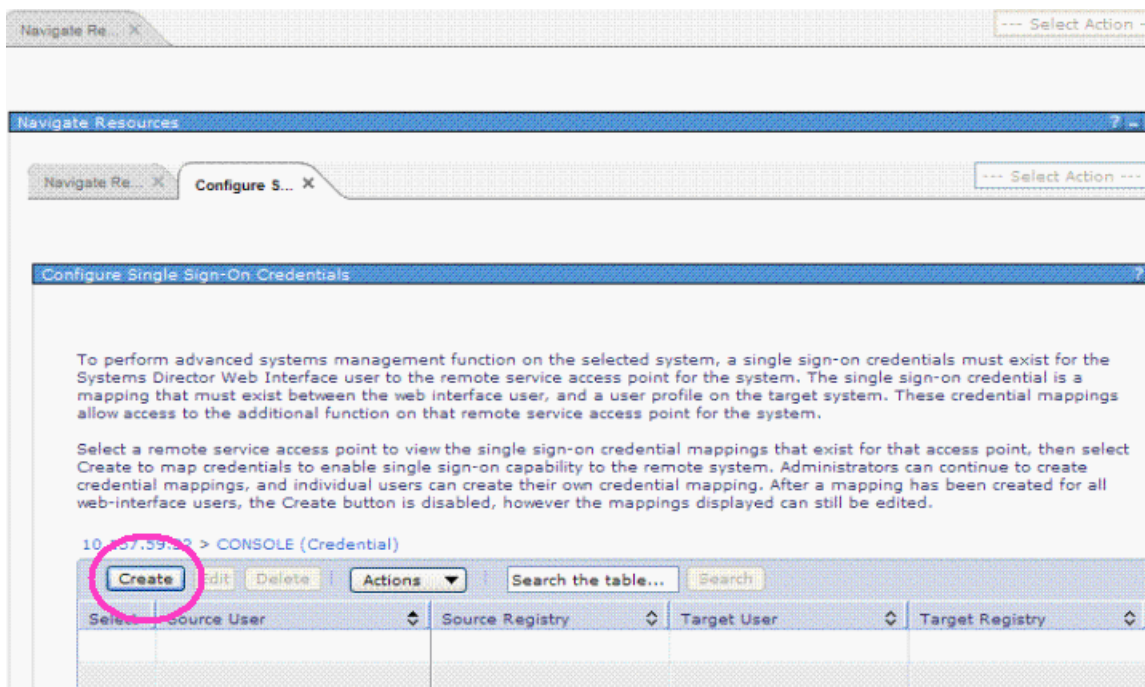
6. Right-click the entry that contains the Access Information: <https://a.b.c.d/mainui>
Where *a.b.c.d* is the virtual IP address of the Junos Space server.

7. Select the **Credential** menu item.



The **Credential** table appears.

8. Click **Create**.



The **Create Single Sign-on Credential** wizard appears.

9. Click **Next**.
10. Type the user ID and password with the values of the **Login ID** and **Password** fields of the user account that you created in Junos Space.
11. Click **Next**.

The screenshot shows a web browser window with a tab labeled 'Create and ...'. The page title is 'Create and Edit Single Sign-on Credentials'. On the left is a navigation pane with links: 'Welcome', 'Create Single Sign-on Credential' (highlighted with an orange arrow), 'Assign to IBM Systems Director User', and 'Summary'. The main content area is titled 'Create Single Sign-on Credential' and contains the instruction 'Enter a valid user ID and password for system 10.157.59.32'. Below this, there is a dropdown menu for 'Authentication registry type' set to 'Local OS'. Three text input fields are present: '*User ID:' containing 'wchow', '*Password:' containing six dots, and '*Verify password:' containing six dots. At the bottom of the form are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. A 'Back' button is also visible below the main form area.

The **Assign to IBM Systems Director User** page appears.

12. Do not modify the default **Use current user** option.

13. Click **Next**.
14. Click **Finish** on the **Summary** page.



NOTE: If you want to change the SSO Credentials after you launch a Junos Space action, you must log out from the Junos Space browser session, modify the SSO Credentials in IBM Systems Director, and then launch the Junos Space action again.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - Launching Junos Space Actions from IBM Systems Director on page 59

CHAPTER 4

Launch in Context (LiC) Setup

- IBM Systems Director and Junos Space LiC Setup Overview on page 45
- Discovering Devices on page 46
- Discovering Juniper Networks Devices in IBM Systems Director on page 53

IBM Systems Director and Junos Space LiC Setup Overview

Launch in Context (LiC) involves registering a network manager application, such as Junos Space with IBM® Systems Director™ so the administrator can launch that registered application from within IBM Systems Director. From IBM Systems Director, the network administrator can launch the following Junos Space actions:

- View device physical inventory
See “Launching Junos Space Device Physical Inventory from IBM Systems Director” on page 59.
- View device logical inventory
See “Launching Junos Space View Logical Inventory from IBM Systems Director” on page 61.

For LiC to work properly, set up the following:

- Discover devices to be managed in Junos Space.
See “Discovering Devices” on page 46.
- Discover Juniper Networks devices to be managed in IBM Systems Director.
See “Discovering Junos Space from IBM Systems Director” on page 27.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

Discovering Devices

You use device discovery to automatically discover and synchronize Junos devices in Junos Space. Device discovery is a three-step process in which you specify target devices, a probe method (Ping or SNMP or both), and credentials to connect to each device.



NOTE: The values that you enter to specify the targets, probe method, and credentials are persistent from one discovery operation to the next, so you do not have to reenter information that is the same from one operation to the next.

To add a device using device discovery, the following conditions must be met:

- The device is configured with a static management IP address that is reachable from the Junos Space server.
- A user with full administrative privileges is created on the device for the Junos Space administrator.
- If you plan to use SNMP to probe devices as part of device discovery, SNMP is enabled on the device with appropriate read-only V1/V2C/V3 credentials.



NOTE: To perform discovery on a device with dual Routing Engines, always specify the IP address of the current master RE. When the current master IP address is specified, Junos Space manages the device and the redundancy. If the master RE fails, the backup RE takes over and Junos Space manages the transition automatically without bringing down the device.



NOTE: When you initiate discovery on a device, Junos Space automatically enables SSH and the NETCONF protocol over SSH by pushing the following commands to the device:

```
set system services ssh protocol-version v2
set system services netconf ssh
```

To discover and synchronize devices, complete the following tasks:

1. Specifying Device Targets on page 46
2. Specifying Probes on page 48
3. Specifying Credentials on page 50

Specifying Device Targets

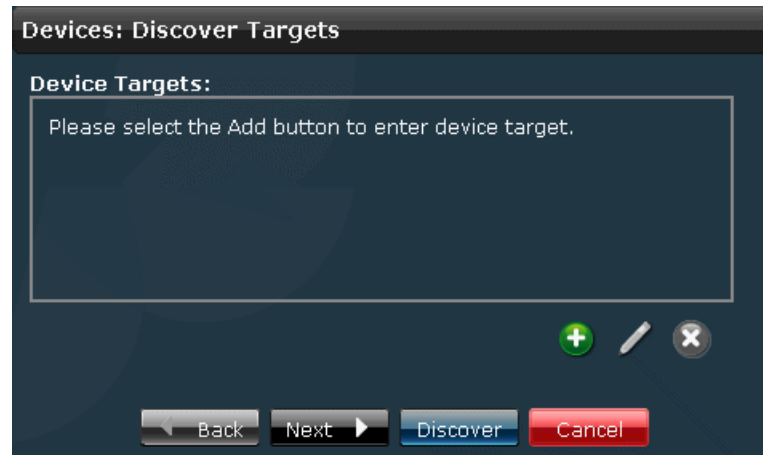
To specify the device targets that you want Junos Space to discover:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, click the **Discover Devices** icon.

Junos Space displays discovery status for discovery targets that are already processed.

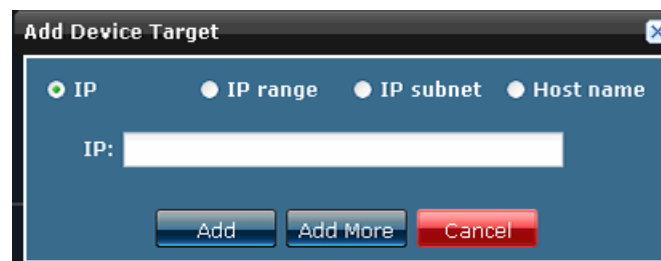
3. From the task ribbon, click the **Discover Targets** icon.

Junos Space displays the Discover Targets window.



4. Click the Add icon.

The Add Device Target dialog box is displayed.



5. Choose one of the following options to specify device targets:
 - Select the **IP** radio button and enter the IP address of the device.
 - Select the **IP Range** radio button and enter a range of IP addresses for the devices.



NOTE: The maximum number of IP addresses for an IP range target is 1024.

- Select the **IP Subnet** radio button and enter an IP subnet for the devices.
 - Select the **Host Name** radio button and enter the host name of the device.
6. Click **Add** to save the target devices that you specified, or click **Add More** to add additional device targets. When you have added all device targets that you want Junos Space to discover, click **Add**.

The Discover Targets window displays the addresses of the configured device targets.

7. Click **Discover** from the Discover Targets window.

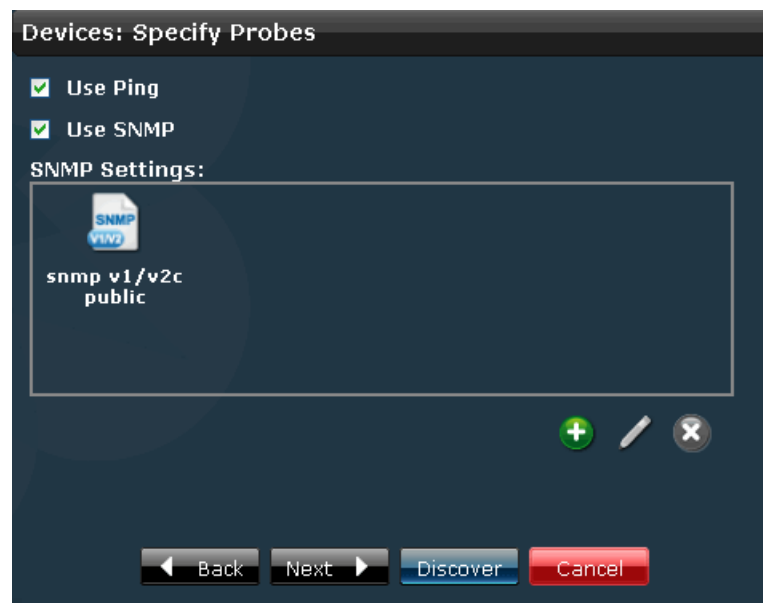
In the next task, you specify a probe method to connect to and discover the device targets.

Specifying Probes

To configure the method Junos Space uses to discover the device targets:

1. From the task ribbon, select the **Devices** workspace, and then click the **Discover Devices** icon.
2. From the task ribbon, click the **Specify Probes** icon.

The Specify Probes window is displayed.



3. Select a probe method (or SSH) to discover target devices:
 - If SNMP is configured for the device, select **Use SNMP**, and clear the check box **Use Ping**.
Junos Space will use the SNMP GET command to discover target devices.
 - If SNMP is not configured for the device, select the check box **Use Ping**, and clear the check box **Use SNMP**.
Junos Space will use Juniper Network's Device Management Interface (DMI) to directly connect to and discover devices. DMI is an extension to the NETCONF network management protocol.
 - When both the **Use Ping** and **Use SNMP** check boxes are selected (the default), Junos Space can more quickly discover the target device, if the device is pingable and SNMP is enabled on the device.
4. Click the Add icon (+).

The Add SNMP Settings dialog box is displayed.

The dialog box titled "Add SNMP Settings" has a close button (X) in the top right corner. It contains two radio buttons: "SNMP V1/V2C" (selected) and "SNMP V3". Below the radio buttons is a text field labeled "Community:". At the bottom are three buttons: "Add", "Add More", and "Cancel".

5. For SNMPv1 or SNMPv2:
 - a. Select **SNMP V1/V2C** (the default).
 - b. In the community field, specify the community string, which can be **public**, **private**, or a predefined string.
 - c. Click **Add** to save the SNMP settings, or click **Add More** to specify another community string. When you have finished adding community strings, click **Add**.

The Specify Probes window displays the configured SNMP settings.

6. For SNMPv3:

- a. Select **SNMP V3**.

The SNMP V3 dialog box is displayed.

The dialog box titled "Add SNMP Settings" has a close button (X) in the top right corner. It contains two radio buttons: "SNMP V1/V2C" and "SNMP V3" (selected). Below the radio buttons are several fields: "Username:" with a text field, "Privacy type:" with a dropdown menu showing "Please select ...", "Privacy password:" with a text field, "Authentication type:" with a dropdown menu showing "Please select ...", and "Authentication password:" with a text field. At the bottom are three buttons: "Add", "Add More", and "Cancel".

- b. Enter the username.
 - c. Select the privacy type (**AES 128**, **DES**, or **none**)
 - d. Enter the privacy password (if **AES 128** or **DES**). If you specify **none** for the privacy type, the privacy function is disabled.
 - e. Select the authentication type (**MD5**, **SHA**, or **none**).

- f. Enter the authentication password (if **MD5** or **SHA**). If you specify **none** for the authentication type, the authentication function is disabled.
- g. Click **Add** to save the SNMP V3 settings, or click **Add More** to specify additional SNMP settings. When you have finished adding SNMP settings, click **Add**.

The Specify Probes window displays the configured SNMP settings.

7. Click **Discover** in the Specify Probes window.

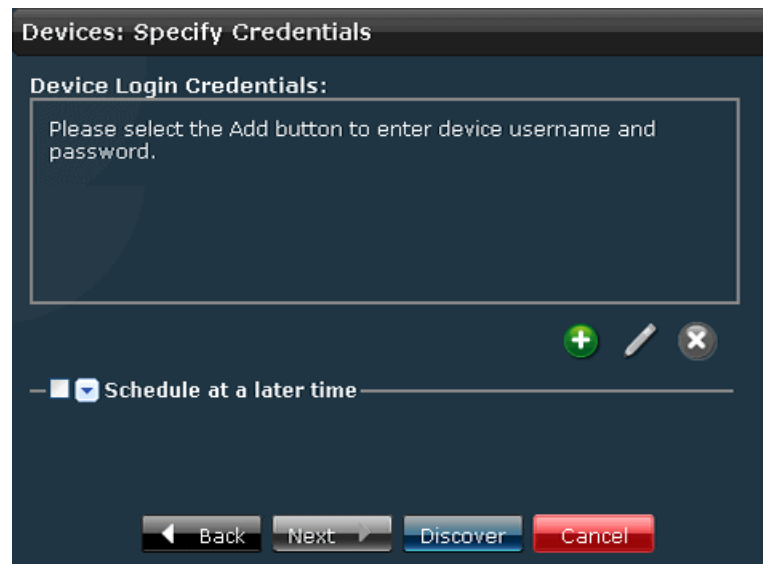
In the next task, you specify credentials to establish the SSH connection for the target devices.

Specifying Credentials

Specify an administrator name and password to establish the SSH connection for each target device that you configured:

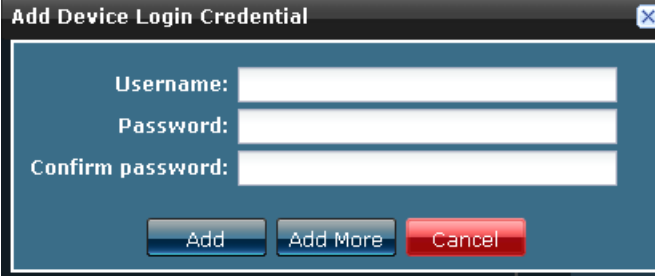
1. From the task ribbon, select the **Devices** workspace, and then click the **Discover Devices** icon.
2. From the task ribbon, select the **Specify Credentials** icon.

The Specify Credentials window appears.



3. Click the Add icon.

The Add Device Login Credential dialog box is displayed.



The image shows a dialog box titled "Add Device Login Credential". It has a blue header bar with a close button (X) in the top right corner. The main area is white and contains three input fields: "Username:", "Password:", and "Confirm password:". Below these fields are three buttons: "Add" (blue), "Add More" (blue), and "Cancel" (red).

4. Specify the administrator user name and password, and confirm the password. The name and password must match the name and password configured on the device
5. To save the user name and password that you specified, click **Add** or click **Add More** to add another user name and password. When you have finished adding login credentials, click **Add**.

The Credential window displays the administrator user names that you configured.

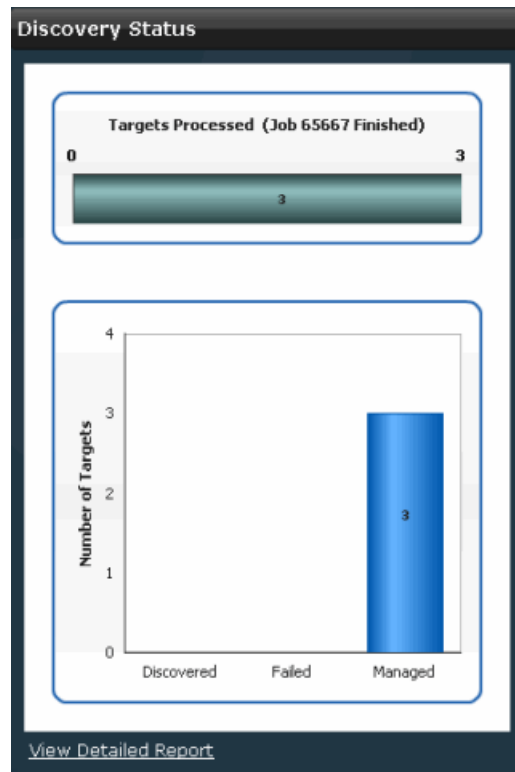
6. Schedule the device discovery operation:
 - Clear the **Schedule at a later time** check box (the default) to initiate the discovery operation when you complete Step 7 in this procedure.
 - Select the **Schedule at a later time** check box to specify a later start date and time for the discovery operation.



NOTE: The selected time in the scheduler corresponds to Junos Space server time but is mapped to the local time zone of the client computer.

7. In the Specify Credentials window, click **Discover** to discover and synchronize the device targets in Junos Space.

The Discovery Status window, shown in the following illustration, displays the progress of discovery in real-time. Click on any bar in the chart to view information about devices currently managed, discovered, or for which discovery failed.



8. For information about device discovery results you can view the Detailed Reports and view job status from the **Jobs** workspace:

- To view device discovery details, click **View Detailed Report** in the Discovery Status window.

The Detailed Report displays the IP address, host name, and discovery status for discovered devices.

Devices			
IP Address	Hostname	Status	Description
10.155.69.22	Tokyo	Device Managed	
10.155.69.23	HongKong	Device Managed	
10.155.69.24	Denver	Device Managed	



NOTE: If the discovery operation fails, the **Description** field in the **Detailed Report** table indicates the cause of failure.

- To view device discovery from the **Jobs** workspace:
 - From the task ribbon, select the **Jobs** workspace.
 - From the task ribbon, select the **Manage Jobs** icon.

- c. From the Job Manager inventory panel, enter **Discover Network Elements** in the search field to view only device discovery jobs. The following example shows a table view of Discover Network Elements jobs.

Percent	State	Job Type	ID	Summary	Scheduled Start Time
100.0	SUCCESS	Discover Network Elements	13107	Number of scanned IP: 1 Number of Discovery succeeded: 1 Number of Add Device failed: 0 Number of Already Managed: 0 Number of Skipped: 0 Number of Device Managed: 1	Mar 6, 2010 12:07:22 AM PST
100.0	SUCCESS	Discover Network Elements	65536	Number of scanned IP: 1 Number of Already Managed: 0 Number of Skipped: 0 Number of Discovery succeeded: 1 Number of Device Managed: 1 Number of Juniper Device but Add device failed: 0	Mar 5, 2010 6:03:56 PM PST

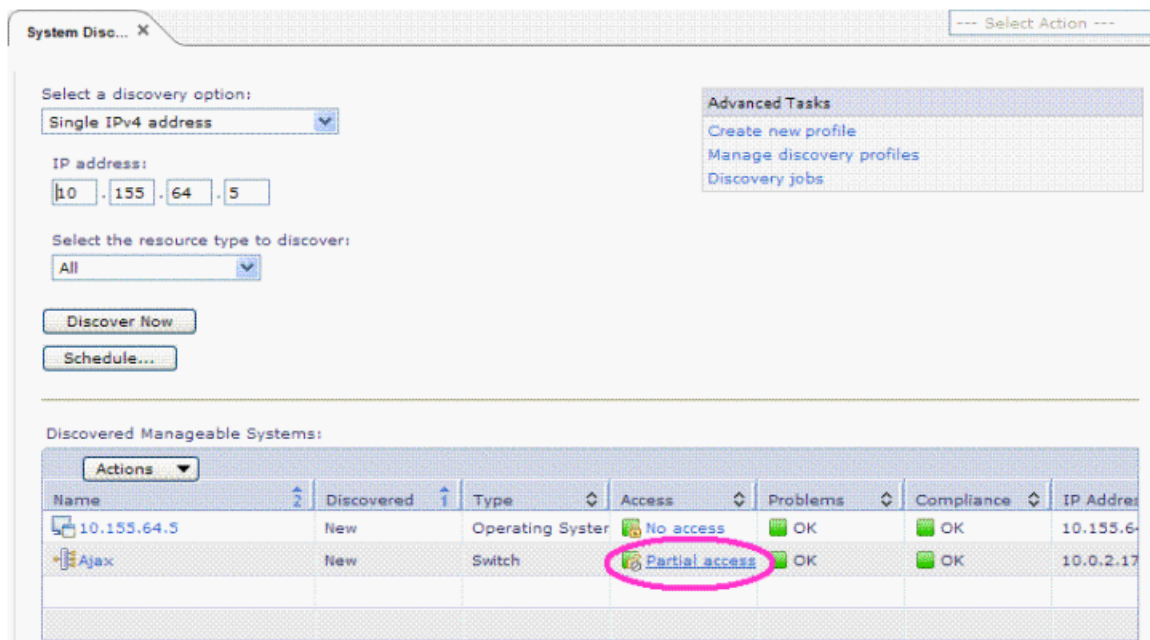
Discovering Juniper Networks Devices in IBM Systems Director

You must discover Juniper Network devices in IBM Systems Director, as part of the system setup to launch Junos Space actions from IBM Systems Director.

To discover Juniper Network devices in IBM Systems Director:

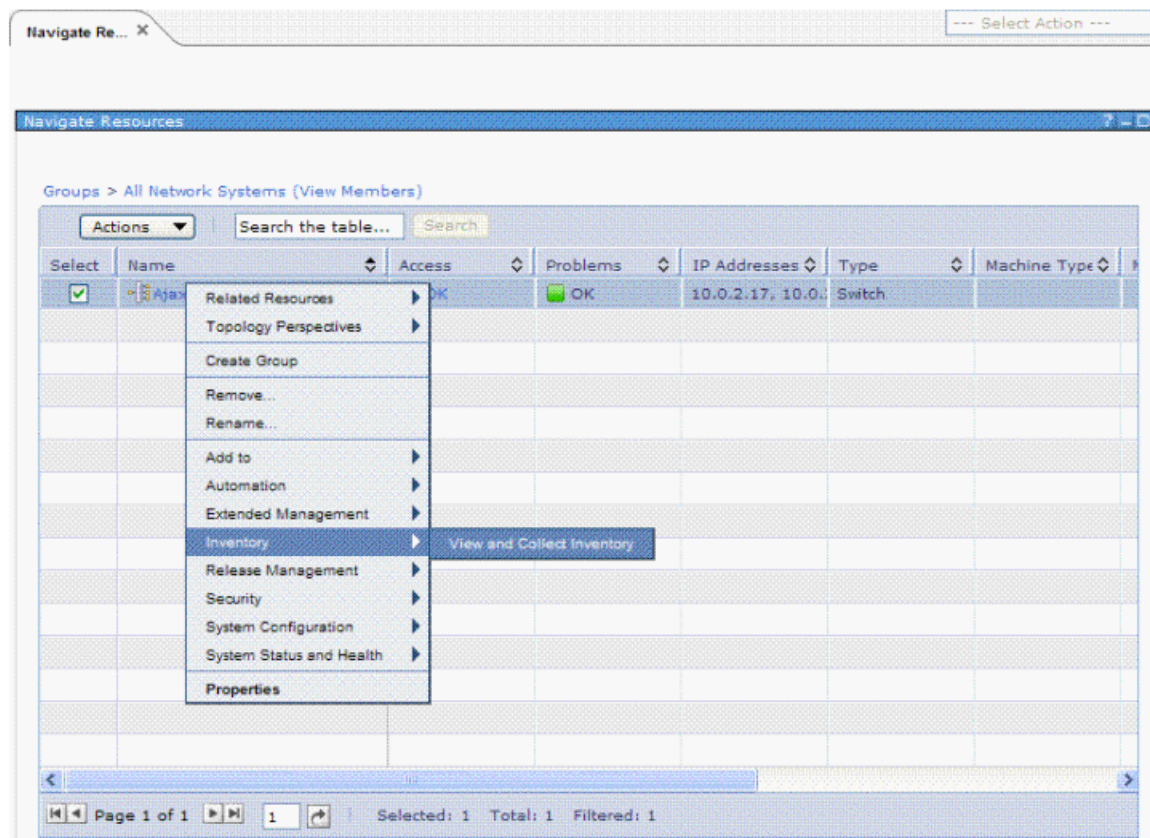
1. Log in to IBM Systems Director.
2. From the task list in the left pane, select **Inventory** and **System Discovery**.
3. From the **System Discovery** tab in the right pane, enter the management IP address of the Juniper Networks device .
4. On the System Discovery tab, click **Discover Now**.

The Juniper Networks device appears in the **Discovered Manageable Systems** table.



5. From the task list on the left pane, select **Navigate Resources**.
6. From the **Groups** table on the "Navigate Resources" tab, select **All Network Systems**.
The Juniper device appears as an entry in **Groups > All Network Systems** table.
7. In the **Group > All Network Systems** table, right-click the Juniper Networks device entry.

8. In the **Inventory** menu, select **View** and **Collect Inventory**.



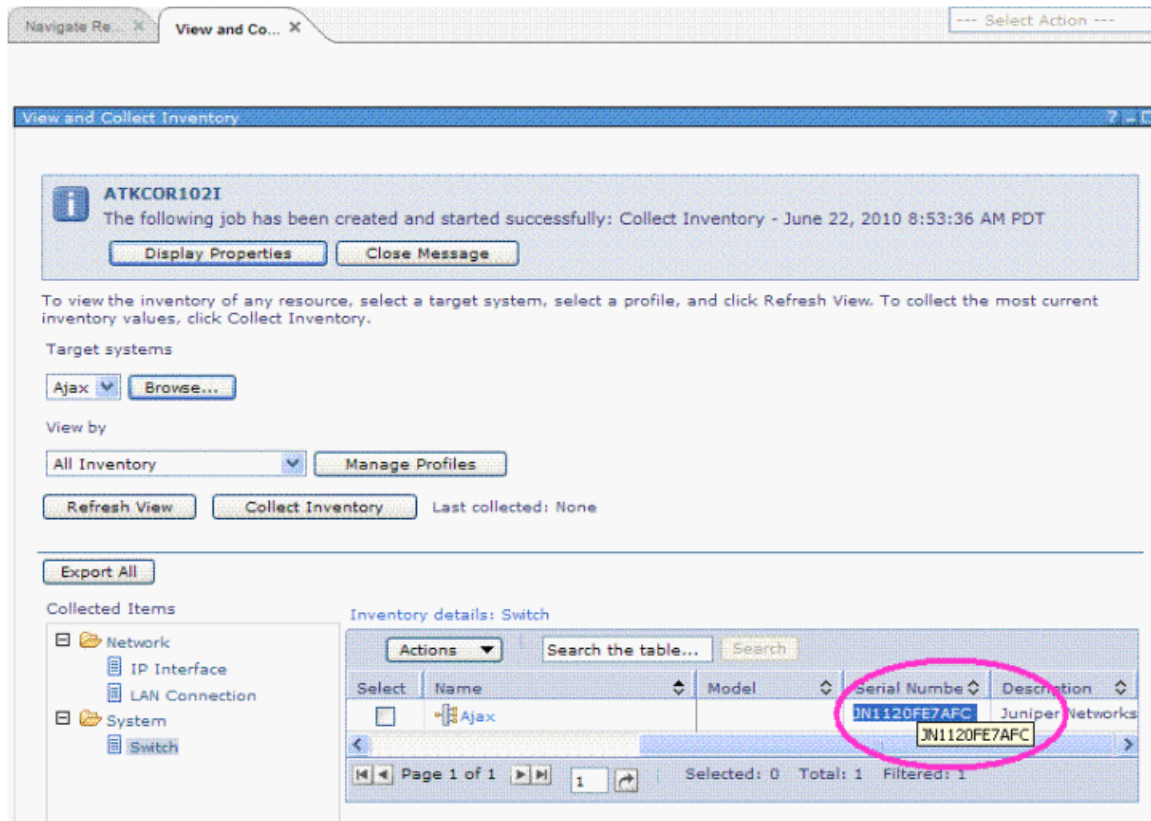
The **View and Collect Inventory** menu appears.

9. Click **Collect Inventory**.

The **Task Launch** dialog box appears.

10. Click **OK** in the **Task Launch** dialog box.

11. When the **Collect Inventory** task completes, the Inventory details of the Juniper Networks device includes the **Serial Number** information.



12. Close the **View and Collect Inventory** tab.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

PART 3

Launch in Context (LiC)

- Launching Junos Space Actions on page 59

CHAPTER 5

Launching Junos Space Actions

- Launching Junos Space Actions from IBM Systems Director on page 59
- Launching Junos Space Device Physical Inventory from IBM Systems Director on page 59
- Launching Junos Space View Logical Inventory from IBM Systems Director on page 61

Launching Junos Space Actions from IBM Systems Director

The network administrator can launch the following Junos Space actions from within IBM® Systems Director™:

- Launching Junos Space Device Physical Inventory from IBM Systems Director on page 59
- Launching Junos Space View Logical Inventory from IBM Systems Director on page 61

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - IBM Systems Director and Junos Space LiC Setup Overview on page 45

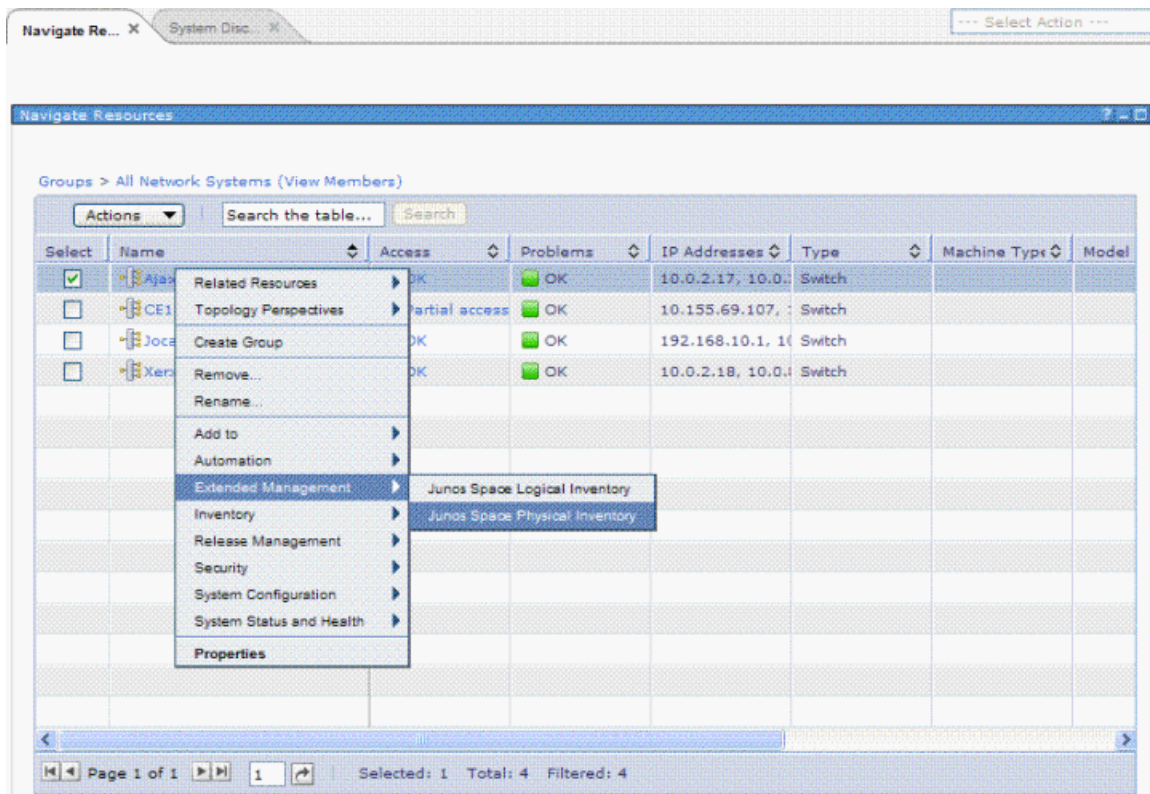
Launching Junos Space Device Physical Inventory from IBM Systems Director

The network administrator can launch the Junos Space View Physical Inventory action from within IBM Systems Director.

To launch Junos Space View Physical Inventory action from within IBM Systems Director

1. Log in to IBM Systems Director.
2. Select **Navigate Resources** from the task list on the left pane.
3. Select **All Network Systems** from the **Groups** table on the **Navigate Resources** tab.
4. Right-click the Juniper Networks device entry in the **Group > All Network Systems** table.

5. Select **Junos Space Physical Inventory** from the **Extended Management** menu.

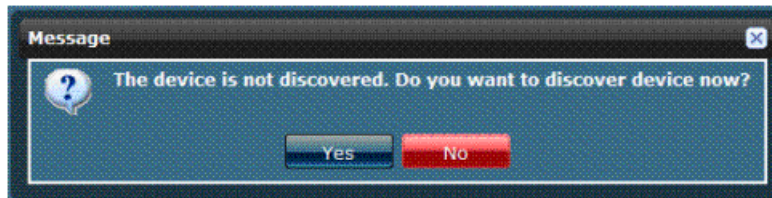


A new browser opens with the Junos Space **Manage Devices** inventory page.





NOTE: If the Juniper device selected in IBM Systems Director has not been discovered in Junos Space, the following message appears, allowing you to navigate directly to the Device Discovery screen in Junos Space.



6. Click **Yes** if necessary.

- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

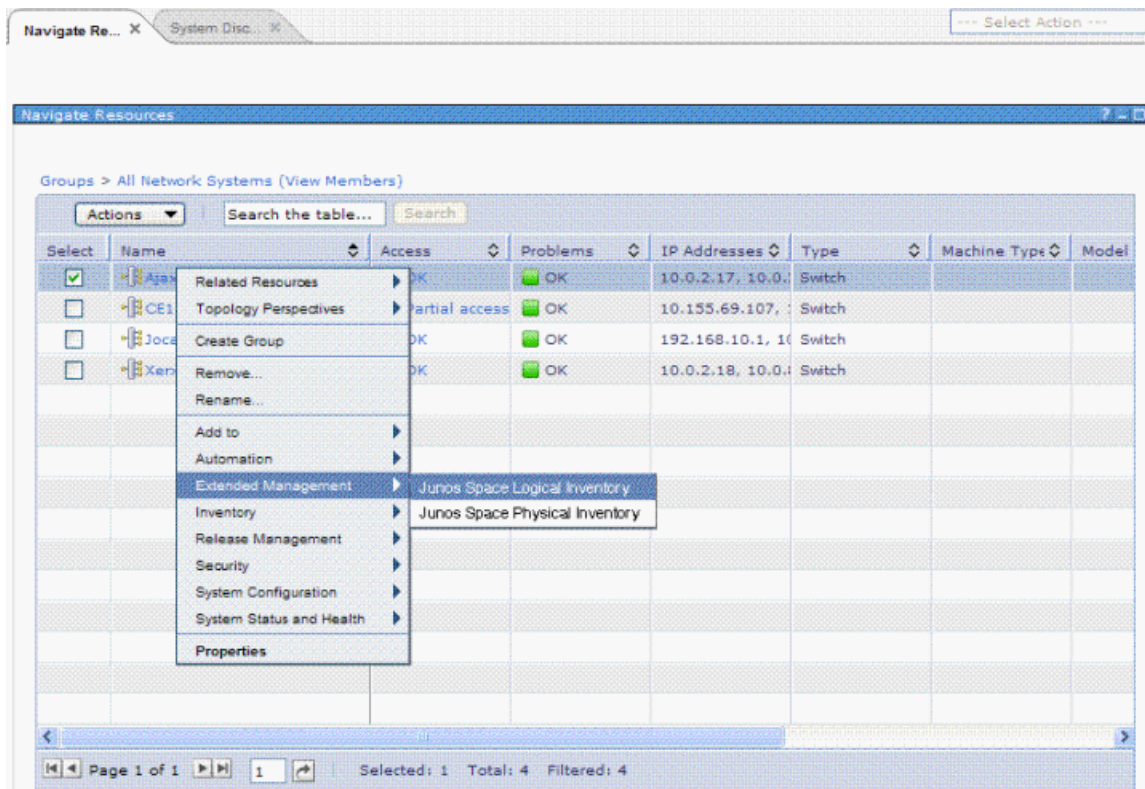
Launching Junos Space View Logical Inventory from IBM Systems Director

The network administrator can launch the Junos Space View Logical Inventory action from within IBM Systems Director.

To launch the Junos Space View Logical Inventory action from within IBM System Director:

1. Log in to IBM Systems Director.
2. Select **Navigate Resources** from the task list in the left pane.
3. Select **All Network Systems** from the **Groups** table on the **Navigate Resources** tab.

4. Right-click the Juniper Networks device entry in the **Group > All Network Systems** table.
5. Select **Junos Space Logical Inventory** from the **Extended Management** menu.



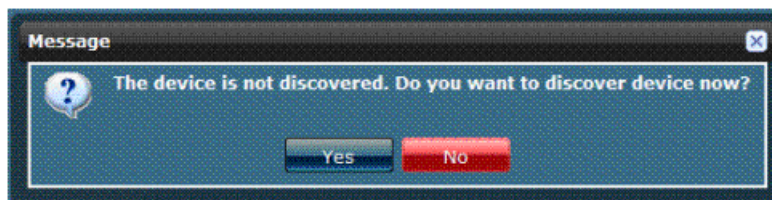
A new browser appears with The Junos Space **Manage Devices** inventory page.



Device Name	Interface Name	Ip Address	MAC Address	Operational...	Admin Status	Encapsulation	Link Type	Speed (Mbps)	MTU
Ajax	lo0	192.168.8.1		up	up				Unlimited
Ajax	ge-1/0/0	10.0.2.10	00:21:59:0e:...	up	up	Ethernet	full-duplex	1000	1514
Ajax	ge-1/0/1		00:21:59:0e:...	down	up	52		1000	1522
Ajax	ge-1/0/2		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/3		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/4		00:21:59:0e:...	up	up	52	full-duplex	1000	1522
Ajax	ge-1/0/5	10.0.2.17	00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/6		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/7		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/8		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/0/9		00:21:59:0e:...	down	up	52		1000	1522
Ajax	ge-1/1/0		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/1/1		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/1/2		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/1/3		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/1/4		00:21:59:0e:...	down	up	Ethernet		1000	1514
Ajax	ge-1/1/5		00:21:59:0e:...	down	up	52		1000	1522
Ajax	ge-1/1/6		00:21:59:0e:...	down	up	Ethernet		1000	1514



NOTE: If you cannot find the selected Juniper switch in IBM Systems Director on the Junos Space Manage Devices inventory page, the following message appears to let you automatically navigate to the Device Discovery screen.



- Related Topics**
- IBM Systems Director and Junos Space Integration System Requirements on page 4
 - IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31
 - Launching Junos Space Actions from IBM Systems Director on page 59

PART 4

Troubleshooting

- Solutions on page 67

CHAPTER 6

Solutions

- Reinstalling the Juniper Networks Launching Template on page 67

Reinstalling the Juniper Networks Launching Template

Reinstall the launching template in the following cases:

- The virtual IP address of the Junos Space server installation changes
- Junos Space is upgraded to a newer version

To reinstall the launching template:

1. Remove the current Juniper launching template from the IBM Systems Director server.
 - a. Issue the following command in the IBM Systems Director server to remove the template.

`/install_dir/smcli removeextlps -A JUNOSSPACE`

Where *install_dir* is the IBM Systems Director installation directory which has a default value of “`/opt/ibm/director/bin`” in the Linux platform

- b. Issue the following command in the Systems Director server to verify the launch points are removed.

`/install_dir/smcli listextlps -A JUNOSSPACE`

The output of the command should be empty.

2. Download and register the new Juniper launching template into the IBM Systems Director server.
 - a. Open a Web browser on the IBM Systems Director server.
 - b. Enter the URL of the template file:
https://a.b.c.d/templates/juniper_launch_template.json and press Enter.
Where *a.b.c.d* is the virtual IP address of the Junos Space server.
 - c. Save the template file in the IBM Systems Director server file system.

- d. Issue the following command in the IBM Systems Director server to register the template:

```
/install_dir/smcli importtextlps -f template_file_path
```

Where:

- *install_dir* is the IBM Systems Director installation directory that has a default value of `/opt/ibm/director/bin` on the Linux platform.
 - *template_file_path* is the template filename. Include the path if not in the current directory.
- e. Issue the following command in the IBM Systems Director server to verify the installed launch points.

```
/install_dir/smcli listtextlps -A JUNOSSPACE
```

The output of the command should show the new launch points.

- Related Topics**
- IBM Systems Director and Junos Space Integration Setup Overview on page 7
 - IBM Systems Director and Junos Space Single Sign On Setup Overview on page 31

PART 5

Index

- Index on page 71

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