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# Junosphere

## Guide for Users

Release

3.0



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#### *Junosphere Guide for Users*

3.0

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## Documentation and Release Notes

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For disclosure information on Junosphere Connector, refer to the files located at <http://www.juniper.net/support/products/junosphereconnector>.

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

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Table 1 on page ix defines notice icons used in this guide.

Table 1: Notice Icons


| Icon  | Meaning            | Description                                   |
|---|--------------------|---|
|  | Informational note | Indicates important features or instructions. |

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

Table 2: Text and Syntax Conventions

| Convention                     | Description  | Examples  |
|--------------------------------|--|---|
| <b>Bold text like this</b>     | Represents text that you type.   | To enter configuration mode, type the <b>configure</b> command:<br><br>user@host> <b>configure</b>  |
| Fixed-width text like this     | Represents output that appears on the terminal screen.   | user@host> <b>show chassis alarms</b><br><br>No alarms currently active   |
| <i>Italic text like this</i>   | <ul style="list-style-type: none"> <li>Introduces important new terms.</li> <li>Identifies book names.</li> <li>Identifies RFC and Internet draft titles.</li> </ul>       | <ul style="list-style-type: none"> <li>A policy <i>term</i> is a named structure that defines match conditions and actions.</li> <li><i>Junos OS System Basics Configuration Guide</i></li> <li>RFC 1997, <i>BGP Communities Attribute</i></li> </ul> |
| <i>Italic text like this</i>   | Represents variables (options for which you substitute a value) in commands or configuration statements.   | Configure the machine's domain name:<br><br>[edit]<br>root@# <b>set system domain-name</b><br><i>domain-name</i>  |
| Text like this                 | Represents names of configuration statements, commands, files, and directories; interface names; configuration hierarchy levels; or labels on routing platform components. | <ul style="list-style-type: none"> <li>To configure a stub area, include the <b>stub</b> statement at the [edit protocols ospf area area-id] hierarchy level.</li> <li>The console port is labeled <b>CONSOLE</b>.</li> </ul>                         |
| < > (angle brackets)           | Enclose optional keywords or variables.  | <b>stub</b> <default-metric <i>metric</i> >;  |
| (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.     | <b>broadcast</b>   <b>multicast</b><br><br>( <i>string1</i>   <i>string2</i>   <i>string3</i> )   |
| # (pound sign)                 | Indicates a comment specified on the same line as the configuration statement to which it applies.   | <b>rsvp { # Required for dynamic MPLS only</b>  |
| [ ] (square brackets)          | Enclose a variable for which you can substitute one or more values.  | <b>community name members [</b><br><i>community-ids</i> <b>]</b>  |
| Indentation and braces ( { } ) | Identify a level in the configuration hierarchy.   | [edit]<br>routing-options {<br>static {<br>route default {<br>nexthop <i>address</i> ;<br>retain;<br>}<br>}<br>}  |
| ;(semicolon)                   | Identifies a leaf statement at a configuration hierarchy level.  | <br>}<br>}  |

## Documentation Feedback

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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](mailto: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

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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> .

To open a case with JTAC for Junosphere, you must provide the bank serial number. To find the serial number, double-click the bank icon in Junosphere.

## PART 1

# Overview

- [Getting Started with Junosphere on page 3](#)



## CHAPTER 1

# Getting Started with Junosphere

- [Understanding Junosphere on page 3](#)
- [Junosphere User Interface Overview on page 5](#)
- [Junosphere Interface Icons on page 9](#)
- [User Access on page 11](#)
- [Using the Login Page on page 11](#)
- [Changing Your Password on page 12](#)
- [Junosphere E-mails on page 13](#)
- [Buying Capacity on page 14](#)

## Understanding Junosphere

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Junosphere is a cloud-based, virtualization environment where multiple virtual machines representing network devices can be connected and configured to create network topologies. To use the cloud, you create or upload a topology file that defines devices, interfaces, and their interconnections. You also can upload standard configuration files for each network device and use the resulting virtual network exactly like a physical network.

Junosphere has two types of users: bank administrators and users. Users have access to Junosphere topologies and the virtualization environment. Bank administrators are users with additional privileges of adding more users, assigning users to resources, and dividing capacity among users.

Junosphere stores the virtual machine units capacity (the number of virtual machine units times the number of days) to use the network in banks and sandboxes. Think of a bank as a container of sandboxes. The capacity held by banks is divided into sandboxes, or work areas, where specified users can reserve time to use the cloud.

Junosphere holds one or more topology file sets in libraries for users of a bank, a sandbox, or all users. A topology file set is made up of a topology file and a collection of configuration files, one for each device described in the topology file.

Junosphere enables customers, partners, developers, and educational institutions to easily experiment, model, and educate by leveraging the flexibility, cost efficiency, and simplicity of a cloud-based delivery model.

Junosphere can be purchased in two different ways, depending on specific user needs: pay-per-use and an annual plan. The pay-per-use plan allows the customer to prepay for a limited amount of capacity, which is spent every time a topology is run. Once that capacity is used up, it can be replenished with another purchase.

You can purchase the following two types of Junosphere capacity:

- Junosphere Lab—Enables you to create and run exact replicas of physical networks within the virtual environment. Users can model, test, and experiment with new features, topologies, or services with no risk and with dramatically reduced costs.
- Junosphere Classroom—Enables you to cost-effectively educate students, employees, or partners on the principles and operation of Junos OS, routing protocols, and networking, without the expense of building, maintaining, or operating a physical lab.



**NOTE:** Junosphere is best viewed with Mozilla Firefox 19.0 or greater and Internet Explorer 9.0.

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**NOTE:** Currently, annual plans cannot be purchased via the Learning Portal. Work with your Junosphere sales representative to place an order for an annual plan.

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Annual plan capacity facilitates OPEX planning by providing Junosphere capacity for an entire year. Operators have maximum control of capacity pools assigned to diverse teams and projects. The bank administrator can customize the minimum guaranteed capacity for each sandbox to ensure baseline availability, and also the maximum utilization of virtual machine (VM) units in each sandbox to prevent unauthorized abuse of consumption.

The flexible capacity allocation system maximizes the usage of available VM units by shifting capacity from inactive sandboxes to those which experience temporary spikes of demand. These allocation algorithms ensure best usage of the capacity pool at every moment.

Additionally, all the annual plan SKUs provide a la carte overflow capacity. The 50 and 100 annual plan SKUs also include unlimited connector capacity.

In the annual plan, overflow capacity is supplemental regular capacity that enables a customer to go beyond the daily limit of the annual plan for a fixed amount of time. For example, the 100 VM unit annual plan has 2000 VM units of overflow capacity. This enables you to run a topology of 200 VM units (100 VM units included in the annual plan and 100 VM units from the overflow capacity) for 20 days, 150 VM units for 40 days, 110 VM units for 200 days, and so on. It is expended on the same pay-per-use basis as other regular Lab and Classroom (non-annual plan) capacity.

**Related  
Documentation**

- [Junosphere User Interface Overview on page 5](#)
- [Junosphere Interface Icons on page 9](#)



## Junosphere User Interface Overview

The Junosphere user interface has several parts: a banner across the top, which contains icons for online help, settings, and logging out; a navigation tree on the left side from which you can select different tasks; a main display window in the center, which takes up the majority of the screen; and a taskbar across the bottom of the main display, which contains tabs for any windows that are currently open. If you click the **Help** icon in the top banner of the screen, online help appears on the right side of the screen. The bottom of the screen also contains links for information about Junosphere.

To view a video overview of the Junosphere user interface, as well as information on how to order Junosphere capacity, visit the [Junosphere Toolbox](#).

- [Welcome Screen on page 5](#)
- [Banner on page 5](#)
- [Navigation Tree on page 6](#)
- [Main Display Window on page 6](#)

### Welcome Screen

When you log in to Junosphere, the first screen you see is called the Welcome screen. It provides access to user manuals and feature documentation, links to contact customer service, and also links to documentation for the different virtual network elements that are currently available in Junosphere.




If this is the first time that you have logged in, an End-User License Agreement (EULA) appears (which you must accept in order to proceed), followed by a **Required Settings** dialog box that lists the required settings and recommended downloads.

### Banner

The banner is located at the top of the main display and contains several icon buttons for global actions.

The following table describes the global action icons that appear in the banner.

Table 3: Banner Icons

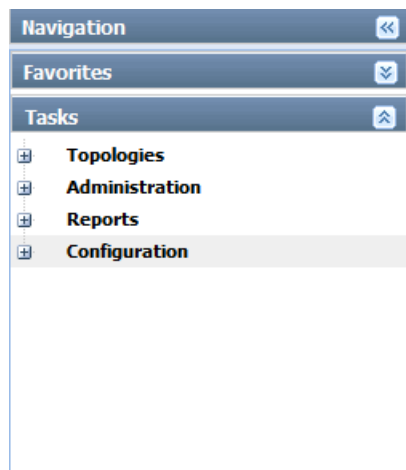
| Icon  | Action           | Definition  |
|---|------------------|---|
|  | Global Help icon | Enables you to display Junosphere help.   |
|  | Settings icon    | Enables you to change your password.  |
|  | Logout icon      | To log out, click the icon in the upper right corner of the Junosphere interface. |

## Navigation Tree

The navigation tree, located on the left side of the main display, enables you to navigate to different tasks in Junosphere.

You can collapse the navigation tree by clicking on the double left arrows that appear in the Navigation header, and you can re-expand it using the double right arrows. You can also collapse and expand each task group in the navigation tree by using the double arrows that appear in each task group header.

Figure 1: Navigation Tree



**NOTE:** The tasks that are displayed in the navigation tree will look different depending on the type of Junosphere user.

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The navigation tree contains two different sections. The first section is called **Favorites** and contains frequently used tasks. The second section is called **Tasks** and contains a full list of tasks that you have access to in Junosphere.

## Main Display Window

When you select a task from the navigation tree, the window related to that task appears in the main display window. Some tasks have multiple sections that appear in the main window. Each section within the main display window can be minimized and maximized using the plus (+) and minus (-) icons located in the top right corner of the section.

Figure 2: Main Display Window

Administration > Manage Banks / Sandboxes / Libraries

**Banks**

|  | Serial Number | Name | Description | Categories                                   | Expiration Date/Time  |
|--|---------------|------|-------------|--|-----------------------|
|  | 109           | B1   |             | Juniper Supported, Partner, App Server, E... | 15-May-2014 20:00 EDT |
|  | 6             | B2   |             | Juniper Supported, Partner, App Server, E... | 8-May-2014 20:00 EDT  |

Save Reset

**Sandboxes**

|  | Bank | Name                 | Description                                      | Type      | Email Alias           | Alias Enabled                       |
|--|------|----------------------|--|-----------|-----------------------|-------------------------------------|
|  | B1   | alana-test-sandbox   | my test  | LAB       | s14@sandboxes.juno... | <input checked="" type="checkbox"/> |
|  | B1   | Demo_User_Sandbox    |  | CLASSROOM | s16@sandboxes.juno... | <input checked="" type="checkbox"/> |
|  | B1   | S1                   |  | LAB       | s4@sandboxes.junos... | <input type="checkbox"/>            |
|  | B1   | S2                   |  | LAB       | s5@sandboxes.junos... | <input type="checkbox"/>            |
|  | B2   | Default Sandbox -LAB | This is a default sandbox created by the system. | LAB       | s13@sandboxes.juno... | <input type="checkbox"/>            |
|  | B2   | Sandbox_2            |  | CLASSROOM | s22@sandboxes.juno... | <input checked="" type="checkbox"/> |

Save Reset

**Libraries**

Sandbox Bank Public

|  | Bank | Sandbox              | Name                 | Description |
|--|------|----------------------|----------------------|-------------|
|  | B1   | Demo_User_Sandbox    | Library_1            |             |
|  | B1   | Demo_User_Sandbox    | Library_4            |             |
|  | B1   | S1                   | Library23            | xxx         |
|  | B1   | S1                   | testforwrongcustomer |             |
|  | B1   | S2                   | Libr2                |             |
|  | B2   | Default Sandbox -LAB | Library_3            |             |
|  | B2   | Sandbox_2            | Library_2            |             |

Save Reset

Welcome Manage Topologies Manage Banks / Sandboxes / Libraries

Junosphere automatically logs you out after 30 minutes of being idle. If you are working in the topology wizard, you might lose work if you have not saved your changes. To avoid this issue, save your topology frequently.



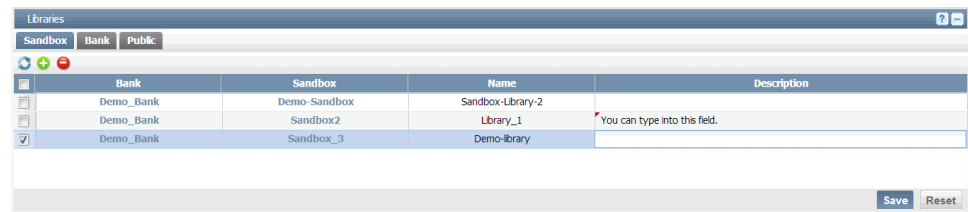
**NOTE:** Junosphere saves work in the topology wizard after every five changes made while creating the topology.

### Editing Tables in Junosphere

In Junosphere, any table that contains text in black font is editable. To edit information in Junosphere tables, type directly into the field and click anywhere outside the edited field. A red flag appears in the upper left corner of the field, indicating that a change was

made. After you have edited the fields in a table, click the **Save** button at the bottom right corner of the table. You cannot edit any fields that contain bold, blue font.

**Figure 3: Editing a Junosphere Table**



**NOTE:** In the **Reports** section of Junosphere, all font appears in black. However, you cannot edit any information that appears in reports.

You can edit multiple fields in a table before clicking the **Save** button.

### Sorting Tables in Junosphere

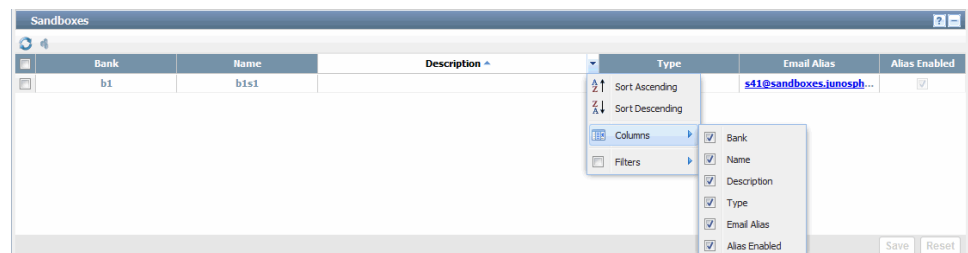
Every column in a Junosphere table can be sorted alphabetically, hidden from the table, and its contents can be filtered. To sort a column:

1. Click the drop-down arrow on the right side of the column title that appears when you hover your mouse over the title.

A drop-down menu appears.

- To sort a table alphabetically, click either **Sort Ascending** or **Sort Descending** from the drop-down list.
- To hide a column, go to **Columns** and deselect the column from the list that you want to hide.
- To filter the column, go to **Filters** and type a term in the search box.

**Figure 4: Sorting a Table**



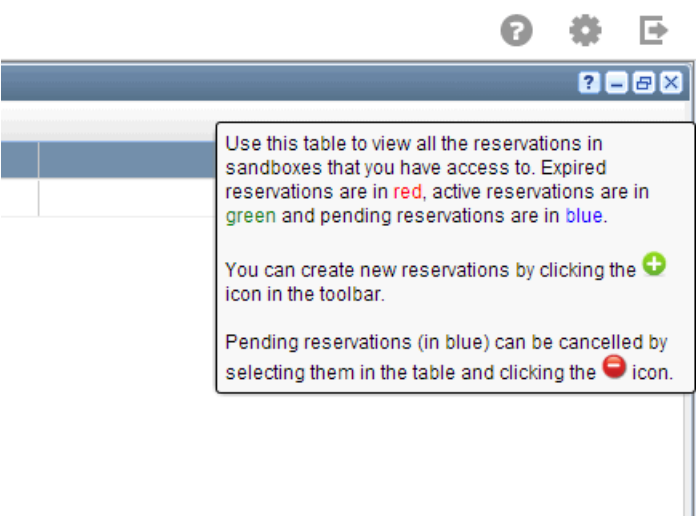
### Taskbar

The taskbar is located at the bottom of the main display. The taskbar lists all of the windows that you currently have open in Junosphere. You can click on the tabs in the taskbar to open the window you want to use. To close a tab in the taskbar, right-click on the tab and select **Close**.

Context-Sensitive Help

In each section of the main display window there is a question mark(?) icon located in the top right corner. This icon provides a brief overview of the section and specifies which tasks you can perform in the section.

Figure 5: Context-Sensitive Help



- Related Documentation
- [Understanding Junosphere on page 3](#)
  - [Junosphere Interface Icons on page 9](#)

Junosphere Interface Icons

Table 4 on page 9 lists and describes the icons of the Junosphere interface.

Table 4: Junosphere Icons





| Icon  | Description   |
|---|---|
| Add icon<br>               | Enables you to add an element.                            |
| Delete icon<br>            | Enables you to delete an element.                         |
| Upload topology icon<br>   | Enables you to upload a topology to a selected library.   |
| Download topology icon<br> | Enables you to download a topology to your local machine. |

Table 4: Junosphere Icons (*continued*)


















| Icon   | Description   |
|--|---|
| User icon<br>               | Enables you to add users to sandboxes, remove users from sandboxes, and change the permissions of users in a sandbox. It is also used to manage the administrators of a bank. |
| Users icon<br>              | Enables you to add one or more users to one or more sandboxes.  |
| Edit topology icon<br>      | Enables you to edit a topology to which you have access.  |
| Copy topology icon<br>      | Enables you to copy a topology to which you have access.  |
| Refresh icon<br>            | Enables you to update the data in the current window.   |
| Export icon<br>            | Enables you to export the information in the table in .csv format. Appears in the Manage Topologies, Manage Reservations, and Manage Capacity tabs.                           |
| Sandbox Capacity icon<br> | Enables you to view the regular and annual capacity of a sandbox.   |
| Plus icon<br>             | Enables you to expand an element.   |
| Minus icon<br>            | Enables you to close an element.  |
| Minimize Window icon<br>  | Enables you to minimize an active window.   |
| Restore Window Icon<br>   | Restores a window to its original size.   |
| Maximize Window icon<br>  | Enables you to maximize an active window.   |
| Close icon<br>            | Enables you to close a window or page.  |
| Help icon<br>             | Enables you to display global Junosphere help.  |

Table 4: Junosphere Icons (*continued*)

| Icon   | Description   |
|--|---|
| Context-sensitive help icon<br> | Enables you to display context-sensitive help about the current screen or dialog box. |
| Settings icon<br>               | Enables you to change your password.  |
| Logout icon<br>                 | To log out, click the icon in the upper right corner of the Junosphere interface.     |

- Related Documentation**
- [Understanding Junosphere on page 3](#)
  - [Junosphere User Interface Overview on page 5](#)

## User Access

When using Junosphere, there are several common activities that require separate credentials for logging in. This section lists the various activities and the necessary credentials. The first two sets of credentials are provided to you by your bank administrator. The rest are set by Juniper Networks and cannot be changed, except where indicated.

- To log in to Junosphere: username: *username*; pwd: *password*
- To join an active topology through the Junosphere Access Portal: username: *username*; pwd: *password*
- To log in to a Juniper Networks virtual MX device: username: *root*; pwd: *Clouds*.
- To log in to any other Juniper Networks virtual network device: username: *juniper*; pwd: *Clouds*
- To log in to a J-web interface: username: *juniper*; pwd: *Clouds*
- To connect to CentOS using the VNC application: pwd: *Clouds* (no username is needed)
- To log in to Junos Space from CentOS: username: *super*; pwd: *123juniper* and change the password

## Using the Login Page

As a regular user, you receive an e-mail from your bank administrator with the URL to the Login page of the user interface, a username, and a password. The username can be your e-mail address or the bank administrator can choose another username.

The login page contains links to reset your password, buy capacity for Junosphere, and a link to learn more about Junosphere with overview videos. You can view the videos here: [Junosphere Toolbox](#).

To use the login page:

1. Log in to the user interface. See [“Understanding Junosphere” on page 3](#) or the *Junosphere Release Notes* for supported browsers.
2. Read and accept the End User License Agreement (EULA) the first time you log in to Junosphere.
3. If this is the first time that you have logged in, the Required Settings dialog box appears, listing the required settings and recommended downloads. Click **OK** after you have reviewed the required settings and list of recommended downloads.
4. Click **OK**.

The **Welcome** page appears.

5. Select a task from the navigation tree to start using Junosphere.



**NOTE:** Users do not need capacity to be able to log in and access the sandboxes. As long as the user has been created in Junosphere, the user can log in. If the user is not assigned to any sandbox, the user cannot see any banks. Only when the user is assigned to a particular sandbox for a bank can the user see the bank and the sandbox.

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**Related  
Documentation**

- [Changing Your Password on page 12](#)
- [Understanding Junosphere on page 3](#)
- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)

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## Changing Your Password

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You can change or reset your password.

To change your password:

1. Click the Settings icon in the upper right corner of the screen.  
The **Change Password** screen appears.
2. Enter your old password and new password (twice).
3. Click **Change**.



**NOTE:** Clicking **Change** logs you out of the current session. Any other sessions you have running will continue to run.

---

If you forgot your password, you can request a password reset from Junosphere's login page.



To reset your password:

1. Click the **Forgot your password? Click to Reset** link on the login page.
2. Enter your username.
3. Click **Reset Password**.

A new password will be sent to you via e-mail only if your account was configured with a valid e-mail address by the bank administrator (BA) during user creation.



**NOTE:** If you do not remember your username, contact your bank administrator.

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**Related  
Documentation**

- [Understanding Junosphere on page 3](#)
- [Using the Login Page on page 11](#)
- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)

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## Junosphere E-mails

Junosphere sends the following e-mails to users:

- **Welcome to Junosphere**—Sent when an account has been created for a user. It contains the user's ID and password and some general information about the product.
- **Password reset message**—Sent to a user who requests that his or her password be reset from the Junosphere login page. The e-mail contains the user's ID, a new randomly generated password, and instructions on how the user can change his or her own password after login.
- **Bank creation notice**—Sent to all administrators of a bank once the bank has been created for them. The e-mail contains the bank's serial number and the bank's name.
- **Bank capacity notice**—Sent to all administrators of a bank when new capacity has been added to the bank. The e-mail contains the RTU serial number of the SKU purchased, the product (of the SKU), and the amount of capacity added to the bank.
- **Bank capacity expiration notice**—Sent to all administrators of a bank when the capacity in a bank is due to expire in 30 days. The e-mail provides instructions on how the administrator can purchase more capacity for the bank and reset the expiration of all the capacity in the bank.
- **Empty bank notice**—Sent to all the administrators of a bank when all of the capacity in a bank has been completely used up and there is no capacity left in the bank or any of its sandboxes. The e-mail provides a link for users to purchase more Junosphere capacity.
- **Empty bank last warning**—Sent to all users in a bank (all the administrators of the bank and all the users associated with sandboxes in the bank). This e-mail is sent when a

bank has been empty (no capacity is left in the bank or any of its sandboxes) for 30 days. The e-mail provides instructions on how the user can buy more capacity and retain the bank. It also warns the user to copy all topologies and any other information, if necessary. The e-mail notifies users that if they do not buy more capacity for the bank, then the bank, its sandboxes, libraries, and topologies will be deleted after 15 days.

- Bank deletion notice—Sent to all administrators of a bank when a bank is deleted. The e-mail tells the administrators that the bank, its sandboxes, libraries, and topologies are no longer available and provides the user with a link to purchase capacity. Typically, this e-mail is sent if a bank has remained without capacity for 15 days after the “Empty bank – last warning” notice.

These e-mails might go to your spam or junk e-mail folders or to a quarantine server:

- Spam or junk e-mail folder—Outlook users can fix this problem by going to their spam or junk e-mail folder, and selecting the e-mail, selecting **Actions > Junk E-mail > Add Sender to Safe Senders List**. This automatically adds junosphereadmin-noreply@juniper.net to the Safe Senders tab of the Junk E-mail Options dialog box. Your Outlook Administrator might have an alternative way of preventing these e-mails from going to your spam/junk e-mail folder. Users of other e-mail applications should work with their e-mail administrators to fix this issue.
- Quarantine server—If it is determined that the Junosphere e-mails are being quarantined, work with your IT department to make sure that the e-mails are routed to your e-mail application.

## Buying Capacity

While you can purchase access to Junosphere using Juniper Network’s usual purchase order procedure, you can also use a credit card to purchase capacity on Junosphere.

Table 5 on page 14 lists the different types of environments that you can purchase.

**Table 5: Junosphere SKUs**

| SKU                 | Description   |
|---------------------|---|
| JUS-ANNUAL-PASS-10  | 10 virtual machine (VM) unit annual plan. Includes 10 VM units at any time and 200 VM units of overflow capacity. No connectors. Includes images and tools. |
| JUS-ANNUAL-PASS-50  | 50 VM unit annual plan. Includes 50 VM units at any time and 1000 VM units of overflow capacity. Unlimited connectors. Includes images and tools.           |
| JUS-ANNUAL-PASS-100 | 100 VM unit annual plan. Includes 100 VM units at any time and 2000 VM units of overflow capacity. Unlimited connectors. Includes images and tools.         |
| JUS-CLASS-10VM-1    | 10 Classroom VM units. Includes images and tools.   |
| JUS-CLASS-10VM-30   | 300 Classroom VM units. Includes images and tools.  |

Table 5: Junosphere SKUs (*continued*)

| SKU             | Description  |
|-----------------|--|
| JUS-CONNECT-1   | Connect and transfer data at the rate of 1 Mbps to the virtual network topology for one day. |
| JUS-CONNECT-30  | Connect and transfer data at the rate of 1 Mbps to the virtual network topology for 30 days. |
| JUS-LAB-10VM-1  | 10 Lab VM units. Includes images and tools.  |
| JUS-LAB-10VM-30 | 300 Lab VM units. Includes images and tools.   |

To make a credit card purchase, log in to the following sites:

- Junosphere Classroom:  
[https://learningportal.juniper.net/juniper/user\\_activity\\_info.aspx?id=5896](https://learningportal.juniper.net/juniper/user_activity_info.aspx?id=5896)
- Junosphere Lab:  
[https://learningportal.juniper.net/juniper/user\\_activity\\_info.aspx?id=5898](https://learningportal.juniper.net/juniper/user_activity_info.aspx?id=5898)

Both the Junosphere Lab and Classroom are purchased in increments of 10 VM units. Divide the number of VM units you want in your network by 10, then multiply by the number of days you wish to access Junosphere to arrive at the quantity you need. For example:

- To create a 100-node network with access for one day, order a quantity of 10 ( $100 / 10 * 1$ ).
- To create a 30-node network with access for one month (30 days), order a quantity of 90.
- To create a 10-node network with access for one year, order a quantity of 365.

You can purchase stock keeping units (SKUs) of 10 VM units or 300 VM units.

You can also purchase access to Junosphere Connector. Junosphere Connector is an optional application that enables you to connect your Junosphere topology to a physical lab environment. You can purchase the ability to transfer data in units of 1 Mbps of data for one day (24 hours).

For long-term always-on access, you can buy annual plan capacity. Annual plan capacity can be purchased in increments of 10 VM units (available for a full year). These SKUs are available only through Juniper Network's purchase order process. Please contact your sales representative for details.



**NOTE:** If you buy 50 VM units or more with an annual plan SKU, the number of connectors is unlimited.

Ordering Junosphere using a credit card is like any other online credit card purchase. We use a credit card company to process all transactions and keep your personal information safe.

The order information is sent to Juniper Networks and entered into our order system. You will receive an e-mail with an authorization code and serial number. This can take up to three business days.

When ordering, you must provide a customer contact with an e-mail address. The contact should be someone involved with Junosphere use at your site. The contact will need to complete the following steps:

1. After the order is entered, the designated customer contact will receive an e-mail from **RTU-SENDER** with the authorization codes and next-step instructions.
2. The customer contact must follow the instructions and log in to the Juniper Networks Customer Support site, <http://tools.juniper.net/subreg>, create an account, if needed, and enter the authorization codes and set up the Junosphere bank. If you are new to Juniper Networks, you need a Customer Support account. This will take an additional few days to process. Refer to the .pdf file in your authorization code e-mail for full instructions.
3. When a bank is created in Junosphere, the customer receives a Welcome e-mail from **Junosphere Administrator - No Reply** that includes the login credentials and a two-page Getting Started guide.
4. The customer should log in to Junosphere and set up sandboxes, user accounts, and libraries, then start using the product.

To create a new bank from a credit card access purchase:

1. Once you have your codes, create your customer profile to activate your account. To do this, access <http://tools.juniper.net/subreg> in a browser.
2. Fill out the fields for **Create a New Junosphere Bank** and apply the authorization codes.

Junosphere will be updated with the new user and bank information using your e-mail address.

To purchase more time for an existing bank:

1. Access <http://tools.juniper.net/subreg> in a browser.
2. Fill out the fields for **Add additional capacity/features to an existing Junosphere Bank Configuration**.

Junosphere is updated with the purchase applying to an existing customer and bank.

To order your own bank, order separately from your company bank:

1. Enter <http://tools.juniper.net/subreg>.
2. Fill out the fields for **Create a New Junosphere Bank** and apply the authorization codes.

Junosphere creates a new bank using your e-mail address. In this case, Junosphere checks to make sure that your e-mail address does not already exist within Junosphere. If it does, your new bank is created inside that existing Junosphere customer. If it does not, the system processes you as a new customer, using your e-mail address as the customer name.

**Related  
Documentation**

- [Understanding Junosphere on page 3](#)
- [Using the Login Page on page 11](#)
- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)



## PART 2

# Banks and Sandboxes

- [Using Banks and Sandboxes on page 21](#)





## CHAPTER 2

# Using Banks and Sandboxes

- [Understanding Banks on page 21](#)
- [Viewing the Bank Section on page 22](#)
- [Understanding Sandboxes on page 23](#)
- [Viewing Sandbox Information on page 24](#)
- [Understanding Permissions on page 25](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [Viewing the Activity Logs on page 32](#)

### Understanding Banks

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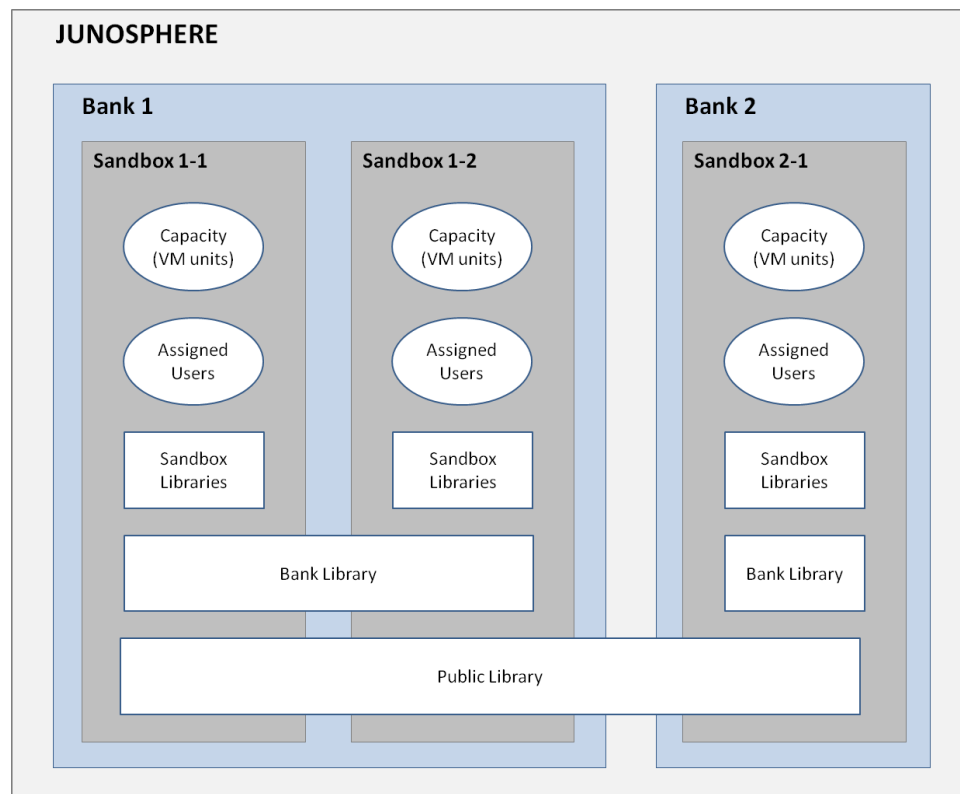
A bank is a repository of virtual machine (VM) capacity that you have purchased from Juniper Networks. Capacity is acquired either as a fixed number of VM units for a full year (annual plan) or as an as-needed, reservation-based plan (regular capacity). Virtual machine capacity is measured in VM units, where one VM unit means the capacity to use one basic VM for one day (24 hours). A bank can have one or more users as administrators of the bank. To use the features of Junosphere, you work within a sandbox, which is a work area for holding capacity. It contains libraries of topology files and can have users associated with it (see [Figure 6 on page 22](#)). A bank contains one or more sandboxes. A sandbox is a work area that holds capacity, the users assigned to that sandbox, and libraries of topology files, as shown in [Figure 6 on page 22](#). The bank administrator assigns the capacity purchased for the bank to the sandboxes.

The bank administrator assigns users to the sandboxes. Every bank has a Customer Support Serial Number that you need if you contact Juniper Networks for any Junosphere-related support. This number can be found in the **Bank** section of the (**Administration > View Banks/Sandboxes/Libraries** window in the **Serial Number** column.

The expiration date of each bank is displayed in the **Bank** section of the (**Administration > View Banks/Sandboxes/Libraries** window in the **Expiration Date/Time** column.

The libraries hold topology files sets, each of which consists of a topology file and one optional configuration file for each Junos OS device described in the topology file.

Figure 6: Components of a Bank



You can see only the banks that you can access. You see multiple names only if your company has more than one bank.

#### Related Documentation

- [Understanding Junosphere on page 3](#)
- [Selecting a Bank on page 22](#)
- [Understanding Sandboxes on page 23](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [\*Junosphere Guide for Bank Administrators\*](#)

## Viewing the Bank Section

Regular users can view bank information for banks that they have access to by selecting **Administration > View Banks/Sandboxes/Libraries** in the navigation tree. The Banks section contains the following information about banks:

- Serial number—The unique serial number given to the bank by Juniper Networks.
- Name—The name of the bank.
- Description—A description of the bank.

- Categories—The types of images for the bank.
- Expiration Date/Time—The time when capacity for the bank expires.

**Related  
Documentation**

- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)
- [Managing Reservations](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [Understanding Permissions on page 25](#)
- [Viewing the Activity Log on page 32](#)
- [Building and Running Topologies on page 36](#)

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## Understanding Sandboxes

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A sandbox is a work area within a bank that contains capacity (virtual machine units), as well as the users assigned to that sandbox. Each sandbox contains one or more libraries, which is where you store and access topology file sets.

A sandbox is also a collection of users who work together on a topology. A single user can be part of any number of sandboxes in any number of banks and can have different privileges in each sandbox. Multiple topologies can be started by the same user in different sandboxes provided the user has the proper permissions. The only restrictions are that a user can join only one topology at a time and only one topology can be active at a time in a sandbox. As a user, your bank administrator creates a sandbox, and then gives you permissions for using the sandbox. You can be assigned library management permissions, reservation management permissions, and topology management permissions. To learn more about permissions, go to [“Understanding Permissions” on page 25](#).



**NOTE:** Only bank administrators can create, update, or delete sandboxes. You cannot make a reservation in any sandbox in a bank where the end date or time of the reservation goes past the expiration date of the bank.

As a user, you can view your sandboxes by going to **Administration > View Banks/Sandboxes/Libraries** in the navigation tree. If you want to learn more about Sandboxes, see [“Viewing Sandbox Information” on page 24](#).

**Related  
Documentation**

- [Viewing Sandbox Information on page 24](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [Understanding Permissions on page 25](#)
- [Viewing the Activity Log on page 32](#)

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)

## Viewing Sandbox Information

As a user, you can view the sandboxes that you have access to by going to **Administration > View Banks / Sandboxes / Libraries** in the navigation tree. The **Sandboxes** section enables you to view information about the sandboxes that you can access and view the capacity for each of those sandboxes.

- [Viewing the Sandboxes Section on page 24](#)
- [Viewing Sandbox Capacity on page 24](#)

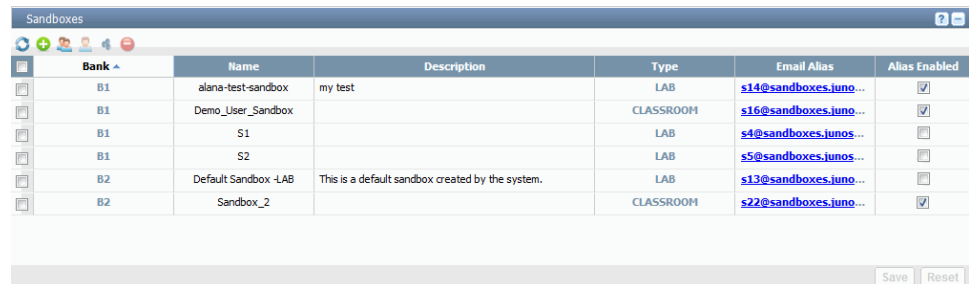
## Viewing the Sandboxes Section

You can use the **Sandboxes** table to view the following information:

- Bank—Indicates the bank to which the sandbox belongs.
- Name—Indicates the name of the sandbox.
- Description—A description of the sandbox as provided by the bank administrator.
- Type—Indicates the type of SKU purchased for the sandbox.
- E-mail Alias—Indicates the e-mail alias that is associated with the sandbox.
- Alias Enabled—Indicates whether the sandbox's e-mail alias has been enabled.

[Figure 7 on page 24](#) shows the Sandbox details.

**Figure 7: Sandboxes Section**



|                          | Bank | Name                  | Description                                      | Type      | Email Alias           | Alias Enabled                       |
|--------------------------|------|-----------------------|--|-----------|-----------------------|-------------------------------------|
| <input type="checkbox"/> | B1   | alana-test-sandbox    | my test  | LAB       | s14@sandboxes.juno... | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | B1   | Demo_User_Sandbox     |  | CLASSROOM | s16@sandboxes.juno... | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | B1   | S1                    |  | LAB       | s4@sandboxes.juno...  | <input type="checkbox"/>            |
| <input type="checkbox"/> | B1   | S2                    |  | LAB       | s5@sandboxes.juno...  | <input type="checkbox"/>            |
| <input type="checkbox"/> | B2   | Default Sandbox - LAB | This is a default sandbox created by the system. | LAB       | s13@sandboxes.juno... | <input type="checkbox"/>            |
| <input type="checkbox"/> | B2   | Sandbox_2             |  | CLASSROOM | s22@sandboxes.juno... | <input checked="" type="checkbox"/> |

Save Reset

## Viewing Sandbox Capacity

You can view capacity for each sandbox by clicking on the **View Sandbox Capacity** icon that is located in the upper left corner of the **Sandboxes** table. To view existing capacity for a sandbox:

1. From the navigation tree, select **Administration > View Banks / Sandboxes / Libraries**.
2. In the **Sandboxes** table, select the sandbox for which you want to view capacity.
3. Click the **View Sandbox Capacity** icon in the upper left corner of the **Sandboxes** section.

The **Capacity** dialog box appears, as shown in [Figure 8 on page 25](#).

**Figure 8: Capacity Dialog Box**

| Capacity - Sandbox "test-sandbox" |           |           |
|-----------------------------------|-----------|-----------|
| <b>Regular</b>                    |           |           |
| Product                           | Available | Reserved  |
| VM Units                          | 7         | 0         |
| Connectors                        | 0         | 0         |
| <b>Annual</b>                     |           |           |
| Product                           | Minimum   | Available |
| VM Units                          | 0         | 6         |
| Connectors                        | 0         | 0         |
| OK                                |           |           |

- When finished, click **OK** to close the dialog box.

To learn more about capacity, see ["Managing Reservations" on page 26](#).

- Related Documentation**
- [Understanding Sandboxes on page 23](#)
  - [Managing Reservations on page 26](#)

## Understanding Permissions

The bank administrator can assign one or more of the following roles to you:

- Topology Management (start or stop topologies)

Because there can be only one active topology at a time in a sandbox, the bank administrator might want to restrict the number of users who can start and stop a topology.

In a classroom situation, the instructor might be the only one assigned to start or stop a topology. Students can then join an active topology.



**NOTE:** All users of a sandbox can join an active topology. Multiple users using an active topology do not consume more capacity than one user since they are all sharing the virtual machine units.

- Library Management (create new libraries)

Provides the ability to create, update, and delete a library within the sandbox for topology organization.

Only users with Library Management permissions can edit topologies within a library. This includes editing metadata about the topology (such as the topology description, or whether the topology is downloadable or saveable) or editing the topology itself.

All users, however, can download topologies (provided the topology is marked downloadable by the creator of the topology).

- Reservation Management (reserve time and capacity)

Allows users to reserve a time period to use a specified number of virtual machine units (capacity). A sandbox must have a reservation in order to activate a topology. Since Junosphere is a cloud resource of virtual devices, by reserving your time, you know that those resources are ready and waiting for you. Once your reservation starts, your sandbox capacity is decreased.

#### Related Documentation

- [Understanding Sandboxes on page 23](#)
- [Using Libraries on page 29](#)
- [Managing Reservations](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [Viewing the Activity Log on page 32](#)
- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)

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## Managing Reservations

Since Junosphere is a cloud resource of virtual devices, before you can activate a topology the system needs to make sure it has enough resources to run the topology. A reservation ensures that those resources are ready and waiting for you.

Unlike regular capacity, an annual plan provides dedicated capacity for a full year that is accessible only by the customer who ordered it. Therefore, if there is sufficient capacity under an annual plan, no reservation is required to activate a topology, nor will one be created. If, however, the amount of capacity available to a sandbox under an annual plan is insufficient to start a topology, a reservation for regular capacity is required to cover the capacity shortfall.

The Reservation Management permission allows you to reserve one or more days for using a specified number of virtual machine units. You can also reserve capacity for Junosphere Connector. Junosphere Connector is optional and is used to connect the Junosphere virtual network to a physical network. You can make multiple reservations for a sandbox.

To be available for reservations, a sandbox must have capacity applied to it by the bank administrator. Users cannot assign additional capacity to sandboxes; only bank administrators can do that.

You can view reservations by going to **Topologies > Manage Reservations** in the navigation tree, as shown in [Figure 9 on page 27](#).

- Reservations in blue are pending reservations.

- Reservations in red are expired reservations.
- Reservations in green are currently active.



**NOTE:** Users can select only reservations in sandboxes where they have Reservation Management permission and the reservation is in the pending state.

The reservations on this page show the start time, the number of VM units and connectors that have been assigned to this sandbox, and the number of days for which the reservation has been made.

**Figure 9: Manage Reservations window**

|                          | Bank | Sandbox            | Start                 | VM Units | Connectors | Days | Description | Notify                              |
|--------------------------|------|--------------------|-----------------------|----------|------------|------|-------------|-------------------------------------|
| <input type="checkbox"/> | B1   | S1                 | 30-May-2013 10:50 EDT | 1        | 0          | 1    |             | <input type="checkbox"/>            |
| <input type="checkbox"/> | B2   | Default Sandbox... | 16-May-2013 18:03 EDT | 1        | 0          | 1    |             | <input type="checkbox"/>            |
| <input type="checkbox"/> | B1   | S2                 | 4-May-2013 20:00 EDT  | 1        | 0          | 1    |             | <input type="checkbox"/>            |
| <input type="checkbox"/> | B1   | S2                 | 4-May-2013 14:00 EDT  | 1        | 0          | 1    |             | <input type="checkbox"/>            |
| <input type="checkbox"/> | B1   | S1                 | 4-May-2013 13:33 EDT  | 2        | 0          | 1    |             | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | B1   | S2                 | 4-May-2013 13:33 EDT  | 2        | 0          | 1    |             | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | B1   | S1                 | 27-Apr-2013 19:43 EDT | 1        | 0          | 1    |             | <input type="checkbox"/>            |

To manage reservations:

1. From the navigation tree, select **Topologies > Manage Reservations**.
2. Click the green plus sign icon (+) in the upper left part of the window. The Create Reservations dialog box appears ([Figure 10 on page 28](#)).

Figure 10: Adding a Reservation

3. Select a bank from the **Bank** drop-down list box.
4. Select the sandbox(es) in which you want the reservation created. Use the right or left arrow keys to move the sandboxes you want from the Available list box into the Selected list box on the right.
5. Use the up and down arrow keys to enter the number of virtual machine (VM) units, number of connectors, and the number of days for the reservation.



**NOTE:** If you do not need to connect your Junosphere topology to a physical network, enter zero for the number of connectors.

6. Set the starting date and time. Select **Now** or use the date and time drop-down menus to select a date and time in the future. The time zone that appears in the menu is the time zone set in the operating system of your host.
7. Enter a description of the reservation (optional).



**NOTE:** You can create a reservation that has 0 VM units, but has one or more connectors.



8. If desired, click or unclick the **Remind users when reservation starts/ends** check box.



**NOTE:** If you leave this check box checked (default) and the reservation start time is at least 24 hours away, you will receive an e-mail 24 hours before the reservation is scheduled to start.

You will also receive a reminder e-mail two hours before the reservation is scheduled to expire.

9. Click or unclick the **Auto-save topology when reservation ends** check box.

10. Click **Create** to make the reservation.



**NOTE:** When you reserve virtual machines, include the number of CentOS images and third-party applications that will be virtual machines. A maximum of 25 simultaneous users can join a topology via secure access.

To cancel a reservation, select the reservation you want to cancel and click the red minus sign.



**NOTE:** You can cancel a reservation up to one hour before the start time without penalty. Within an hour of start time, you cannot cancel the reservation, even though you might see a dialog box with the option to cancel.

At the end of your reservation time slot, Junosphere shuts down the active topology and frees up virtual machine resources.

To modify a reservation, cancel the existing reservation and set up a new one. If a reservation is active, you can increase the number of virtual machines or add a connector by adding an overlapping reservation for the same time period.

#### Related Documentation

- [Understanding Sandboxes on page 23](#)
- [Using Libraries on page 29](#)
- [Managing Reservations](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Using Libraries on page 29](#)
- [Understanding Permissions on page 25](#)
- [Viewing the Activity Log on page 32](#)

## Using Libraries

Libraries are where you store and access topology file sets. You can view the libraries you have access to in a sandbox. There are three types of libraries:

- **Sandbox**—Holds topology file sets accessible only to users in this sandbox. Any user in a sandbox can upload a topology into that sandbox.
- **Bank**—Holds topology file sets uploaded by the bank administrator for use by all sandbox users in the bank.
- **Public**—Holds topology file sets that Juniper Networks makes available to everyone using this Junosphere product (Classroom and Lab).



**NOTE:** Only a bank administrator can upload a topology to a bank library or delete it.

To create a new sandbox library:

1. Select **Administration > Manage Banks/Sandboxes/Libraries**.
2. In the **Libraries** section, click the **Sandbox** tab to display the sandbox libraries.
3. Click the green plus sign (+). The Create Sandbox Library dialog box appears (Figure 11 on page 30).

**Figure 11: Create Sandbox Library Dialog Box**

A screenshot of the 'Create Sandbox Library' dialog box. It has a title bar with a question mark and a close button. The form contains four fields: 'Bank: \*' with a dropdown menu showing 'b1', 'Sandbox: \*' with a dropdown menu showing 'b1s1', 'Name: \*' with an empty text input field, and 'Description:' with a larger empty text area. At the bottom right, there are two buttons: 'Create' and 'Cancel'.

This gives you a new area to store topologies. For example, you can have three libraries:

- MPLS topologies
  - VPN topologies
  - FW topologies
4. Select the **Bank** and **Sandbox** from the drop-down menus.
  5. Enter a name for the library.
  6. Enter a description for the library (optional).
  7. Click **Create**.

Only users with library permission can create, update, and delete sandbox libraries.

To delete a sandbox library:

1. Select **Administration > Manage Banks/Sandboxes/Libraries**.
2. In the **Libraries** section, click the **Sandbox** tab to display the sandbox libraries.
3. Select the sandbox library that you want to delete.
4. Click the red **+** sign at the top left of the Libraries section.
5. Confirm the deletion.



**NOTE:** Deleting a library deletes all the topologies contained within the library. In addition, multiple libraries can be selected and deleted in one step.

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**Related  
Documentation**

- [Understanding Sandboxes on page 23](#)
- [Managing Reservations](#)
- [Managing Reservations on page 26](#)
- [Understanding Permissions on page 25](#)
- [Viewing the Activity Log on page 32](#)
- [Using the Virtual Machines Tab on page 40](#)

## Viewing the Activity Logs

To view the activity log, select **Reports > View Activity Logs**. You can customize the display by clicking the down arrow in any of the columns. The drop-down menus enable you to filter the data by sorting in ascending or descending order, by selecting the columns to be displayed, by date, or by entering customized criteria to filter the information.

The **Sandbox Activity Logs** window displays messages about sandbox activity. For example, messages are displayed when you assign capacity to a sandbox, make a reservation, or start a topology, as shown in [Figure 12 on page 32](#).

**Figure 12: Sandbox Activity Logs**

| Bank | Sandbox | Timestamp             | Username  | Log  |
|------|---------|-----------------------|-----------|--|
| b1   | b1s1    | 18-Jun-2013 11:19 EST | system    | Stopping sandbox's active topology.  |
| b1   | b1s1    | 17-Jun-2013 15:00 EST | psomohano | User joined sandbox's active topology.   |
| b1   | b1s1    | 17-Jun-2013 15:00 EST | psomohano | User joined sandbox's active topology.   |
| b1   | b1s1    | 17-Jun-2013 11:16 EST | ytao      | 39 units of type JUS_LAB_VIM_1 assigned to sandbox.                            |
| b1   | b1s1    | 14-Jun-2013 9:38 EST  | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 14-Jun-2013 8:58 EST  | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 16:36 EST | ytao      | Reservation of 1 VM units and 0 connectors for 1 days starting from 14-Jun-... |
| b1   | b1s1    | 13-Jun-2013 16:35 EST | ytao      | Reserved 1 VM units and 0 connectors for 1 days starting from 14-Jun-...       |
| b1   | b1s1    | 13-Jun-2013 16:35 EST | ytao      | Reservation of 1 VM units and 0 connectors for 1 days starting from 14-Jun-... |
| b1   | b1s1    | 13-Jun-2013 16:35 EST | ytao      | Reserved 1 VM units and 0 connectors for 1 days starting from 14-Jun-...       |
| b1   | b1s1    | 13-Jun-2013 15:56 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 15:53 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 15:42 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 15:40 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 15:38 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 14:06 EST | ru12      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 11:15 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 11:04 EST | ytao      | Sandbox library "IE10" created.  |
| b1   | b1s1    | 13-Jun-2013 9:49 EST  | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 9:49 EST  | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 9:49 EST  | ytao      | Topology "saveAsInFF20" created in sandbox library "test library".             |
| b1   | b1s1    | 13-Jun-2013 9:49 EST  | ytao      | Saved sandbox's active topology as "saveAsInFF20" in sandbox library...        |
| b1   | b1s1    | 13-Jun-2013 9:48 EST  | ytao      | Saved the sandbox's active topology.   |
| b1   | b1s1    | 13-Jun-2013 9:47 EST  | ytao      | Saved sandbox's active topology as "saveAsInIE10" in sandbox library...        |
| b1   | b1s1    | 13-Jun-2013 9:47 EST  | ytao      | Topology "saveAsInIE10" created in sandbox library "L1".                       |
| b1   | b1s1    | 13-Jun-2013 9:46 EST  | ytao      | Saved the sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 14:28 EST | ytao      | Reservation of 1 VM units and 0 connectors for 1 days starting from 13-Jun-... |
| b1   | b1s1    | 12-Jun-2013 14:23 EST | ytao      | Reserved 1 VM units and 0 connectors for 1 days starting from 13-Jun-...       |
| b1   | b1s1    | 12-Jun-2013 13:55 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:54 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:52 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:50 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:45 EST | ytao      | Starting topology "2vjx" from sandbox library "L1".                            |
| b1   | b1s1    | 12-Jun-2013 13:38 EST | ytao      | Stopping sandbox's active topology.  |
| b1   | b1s1    | 12-Jun-2013 13:37 EST | ytao      | User left sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:36 EST | ytao      | User joined sandbox's active topology.   |
| b1   | b1s1    | 12-Jun-2013 13:21 EST | ytao      | Starting topology "2vjx" from sandbox library "L1".                            |

- Related Documentation**
- [Understanding Sandboxes on page 23](#)
  - [Building and Running Topologies on page 36](#)

## PART 3

# Topologies

- [Connecting to the Topology on page 35](#)



## CHAPTER 3

# Connecting to the Topology

- [Understanding Virtual Machines on page 35](#)
- [Building and Running Topologies on page 36](#)
- [Auto Logout in Junosphere on page 40](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Saving Topologies from a Library on page 43](#)
- [Joining an Active Topology on page 45](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)
- [Accessing Junos Space Using CentOS in a Junosphere Topology on page 49](#)
- [Saving Changes to a Topology on page 50](#)
- [Leaving an Active Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- [Manually Disconnecting from Network Connect on page 52](#)
- [Using the Connectors Tab on page 53](#)
- [Understanding Additional Information on page 54](#)

## Understanding Virtual Machines

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To obtain maximum benefits from Junosphere, it is recommended that you have a good understanding of the different types of virtual machines available in the system. There are several places you can go to for additional information:

1. From the [Learning Portal Home](#) page or the [Training Courses](#) page, click **Learning Paths** under Resources in the right navigation pane. On the Juniper Networks Learning Paths page, you can select your particular track. For example, the Service Provider Routing and Switching Learning Path lists all of the relevant courses for someone working in a Service Provider environment. The basic three courses on the list (for JNCIA certification) are Junos Routing Essentials, Introduction to the Junos Operating System, and Networking Fundamentals.
2. You can also get to the Training Courses page from the [Education](#) page by clicking **Courses** under Get Trained.

3. Routers and networking technology—Juniper Networks offers certification for different skill levels in:
  - [Service Provider Routing and Switching](#)
  - [Enterprise Routing and Switching](#)
  - [Junos Security](#)
4. [VJX Virtual Router](#)
5. [VSRX Services Gateway](#)
6. [VMX Universal Edge Router](#)
7. VPTX Packet Transport Switch
8. [Junos Space](#)
9. BGP Feed
10. CentOS
11. Puppet Labs
12. Ecosystem Partners, including:
  - [Cariden MATE](#)
  - [Packet Design Route Explorer](#)
  - [WANDL - IP/MPLSView](#)
  - [Mu Studio Performance](#)
  - [Spirent TestCenter](#)

For additional information about these products, please contact our partners directly.

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## Building and Running Topologies

Junosphere is a cloud-based, virtualization environment in which multiple virtual machines representing network devices can be connected and configured to create network topologies. A topology file set defines the properties necessary to build your network in the cloud.

There are three ways to build or use topologies:

- Using the Topology Wizard to create a new topology
- Using existing topologies supplied in the public libraries in Junosphere
- Using vmm scripting to create a new topology or modify an existing topology

Each of these methods produces a file set that includes a topology.vmm file that defines the virtual devices, such as routers, virtual distributed Ethernet (VDEs), and related connections between the devices within a single topology. The file set can also contain a configuration file for each Junos OS virtual network that is defined in the topology.vmm file.



To use the Topology Wizard to design your topology, refer to the *Junosphere Network Topology Guide* for more information about how to create and use the topologies.



**NOTE:** When creating a topology, the maximum transmission unit (MTU) in the VJX interface must be set to 1500. Otherwise, it cannot route BGP packets.

To start a topology:

1. Create a reservation for the number of virtual machine units and the number of days needed. The topology cannot be started until the reservation is active. If an annual plan exists and there is sufficient capacity, you do not need a reservation. If the capacity available under the annual plan is insufficient, however, you will need to create a reservation just for the amount of capacity needed to cover the shortfall.

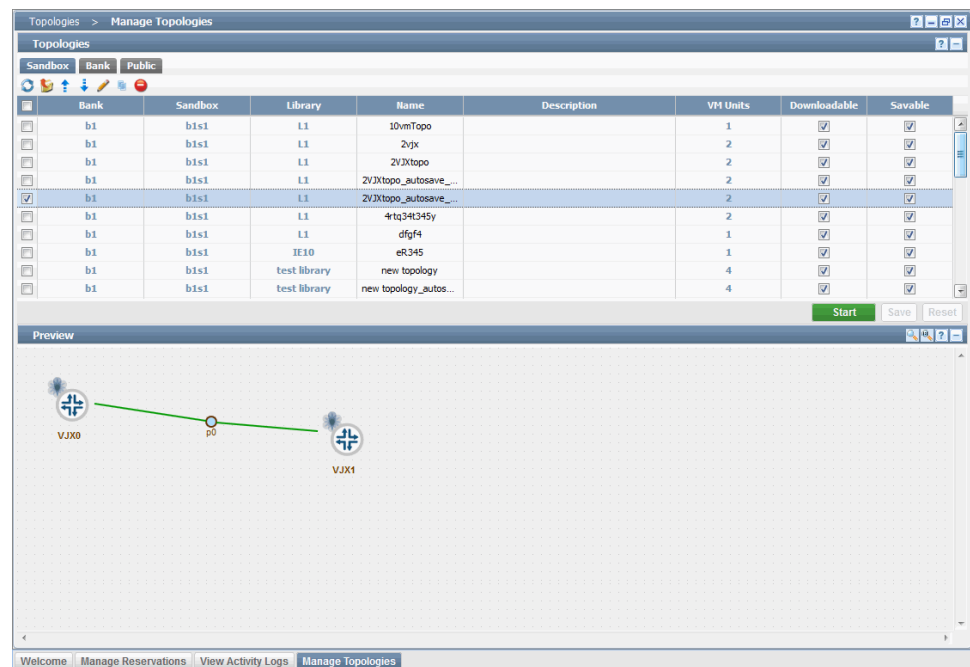


**NOTE:** You must have Topology Management permission to start or stop a topology. If you do not see the green Start button when you select a topology, you do not have the Topology Management permission in the sandbox; see [“Managing Reservations” on page 26](#).

2. Select **Topologies > Manage Topologies** from the navigation tree.

Public libraries provided by Juniper Networks provide topology examples available to all Junosphere users. The bank libraries are created and managed by the bank administrator and are available to all users within the bank. The sandbox topologies are created by the sandbox users who have permission to do so and are accessible only within the particular sandbox.

Figure 13: Starting a Topology

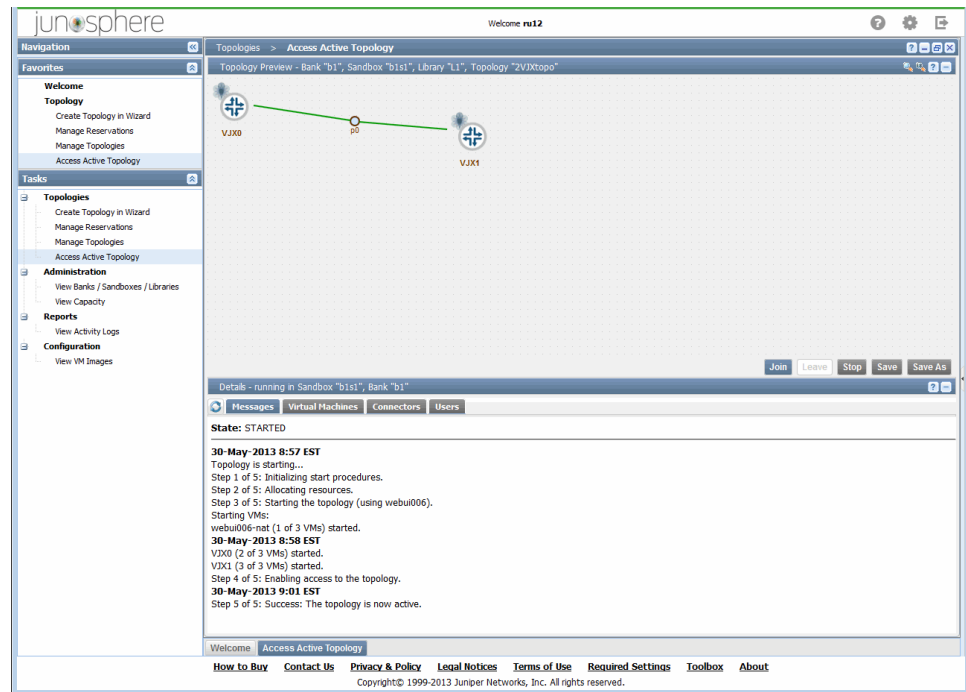


3. Select the appropriate topology from the Sandbox, Bank, or Public tab. The topology appears in the Preview window at the bottom of the screen.
4. Click the green **Start** button.

Once the topology is started, the **Access Active Topology** window automatically opens. Users do not have to click that task in the navigation tree. The active topology screen is automatically refreshed with any changes.

A series of messages appears in the Messages tab of the **Details** section, showing the progress of the loading of the virtual machines, as shown in [Figure 14 on page 39](#).

Figure 14: Active Topology Messages Tab



When the topology is active, the **Join** button appears and the virtual machines are displayed in the **Virtual Machines** tab.

The Junosphere topology parser can detect errors in the topology file. If there is an error in the topology, the error message appears as soon as the you click **Start** and the topology will not start. Review the topology file for errors and correct them.

When you log out of Junosphere, or the portal times out due to inactivity, the active topologies remain active. You can log out of Junosphere and work directly on your virtual machines using the command-line interface (CLI) via a telnet or SSH session, web-based J-Web interface, or by establishing remote access to the CentOS server. The timeout is a security feature.

If a topology is already active, click **Join** to launch the Network Connect software to add your host to that topology. See [“Joining an Active Topology” on page 45](#).

To stop an active topology, click **Stop** in the Active Topology window. The active topology screen is automatically refreshed with any changes.

#### Related Documentation

- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)
- [Managing Reservations on page 26](#)
- [Using Libraries on page 29](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)

- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- *Junosphere Network Topology Guide*

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## Auto Logout in Junosphere

Junosphere automatically logs out after 30 minutes of being idle. However, in the current version of Junosphere, the **Access Active Topology** window will not log out of the current session after being idle for any amount of time. For security purposes, it is a best practice to log out if you are not using Junosphere.

If you are working in the Topology Wizard, you might lose work if you have not saved your changes. To avoid this issue, save your topology frequently.

### Related Documentation

- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- *Junosphere Network Topology Guide*

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## Using the Virtual Machines Tab

To access virtual machines after you have started a topology, select **Topologies > Access Active Topologies**. In the **Details** section, click the **Virtual Machines** tab. This tab enables you to:

- View the active virtual machines.
- Obtain the IP or console address of a virtual machine.
- Reset or rebuild a virtual machine.

To reset or rebuild a virtual machine:

1. Click the check boxes of the virtual machines you want to change in the Virtual Machines tab.
2. Click the appropriate button to reset or rebuild the virtual machine.

Reset is the functional equivalent of turning the power off or on for the device. The device will restart as if the system was rebooted, but the contents of the virtual machine's virtual disk are retained.

Rebuild restores the original disk image and returns the selected virtual machine to the state it was in when it was first started. Rebuild eliminates any changes to the contents of the virtual machine's virtual disk and restarts the virtual machine with the original disk. The rebuild pertains only to the restoration of the original disk image.

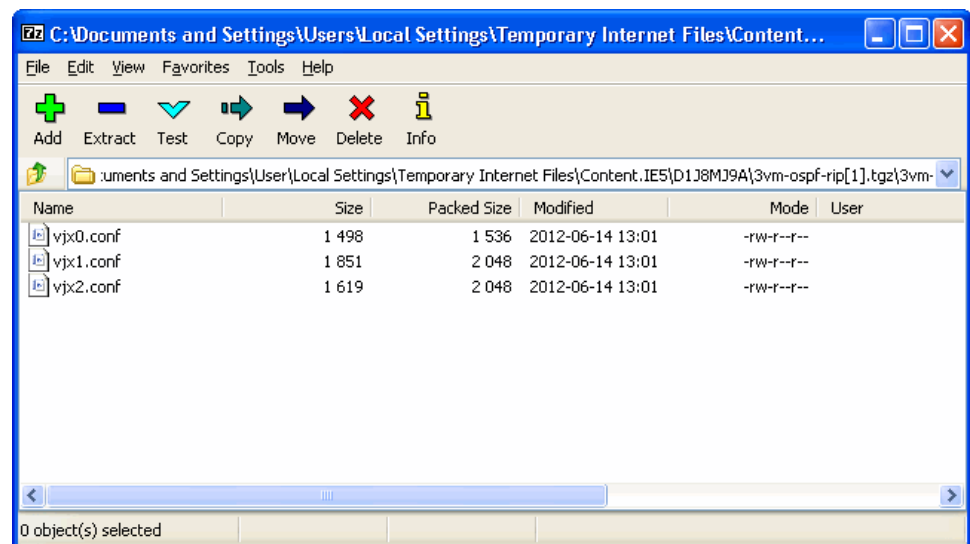
- Related Documentation**
- [Understanding Sandboxes on page 23](#)
  - [Managing Reservations](#)
  - [Building and Running Topologies on page 36](#)
  - [Uploading Topologies on page 41](#)
  - [Saving Topologies from a Library on page 43](#)
  - [Joining an Active Topology on page 45](#)
  - [Connecting to a Junos OS Virtual Machine on page 47](#)
  - [Using the Connectors Tab on page 53](#)

## Uploading Topologies

A topology file set is a compressed file (.zip or .tgz) that contains topology.vmm and all configuration files for the pertinent vms. You can create this file in Linux or Apple, or by using 7zip or WinZip (or other generic compression tool) in Windows. You can upload a topology file set (a .zip file or .tgz file) consisting of:

- A **topology.vmm** topology configuration file
  - A Junos OS CLI **.conf** configuration file for each Junos OS virtual device (optional).
- These files are stored in the configset folder, as shown in [Figure 15 on page 41](#).

**Figure 15: Configset File Contents**



You upload a file set to a sandbox library for all users with access to that sandbox, as shown in [Figure 16 on page 42](#). Bank administrators can upload files to the bank library for all bank users to use.



**NOTE:** See the *Junosphere Network Topology Guide* for more information.

Figure 16: Uploading a Topology File

To upload a .tgz topology file set:

1. Select **Topologies > Manage Topologies**.
2. Click the **Sandbox** tab to display the libraries.



**NOTE:** Users cannot add or modify bank or public libraries. See the [Junosphere Network Topology Guide](#) for more information.

3. Select a library from the list.
4. Click the blue **Upload Topology** arrow on the upper left of the Topologies section.

The **Upload Topology** dialog box appears.

5. From the **Libraries** drop-down menu, select the library into which you want to upload the topology.
6. Enter the name of the topology and add a description, if needed.
7. Indicate whether the file is downloadable, savable, or both.
8. In the File Set field, browse to the location of the file to upload.
9. Select the file set and click **Upload**.

Once a topology is loaded, all users with access to that library can see it.



**NOTE:** You must upload a topology file set with the .tgz or .zip compression file extension.

All topologies have two properties: downloadability and savability. Both of these properties are specified when a topology is uploaded into a library.

- **Downloadability**—A topology marked as downloadable can be downloaded by any user (by right-clicking on the topology and selecting Download file set) and can also be saved as a different filename by any user. A topology not marked as downloadable cannot be downloaded or saved by any user. Downloaded topology file sets are in **.zip** format only.
- **Savability**—Configuration changes made to a topology marked as savable can be saved by any user when the topology is running. Users who have library management permission can save non-savable topologies, as well.

To delete a topology file set:

1. Select **Topologies > Manage Topologies**.
2. Click the appropriate tab.
3. Select the topology that you want to delete.
4. Click the **Delete** icon in the upper left side of the **Topologies** section.
5. Confirm your deletion.

To download a topology, see [“Saving Topologies from a Library” on page 43](#).

#### Related Documentation

- [Understanding Banks on page 21](#)
- [Understanding Sandboxes on page 23](#)
- [Building and Running Topologies on page 36](#)
- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)

## Saving Topologies from a Library

You can save a topology only to the bank or sandbox library where the topology is running. [Table 6 on page 43](#) through [Table 9 on page 44](#) list the permissions that bank administrators and users need to be able to save editable and downloadable topologies.

**Table 6: Saving Topologies that Cannot Be Edited**

|  | Public Library | Bank Library | Sandbox Library |
|--|----------------|--------------|-----------------|
| Bank Administrator                         | -              | x            | x               |
| Users (with Library Management permission) | -              | -            | x               |

Table 7: Saving Editable Topologies

|                    | Public Library | Bank Library | Sandbox Library |
|--------------------|----------------|--------------|-----------------|
| Bank Administrator | x              | x            | x               |
| Users              | x              | x            | x               |

Table 8: Saving a Topology that Cannot Be Downloaded

|                    | Public Library | Bank Library                      | Sandbox Library                   |
|--------------------|----------------|-----------------------------------|-----------------------------------|
| Bank Administrator | -              | x (to bank and sandbox libraries) | x (to bank and sandbox libraries) |
| Users              | -              | -                                 | x (to sandbox library)            |

Table 9: Saving a Downloadable Topology

|                    | Public Library                    | Bank Library                      | Sandbox Library                   |
|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Bank Administrator | x (to bank and sandbox libraries) | x (to bank and sandbox libraries) | x (to bank and sandbox libraries) |
| Users              | x (to sandbox library)            | x (to sandbox library)            | x (to sandbox library)            |

**Legend:**

x – permission to perform action.

- – no permission to perform action.

To download a topology file set:

1. Click the **Libraries** menu tab.
2. Click the **Sandbox** tab to display the sandbox libraries.
3. Right-click a specific **Library** tab.
4. Right-click the topology you want to download.
5. Select **Download Topology**.
6. Click **Save**.
7. Browse to the location to which you want to download.
8. Name the topology and click **Save**.

**Related Documentation**

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Joining an Active Topology on page 45](#)



- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)

## Joining an Active Topology

Once a topology is active, you **must** join it to reach the virtual network you built in the cloud. You connect your host to the topology by creating a Network Connect secure sockets layer (SSL) virtual private network (VPN) connection from your host to the topology you started. Network Connect works best without web proxies, but works fine with a static proxy configuration. It will not work, however, if the browser is configured with a PAC (proxy auto-configuration) file.

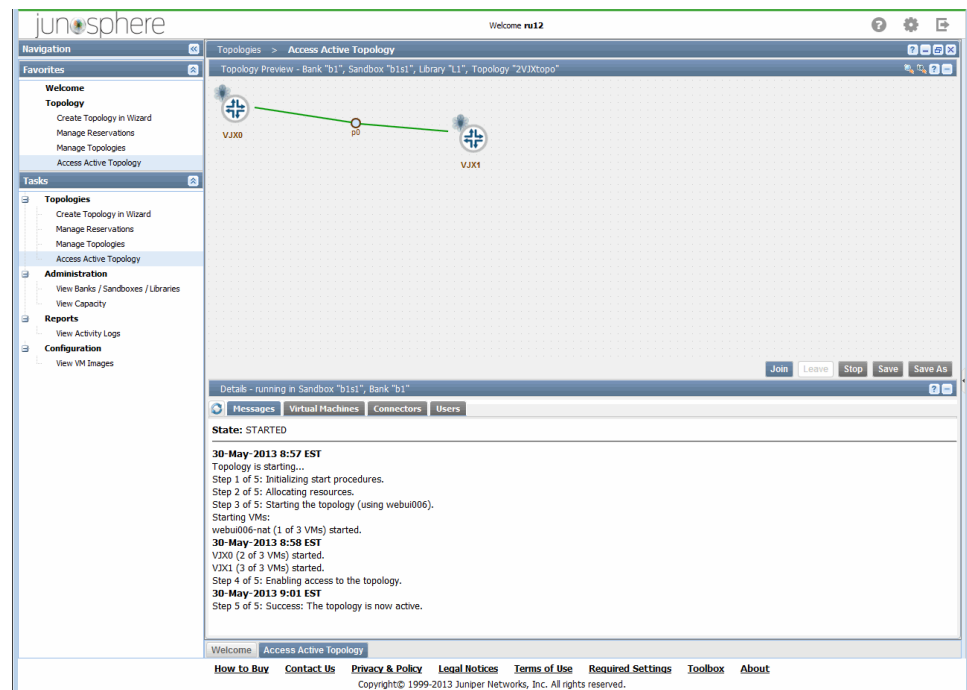


**NOTE:** You cannot run two simultaneous instances of Network Connect. If you already have one instance of Network Connect running for a corporate VPN, you must stop it before you begin another instance.

To join an active topology:

1. Make sure that pop-ups are enabled on your web browser.
2. Select **Topologies > Access Active Topologies**. A graphical representation of the active topology appears, as shown in [Figure 17 on page 45](#).

**Figure 17: Joining a Topology**



- Click **Join** to display the Junosphere Access Portal page, as shown in [Figure 18 on page 46](#).



**NOTE:** After you click Join, a message might appear indicating that you do not have the correct Java plug-in. Follow the instructions in the displayed dialog box to install the correct plug-in.

**Figure 18: Junosphere Access Portal**

- Log in using the login ID and password e-mailed to you by your bank administrator. This is the same username and password as your Junosphere login.

The Network Connect page appears, as shown in [Figure 19 on page 46](#).

**Figure 19: Network Connect**

- Click **Start** to create a Secure Access SSL VPN to the internal management Ethernet of the topology.

You can then use a program such as telnet, SSH, or VNC to connect to the virtual machines in the cloud.



**NOTE:** A user may need to manually disconnect (sign out) from Network Connect in the following situations:

- The user leaves the topology, but the Network Connect session is still showing as connected and the user never receives a session time-out message.
- The user stops the topology, but the Network Connect session is still showing as connected.
- The user joins a topology, then tries to join another topology. If the Network Connect session did not end before the user tries to log in to the Junosphere Access Portal for the second topology, then the user must sign out manually from the first Network Connect session.



**NOTE:** All sandbox users can join an active topology. Multiple users using an active topology do not consume more capacity than one user since users are all sharing the same virtual machine units. A maximum of 25 simultaneous users can join a topology via secure access.

**Related  
Documentation**

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)

---

## Connecting to a Junos OS Virtual Machine

To connect to a Junos OS virtual machine:

1. Select **Topologies > Access Active Topologies**.



**NOTE:** If you have access to only one topology, the Access Active Topology window appears.

If you have access to more than one topology, a dialog box appears, prompting you to select an active topology.

2. Click the **Virtual Machine** tab to display connection information to the console port and management Ethernet (ge 0/0/0) of your virtual machines, as shown in [Figure 20 on page 48](#).

**Figure 20: Virtual Machine Connection Information**

| Name | State | IP Address     | Console                    |
|------|-------|----------------|----------------------------|
| VJX0 | UP    | 10.233.255.251 | telnet 10.233.255.254 1001 |
| VJX1 | UP    | 10.233.255.250 | telnet 10.233.255.254 1002 |

3. Either telnet to the console port or SSH to the management IP address of the virtual machine.
4. If you connect to a Junos OS product, you will see a CLI prompt. Log in using **root** (for VMX device) or **juniper** (for all other devices) as the username and **Clouds** as the password.
5. Enter **cli** to start using the Junos OS environment.
6. Make configuration changes in edit mode, then commit to implement the changes on the Junos OS device.

#### Related Documentation

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)

- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Leaving an Active Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)

## Accessing Junos Space Using CentOS in a Junosphere Topology

This section describes the procedure for accessing Junos Space using CentOS in a Junosphere topology. The procedure requires VNC software to be installed on your system. The VNC viewer is free and can be downloaded from the [RealVNC website](#).

To access Junos Space:

1. Edit or create the topology that you want to use to access Junos Space.
2. Add a CentOS VM to the topology.
3. Save and start the topology.
4. Follow the instructions in [“Joining an Active Topology” on page 45](#) to join the topology.
5. Open the VNC application to get to the CentOS VM.
6. Enter the IP address of the CentOS VM and append :1 at the end. For example, **10.233.246.1:1**.
7. Enter **Clouds** for the password.
8. Once you have accessed CentOS using the VNC application, click the globe icon on the top menu to open a web browser.
9. Enter the **https://<ip address of the Space VM>** and press **Enter**. For example, **https://10.233.246.1**.
10. Accept the warning messages and confirm to accept the security warnings. If you get a timeout message, click the **Retry** button.
11. Once you see the Space login screen, log in as administrator with:
  - Username: super
  - Password: 123juniper

## Saving Changes to a Topology

---

An **interface ge-0/0/0** configuration is added to each **.conf** configuration file when the topology is started. Remove the **interface ge-0/0/0** configuration from the configuration file to avoid having duplicate IP addresses.

To save your Junos OS **.conf** configuration changes:

1. Use the **commit** command in Junos OS while the topology is running to save changes to a configuration file.
2. Wait 5 minutes to ensure that the commit command is fully executed in all of the router databases.
3. Click **Save** or **Save As** to store the configuration information of all of the routers in the topology to Junosphere.
4. Select **Topologies>Manage Topologies**.
5. Select your topology and click **Download topology** in the upper left corner of the **Topologies** section to download the zipped topology file set from Junosphere to your local PC.
6. Unzip the **zip** file. This results in a **topology.vmm** file and a directory with one or more **.conf** files in it.
7. Edit each **.conf** file, removing the **interface ge-0/0/0** configuration.
8. Save the **.conf** files.
9. Zip the **topology.vmm** file and the directory with the **.conf** files to form a **.zip** file.

The next time you upload the **.zip** file and start the topology, the new configuration is implemented.

### Related Documentation

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)
- [Using the Connectors Tab on page 53](#)

## Leaving an Active Topology

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Junosphere enables you to leave an active topology, but keeps the topology running and does not affect other users. You can reconnect with the active topology at a later time.

To leave a topology:

1. Select **Topologies > Access Active Topologies**.
2. Click the **Leave** button in the Active Topology section at the top.
3. Click **Yes**.

If you try to leave an active topology and the disconnection fails, your current session is not terminated and you are presented with a dialog box that tells you to manually disconnect from the Network Connect session. To learn more about manually disconnecting from the Network Connect session, see [“Manually Disconnecting from Network Connect” on page 52](#).

**Related  
Documentation**

- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)
- [Saving Changes to a Topology on page 50](#)
- [Using the Connectors Tab on page 53](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)

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## Signing Out and Stopping Your Active Topology

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To disconnect from your active topology:

1. Click **Sign Out** on the Junosphere Access Portal page.
2. Click **Stop** on the Topology Preview section of the Active Topology window to remove the topology from active memory.
3. Click **Yes** to confirm that you want to remove the topology from active memory.



**NOTE:** Be sure to sign out and stop the topology or new users might be prevented from launching a new topology. Users with topology management permission and bank administrators can stop topologies.

---

**Related  
Documentation**

- [Building and Running Topologies on page 36](#)
- [Using the Virtual Machines Tab on page 40](#)
- [Uploading Topologies on page 41](#)
- [Joining an Active Topology on page 45](#)

- [Saving Topologies from a Library on page 43](#)
- [Saving Changes to a Topology on page 50](#)
- [Connecting to a Junos OS Virtual Machine on page 47](#)
- [Using the Connectors Tab on page 53](#)
- [Saving Changes to a Topology on page 50](#)
- [Using the Connectors Tab on page 53](#)
- [Leaving an Active Topology on page 50](#)

## Manually Disconnecting from Network Connect

You may need to manually disconnect (sign out) from Network Connect in the following situations:

- If you leave a topology, but the Network Connect session is still showing as connected and you never receive a session time-out message.
- You stop the topology, but the Network Connect session is still showing as connected.
- You join a topology, then try to join another topology. If the Network Connect session did not end before you try to log in to the Junosphere Access Portal for the second topology, then you must sign out manually from the first Network Connect session.

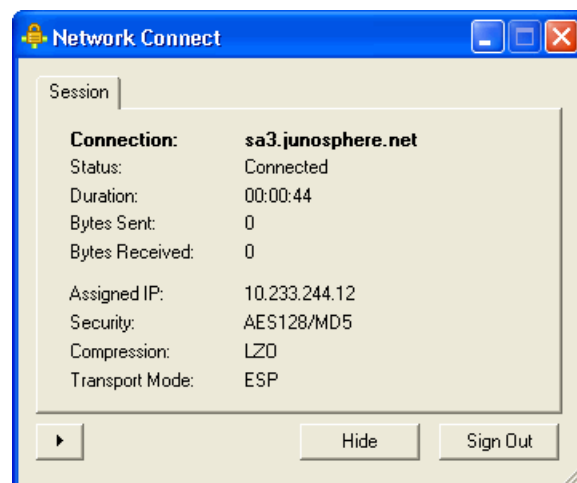
In all of these scenarios, your current Network Connect session will not be terminated and you will be presented with a dialog box that tells you to manually disconnect from the session.

To disconnect manually from Network Connect:

1. Double-click on the **Network Connect** icon that appears at the bottom of your screen.

The Network Connect dialog box appears:

**Figure 21: Network Connect Dialog Box**





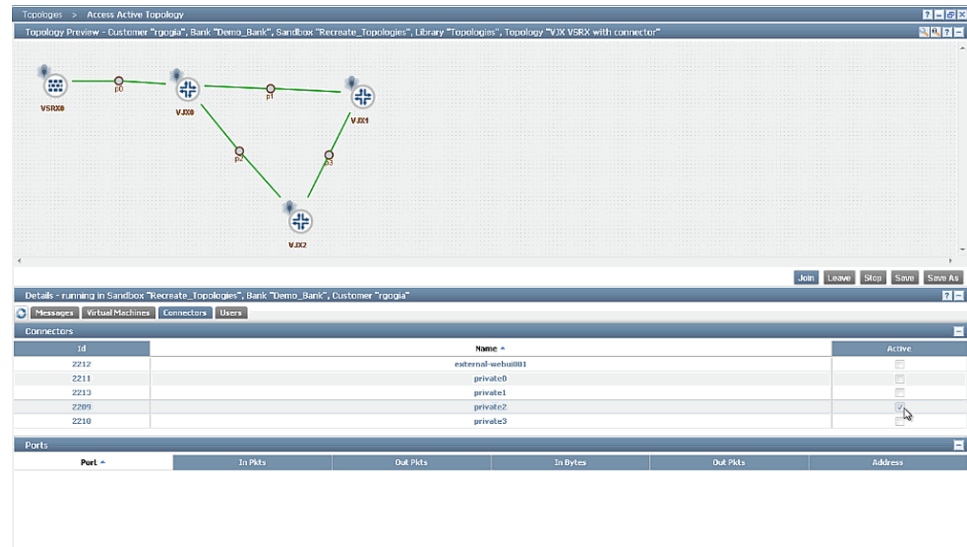
2. Click the **Sign out** button.

## Using the Connectors Tab

The **Connectors** tab shows the points in the private topology to which you can connect a Junosphere Connector tunnel (and thereby connect an external physical network to the virtual topology), as shown in [Figure 22 on page 53](#). Select a connector to view the details in the Ports window. This tab also shows virtual distributed Ethernet (VDE) information that you might need for troubleshooting.

Select **Topologies > Access Active Topologies** and click the **Connectors** tab in the Details section at the bottom of the work space.

**Figure 22: Connectors Tab**



The Ports section of the tab shows details of traffic between a chosen Junosphere connector and a physical device. The page includes the following fields:

- Port—Virtual interface ID on each bridge to which the connector is attached.
- Packets In—The incoming traffic, in packets.
- Bytes In—The incoming traffic, in bytes.
- Packets Out—The outgoing traffic, in packets.
- Bytes Out—The outgoing traffic, in bytes.
- Address—The address of the port.

### Related Documentation

- [Building and Running Topologies on page 36](#)
- [Uploading Topologies on page 41](#)
- [Joining an Active Topology on page 45](#)
- [Saving Topologies from a Library on page 43](#)

- [Saving Changes to a Topology on page 50](#)
- [Signing Out and Stopping Your Active Topology on page 51](#)
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- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)
- [Establishing the Physical Connection on page 62](#)
- [Launching and Joining a Topology on page 63](#)
- [Running the Junosphere Connector in Windows on page 64](#)
- [Running the Junosphere Connector in Linux on page 68](#)

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## Understanding Additional Information

The following is miscellaneous information that you might need to know about Junosphere:

- To change your permission(s), contact your bank administrator by selecting **Administration > View Banks/Sandboxes/Libraries**. In the Sandboxes section, select the sandbox and click the e-mail alias for that sandbox. Fill out the e-mail that appears and send it.
- To change your password, click the **Settings** icon in the upper right of the screen.
- To determine who has which permissions (to find a peer to start a topology file, for example), click the **User** icon on the Sandboxes section of the **View Banks/Sandboxes/Libraries** tab.
- Make sure that the e-mail address in your user profile is correct. Otherwise, you will not receive group e-mails from the bank administrator or other users. The bank administrator will have to check this for you.
- To display Junosphere help, click the global help icon (white question mark inside a grey circle) at the top right to display global help.
- To display context-sensitive help about individual windows or dialog boxes, click the blue **?** icon on the top right side of the window or dialog box.

### Related Documentation

- [Understanding Junosphere on page 3](#)
- [Building and Running Topologies on page 36](#)
- [Buying Capacity on page 14](#)

## PART 4

# Running the Junosphere Connector

- [Using the Junosphere Connector on page 57](#)



## CHAPTER 4

# Using the Junosphere Connector

- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)
- [Establishing the Physical Connection on page 62](#)
- [Launching and Joining a Topology on page 63](#)
- [Running the Junosphere Connector in Windows on page 64](#)
- [Running the Junosphere Connector in Linux on page 68](#)

### Prerequisites for Using the Junosphere Connector in Windows

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- [Installing the Junosphere Connector on page 57](#)
- [Installing the VMware Player on page 57](#)

### Installing the Junosphere Connector

To install and run the Junosphere connector, you must have admin privileges in Windows or be logged in as **root** in Linux.

1. Download and unzip [Junosphere Connector](#).
2. Save the connector files to a location to which you have access permission.
3. Extract the connector files to your desktop.

### Installing the VMware Player

This section describes the procedure for installing the VMware Player and configuring it to run the Junosphere Connector.

To install and run the Junosphere Connector, you must have admin privileges in Windows or be logged in as **root** in Linux.

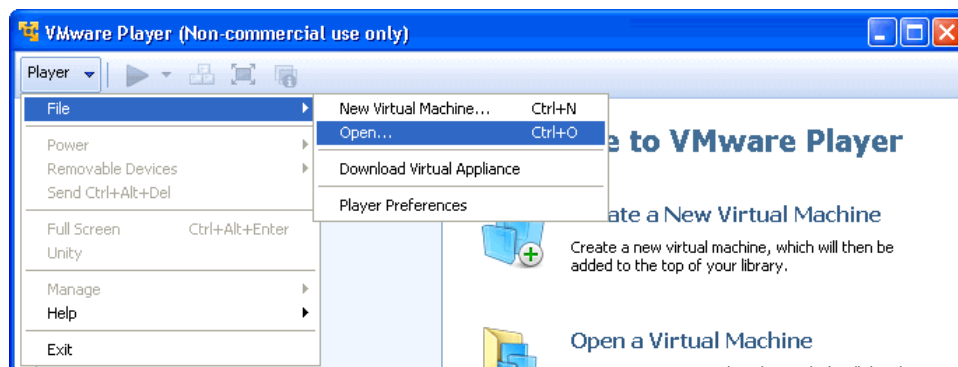
1. Download the [VMware Player](#).
2. Follow the prompts on the screen to install the VMware Player.
3. Double-click the VMware Player icon ([Figure 23 on page 58](#)) to launch VMware Player.

Figure 23: VMware Player Icon



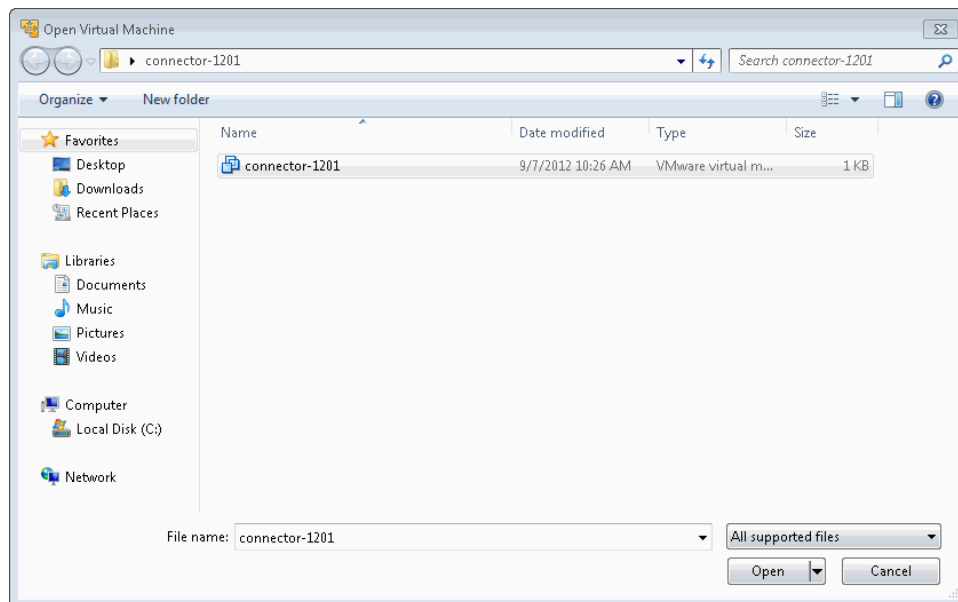
The VMware Player dialog box appears.

Figure 24: VMware Player Dialog Box



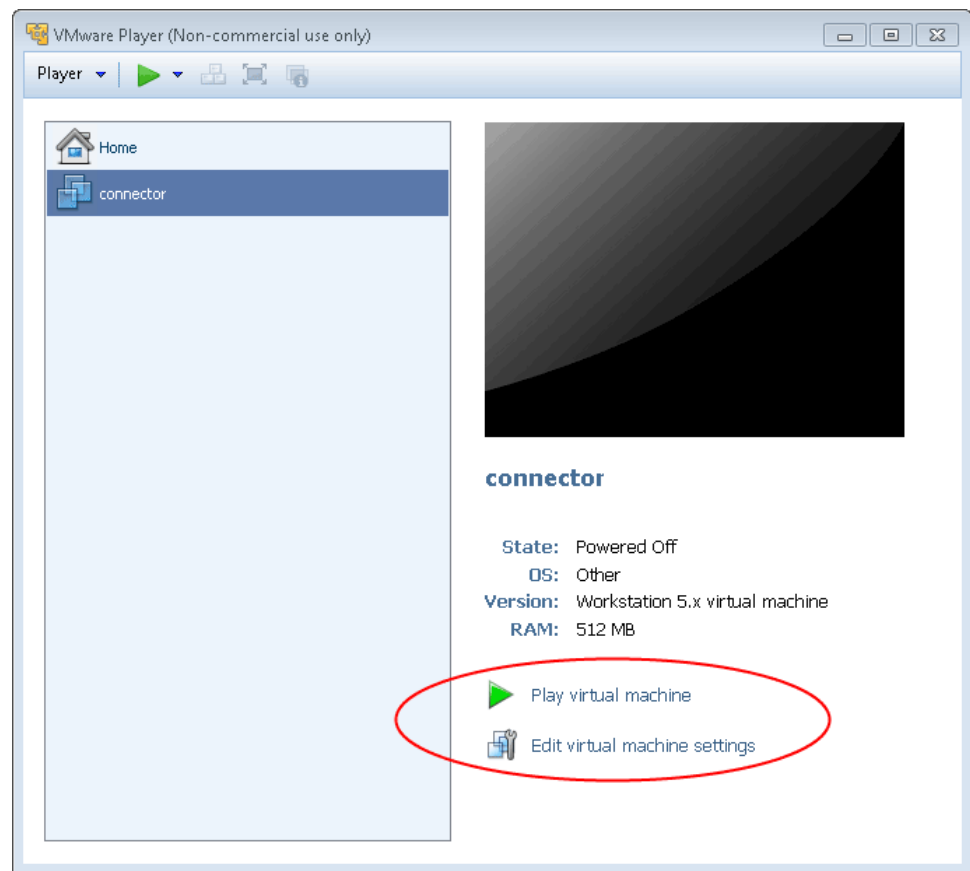
4. In the VMware Player dialog box (Figure 24 on page 58), select **Player > File > Open**. The following dialog box appears.

Figure 25: Opening the Connector



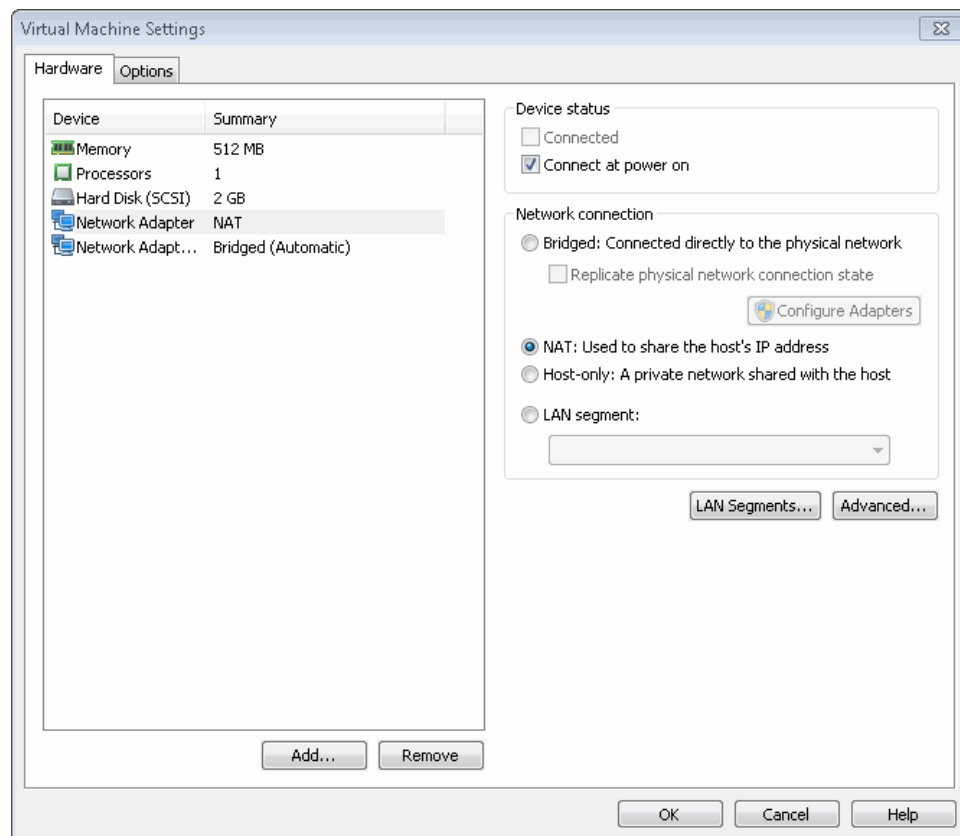
5. Select **connector-1201** and click **Open**. The VMware Player interface should look like Figure 26 on page 59.

Figure 26: Configuring the Connector



6. Click **Edit virtual machine settings**. The Virtual Machine Settings dialog box appears.

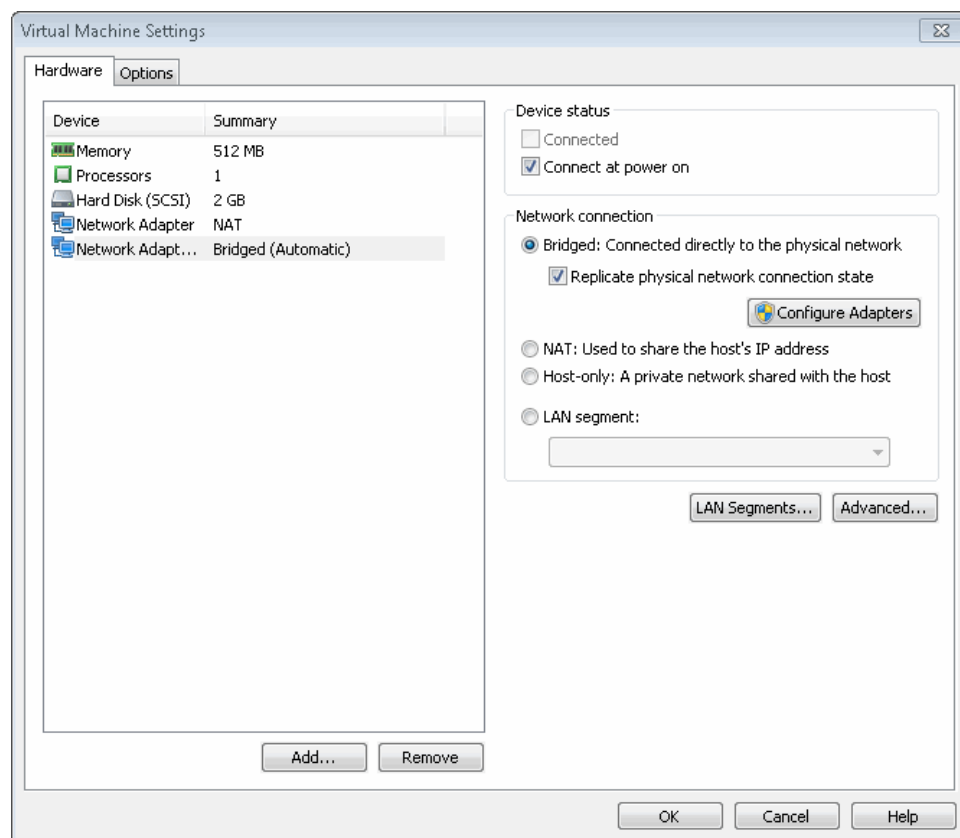
Figure 27: Virtual Machine Settings Dialog Box



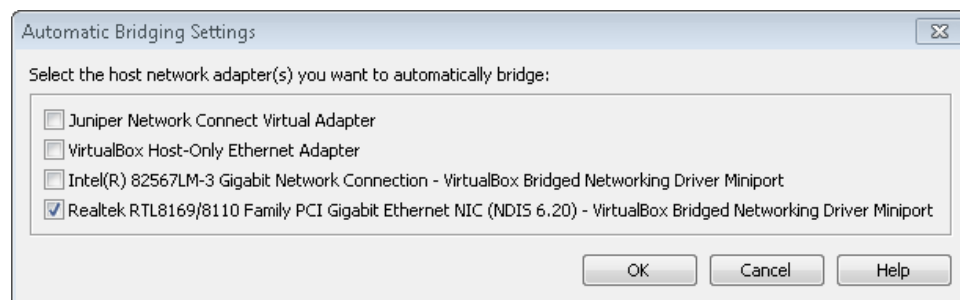
7. Set the first Network Adapter to NAT.
8. Set the second Network Adapter to Bridged: Connect directly to the physical device. The dialog box should resemble [Figure 28 on page 61](#).



Figure 28: Network Adapter Set to Bridge



9. Click **Configure Adapters**. A dialog box similar to the following appears, listing the adapters that are available to your machine.

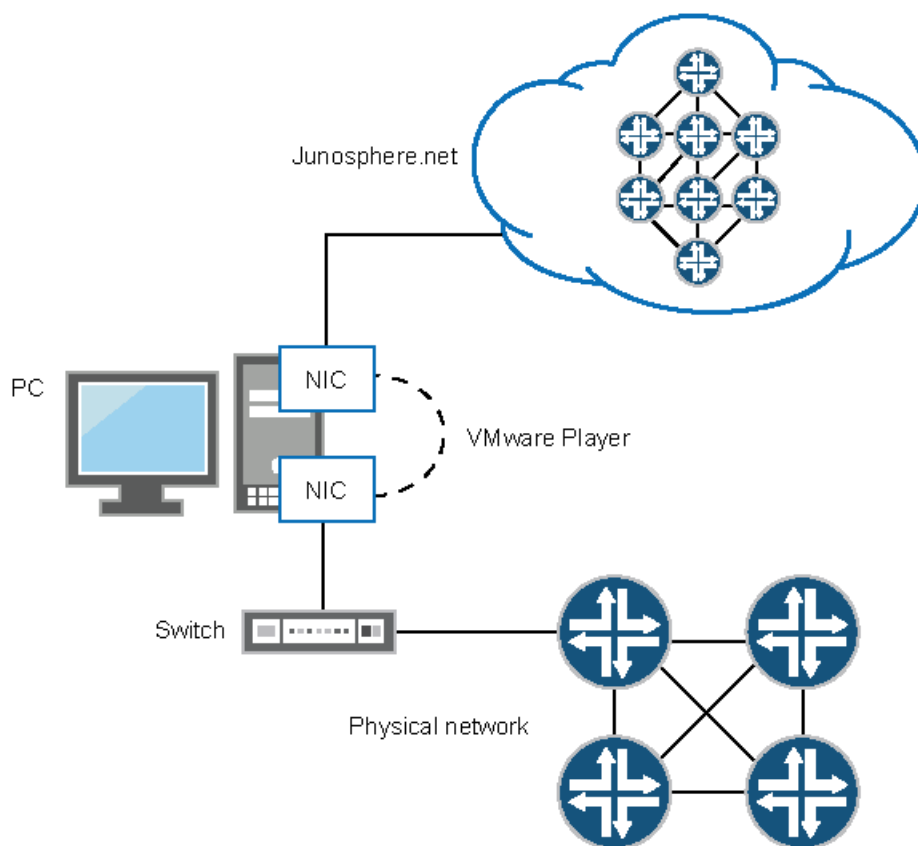


10. Select the adapter that you want to bridge and click **OK**.
11. Click **OK** in the VMware Virtual Machine Settings dialog box. The dialog box shown in [Figure 26 on page 59](#) appears again.

## Establishing the Physical Connection

Before you configure the Junosphere Connector in Windows or Linux, you must make the physical connection. The diagram in [Figure 29 on page 62](#) shows a typical connection.

**Figure 29: Junosphere Physical Connection**



The computer you are using to log in to Junosphere must have two Ethernet cards: eth0 and eth1.

- eth0 is used to connect to the UI and user topology via Network Connect
- eth1 is used to connect to the external device that will talk to the virtual network topology via Junosphere Connector

To establish the physical connection:

1. To connect your LAN to eth1, connect one end of a cable to eth1.
2. Connect the other end to a switch.
3. Connect your other physical devices to that switch.

### Related Documentation

- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)

- [Installing the Junosphere Connector on page 57](#)
- [Installing the VMware Player on page 57](#)
- [Launching and Joining a Topology on page 63](#)
- [Running the Junosphere Connector in Windows on page 64](#)
- [Running the Junosphere Connector in Linux on page 68](#)

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## Launching and Joining a Topology

To use the Junosphere Connector, the computer used to access Junosphere needs to have a web browser.

1. Go to Junosphere and start your topology. For information on starting and running a topology, see the *Junosphere Network Topology Guide*. Make sure the reservation used to run this topology includes a Connector.
2. When the **Join** button is active, click it to join the topology.

### **Related Documentation**

- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)
- [Installing the Junosphere Connector on page 57](#)
- [Installing the VMware Player on page 57](#)
- [Establishing the Physical Connection on page 62](#)
- [Running the Junosphere Connector in Windows on page 64](#)
- [Running the Junosphere Connector in Linux on page 68](#)

## Running the Junosphere Connector in Windows

Before you can run Junosphere Connector, you must have an existing reservation for a topology or an annual plan of at least 50 virtual machine (VM) units (which provides unlimited connectors) and you must start and join a topology. To run the Junosphere Connector in Windows:

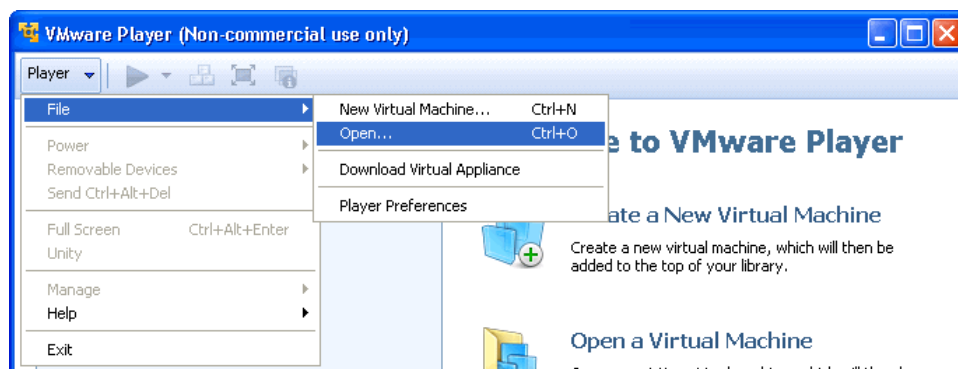
1. Double-click the VMware Player icon ([Figure 30 on page 64](#)) to launch VMware Player.

Figure 30: VMware Player Icon



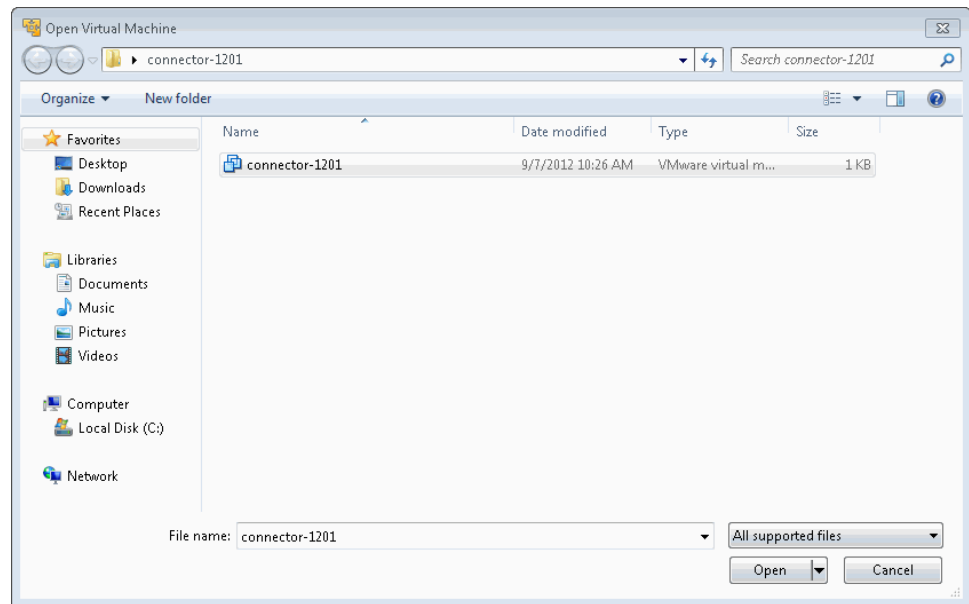
The VMware Player dialog box appears.

Figure 31: VMware Player Dialog Box



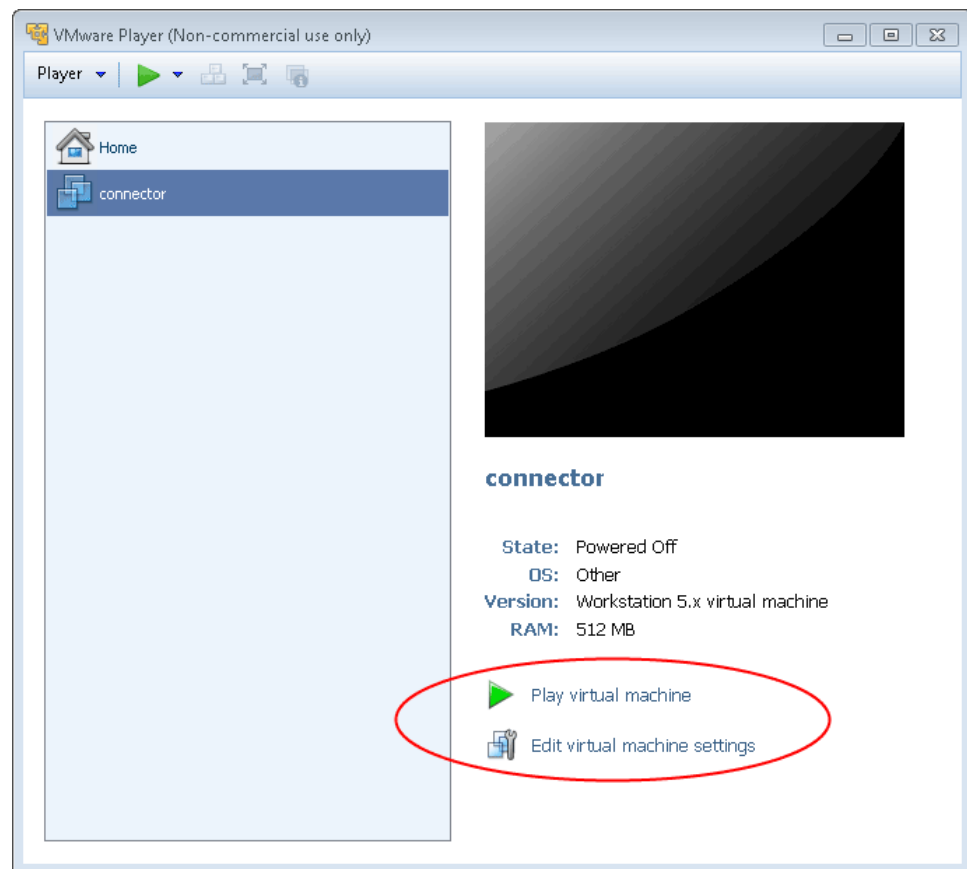
2. In the VMware Player dialog box ([Figure 31 on page 64](#)), select **Player > File > Open**. The following dialog box appears.

Figure 32: Opening the Connector



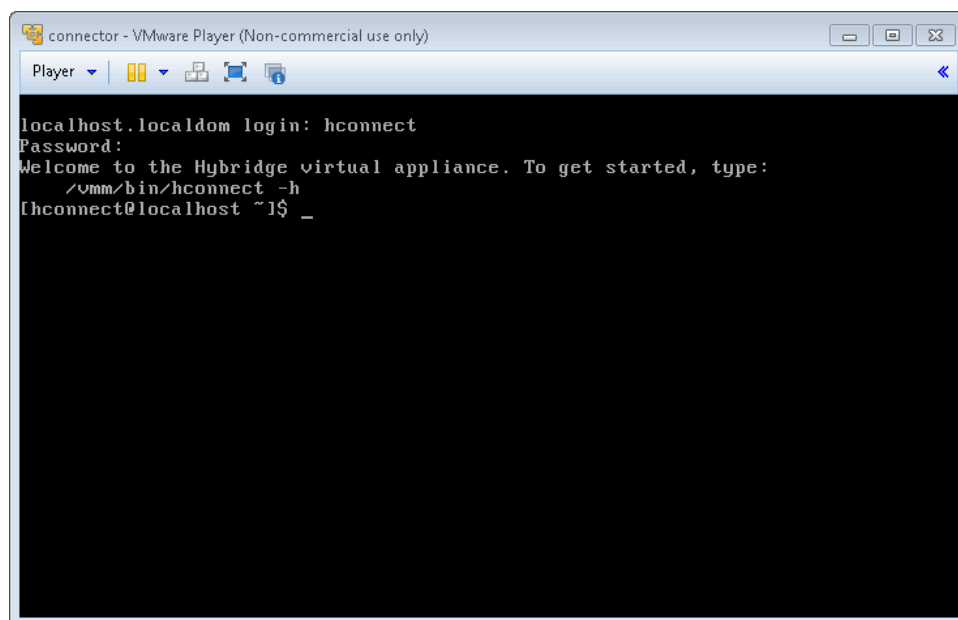
3. Select **connector-1201** and click **Open**. The VMware Player interface should look like [Figure 33 on page 66](#).

Figure 33: Configuring the Connector



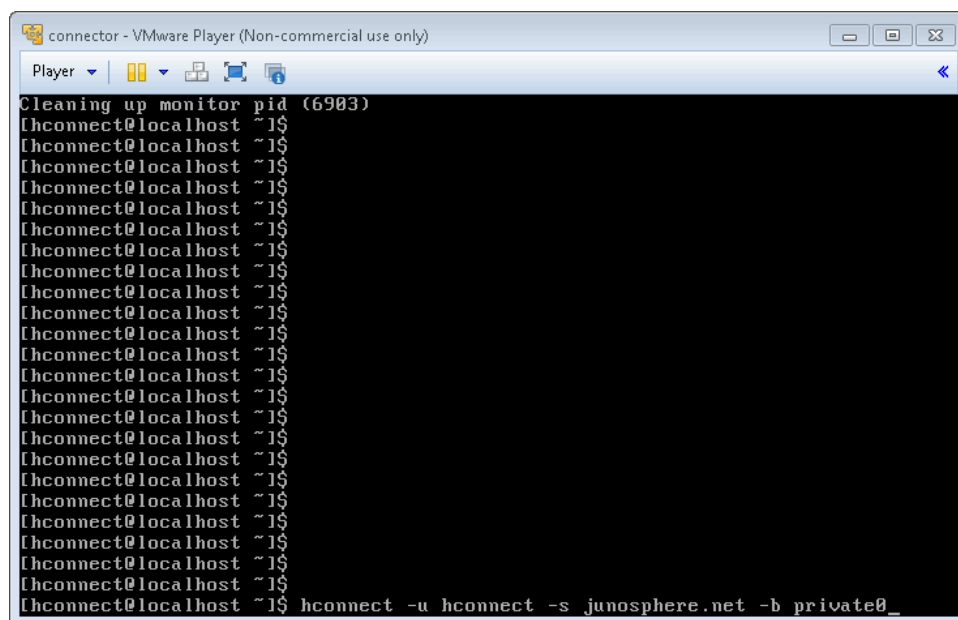
4. Click **Play virtual machine** to power on the connector.
5. Open a command prompt and log in using **hconnect** as the username and password, as shown in [Figure 34 on page 67](#).

### Figure 34: Command Prompt with Connector Credentials



6. In the command prompt, type **hconnect -u hconnect -server junosphere.net -b private0**.

### Figure 35: Command Prompt with hconnector Credentials

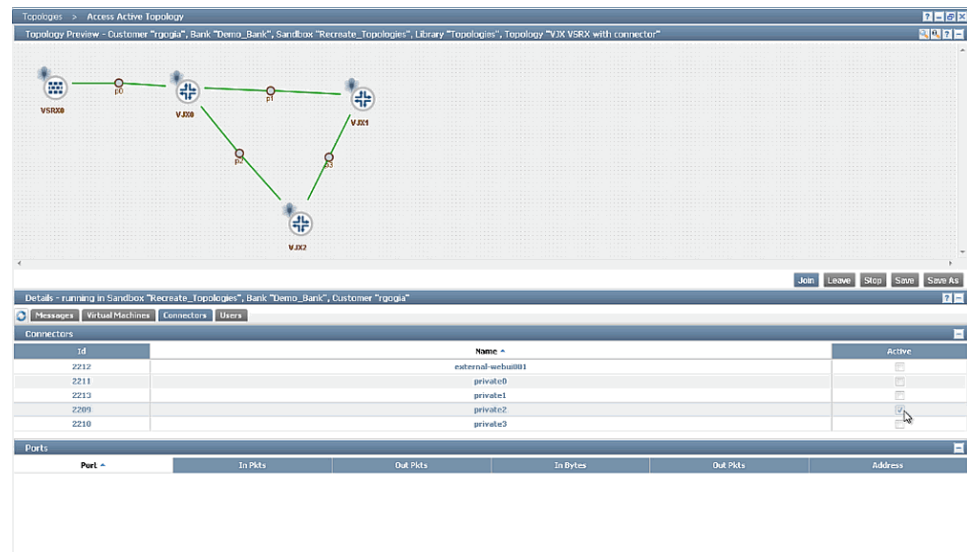


**NOTE:** Copy and paste the command from the Junosphere Connector View window or type `/vmm/bin/hconnect -u hconnect -b privateX -s junosphere.net` (where *privateX* is the name of your bridge) and press Enter.

At this point, the virtual topology should be communicating with the physical device.

In Junosphere, the Connectors tab should resemble the following figure, with the Active column of private0 showing a check mark to indicate that it is active.

**Figure 36: Active Column**



**WARNING:** To prevent IP address conflicts between your physical lab and your Junosphere topology, make sure you configure the IP address of your Junosphere VMs before you launch the Junosphere Connector.

#### Related Documentation

- [Managing Reservations on page 26](#)
- [Joining an Active Topology on page 45](#)
- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)
- [Installing the Junosphere Connector on page 57](#)
- [Installing the VMware Player on page 57](#)
- [Establishing the Physical Connection on page 62](#)
- [Launching and Joining a Topology on page 63](#)
- [Running the Junosphere Connector in Linux on page 68](#)

## Running the Junosphere Connector in Linux

Before you can run Junosphere Connector, you must have successfully started and joined a topology. For information on starting and running a topology, see the *Junosphere Network Topology Guide*.



## Downloading and Installing the Junosphere Connector

To install and run the Junosphere Connector, you must be logged in as **root**.

1. Download the [Junosphere Connector](#).
2. Extract the .zip file to a directory where you can access the Junosphere Connector .vmx file. For example: **unzip connector-1201.zip**

## Downloading and Installing the VMware Player

To install and run the VMware Player, you must be logged in as **root**.

1. Download the [VMware](#) for the appropriate OS on your PC.
2. Run the VMware Player bundle by entering the following command, using the appropriate version number for your VMware Player:

```
[root@skykvm4 VMwarePlayer]# ./ 5.0.0-812388.x86_64.bundle
```

```
Extracting VMware Installer...done.
```

3. Enter **No** for the first two prompts.

```
Would you like to check for product updates on startup? [yes]: no
```

```
Would you like to help make VMware software better by sending anonymous system
data and usage statistics to VMware? [yes]: no
```

4. Press Install to begin.

```
The product is ready to be installed. Press Enter to begin installation or Ctrl-C to cancel.
```

```
Installing VMware Player Application 3.1.3
```

```
Copying files...
```

```
[##### ] 53%
```

## Configuring VMware Player to Use eth1 as Bridge

1. Enter the following command to view the vmnet-bridge processes on your PC:

```
ps aux | grep vmnet-bridge
```

```
root 4138 0.0 0.0 59292 504 ? Ss 13:08 0:00 /usr/bin/vmnet-bridge -s
```

```
14 -d /var/run/vmnet-bridge-0.pid -n 0
```

```
root 4211 0.0 0.0 61164 736 pts/7 S+ 13:09 0:00 grep bridge
```

2. Enter the following command to stop the vmnet-bridge process so you can start a new process on the second Ethernet (eth1):

```
kill -9 process-id
```

```
Example:kill -9 4138
```

3. Enter the following command to start a new vmnet-bridge process on the interface (eth1) that will be used to send or forward traffic from a physical device:

```
vmnet-bridge -n 0 -i eth1 -d /var/run/vmnet.pid
```

## Launching and Configuring VMware Player

1. Open a terminal window and log in as **root**.
2. Enter the following command to launch VMware Player:  
**vmplayer &**
3. Open the Junosphere Connector .vmx file in VMware Player by selecting **File > Open**.
  - a. Navigate to the Junosphere Connector .vmx file.
  - b. Select the Junosphere Connector .vmx file and click **Open**.
4. Click **Edit virtual machine settings**.
5. In the Virtual Machine Settings dialog box, change the Network Adapter from Bridged to **NAT**.
6. Set Network Adapter2 to **Bridged**.
7. Click **Save**.

## Establishing the Physical Connection

The computer you are using to log in to Junosphere must have two Ethernet cards: eth0 and eth1.

- eth0 is used to connect to the UI and user topology via Network Connect.
- eth1 is used to connect to the external device that will talk to the virtual network topology via Junosphere Connector.

To establish the physical connection:

1. To connect your LAN to eth1, connect one end of a cable to eth1.
2. Connect the other end to a switch.
3. Connect your other physical devices to that switch.

## Launching and Joining a Topology

For information on starting and running a topology, see the *Junosphere Network Topology Guide*.

1. When the topology is active, click **Join**.
2. On the Junosphere Access Portal page, enter your username and password and click **Sign In**.
3. Click **Start** to launch the Secure Access SSL VPN and connect to your topology.

## Running the Junosphere Connector in Linux

To start the Junosphere Connector:

1. Open a terminal window and log in as **root**.
2. Enter the following command at the prompt to launch VMware Player if not already running:

```
vmplayer &
```

3. Select **connector** and click **Play virtual machine**.
4. At the command prompt, log in as **user=hconnect; password=hconnect**. The following information appears:

```
Last login: Thu Mar 10 18:19:01 2011
```

```
Welcome to the Junosphere Connector virtual appliance. To get started, type:
```

5. To connect to your bridge on your virtual topology, issue the following commands:

```
/vmm/bin/hconnect -c <customer name> l-b <bridge to connect to> -s <pod to connect to>
```

For example:

```
[hconnect@localhost ~]$ hconnect -u hconnect -b private0 -s junosphere.net
```

```
Junosphere Connector Version: 1.1194-3
```

```
Checking connection to 10.233.255.254 [ok]
```

```
Starting Junosphere config connecting to 10.233.255.254
```

```
This command does not return. Ctrl-C to terminate the Hybridge connection.
```

```
The stats of the Hybridge connection will be displayed every 10 seconds
```

```
until the connection is terminated
```

```
-----
```

```
date: Mon Apr 11 19:37:50 2011
```

```
-----
```

```
Port 0001: Local Hybridge connection
```

```
Port 0002: Remote Hybridge connection
```

```
Port 0001 untagged_vlan=0000 QnQ,Strict=0000,0 ACTIVE - Unnamed Allocatable
```

```
IN: pkts 27 bytes 2358
```

```
OUT: pkts 20 bytes 1904
```

```
Port 0002 untagged_vlan=0000 QnQ,Strict=0000,0 ACTIVE - Unnamed Allocatable
```

```
IN: pkts 20 bytes 1904
```

```
OUT: pkts 27 bytes 2358
```



**NOTE:** If Junosphere Connector fails to start, check to make sure you successfully joined and started Network Connect. You should see a lock/key icon at the bottom of your screen. Junosphere Connector will fail if it cannot reach the NAT IP ( 10.233.255.254 ). If you successfully join the topology, at the prompt you should be able to successfully ping 10.233.255.254.

At this point, packets from your VDE in your topology will now go to your switch and then to your physical device.

In Junosphere, the Active Topology Connectors tab should resemble [Figure 36 on page 68](#), with the Active column of private0 showing “true”.



**WARNING:** To prevent IP address conflicts between your physical lab and your Junosphere topology, make sure you configure the IP address of your Junosphere VMs before you launch the Junosphere Connector.

**Related  
Documentation**

- [Managing Reservations on page 26](#)
- [Joining an Active Topology on page 45](#)
- [Prerequisites for Using the Junosphere Connector in Windows on page 57](#)
- [Installing the Junosphere Connector on page 57](#)
- [Installing the VMware Player on page 57](#)
- [Establishing the Physical Connection on page 62](#)
- [Launching and Joining a Topology on page 63](#)
- [Running the Junosphere Connector in Windows on page 64](#)

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