Firefly Perimeter Installation and Upgrade Guide for VMware

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Documentation and 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/.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at http://www.juniper.net/books.

Documentation Conventions

Table 1 on page x defines 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.

Table 2 on page x defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the **configure** command: user@host> **configure**
`Fixed-width text like this`	Represents output that appears on the terminal screen.	`user@host>` **show chassis alarms** `No alarms currently active`
Italic text like this	• Introduces or emphasizes important new terms. • Identifies guide names. • Identifies RFC and Internet draft titles.	• A policy *term* is a named structure that defines match conditions and actions. • *Junos OS CLI User Guide* • RFC 1997, *BGP Communities Attribute*
Italic text like this	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# **set system domain-name** *domain-name*
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	• To configure a stub area, include the **stub** statement at the **[edit protocols ospf area area-id]** hierarchy level. • The console port is labeled **CONSOLE**.
< > (angle brackets)	Encloses optional keywords or variables.	**stub <default-metric** *metric***>;**

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Table 2: Text and Syntax Conventions *(continued)*

Convention	Description	Examples
| (pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	**broadcast | multicast** (***string1*** **|** ***string2*** **|** ***string3***)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	**rsvp { # Required for dynamic MPLS only**
[ ] (square brackets)	Encloses a variable for which you can substitute one or more values.	**community name members [** ***community-ids*** **]**

Indention and braces ({ })	Identifies a level in the configuration hierarchy.	[edit]
		routing-options {
		static {
		route default {
		nexthop *address*;
		retain;
		}
		}
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		
Bold text like this	Represents graphical user interface (GUI) items you click or select.	• In the Logical Interfaces box, select **All Interfaces**. • To cancel the configuration, click **Cancel**.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select **Protocols>Ospf**.

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.

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PART 1

Overview

- Firefly Perimeter Overview on page 3
- System Requirements on page 5

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CHAPTER 1

Firefly Perimeter Overview

- Understanding Firefly Perimeter on page 3

Understanding Firefly Perimeter

Firefly Perimeter is a virtual security appliance that provides security and networking services at the perimeter or edge in virtualized private or public cloud environments. Firefly Perimeter runs as a virtual machine (VM) on a standard x86 server.

Firefly Perimeter enables advanced security and routing at the network edge in a multitenant virtualized environment. Firefly Perimeter is built on Junos OS and delivers similar networking and security features available on SRX Series devices for the branch.

Some of the key benefits of Firefly Perimeter in virtualized private or public cloud multitenant environments include:

- Stateful firewall protection at the tenant edge
- Faster deployment of virtual firewalls
- Full routing, Virtual Private Network (VPN) and networking capabilities
- Complementary with the Juniper Networks Firefly Host for inter-VM security
- Centralized and local management

Related Documentation

- *Specifications for Firefly Perimeter Installation*
- *Firefly Perimeter Basic Settings*
- *Installation Requirements for Firefly Perimeter with VMware*

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CHAPTER 2

System Requirements

- System Requirements for Firefly Perimeter on page 5

System Requirements for Firefly Perimeter

- Specifications for Firefly Perimeter Installation on page 5
- Installation Requirements for Firefly Perimeter with VMware on page 6

Specifications for Firefly Perimeter Installation

Table 3 on page 5 lists the specifications for Firefly Perimeter.

Table 3: Specifications for Firefly Perimeter

Component	Specification
Memory	2 GB
Disk space	2 GB
vCPUs	2
vNICs	Up to 10
Virtual NIC type	E1000

Table 4 on page 5 lists the hardware specifications for the host machine which runs Firefly Perimeter Virtual Machine (VM).

Table 4: Hardware Specifications for Host Machine

Component	Specification
Host memory size	Minimum 4 GB
Host processor type	x86_64

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NOTE:

- Ensure that the physical server includes multi-core CPU.
- The Host machine must support VMware.

  For the Hardware Compatibility List, see:

  www.vmware.com.

Installation Requirements for Firefly Perimeter with VMware

Supported Version of VMware hypervisor

Table 5 on page 6 lists the supported version of VMware hypervisor.

Table 5: Supported Version of VMware hypervisor

VMware Hypervisor	Hypervisor Version
VMware vSphere ESXi/ESX	5.0 and 5.1

NOTE: Create an account on the VMware website at http://vmware.com to access the downloads and to get the license key for VMware.

Related Documentation

- Installing Firefly Perimeter with VMware vSphere Client on page 9

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PART 2

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CHAPTER 3

Firefly Perimeter Installation

- Installing Firefly Perimeter with VMware vSphere Client on page 9
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Installing Firefly Perimeter with VMware vSphere Client

NOTE: **The following installation steps were performed by connecting VMware vSphere Client 5.0 directly to a host.**

To install Firefly Perimeter with VMware vSphere Client:

1. Download and install the VMware vSphere Client available at:

   www.vmware.com.

2. On the same computer, download the Firefly Perimeter software package available at:

   http://www.juniper.net/support/downloads/.

3. Start the VMware vSphere Client and log in with your credentials as shown in Figure 1 on page 10 and Figure 2 on page 10.

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Figure 1: Starting VMware vSphere Client

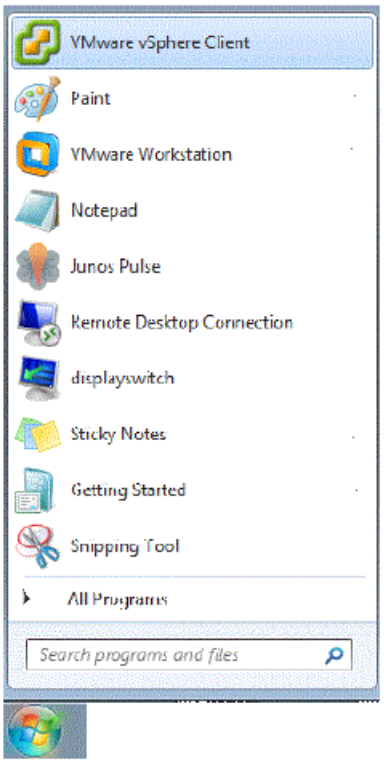
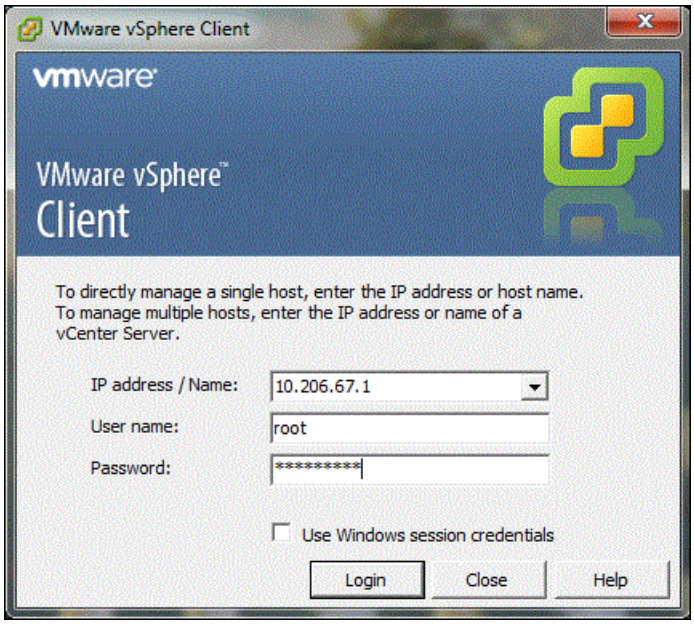


Figure 2: VMware vSphere Client Login



4. Click **File->Deploy OVF Template** as shown in Figure 3 on page 11.

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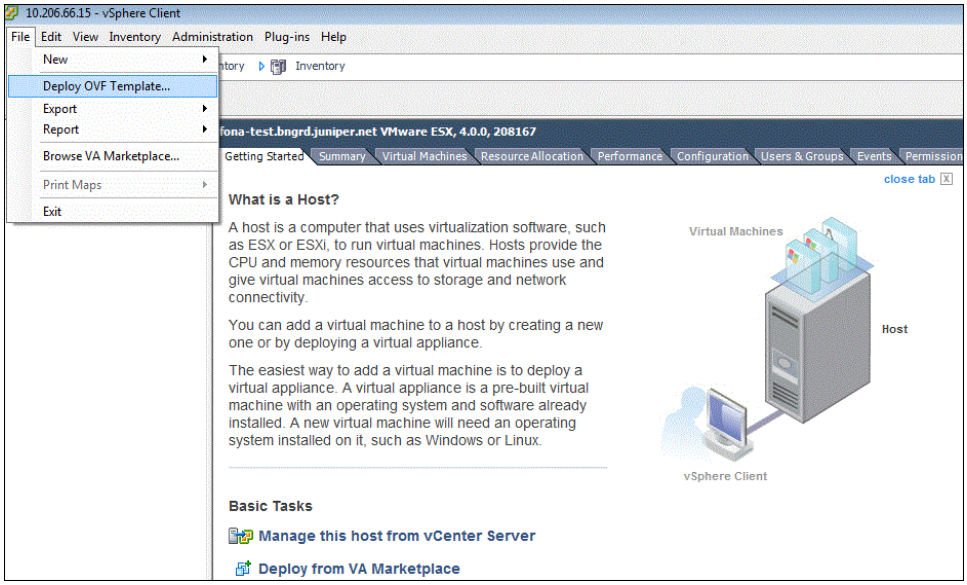
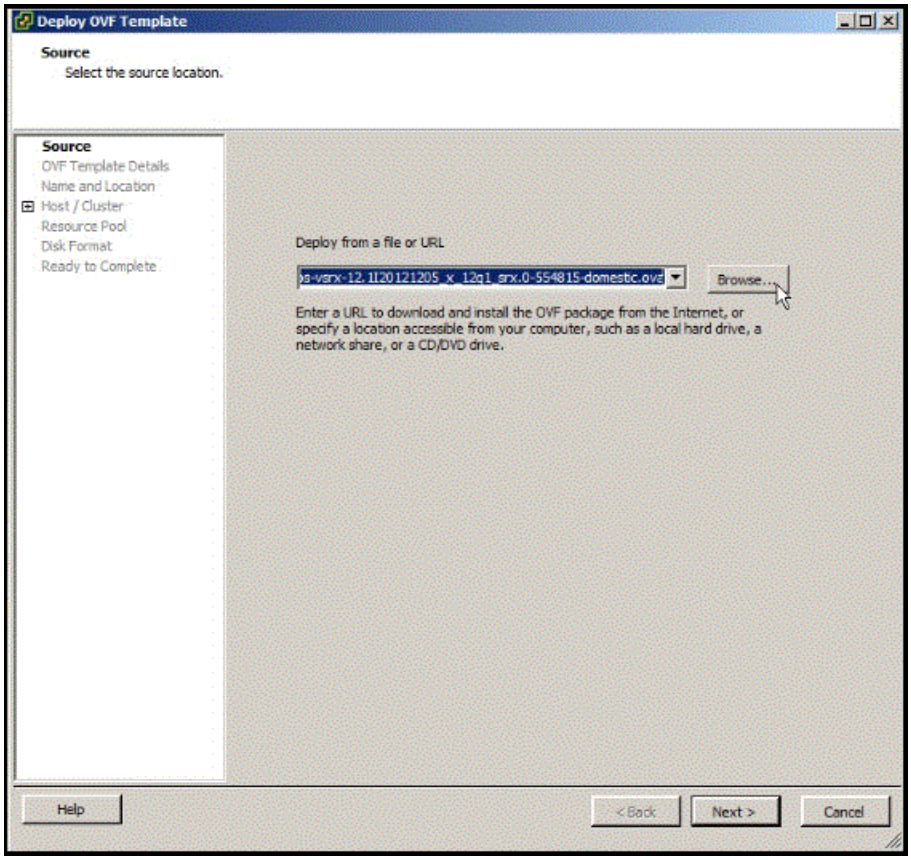
Figure 3: OVF Template



5. Click **Browse** to locate the Firefly Perimeter software package as shown in Figure 4 on page 11. Then click **Next**.

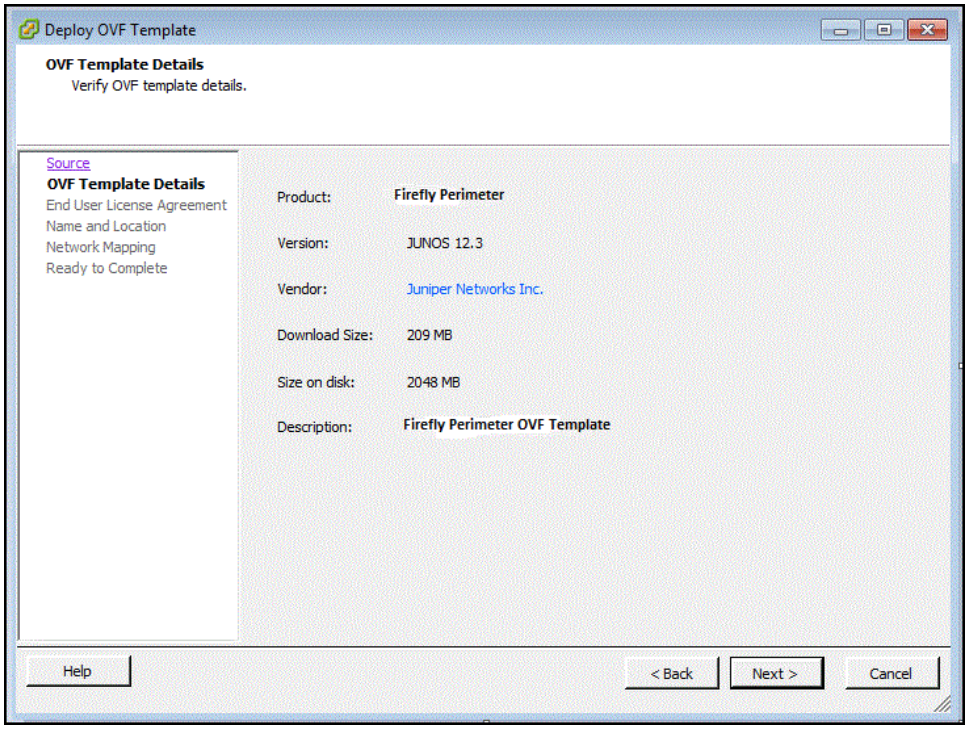
Figure 4: Locating the Firefly Perimeter Software Package



6. On the OVF Template Details window, click **Next** to proceed with the installation. See Figure 5 on page 12.

   Click **Cancel** to discard the most recent change.

Figure 5: OVF Template Details



7. On the End User License Agreement window, click **Accept**->**Next** to proceed with the installation. See Figure 6 on page 13.

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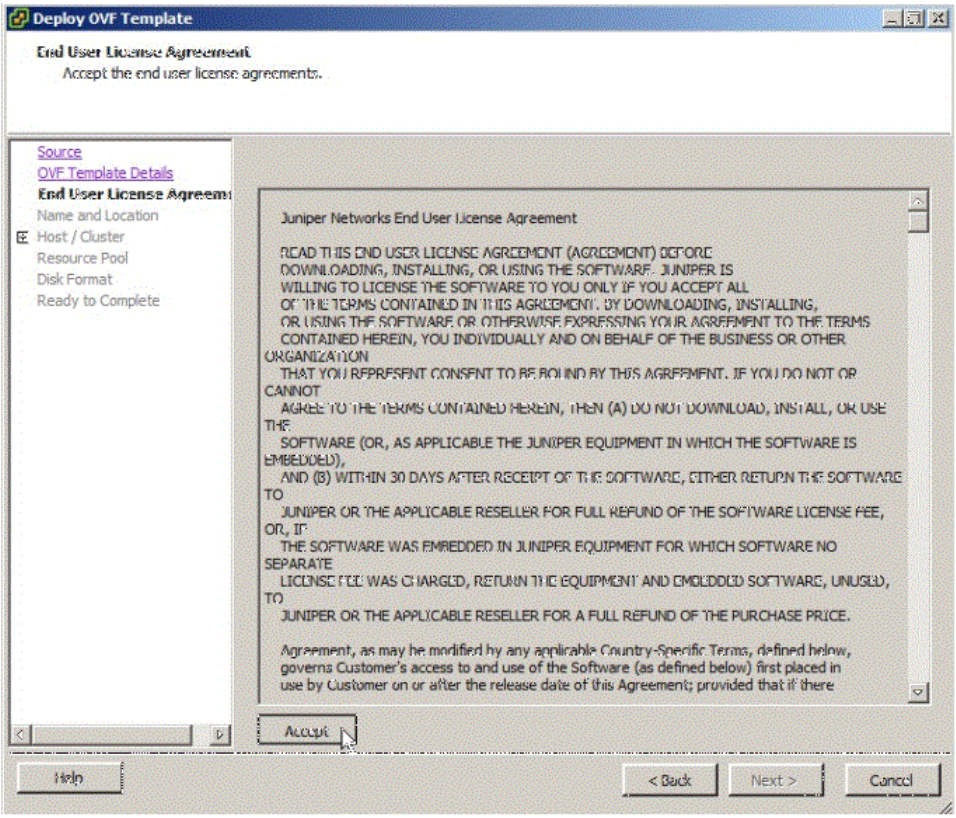
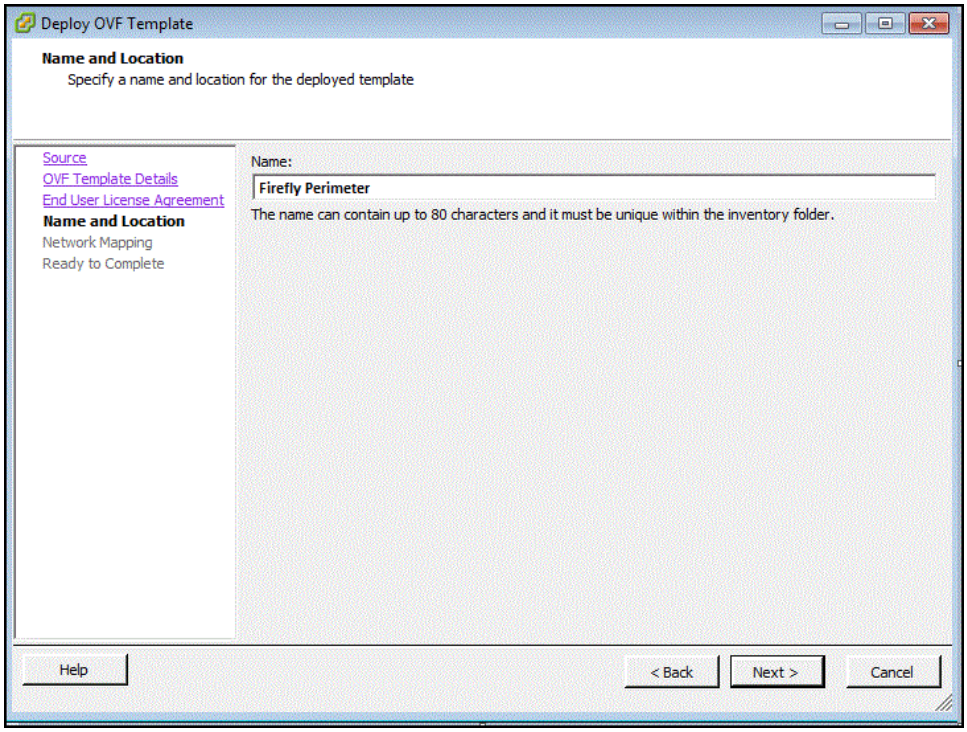
Figure 6: End User License Agreement



8. In the Name field, change the default Firefly Perimeter VM name to an appropriate name and click **Next**. See Figure 7 on page 14. It is advisable to keep this name the same as the hostname you intend to give to your VM.

Figure 7: Changing the Firefly Perimeter name



9. On the Datastore window, do not change the default settings for Datastore and Available space. See Figure 8 on page 15.

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Figure 8: Datastore Page

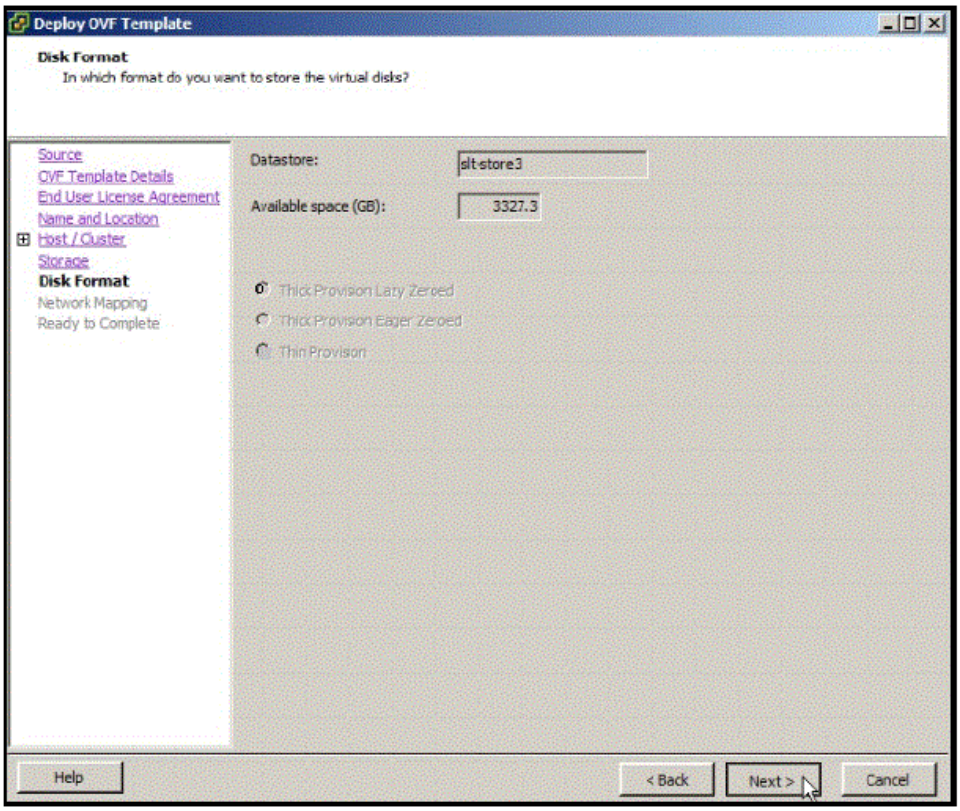


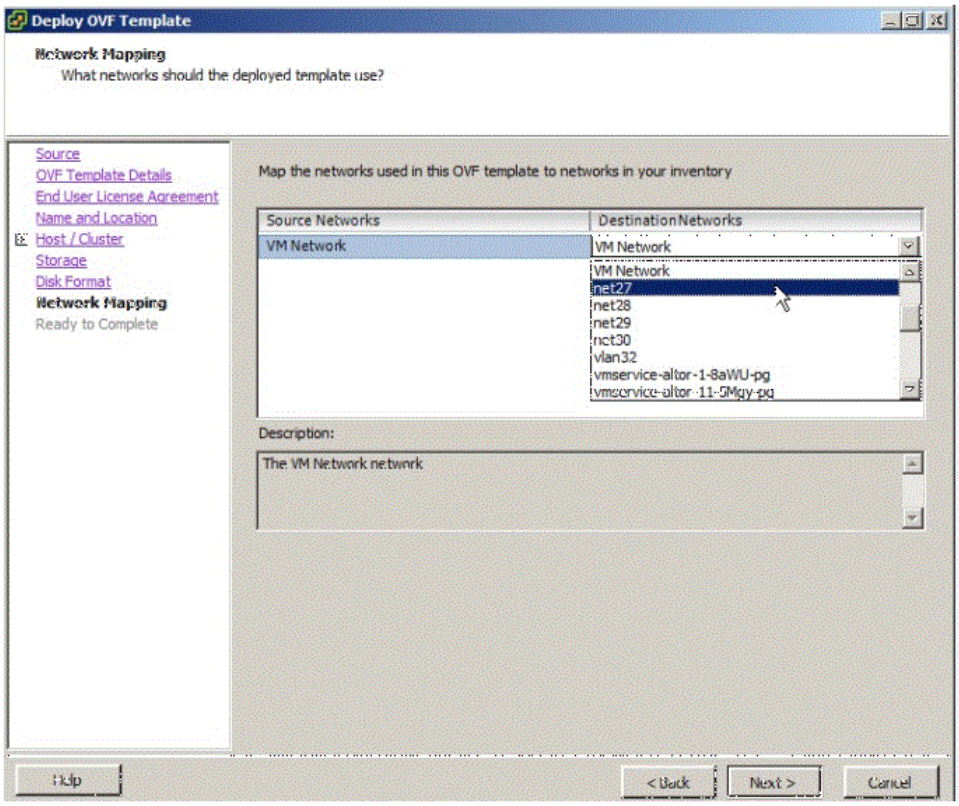
Table 6 on page 15 lists the disk formats available to store the virtual disk. Select **Thick Provision Lazy Zeroed**.

Table 6: Disk Formats for Virtual Disk Storage

Disk Format	Utility
Thick Provision Lazy Zeroed	A virtual disk provisioning policy where disk space is assigned to the virtual disk when the virtual disk is created. Previously stored data is not erased when the disk space is created. The previous data is erased when the VM is used for the first time.
Thick Provision Eager Zeroed	A virtual disk provisioning policy that erases the previously stored data completely and then allocates the disk space to the virtual disk. Creation of disks in this format is time consuming.

10. Select your Destination Network and click **Next**. See Figure 9 on page 16.

Figure 9: Network Mapping



11. Click **Finish** to complete the installation. Once finished, the device will be deployed as shown in Figure 10 on page 17 and Figure 11 on page 17.

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Figure 10: Ready to Complete

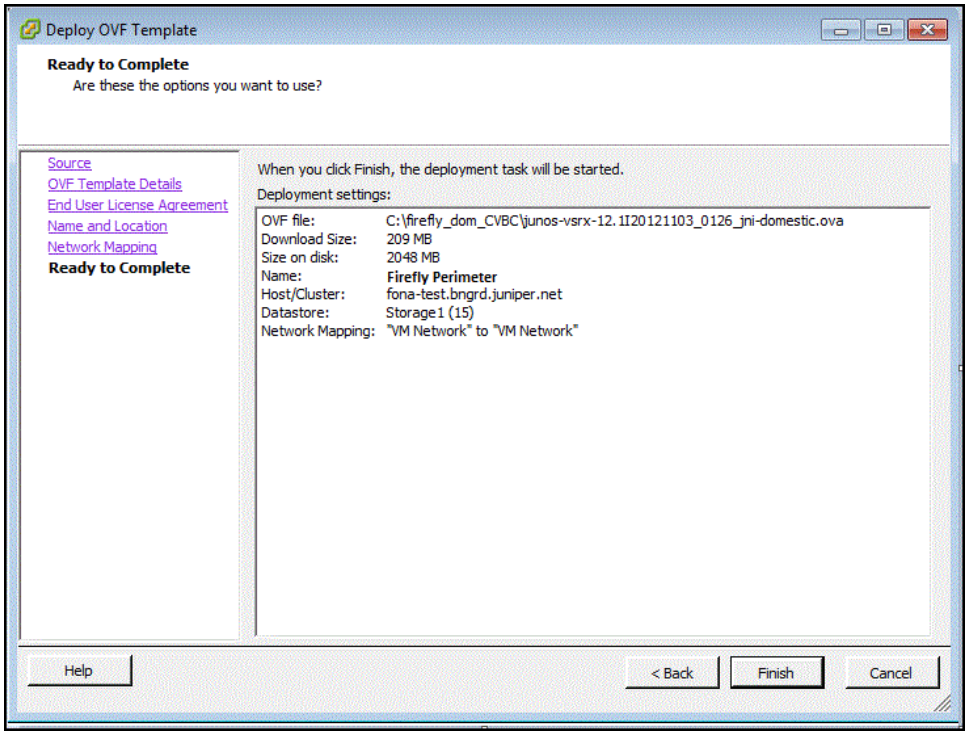
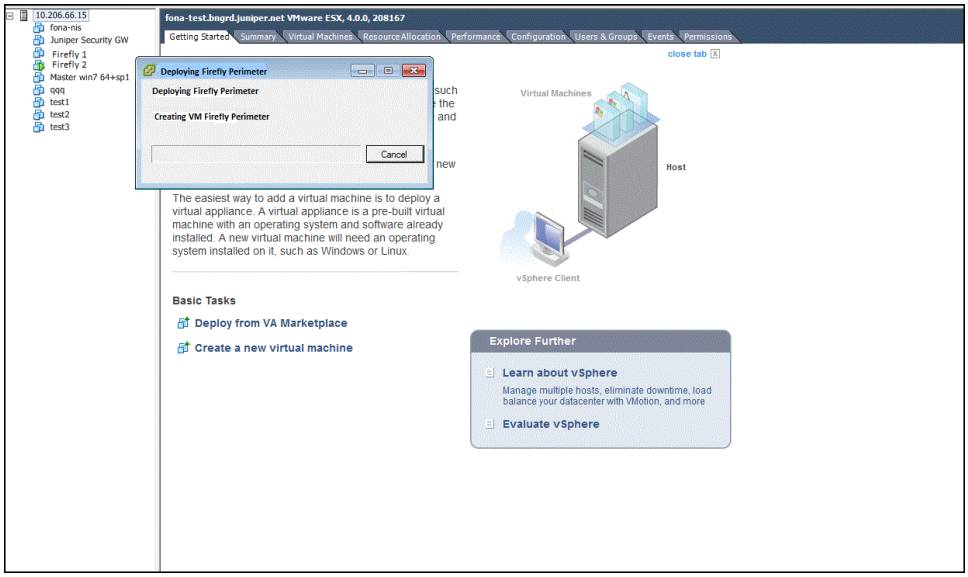


Figure 11: Firefly Perimeter Deployment



NOTE: The default Firefly Perimeter VM login ID is root with no password. By default, Firefly Perimeter will be assigned a DHCP based IP address, if DHCP server is available on the network.

Related Documentation

- System Requirements for Firefly Perimeter on page 5

Upgrading Individual Software Packages for Firefly Perimeter

To upgrade an individual Junos OS package:

1. Download the software packages you need from the Juniper Networks Support website at **http://www.juniper.net/customers/support/**. Choose either the Canada and U.S. Version or the Worldwide Version.

   To download the software packages, you must have a service contract and an access account. If you need help obtaining an account, complete the registration form at the Juniper Networks website at: **https://www.juniper.net/registration/Register.jsp**.

   NOTE: We recommend that you upgrade all individual software packages using an out-of-band connection from the console or management Ethernet interface, because in-band connections can get lost during the upgrade process.

2. If you are copying multiple software packages to the device, then copy them to the **/var/tmp** directory on the hard disk or solid-state drive.

   user@host> **file copy ftp**:*//username*:prompt@ftp.*hostname* .net/*filename* /var/tmp/*filename*

3. Add the new software package.

   user@host> **request system software add** /var/tmp/*installation package* **validate**

   where ***installation-package*** is the full path to the file.

   WARNING: Do not include either the *re0 or re1* option when you install a package using the **request system software add** command if the Routing Engine on which the package is located and the Routing Engine on which you want to install the package are the same. In such cases, the package gets deleted after a successful upgrade.

   The system might display the following message:

   ```
   pkg_delete: couldn't entirely delete package
   ```

   This message indicates that someone manually deleted or changed an item that was in a package. You do not need to take any action; the package is still properly deleted.

   If you are upgrading more than one package at the same time, then add **jbase** first. If you are using this procedure to upgrade all packages at once, add them in the following order:

   user@host> **request system software add** /var/tmp/jbase-*release*-signed.tgz

   user@host> **request system software add** /var/tmp/jkernel-*release*-signed.tgz

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```
user@host> request system software add /var/tmp/jpfe-release-signed.tgz
user@host> request system software add /var/tmp/jdocs-release- signed.tgz
user@host> request system software add /var/tmp/jweb-release- signed.tgz
user@host> request system software add /var/tmp/jroute-release-signed.tgz
user@host> request system software add /var/tmp/jcrypto-release-signed.tgz
```

4. Reboot the router to start the new software.

```
user@host> request system reboot
```

NOTE: As of Junos OS Release 12.1X44-D10 and later, you can upgrade individual software packages.

Downgrade support is not available in Junos OS Release 12.1X46 and earlier.

Related Documentation

- Understanding Firefly Perimeter on page 3
- Installing Firefly Perimeter with VMware vSphere Client on page 9

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PART 3

Administration

- Tools for Configuration and Management on page 23

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CHAPTER 4

Tools for Configuration and Management

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Firefly Perimeter Configuration and Management Tools

- Understanding Junos OS CLI and Junos Scripts on page 23
- Understanding J-Web Interface on page 23
- Understanding Junos Space Virtual Director on page 24
- Understanding Junos Space Security Director on page 25

Understanding Junos OS CLI and Junos Scripts

Junos OS CLI is a Juniper Networks specific command shell that runs on top of a UNIX-based operating system kernel.

For detailed information, see https://www.juniper.net/techpubs/en_US/release-independent/junos/topics/concept/ex-series-cli-interface-overview.html .

Built into the Junos OS, Junos script automation is an onboard toolset available on all Junos OS platforms, including routers, switches, and security devices.

For detailed information, see http://www.juniper.net/in/en/community/junos/script-automation/#overview.

You can use the Junos OS CLI and the Junos OS scripts to configure, manage, administer, and troubleshoot Firefly Perimeter.

Understanding J-Web Interface

The J-Web interface allows you to monitor, configure, troubleshoot, and manage the routing platform by means of a Web browser. J-Web provides access to all the configuration statements supported by the routing platform.

For detailed information, see http://www.juniper.net/techpubs/en_US/junos12.1/information-products/pathway-pages/jweb/jweb.html .

You can use J-Web to configure, manage, administer and troubleshoot Firefly Perimeter.

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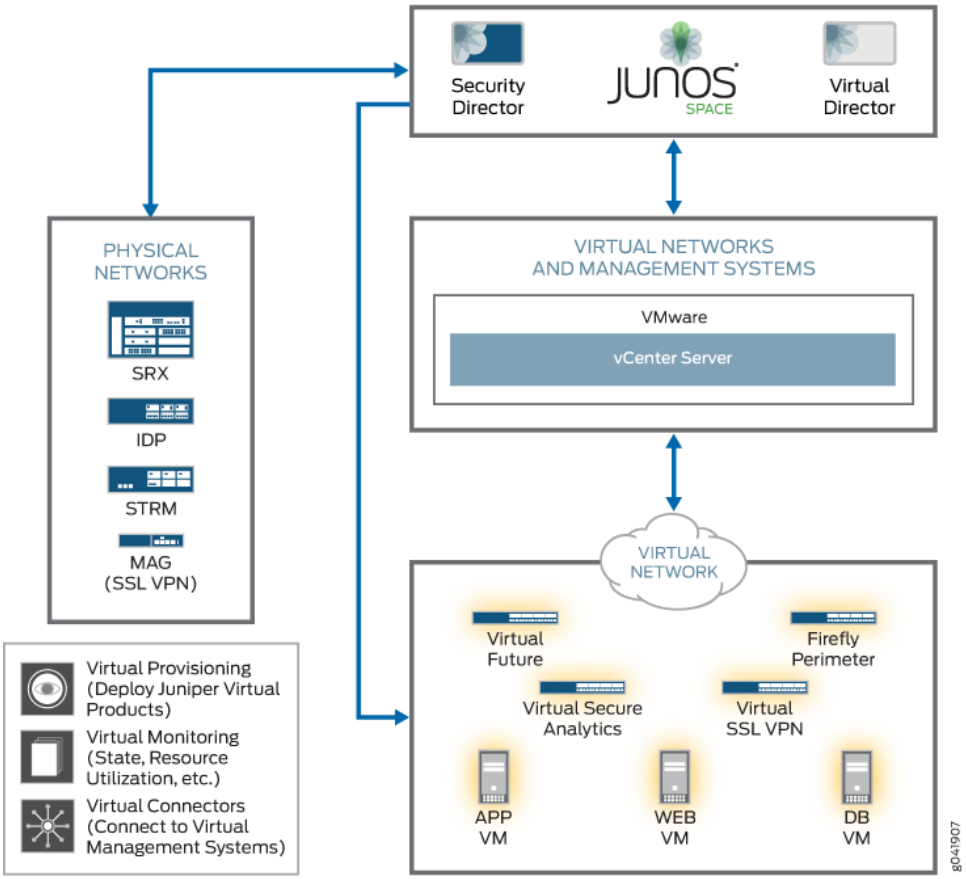
Understanding Junos Space Virtual Director

Junos Space Virtual Director is dedicated to provisioning, bootstrapping, monitoring, and lifecycle management of a variety of Juniper virtual appliances and related virtual security solutions. Virtual Director can be used to deploy, manage, and monitor instances of Firefly Perimeter, which provides security and networking services at the perimeter in a virtualized private or public cloud environment. Virtual Director also registers each instance of Firefly Perimeter with the Junos Space Platform to allow other Junos Space applications, such as Security Director, to configure security policies.

Figure 12 on page 24 illustrates the Virtual Director topology.

Figure 12: Virtual Director Topology



Virtual Director supports Firefly Perimeter on VMware and offers the following lifecycle management features for Firefly Perimeter:

- Provisioning—Provides support for multiple vCenters, imports a Firefly Perimeter image file into VMware, and uses templates to build instances.
- Bootstrapping—Injects settings into the newly instantiated virtual machine so that it can be managed and registered into Junos Space automatically.

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- Basic Monitoring—Groups the deployed Firefly Perimeter instances and displays the details of instances and resources.

2

For information regarding deploying VM templates using Virtual Director, see *Junos Space Virtual Director Getting Started Guide.*

Understanding Junos Space Security Director

Managing enterprise security policy has become extremely complex. The growth in network traffic, including mobile traffic and BYOD, and the emergence of cloud services, have combined into a new array of opportunities for malicious hackers.

Security management can become error-prone and time-consuming if management solutions are slow, difficult to use, or restricted in their granularity of control. Resulting misconfigurations can make the enterprise vulnerable to threats and noncompliant with regulations and policies.

As one of the Junos Space Management Applications, Junos Space Security Director* helps organizations improve the reach, ease, and accuracy, of security policy administration with a scalable, GUI-based management tool. It automates security provisioning through one centralized web-based interface to help administrators manage all phases of security policy lifecycle more quickly and intuitively, from policy creation to remediation.

For additional information, see

http://www.juniper.net/us/en/products-services/network-management/junos-space-applications/security-director/#overview.

Related Documentation

- Understanding Firefly Perimeter on page 3
- Installing Firefly Perimeter with VMware vSphere Client on page 9

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