



Junos[®] Space

Virtual Appliance Installation Guide

Release

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About the Documentation

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- [Documentation Conventions on page ix](#)
- [Documentation Feedback on page x](#)
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Junos Space Documentation and Release Notes

For a list of related Junos Space documentation, see <http://www.juniper.net/techpubs/>.

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 product documentation page on 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 on page x](#) defines the notice icons used in this guide.

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.

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- 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

Overview

- [Virtual Appliance Overview on page 3](#)

CHAPTER 1

Virtual Appliance Overview

- [Junos Space Virtual Appliance Overview on page 3](#)
- [Understanding How Nodes Are Connected in a Fabric on page 5](#)
- [Understanding How Junos Space Uses Ethernet Interfaces eth0 and eth3 on page 6](#)

Junos Space Virtual Appliance Overview

The Junos Space Virtual Appliance consists of preconfigured Junos Space software with a built-in operating system and application stack that is easy to deploy, manage, and maintain.

A Junos Space Virtual Appliance includes the same software and all the functionality available in a Junos Space physical appliance. However, you must deploy the virtual appliance on the VMware ESX or ESXi Server, which provides a CPU, hard disk, RAM, and a network controller, but requires installation of an operating system and applications to become fully functional.

Just as you can install additional physical appliances to create a fabric to provide scalability and availability, you can deploy multiple virtual appliances to create a fabric that provides the same scalability and high availability as a fabric of physical appliances.

You can create a fabric of JA1500 Junos Space appliances, Junos Space virtual appliances, or a hybrid fabric of both physical and virtual appliances.

Virtual Appliance Deployment

The Junos Space Virtual Appliance is stored in the Open Virtualization Format (OVF) 1.0 and is packaged as an ***ovf** file, which is a **tar** file that contains all the files of the Junos Space Virtual Appliance. OVF is not a bootable format, and you must deploy each Junos Space Virtual Appliance to a hosted ESX or ESXi server before you can run the Junos Space Virtual Appliance.

You can deploy a Junos Space Virtual Appliance on a VMware ESX server, version 3.5. or higher, or ESXi version 4.0 or higher to convert the Junos Space Virtual Appliance to a virtual machine. After the Junos Space Virtual Appliance is converted to a virtual machine, you use the VMware vSphere client that is connected to the VMware ESX (or ESXi) Server to deploy the Junos Space Virtual Appliance on the server.



NOTE: Where the Junos Space Virtual Appliance documentation references “ESX server” you can use either the ESX server Version 3.5 or later, or ESXi server, Version 4.0 or later.

Recommendations for Deploying Virtual Appliances on the VMware ESX Server

The CPU, RAM, and disk space provided by the VMware ESX server must meet or exceed the documented CPU, RAM, and disk space requirements for deploying a Junos Space Virtual Appliance. In addition, Juniper recommends that, for a multi-node fabric, you deploy the first and second virtual appliance on separate VMware ESX servers to ensure failover support.

The distributed Junos Space Virtual Appliance files are created with 5 GB of disk space, and you add an additional 40GB of disk resources when you first deploy the virtual appliance to a VMware ESX server. In many cases, the 45 GB of disk space will be sufficient; however, if the percent of Junos Space disk resources utilized reaches 80% capacity, Juniper recommends that you add another 40 GB of disk space to your virtual appliance. You can monitor the percent of disk space utilized in the Fabric Monitor inventory panel in the Junos Space user interface.

Configuring an NTP Time Source For Each Appliance

To ensure consistent behavior among all nodes in a multi-node fabric, each node's time must be synchronized with every other node in the fabric. When you configure the first Junos Space Virtual Appliance (and JA1500 Junos Space Appliance) with an NTP server, you ensure that, if the first node (which is used to synchronize time for all nodes in the fabric) goes down, all other nodes in the fabric remain synchronized. Additional nodes installed into the same fabric will automatically get their time setting from the first node in the fabric without any additional NTP server configuration.



NOTE: By default, Junos Space translates time so that the time displayed in the user interface corresponds to Junos Space server time, but the time is mapped to the local time zone of your client computer.

To ensure time remains synchronized across all nodes in the fabric, Juniper strongly recommends that you add an NTP server to the first appliance (physical or virtual) during initial set up.



NOTE: You must add the NTP server before you add the appliance/node to the fabric from the Junos Space user interface.

Related Documentation

- [Understanding How Nodes Are Connected in a Fabric on page 5](#)
- [Fabric Management Overview](#)
- [Deploying a Junos Space Virtual Appliance on page 9](#)

- [Configuring Basic Settings for a Junos Space Virtual Appliance on page 17](#)
- [Changing Network and System Settings for a Junos Space Virtual Appliance on page 23](#)
- Adding a Fabric Node
- Viewing Nodes in the Fabric

Understanding How Nodes Are Connected in a Fabric

Each Junos Space appliance (physical or virtual) that you install and configure is represented as a single node in the fabric. You can add nodes without disrupting the services that are running on the fabric. When you install and configure the first appliance, Junos Space automatically creates a fabric with one node. For each additional appliance you install and configure, you must add a node to logically represent the appliance in the fabric. You add nodes to the fabric from the **Administration** workspace in the Junos Space user interface. Each node that you add to the fabric increases the resource pool for the node functions to meet the scalability and availability requirements of your network. By default, Junos Space automatically enables node functionality across the nodes in the fabric to distribute workload. The nodes in the fabric work together to provide a virtualized resource pool for each of the node functions: load balancer, database, and application logic.

In a fabric comprising two or more nodes, Junos Space provides failover when a node functioning as the active server (load balancer server or database server) goes down. By default, Junos Space marks a particular node down and routes failover requests to the node that Junos Space designates as standby server. Junos Space uses a heartbeat mechanism to check whether the nodes in the fabric are running. When a node functioning as the active server fails (the appliance crashes or stops sending heartbeats), the node functioning as the standby server takes over all resources that were managed by the node functioning as active server. Because the nodes in a Junos Space fabric rely on IP multicast messages to discover each other, you should make sure that IP multicast packets are reachable among all nodes in the Junos Space fabric.

To add, manage, and monitor the nodes in the fabric, a Junos Space user connects to a single Web IP address. The IP address of first (active) node and second (standby) node, and the Web (virtual) IP address must all be in the same subnet. The Web IP needs to work on both the first and second node in the fabric. When both nodes are in same subnet, and the first (active) node goes down, the second (standby) node becomes the active node and packets continue to be directed from the router, to the Junos Space Web IP, and then to the second node, because both nodes are in same subnet. However, if the second (standby) node is configured in a different subnet than the first (active) node, and the first node goes down, the second node becomes the active node, but because the Web IP now points to the different subnet of the second node, all packets originally destined for first node won't be received by the second node.

Related Documentation

- [Junos Space Virtual Appliance Overview on page 3](#)
- Fabric Management Overview
- Adding a Fabric Node

- Viewing Nodes in the Fabric

Understanding How Junos Space Uses Ethernet Interfaces eth0 and eth3

Junos Space is designed to perform best using only eth0 if the managed devices are routable, using in-bound management. Use eth3 for a device management subnet if the managed devices are non-routable or on an out-of-band management subnet.

[Table 2 on page 6](#) describes how Junos Space interfaces intentionally function:

Table 2: How Junos Space IP Addresses Function

/Interface	Function
eth0	SSH and device management if eth3 is not configured (node IP)
eth0:0	GUI interface with an instance of JBOSS running (GUI)
eth1	Not supported
eth2	Not supported
eth3	Device management when managed devices are on a subnet and not reachable by way of eth0.

Junos Space uses eth0 and eth3 interfaces as follows:

- Secure Shell Daemon (sshd) is listening on all IP addresses.
- The web interface is only on the VIP, the same subnet as eth0.
- Device management, outbound (discover) and inbound (post-discovery), including syslog and DMI, should be eth3, or eth0 if eth3 is not configured.

**Related
Documentation**

PART 2

Deploying

- [Deploying the Junos Space Virtual Appliance on page 9](#)

CHAPTER 2

Deploying the Junos Space Virtual Appliance

- [Deploying a Junos Space Virtual Appliance on page 9](#)

Deploying a Junos Space Virtual Appliance

You can use the VMWare OVF Tool to deploy one or more Junos Space virtual appliances on a VMWare ESX or ESXi host server.

The Junos Space Virtual Appliance requires a VMWare ESX server, version 3.5 or later, or VMWare ESXi server, version 4.0 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 or ESXi host server must be configured to support the creation and operation of a virtual machine allocated with 8 GB memory. If the host 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
- 50 GB hard disk (10 GB initial disk resources + 40 GB disk resources to be added)



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



NOTE: Where the Junos Space Virtual Appliance documentation references “ESX server” you can use either the ESX server Version 3.5 or later, or ESXi server, Version 4.0 or later.

This topic includes the following tasks:

1. [Installing the VMware ESX Server on page 10](#)
2. [Extracting Files from the Junos Space Virtual Appliance Package on page 10](#)
3. [Converting a Virtual Appliance to a Virtual Machine by Using the OVF Tool on page 11](#)
4. [Increasing RAM and Virtual Processors \(CPU\) for a Junos Space Virtual Appliance on page 12](#)
5. [Adding Disk Resources for a Junos Space Virtual Appliance on page 13](#)

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 can install the VMware vSphere client when you install the VMware ESX server, Version 4.0 or later or ESXi server, Version 4.0 or later. Earlier ESX server versions support the VMware Infrastructure client.

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-11.1R1.x.tar.gz` package into the directory you created:

- The following example shows how to use the `tar` command to extract all files:

```
tar xvzf space-11.1R1.x.tar.gz /Space
```

This command creates a new directory named `space-11.1R1.x`.

- If you are using the WinZip utility to extract all files, follow these steps to avoid corrupting the extracted data:

- a. Double click the **space-11.1R1.x.tar.gz** file to open the file.

WinZip opens a dialog box that displays the following information:

```
"Archive contains X number of files.
<file_name(s)>.tar>
"Should WinZip decompress it to temporary folder and open it?"
```

- b. Click **No**.
 - c. Select the check box **Tar file smart CR/LF conversion**.
 - d. Extract the ***tar** file from the **.gz** archive to the desired folder.
 - e. Double-click on the ***tar** file to restart WinZip.
 - f. Clear the check box **Tar file smart CR/LF conversion**.
 - g. Extract the ***tar** file.
3. Verify that the Junos Space package files have been extracted to the new directory, for example:

```
cd Space/space-11.1R1.x
ls
```

The **space-11.1R1.x** directory includes the files described in [Table 3 on page 11](#).

Table 3: Files in the space-11.1R1.x Directory

File Name	Description
space-11.1R1.x.mf	The manifest file.
space-11.1R1.x.ovf	The virtual appliance source file that is required to convert the virtual appliance to a virtual machine.
space-11.1R1.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 OVF Tool

To deploy a Junos Space Virtual Appliance to an ESX server, you can use the OVF Tool 2.01. 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.

For complete information about using the VMware OVF Tool command-line utility, go to <http://www.vmware.com/support/developer/ovf/>.

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

1. From the OVF Tool command line, you enter the following information:
 - name for the virtual machine
 - datastore that can accommodate all files of the source virtual machine
 - path for the *.ovf file
 - Host system (IP address, user, and password)

The following sample command converts a Junos Space Virtual Appliance to a virtual machine:

```
/usr/bin/ovftool/ovftool --name=space1vm --datastore=datastore-linux01  
/tmp/vmachine/space-11.1R1.165552/space-11.1R1.165552.ovf  
vi://username:password@10.157.xxx.xxx
```

In the preceding sample command:

- **space1vm** is the name of the virtual machine.
- **datastore-linux01** is the datastore for the virtual machine source files.
- **/tmp/vmachine/space-11.1R1.165552/space-11.1R1.165552.ovf** is the path for the OVF file.
- **10.157.xxx.xxx** is the IP address of the host server.
- **username** specifies a user to access the host server.
- **password** specifies a password to access the host server.

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 vSphere 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 > 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. Increase memory to **8192 MB**.
9. From the **Hardware** tab, and select **CPUs**.
10. Set the value for **Number of virtual processors** field to **4**.
11. 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 vSphere client, right-click the Junos Space Virtual Appliance icon, and select **Power > Power On**. The Junos Space Virtual Appliance must be powered on to add disk resources.
2. 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**.

The Select Device Type window is displayed.

4. Select **Hard Disk**.
5. Click **Next**.

The Select a Disk window appears.

6. Select **Create a new Virtual disk**.
7. Click **Next**.

The Create Disk 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 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 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 vSphere 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 Documentation

- [Configuring Basic Settings for a Junos Space Virtual Appliance on page 17](#)
- [Junos Space Virtual Appliance Overview on page 3](#)
- [Understanding How Nodes Are Connected in a Fabric on page 5](#)
- [Adding a Fabric Node](#)
- [Viewing Nodes in the Fabric](#)

PART 3

Configuring

- [Configuring the Junos Space Virtual Appliance on page 17](#)

CHAPTER 3

Configuring the Junos Space Virtual Appliance

- [Configuring Basic Settings for a Junos Space Virtual Appliance on page 17](#)
- [Changing Network and System Settings for a Junos Space Virtual Appliance on page 23](#)

Configuring Basic Settings for a Junos Space Virtual Appliance

After you deploy a Junos Space Virtual Appliance to a VMware ESX or ESXi server, you must enter basic network and machine information to make your Junos Space Virtual Appliance accessible to the network. You must also increase the virtual appliance drive space.

To configure a deployed Junos Space Virtual Appliance, the VMware vSphere client must be connected to the VMware ESX or ESXi server on which the virtual appliance is running.

This topic includes the following tasks:

- [Configuring an Appliance that is the First Node in a Cluster or that Will Not Be Added to an Existing Cluster on page 17](#)
- [Configuring an Appliance to Add to an Existing Cluster on page 21](#)

Configuring an Appliance that is the First Node in a Cluster or that Will Not Be Added to an Existing Cluster

To configure the settings of a Junos Space appliance that is the first node in a cluster or that will not be added to an existing cluster:

1. Power on the Junos Space Virtual Appliance:
 - a. From the VMware vSphere client, right-click on the Junos Space Virtual Appliance and select **Power** > **Power On** from the drop-down menu.
 - b. Select the Console tab.

The VMware vSphere Client console screen displays the Junos Space login prompt.
2. At the Junos Space login prompt, enter **admin** as your default login name and press Enter.
3. Enter **abc123** as your default password and press Enter.

Junos Space prompts you to change your default password.

4. Enter the default password again.
5. Enter a new password.

Passwords should include both alpha and numeric characters and be at least 6 characters in length. All passwords are case-sensitive.

6. Reenter your new password.
7. Enter a new IP address for interface **eth0**.



NOTE: The first and second appliance or virtual appliance that you configure in a cluster (fabric) must be in the same subnet.

To understand how Junos Space uses Ethernet interfaces **eth0** and **eth3**, see [“Understanding How Junos Space Uses Ethernet Interfaces eth0 and eth3” on page 6](#).

8. Enter a new subnet mask for interface **eth0**.
9. Enter the default gateway as a dotted decimal IP address.
10. Enter the nameserver address in dotted decimal notation for interface **eth0**.
11. Enter Device Management IP interface information:

If you want to configure a separate interface for device management:

- Enter **y** when prompted to configure a separate interface for device management.
- Enter a new IP address for interface **eth3**.
- Enter a new subnet mask for interface **eth3**.

If you do not want to configure a separate interface for device management, enter **n** when prompted.

12. Enter **n** when prompted “Will this Junos Space system be added to an existing cluster?”
13. Enter the IP address for Web access.



NOTE: The IP address for Web access must be in the same subnet as the IP address for interface **eth0** but must be a different IP address.

14. Add an NTP server to synchronize the node with an external NTP source. For example, you can specify *ntp.juniper.net* as the external NTP server.
15. Enter the display name for this node.

This is the logical node name that Junos Space displays for the first node in a Junos Space cluster.

16. Enter a password for the cluster maintenance mode administrator.



NOTE: This is the password that a maintenance mode administrator must specify to access maintenance mode and shutdown all Junos Space nodes in the fabric. When in maintenance mode, an administrator can troubleshoot the Junos Space system or perform database restore operations.

17. Enter the password for cluster maintenance mode.

The Settings Summary is displayed, as shown in the following example.

```

Getting Started Summary Performance Events Console

Settings Summary:

1> IP Change: eth0 is 10.1 1.59.221 / 255.255.224.0
2> Default Gateway = 10.1 1.32.1 on eth0
3> DNS add: 10.1.1.191.252
4> Create as first node or standalone
5> Web IP address is 10.1 1.59.222
6> NTP add: ntp.juniper.net
7> Node display name is "space1"
8> Password for Junos Space maintenance mode is set.

A> Apply settings
C> Change settings
Q> Quit and set up later
R> Redraw Menu

Choice [ACQR]: _

```

18. Confirm that the information in the Settings Summary is correct:

- If all summary information is correct, enter **A** to apply the settings.
- If any summary information is not correct, enter **C** to change the settings.

When you enter **C**, you will be prompted to reenter all the basic configuration information that you have configured up to this point.

When you enter **A** to apply the settings, the Junos Space Settings Menu is displayed, as shown in the following example.

Junos Space Settings Menu

```

1> Change Password
2> Set Routing
3> Set DNS Servers
4> Change Time Options
5> Retrieve Logs
6> Expand VM Drive Size
7> Security
8> (Debug) run shell

```

Q> Quit
R> Redraw Menu

Choice [1-8,QR]:

19. Enter **6** to Expand VM drive size.

Junos Space displays the prompt to expand VM (virtual appliance) drive size, as shown in the following example.

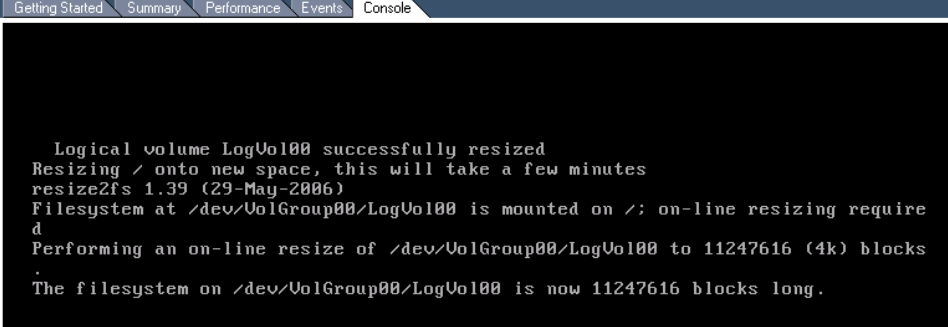
Choice [1-8,QR]: 6

This process will scan this node for additional drive space that you may have added.
During this process, performance on this node may be significantly slowed.
Continue? [y/n]

20. Enter **y** to start a scan for the 40 GB of additional drive space that you added when you deployed the virtual appliance.

21. Enter the admin password when prompted.

Junos Space starts a scan for the 40 GB of additional drive space that you added when you deployed the virtual appliance. When the scan completes, Junos Space displays the results to verify that the file system size was increased to include the new logical volume. The following example shows the results of a scan for additional drive space.



```

Getting Started Summary Performance Events Console
Logical volume LogVol100 successfully resized
Resizing / onto new space, this will take a few minutes
resize2fs 1.39 (29-May-2006)
Filesystem at /dev/VolGroup00/LogVol100 is mounted on /; on-line resizing required
Performing an on-line resize of /dev/VolGroup00/LogVol100 to 11247616 (4k) blocks
The filesystem on /dev/VolGroup00/LogVol100 is now 11247616 blocks long.

```

The Junos Space Settings Menu is displayed.

22. Enter **Q** to exit the Junos Space Settings Menu.

The configuration of the Junos Space Virtual Appliance is now complete.



NOTE: To log in to Junos Space from a Web browser, enter **super** as the default user name and **juniper123** as the password.

Configuring an Appliance to Add to an Existing Cluster

To configure the basic settings of a Junos Space appliance that will be added to an existing cluster:

1. Power on the Junos Space virtual appliance:
 - a. From the VMware vSphere client, right-click on the Junos Space Virtual Appliance and select **Power** > **Power On** from the drop-down menu.
 - b. Select the Console tab and then click inside the console display screen.

The VMware vSphere client console screen displays the Junos Space login prompt.
2. At the Junos Space login prompt, enter **admin** as your default login name and press Enter.
3. Enter **abc123** as your default password and press Enter.

Junos Space prompts you to change your default password.
4. Enter the default password again.
5. Enter a new password.

All passwords are case-sensitive.
6. Reenter your new password.
7. Enter a new IP address for interface **eth0**.



NOTE: The first and second appliance or virtual appliance that you configure in a cluster (fabric) must be in the same subnet.

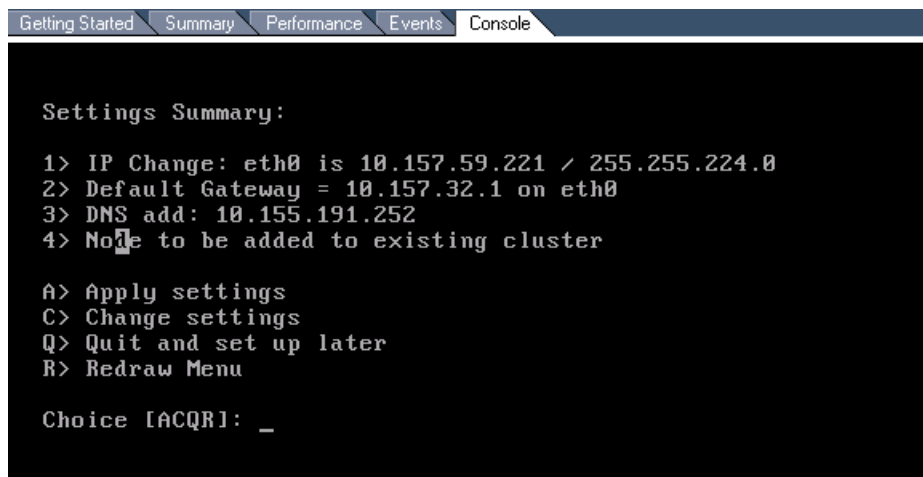
8. Enter a new subnet mask for interface **eth0**.
9. Enter the default gateway as a dotted decimal IP address.
10. Enter the nameserver address in dotted decimal notation for interface **eth0**.
11. Enter Device Management IP interface information:

If you want to configure a separate interface for device management:

 - Enter **y** when prompted to configure a separate interface for device management.
 - Enter a new IP address for interface **eth3**.
 - Enter a new subnet mask for interface **eth3**.

If you do not want to configure a separate interface for device management, enter **n** when prompted.
12. Enter **y** when prompted “Will this Junos Space system be added to an existing cluster?”

The Settings Summary is displayed, as shown in the following example.



```

Getting Started Summary Performance Events Console
Settings Summary:
1> IP Change: eth0 is 10.157.59.221 / 255.255.224.0
2> Default Gateway = 10.157.32.1 on eth0
3> DNS add: 10.155.191.252
4> Note to be added to existing cluster

A> Apply settings
C> Change settings
Q> Quit and set up later
R> Redraw Menu

Choice [ACQR]: _

```

13. Confirm that the information in the Settings Summary is correct:

- If all summary information is correct, enter **A** to apply the settings.
- If any summary information is not correct, enter **C** to change the settings.

When you enter **C**, you will be prompted to reenter all the basic configuration information that you have configured up to this point.

When you enter **A** to apply the settings, the Junos Space Settings Menu is displayed, as shown in the following example.

Junos Space Settings Menu

```

1> Change Password
2> Set Routing
3> Set DNS Servers
4> Change Time Options
5> Retrieve Logs
6> Expand VM Drive Size
7> Security
8> (Debug) run shell

Q> Quit
R> Redraw Menu

```

Choice [1-8,QR]:

14. Enter **6** to Expand VM drive size.

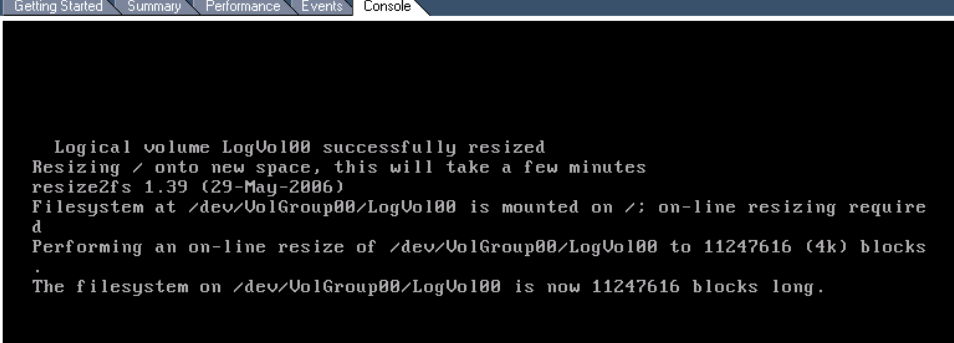
Junos Space displays the prompt to expand VM (virtual appliance) drive size, as shown in the following example.

Choice [1-8,QR]: 6

This process will scan this node for additional drive space that you may have added. During this process, performance on this node may be significantly slowed.
Continue? [y/n]

15. Enter **y** to start a scan for the 40 GB of additional drive space that you added when you deployed the virtual appliance.
16. Enter the admin password when prompted.

Junos Space start a scan for the 40 GB of additional drive space that you added when you deployed the virtual appliance. When the scan completes, Junos Space displays the results to verify that the file system size was increased to include the new logical volume. The following example shows the results of a scan for additional drive space.



```

Getting Started Summary Performance Events Console
Logical volume LogVol00 successfully resized
Resizing / onto new space, this will take a few minutes
resize2fs 1.39 (29-May-2006)
Filesystem at /dev/VolGroup00/LogVol00 is mounted on /; on-line resizing require
d
Performing an on-line resize of /dev/VolGroup00/LogVol00 to 11247616 (4k) blocks
.
The filesystem on /dev/VolGroup00/LogVol00 is now 11247616 blocks long.

```

When the scan for additional drive space completes, the Junos Space Settings Menu is displayed.

17. Enter **Q** to exit the Junos Space Settings Menu.

The basic configuration of the Junos Space Virtual Appliance is now complete.

For each appliance that you add to an existing fabric, you must add the node in the Junos Space user interface, as described in [Adding a Fabric Node](#).



NOTE: To log in to Junos Space from a Web browser, enter “super” as the default user name and “juniper123” as the password.

Related Documentation

- [Logging In to the System](#)
- [Changing Network and System Settings for a Junos Space Virtual Appliance on page 23](#)
- [Junos Space Virtual Appliance Overview on page 3](#)

Changing Network and System Settings for a Junos Space Virtual Appliance

You can change some of the basic configuration options that you configured when you first installed and set up your Junos Space Virtual Appliance. You can also change system time defaults and retrieve system log files your virtual appliance.

Each time you log in from the Junos Space system console, the Junos Space Appliance Settings menu is displayed. Follow the system prompts from the menu to set or modify

any menu options. Password changes take effect immediately. Any configuration changes you make do not take effect until you apply the changes.

You can perform the following tasks from the Junos Space Appliance Settings menu:

- [Changing the Password on page 24](#)
- [Setting Routing Options on page 24](#)
- [Adding DNS Servers on page 25](#)
- [Setting the System Time on page 25](#)
- [Retrieve Logs on page 25](#)
- [Expand VM Drive Size on page 26](#)
- [Setting Security Options on page 26](#)
- [\(Debug\) Run Shell on page 27](#)

Changing the Password

To change your password:

1. From the Junos Space Appliance Settings menu, enter **1** at the prompt.
2. Enter **y** when prompted to change the password for an admin user.
3. Type the new password and press Enter.
4. Retype the new password and press Enter.

Your password is updated and the setup program returns you to the main menu.

Setting Routing Options

To modify the default gateway for the management interface (eth0) or the device management interface (eth3). See also “[Understanding How Junos Space Uses Ethernet Interfaces eth0 and eth3](#)” on page 6.

1. From the Junos Space Appliance Settings menu, enter **2** at the prompt.
2. Enter one of the following options:
 - Enter **1** to change the default gateway for the management interface (eth0).
Follow the prompts to change the IP address of the default gateway and return to the main menu.
 - Enter **2** to change the default gateway for the device management interface (eth3).
Follow the prompts to change the IP address of the default gateway and return to the main menu.



NOTE: Option 2 is available only when a device management interface (eth3) was specified during the initial configuration of the virtual appliance.

Adding DNS Servers

You can add up to three DNS servers. Enter each one using dotted decimal notation (for example, 10.157.191.252). Each addition returns you to the main menu.

To add a DNS server:

1. From the Junos Space Appliance Settings menu, enter **3** at the prompt.
2. Enter **1** to add a nameserver.
3. Enter the new nameserver in dotted decimal notation.

Repeat Step 1 through Step 3 to add another DNS server.

Setting the System Time

When you configure each Junos Space Virtual Appliance with an NTP server, you ensure that, if the first node (which is used to synchronize time for all nodes in the fabric) goes down, all other nodes in the fabric remain synchronized. To ensure this behavior, all nodes in a fabric should be configured with the same external NTP source that you configured for the first appliance.

To change time options for an appliance:

1. From the Junos Space Appliance Settings menu, enter **4** at the prompt.
2. Enter **2** to set NTP servers.

NTP servers automatically set the system clock based on external time sources.

3. Enter one of the following values at the prompt:

- **1** to enable or disable NTP.
- **2** to add an NTP server.

The remaining numbered options let you remove an NTP server from the list.

4. Follow the prompts to enable, set, or delete the NTP servers and return to the main menu.

Retrieve Logs

To retrieve system log files, you can use SecureCopy (SCP) if the network is functional, or a USB device if the network is down.



NOTE: To save the system log file to a USB device, the device must be connected to the Junos Space appliance.

To retrieve system logs:

1. From the Junos Space Appliance Settings menu, enter **5** at the prompt.

2. Choose a method for retrieving log files from the Retrieve Logs submenu:

- a. To save the log files to USB , enter 1 and follow the prompts.

Junos Space retrieves the log files on all cluster members and combines them into a tar file. Once the file is created, you can copy the file onto a USB device.

- b. To save the log files using SCP enter 2 and follow the prompts.

Junos Space retrieves the log files on all cluster members and combine them into a tar file. Once the file is created, you can transfer the file to a remote SCP server.

Expand VM Drive Size

To increase disk space on a Junos Space Virtual Appliance, you must first add a disk resource in the VMWare Infrastructure Client to create a new virtual disk. Then you initiate a scan for the additional drive space that you added from the VMWare Infrastructure Client to increase the file system size.



NOTE: The Junos Space Virtual Appliance must be powered on to increase disk space.

To expand the Virtual Machine drive size:

1. Enter **6** to expand the VM drive size.
2. Enter **y** to initiate a scan for the additional drive space you added when you deployed the virtual appliance.

When the scan completes, Junos Space displays the results to verify that file system size was increased to include the new logical volume.

Setting Security Options

By default, the firewall and SSH security options are enabled on the Junos Space appliance.



NOTE: Juniper recommends that, in most cases, the firewall remains enabled. However, if you are using Service Now to send email or SNMP notifications or using Service Now through a proxy server, you must disable the firewall. In addition, if the Service Now application is running in a multi-node fabric (node cluster), the firewall must be disabled across each node in the fabric.

To enable or disable the firewall:

1. From the Junos Space Appliance Settings menu, enter **7** at the prompt.
2. Change the firewall setting:
 - If the firewall is currently enabled, enter **1** to disable the firewall.

- If the firewall is currently disabled, enter **1** to enable the firewall.

To enable or disable SSH:

1. From the Junos Space Appliance Settings menu, enter **7** at the prompt.
2. Change the SSH setting:
 - If SSH is currently enabled, enter **2** to disable SSH.
 - If SSH is currently disabled, enter **2** to enable SSH.

(Debug) Run Shell

To run shell commands to debug Junos Space:

1. From the Junos Space Appliance Settings menu, enter **8** and follow the prompts.

Related Documentation

- [Downloading Troubleshooting System Log Files Using the CLI](#)

PART 4

Upgrading

- [Upgrading The Junos Space Virtual Appliance on page 31](#)

CHAPTER 4

Upgrading The Junos Space Virtual Appliance

- [Junos Space Software Upgrade Overview on page 31](#)
- [Upgrading Junos Space Software on page 32](#)

Junos Space Software Upgrade Overview

To upgrade software for the Junos Space Virtual Appliance, you upload the Junos Space image file to your existing fabric and perform the software upgrade in the Junos Space user interface. When you perform an upgrade, all appliances (nodes) in the fabric are upgraded with the new software.

To ensure a successful upgrade of your Junos Space appliances, complete the following tasks.

- Back up all your Junos Space data files before you begin the upgrade process.
- Download the Junos Space software image from the Juniper Networks software download Web site.
- Complete the steps to upgrade your current Junos Space software to the latest software version.



NOTE: To perform a Junos Space upgrade, you must have super administrator or system administrator access privileges.

- Validate that the software is successfully installed by logging in to the user interface.

To view the version of the installed Junos Space software, select the Help icon in the user interface banner, and click on the **About** panel.

- Upload the License Key that was sent to you when you purchased the Junos Space software upgrade.

Related Documentation

- [Upgrading Junos Space Software on page 32](#)

Upgrading Junos Space Software

To upgrade software for the Junos Space Virtual Appliance, you download the Junos Space Upgrade image file from the Juniper Networks software download site onto the local client file system. You upload the Junos Space image file to your local file system using the Platform > Administration > Manage Applications Upgrade Platform action. 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.



CAUTION: You cannot upgrade directly from older Junos Space releases 1.0, 1.1, 1.2, 1.3, or 1.4 to release 11.3. Instead, you must upgrade to Junos Space release 11.1 or 11.2 before upgrading to release 11.3.

- [Junos Space 11.3 Release Highlights on page 32](#)
- [Before You Begin on page 33](#)
- [Upgrading Junos Space Release 11.1 or 11.2 to Release 11.3 on page 33](#)

Junos Space 11.3 Release Highlights

The Junos Space Upgrade Release 11.3 includes:

Junos Space Release 11.3 Contents

- Network Application Platform Release 11.3 (The platform provides the operating environment for Junos Space, therefore upgrade using the Platform > Administration > Manage Application Upgrade Platform action.)
- Service Now Release 11.3
- Service Insight Release 11.3

Available Hot-Pluggable Applications

The following applications are hot-pluggable in Junos Space. 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.

- Ethernet Design
- Network Activate
- QoS Design
- Virtual Control Release

Before You Begin

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

- Upgrading to Junos Space release 11.3 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 Application Management 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 Junos Space Release 11.1 or 11.2 to Release 11.3

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



NOTE: When upgrading Junos Space from release 11.1 or 11.2 to 11.3, the Network Application Platform and Service Now and Service Insight applications are upgraded only. Other Junos Space release 11.1 or 11.2 applications are disabled. You must upgrade release 11.1 or 11.2 disabled applications to release 11.3 (see Upgrading a Junos Space Application) or uninstall them (see Uninstalling a Junos Space Application). Do not add disabled Junos Space applications using **Platform > Administration > Manage Applications > Add Application**.

To upgrade Junos Space from release 11.1 or 11.2 to release 11.3, see Upgrading the Network Application Platform.

Related Documentation

- Application Management Overview
- Managing Junos Space Applications

PART 5

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- [Index on page 37](#)

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