



Junos Space

Campus Builder User Guide

Release 1.2

Juniper Networks, Inc.

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Chapter 1

Campus Builder

- Campus Builder Overview on page 1
- Campus Builder Dashboard Overview on page 1

Campus Builder Overview

Campus Builder is an application on the Junos Space Platform that provides an easy and efficient way to configure switches in the access and distribution layers based on Juniper predefined port profiles. It allows you to deploy and maintain an entire enterprise network as easily as you would deploy and maintain a single switch. Campus Builder provides you with one workspace called EZ Campus Design. It also provides you with a shortcut to the Job Management and Devices workspaces.

The EZ Campus Design workspace of Campus Builder provides the following features:

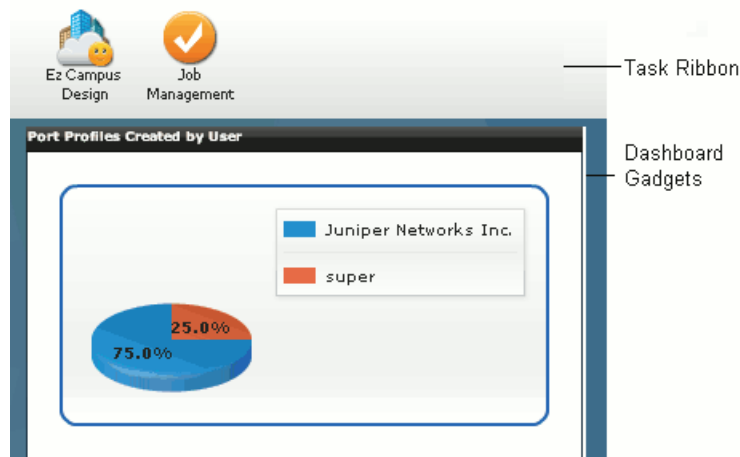
- Management and customization of Juniper-defined port profiles. For more information, see “Port Profile Overview” on page 7.
- Application of port profiles to ports of multiple devices. For more information, see “Port Profile Provisioning Overview” on page 27.

The Campus Builder also provides you with a **Getting Started** section which is a section in the sidebar that displays instructions on how to perform common tasks. For more information about the **Getting Started** assistant, see “Using the Campus Builder Getting Started Assistant” on page 59.

Campus Builder Dashboard Overview

The Campus Builder dashboard provides a single-page snapshot of the current status of your network. The Campus Builder dashboard appears when you click the Campus

Builder application icon from Application Chooser or switch to it from the Application Switcher. The following figure shows an example of the Campus Builder dashboard.



The Campus Builder dashboard displays a graphical representation of the number of Juniper defined port profiles and user defined port profiles according to their creator. You can get to the Campus Builder dashboard by:

- Clicking **Campus Builder** from the **Junos Space** landing page
- Selecting **Campus Builder** from the **Application Switcher** drop down list

The sections that follow describe the parts of the Campus Builder Dashboard.

- Campus Builder Workspaces on page 2
- Campus Builder Dashboard Gadgets on page 3

Campus Builder Workspaces

Along with the link to the EZ Campus Design workspace, Campus Builder also provides you with a shortcut to the Job Management workspace by including them in the Campus Builder task ribbon. Table 1 on page 2 describes the task ribbon icons.

Table 1: Workspace Icons




Icon	Workspace Name	Task
	EZ Campus Design	Configure and maintain the devices in an enterprise network
	Job Management	Monitor the progress of ongoing jobs

Table 1: Workspace Icons *(continued)*

Icon	Workspace Name	Task
	Devices	Manage devices, including adding, discovering, importing, and updating them.

Campus Builder Dashboard Gadgets

The dashboard contains gadgets that display information that is dynamically updated. You can move gadgets on the dashboard and change their sizes. These changes will persist even when you log back into the system. There is only one gadget displayed on the **Campus Builder** dashboard which is a graph displaying the port profiles according to their creators.

Port Profile Created by User

This gadget is a graphical representation of the port profiles based on who created the port profiles. The predefined port profiles were created by **Juniper Networks Inc.**

You can also filter the port profiles that are displayed on the landing page of **Port Profiles** according to their creators. To do so, select the graph element representing the creator whose port profiles you want to view. This opens the **Port Profiles** workspace which will display only the port profiles that were created by the user that you selected.

Related Topics ■ Port Profile Overview on page 7

Chapter 2

EZ Campus Design

- EZ Campus Design Overview on page 5

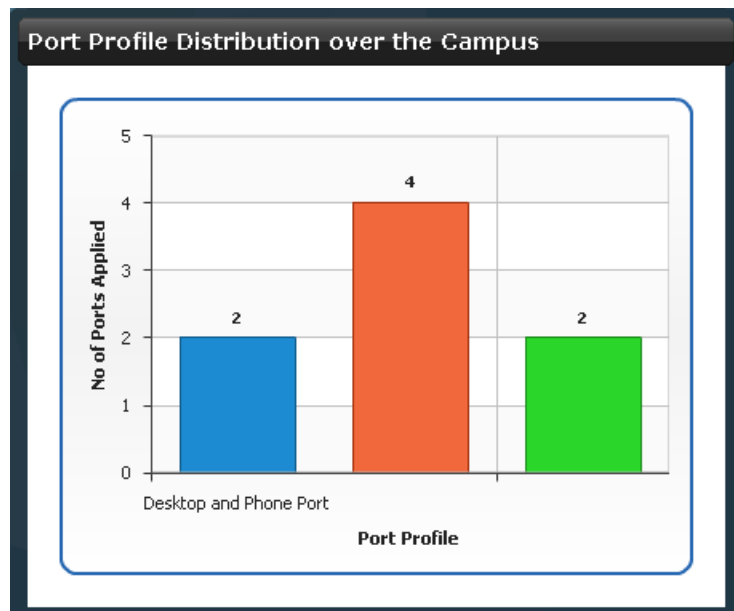
EZ Campus Design Overview

- EZ Campus Design Overview on page 5
- User Roles Required for Campus Builder on page 6

EZ Campus Design Overview

EZ Campus Design is a workspace provided by Campus Builder that helps you deploy and maintain an entire enterprise network as easily as you would deploy and maintain a single switch.

The EZ Campus Design statistical landing page displays a graphical representation of the distribution of port profiles over the network and provides you with the links to EZ Campus Builder tasks. The statistical landing page contains gadgets that display information that is updated automatically and instantaneously. You can move gadgets on the statistical landing page and change their sizes. These changes will persist even when you log back into the system. Currently the only one gadget displayed on the **EZ Campus Design** statistical landing page is a graph displaying the distribution of the port profiles over the network. If none of the port profiles were applied to any device, a link to the **Provision Port Profile** is displayed on the statistical landing page instead of the graph.



You can get to the EZ Campus Design statistical landing page by clicking **EZ Campus Design** from the **Junos Space Campus Builder** landing page.

The EZ Campus Design workspace of Campus Builder provides the following features:

- Customization and management of Juniper-defined port profiles. For more information, see “Port Profile Overview” on page 7.
- Application of port profiles to ports of multiple devices. For more information, see “Port Profile Provisioning Overview” on page 27.

User Roles Required for Campus Builder

In order to access and work in the Junos Space Campus Builder EZ Campus Design workspace, you need to assign the **Network Engineer** role to your user account. However, if you require access to the **Device** workspace, you need to assign the **Device Manager** role in addition to the existing **Network Engineer** role in your account. For more information on how to assign a role to your user account, see [Modifying a User](#).

- Related Topics**
- [Port Profile Overview](#) on page 7
 - [Port Profile Provisioning Overview](#) on page 27

Chapter 3

Port Profile Overview

- Port Profile Overview on page 7

Port Profile Overview

In Junos Space, a port profile is a pre-defined set of configuration parameters that were created based on Juniper-defined best practices, which when configured on to a port, allows it to play a specific role on the network. Port profiles apply a set of commands to the port that defines its role thereby simplifying the configuration job on the port. Junos Space also allows you to customize certain parameters of these port profiles, such as bandwidth, broadcast limit, and so on based on your network requirements. By using the port profile work flow provided in Junos Space, you can simultaneously configure a number of ports with specific network connection roles. You can choose to apply these profiles to one or more ports of one device at a time, or to one or more ports of a group of devices that belong to the same platform.

For example, consider that there are twenty-five EX3200-48T devices in a branch office or headquarters campus network and you want to configure the ports `ge-1/0/0/0` to `ge-1/0/0/7` as desktop and phone ports, and the ports `ge-0/0/8` to `ge-0/0/47` as desktop ports and the ports `xe-0/1/0`, `xe-0/1/1` as switched uplink ports. You can use the provision port profiles feature to select the devices you want to provision to, group them according to model type (which, in this case, is EX3200-48T), select the ports and the port profiles that you want to apply to the selected ports, and then apply that configuration to all the EX3200-48T devices in that network. Thus, by using the port profiles feature, you are able to manage and deploy an entire enterprise network just as easily as you would manage and deploy a single device.

Junos Space provides you with six predefined port profiles which are based on the network components that you want to connect to the switch port. Junos Space also provides you with a workflow where you can customize the CoS settings and Ethernet switching options of these predefined port profiles based on your network requirements. The description of these six port profiles and the settings that are available for customization is provided in Table 2 on page 8.

Table 2: Port Profile Descriptions and Customization Options

Port Profile	Description and Customization Options
Desktop Port	<p>A desktop port enables you to connect a desktop to a switch port. By applying this profile to the port, you are configuring settings such as the VLAN, port security, and RSTP settings.</p> <p>For more information about the CLI commands used in a desktop port profile, see “Desktop Port Profile CLI” on page 49.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ Ethernet Switching Options. <p>For more information on customizing options, see “Creating Customized Port Profiles” on page 13.</p> <p>For more information on customizing a desktop port profile, see “Creating a Customized Desktop Port Profile” on page 16.</p>
Desktop and Phone Port	<p>A desktop and phone port enables you to connect a desktop and phone port to a switch port. By applying this profile to the port, you are configuring settings such as port security, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a desktop and phone port profile, see “Desktop and Phone Port Profile CLI” on page 50.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. ■ Ethernet Switching Options. <p>For more information on customizing options, see “Creating Customized Port Profiles” on page 13.</p> <p>For more information on customizing a desktop and phone port profile, see “Creating a Customized Desktop and Phone Port Profile” on page 17.</p>
Switched Uplink Port	<p>A switched uplink port enables you to connect a switch port on the access layer to a switch port on another access layer switch or to a switch port on the upper (distribution or core) layer. By applying this profile to the port, you are configuring settings such as VLAN, port security, and CoS settings.</p> <p>For more information about the CLI commands used in a switched uplink port profile, see “Switched Uplink Port Profile CLI” on page 52.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. <p>For more information on customizing options, see “Creating Customized Port Profiles” on page 13.</p> <p>For more information on customizing a switched uplink port profile, see “Creating a Customized Switched Uplink Port Profile” on page 18.</p>

Table 2: Port Profile Descriptions and Customization Options *(continued)*

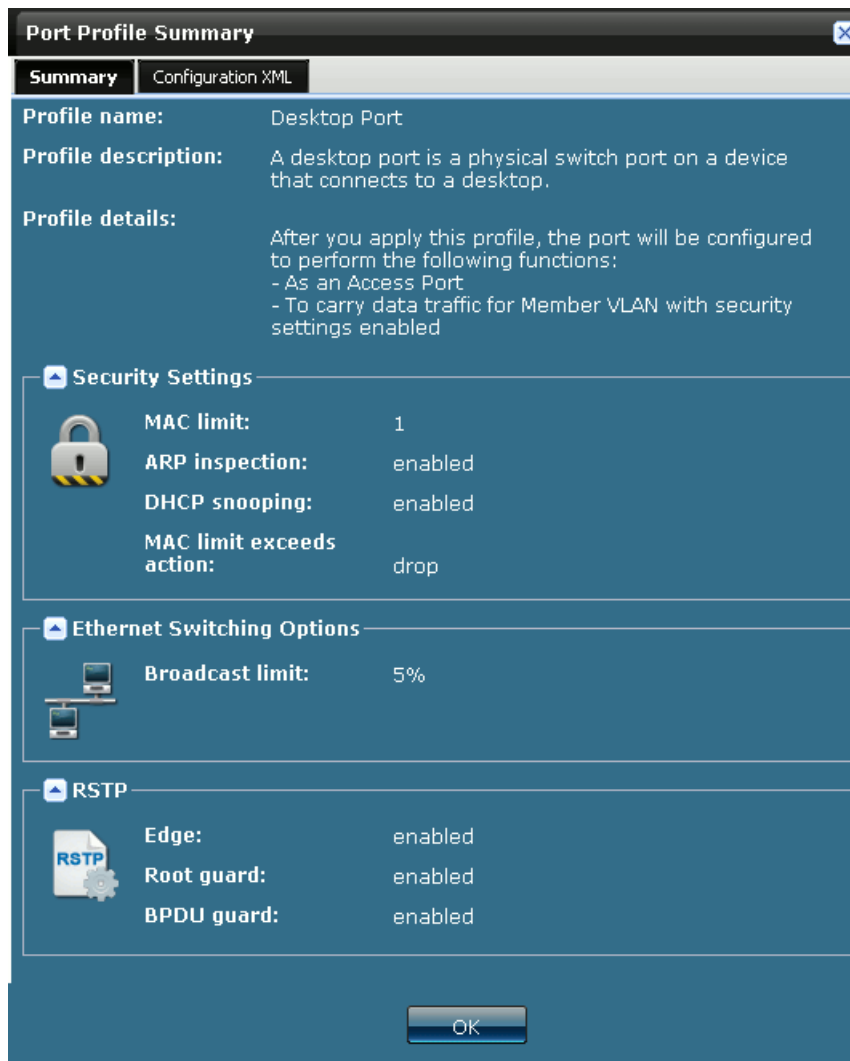
Port Profile	Description and Customization Options
Switched Downlink Port	<p>A switched downlink port enables you to connect desktops and phones in a campus or branch environment, or servers in a data center environment. By applying this profile to the port, you are configuring settings such as VLAN, port security, and CoS settings.</p> <p>For more information about the CLI commands used in a switched downlink port profile, see “Switched Downlink Port Profile CLI” on page 53.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. <p>For more information on customizing options, see “Creating Customized Port Profiles” on page 13.</p> <p>For more information on customizing a switched downlink port profile, see “Creating a Customized Switched Downlink Port Profile” on page 19.</p>
Server Port	<p>A server port is a trunk port that enables users from multiple VLANs to connect to a machine with virtual servers. By applying this profile to the port, you are configuring settings such as VLAN, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a server port profile, see “Server Port Profile CLI” on page 55.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. ■ Ethernet Switching Options. <p>For more information on customizing options, see “Creating Customized Port Profiles” on page 13.</p> <p>For more information on customizing a server port profile, see “Creating a Customized Server Port Profile” on page 20.</p>
Wireless Access Point Port	<p>A wireless access point port enables you to connect a wireless access point, which is a device that allows wireless communication devices to connect to a wireless network using Wi-Fi, Bluetooth or related standards, to a switch port. By applying this profile to the port, you are configuring settings such as VLAN, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a wireless access point port profile, see “Wireless Access Point Port Profile CLI” on page 57.</p> <p>NOTE: Junos Space does not allow you to customize a wireless access point port profile.</p>

The landing page of the **Port Profile** workflow is the **Port Profiles** page which displays all the Juniper defined and user defined port profiles. You can choose to view them in either the tabular view or image view. When viewing in tabular form, the port profiles that have either as **S** overlay icon at the bottom right corner of the icon or a **C** overlay icon. An **S** overlay icon means that the indicated port profile is one of the six system defined port profiles. **AC** overlay icon means that the indicated port profile was created by a user i.e. user-defined or customized. The table displays the names

of all the port profiles along with their creator's name and a description of the port profile.



From this page you can modify and delete existing port profiles. You can also use this page to navigate to the **View Port Associations** page which displays the devices that are associated with the selected port profile, and the VLANs that are associated with the ports on those devices. If you want to view details of the port profile, double click the port profile. This opens the **Port Profile Summary** dialog box which displays the various settings of that port profile. An example of a desktop port profile summary is as follows.



Using these Juniper predefined port profiles, you can perform one or more of the following actions:

- Customize port profiles. For more information, see “Creating Customized Port Profiles” on page 13.
- Modify customized port profiles. For more information, see “Modifying Customized Port Profiles” on page 24.
- Delete customized port profiles. For more information, see “Deleting a Customized Port Profile” on page 24.
- View port associations. For more information, see “Viewing Port Associations” on page 23.



NOTE: You can only modify or delete customized port profiles. These actions are not enabled for predefined port profiles.

- Related Topics**
- Creating Customized Port Profiles on page 13
 - Viewing Port Associations on page 23
 - Modifying Customized Port Profiles on page 24
 - Deleting a Customized Port Profile on page 24

Chapter 4

Customizing Port Profiles

- Creating Customized Port Profiles on page 13
- Creating a Customized Desktop Port Profile on page 16
- Creating a Customized Desktop and Phone Port Profile on page 17
- Creating a Customized Switched Uplink Port Profile on page 18
- Creating a Customized Switched Downlink Port Profile on page 19
- Creating a Customized Server Port Profile on page 20

Creating Customized Port Profiles

While you cannot modify predefined port profiles, Junos Space does allow you to create new port profiles that are similar to the predefined profiles but with a few parameters that you can customize. These profiles will retain the values of the original port profile until you change it. To customize a port profile, you need to configure one or more of the following settings:

- General Settings on page 13
- CoS Settings on page 14
- Ethernet Switching Options on page 15

General Settings

Configuring general settings for a customized port profiles, as shown in the figure, includes setting parameters such as a name and description for the profile, and selecting the port profile that you want to customize. Junos Space automatically generates a profile name for the new customized profile. For example, DesktopPort_1.

Create Port Profile: General Settings

Profile name:

Profile type:

- Desktop Port
- Desktop and Phone Port
- Switched Uplink
- Switched Downlink
- Server Port

Profile description:

Profile details: Please select a profile type to view details.

Back Next Create Cancel

CoS Settings

The Scheduler Map Configuration block specifies the buffer size, bandwidth, and priority for a queue. By defining schedulers, you can configure the properties of output queues that determine the transmission service level for each queue. These properties include the amount of interface bandwidth assigned to the queue, the size of the memory buffer allocated for storing packets, and the priority of the queue. After defining schedulers you associate them with forwarding classes by means of scheduler maps. By default, the schedulers values are already set.

Forwarding classes allow you to group packets for transmission. You then associate each scheduler map with an interface, and configure the hardware queues and packet schedulers that operate according to this mapping.

When applying or provisioning a port role to an interface, you must map the forwarding classes and schedulers using the scheduler map. The following figure shows the CoS settings that you can set while customizing a port profile.

Create Port Profile: CoS Settings

Scheduler Map Configuration

	High Priority	Bandwidth reserved(%)	Buffer size(%)
Voice	<input checked="" type="checkbox"/>	<input type="text" value="0"/> (0)	<input type="text" value="5"/> (5)
Expedited forwarding	<input type="checkbox"/>	<input type="text" value="30"/> (30)	<input type="text" value="30"/> (30)
Assured forwarding	<input type="checkbox"/>	<input type="text" value="25"/> (25)	<input type="text" value="25"/> (25)
Best effort forwarding	<input type="checkbox"/>	<input type="text" value="35"/> (35)	<input type="text" value="40"/> (40)
		Total (90)	Total (100)

Note: The cumulative bandwidth or buffer allocation must be 100% or less. Reduce the allocation of one of the bandwidth or buffer categories in order to increase the allocation of another.

- voice
- expedited-forwarding
- assured-forwarding
- best-effort

Bandwidth allocation

Buffer size allocation

Back Next Create Cancel

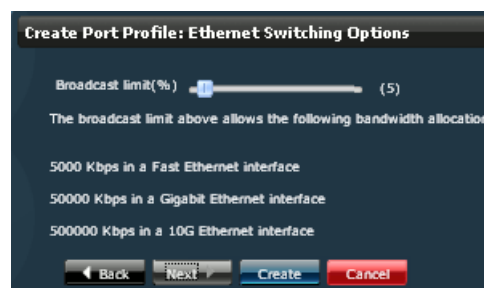
The schedulers and their settings are:

- Voice— Gets low-latency, strict priority treatment through the fabric and where the packet was sent. Transmission rate is set to 10 percent and buffer size to 5 percent.
- Expedited forwarding— Delivers assured bandwidth, low loss, low delay, and low delay variation (jitter) end-to-end for packets in this service class. Software accepts excess traffic in this class, but in contrast to assured forwarding class, out-of-profile expedited-forwarding class packets can be forwarded out of sequence or dropped. For an expedited scheduler, the transmission rate is set to 30 percent, the buffer size to 30 percent, and priority is set to low.
- Assured forwarding— Offers a high level of assurance that the packets are delivered as long as the packet flow from the customer stays within a certain service profile that you define. The software accepts excess traffic, but applies a tail drop profile to determine if the excess packets are dropped and not forwarded. Up to two drop probabilities (low and high) are defined for this service class. For assured scheduler, the transmission rate is set to 25 percent, the buffer size to 25 percent, and priority is set to low.
- Best effort forwarding— Is a backward compatibility feature. These packets are usually dropped under congested network conditions. For a best effort scheduler, the transmission-rate is set to 35 percent, the buffer size to 40 percent, and priority is set to low.

These are the settings for the Juniper predefined port profiles. While customizing, you can optimize your communication with the network by changing the transmission rate and buffer size. You must ensure that the cumulative bandwidth and buffer percentages is always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

Ethernet Switching Options

You can use the Ethernet Switching Options page to set the broadcast limit for network traffic. The broadcast limit is the theoretical maximum of network bandwidth in percent that can be used for broadcast and multicast traffic. Any broadcast or multicast traffic exceeding that limit will be dropped. A zero value (0) indicates that the feature is disabled.



- Related Topics**
- Port Profile Overview on page 7
 - Creating a Customized Desktop Port Profile on page 16

- Creating a Customized Desktop and Phone Port Profile on page 17
- Creating a Customized Switched Uplink Port Profile on page 18
- Creating a Customized Switched Downlink Port Profile on page 19
- Creating a Customized Server Port Profile on page 20

Creating a Customized Desktop Port Profile

A desktop port enables you to connect a desktop to a switch port.

To create a customized desktop port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select **Desktop Port** from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. Click **Next** to open the **Ethernet Switching Options** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
6. From the **Ethernet Switching Options** dialog box, use the **Broadcast limit** horizontal slider to vary the maximum network bandwidth that can be used for broadcast and multicast traffic. For example, a broadcast limit of 5 percent indicates that the bandwidth allocated is 5,000 Kbps in a Fast Ethernet interface, 5,0000 Kbps in a Gigabit Ethernet interface, and 5,00000 Kbps in a 10 Gigabit Ethernet interface.
7. Click **Back** to go to the previous step of the **Customize Desktop Port Profile** wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

Related Topics

- Desktop Port Profile CLI on page 49
- Creating a Customized Desktop and Phone Port Profile on page 17
- Creating a Customized Switched Uplink Port Profile on page 18
- Creating a Customized Switched Downlink Port Profile on page 19
- Creating a Customized Server Port Profile on page 20

Creating a Customized Desktop and Phone Port Profile

A desktop and phone port enables you to connect a desktop and phone port to a switch port.

To create a customized desktop and phone port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select **Desktop and Phone Port** from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. Click **Next** to open the **CoS Settings - Scheduler Map Configuration** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
6. From the **CoS Settings - Scheduler Map Configuration** dialog box, use the horizontal slider to vary the bandwidth and buffer size for each scheduler category. You can also select the **High Priority** checkbox for each category. This causes delay-sensitive traffic, such as voice traffic, to be de-queued and forwarded with minimum delay.



NOTE: The cumulative bandwidth and buffer percentages for scheduler categories must always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

7. Click **Back** to go to the previous step of the **Customize Desktop and Phone Port Profile** wizard. Click **Next** to open the **Ethernet Switching Options** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
8. From the **Ethernet Switching Options** dialog box, use the **Broadcast limit** horizontal slider to vary the maximum network bandwidth that can be used for broadcast and multicast traffic. For example, a broadcast limit of 5 percent indicates that the bandwidth allocated is 5,000 Kbps in a Fast Ethernet interface, 5,0000 Kbps in a Gigabit Ethernet interface, and 5,00000 Kbps in a 10 Gigabit Ethernet interface.
9. Click **Back** to go to the previous step of the **Customize Desktop and Phone Port Profile** wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

- Related Topics**
- Desktop and Phone Port Profile CLI on page 50
 - Creating a Customized Desktop Port Profile on page 16
 - Creating a Customized Switched Uplink Port Profile on page 18
 - Creating a Customized Switched Downlink Port Profile on page 19
 - Creating a Customized Server Port Profile on page 20

Creating a Customized Switched Uplink Port Profile

A switched uplink port enables you to connect a switch port on the access layer to a switch port on another access layer switch or switch port on the upper (distribution or core) layer.

To create a customized switched uplink port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select **Switched Uplink Port** from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. Click **Next** to open the **CoS Settings - Scheduler Map Configuration** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
6. From the **CoS Settings - Scheduler Map Configuration** dialog box, use the horizontal slider to vary the bandwidth and buffer size for each scheduler category. You can also select the **High Priority** checkbox for each category. This causes delay-sensitive traffic, such as voice traffic, to be de-queued and forwarded with minimum delay.



NOTE: The cumulative bandwidth and buffer percentages for scheduler categories must always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

7. Click **Back** to go to the previous step of the **Customize Switched Uplink Port Profile** wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

- Related Topics**
- Switched Uplink Port Profile CLI on page 52
 - Creating a Customized Desktop Port Profile on page 16
 - Creating a Customized Desktop and Phone Port Profile on page 17
 - Creating a Customized Switched Downlink Port Profile on page 19
 - Creating a Customized Server Port Profile on page 20

Creating a Customized Switched Downlink Port Profile

A switched downlink port enables you to connect desktops and phones in a campus or branch environment, or servers in a data center environment.

To create a customized switched downlink port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select **Switched Downlink Port** from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. Click **Next** to open the **CoS Settings - Scheduler Map Configuration** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
6. From the **CoS Settings - Scheduler Map Configuration** dialog box, use the horizontal slider to vary the bandwidth and buffer size for each scheduler category. You can also select the **High Priority** checkbox for each category. This causes delay-sensitive traffic, such as voice traffic, to be de-queued and forwarded with minimum delay.



NOTE: The cumulative bandwidth and buffer percentages for scheduler categories must always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

7. Click **Back** to go to the previous step of the **Customize Switched Downlink Port Profile** wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

- Related Topics**
- Switched Downlink Port Profile CLI on page 53
 - Creating a Customized Desktop Port Profile on page 16
 - Creating a Customized Desktop and Phone Port Profile on page 17
 - Creating a Customized Switched Uplink Port Profile on page 18
 - Creating a Customized Server Port Profile on page 20

Creating a Customized Server Port Profile

A server port is a trunk port that enables users from multiple VLANs to connect to a machine with virtual servers.

To create a customized server port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select **Server Port** from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile, such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. Click **Next** to open the **CoS Settings - Scheduler Map Configuration** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.
6. From the **CoS Settings - Scheduler Map Configuration** dialog box, select the **Enable** checkbox to be able to customize the CoS parameters. To disable this customization option, deselect the **Enable** checkbox. None of the CoS parameters will be available for customization. After you have enabled CoS settings customization, use the horizontal slider to vary the bandwidth and buffer size for each scheduler category. You can also select the **High Priority** checkbox for each category. This causes delay-sensitive traffic, such as voice traffic, to be de-queued and forwarded with minimum delay.



NOTE: The cumulative bandwidth and buffer percentages for scheduler categories must always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

7. Click **Next** to open the **Ethernet Switching Options** dialog box. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

8. From the **Ethernet Switching Options** dialog box, use the **Broadcast limit** horizontal slider to vary the maximum network bandwidth that can be used for broadcast and multicast traffic. For example, a broadcast limit of 5 percent indicates that the bandwidth allocated is 5,000 Kbps in a Fast Ethernet interface, 5,0000 Kbps in a Gigabit Ethernet interface, and 5,00000 Kbps in a 10-Gigabit Ethernet interface.
9. Click **Back** to go to the previous step of the **Customize Server Port Profile** wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

Related Topics

- Server Port Profile CLI on page 55
- Creating a Customized Desktop Port Profile on page 16
- Creating a Customized Desktop and Phone Port Profile on page 17
- Creating a Customized Switched Uplink Port Profile on page 18
- Creating a Customized Switched Downlink Port Profile on page 19

Chapter 5

Managing Port Profiles

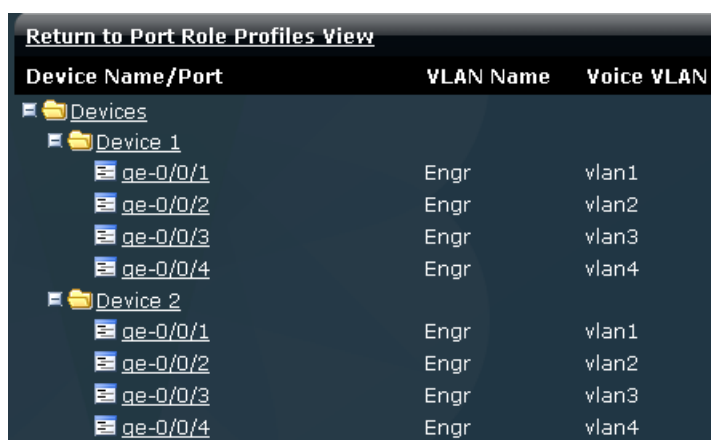
- Viewing Port Associations on page 23
- Modifying Customized Port Profiles on page 24
- Deleting a Customized Port Profile on page 24

Viewing Port Associations

Junos Space provides you with an interface where you can view the devices that were associated with a port profile and the VLANs that are associated with the ports of those devices.

To view port associations, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile**. The **Port Profile** page appears.
2. Select a port profile and click **View Port Associations**. The **Port Associations** page appears, as in the following figure, displaying the devices that were associated with the selected port profile and the VLANs that are associated to the port of these devices. All existing port associations are lost when you modify or delete a customized port profile.



The screenshot shows the 'Port Associations' page in Junos Space. At the top, there is a link 'Return to Port Role Profiles View'. Below it is a table with three columns: 'Device Name/Port', 'VLAN Name', and 'Voice VLAN'. The table is organized into a tree structure under 'Devices'. There are two main entries: 'Device 1' and 'Device 2'. Each device has four associated ports (ge-0/0/1 through ge-0/0/4). Each port is associated with a specific VLAN (vlan1 through vlan4) and has a 'Voice VLAN' assigned (vlan1 through vlan4). The 'VLAN Name' column shows 'Engr' for all entries, and the 'Voice VLAN' column shows 'vlan1' through 'vlan4' for the respective ports.

Device Name/Port	VLAN Name	Voice VLAN
Devices		
Device 1		
ge-0/0/1	Engr	vlan1
ge-0/0/2	Engr	vlan2
ge-0/0/3	Engr	vlan3
ge-0/0/4	Engr	vlan4
Device 2		
ge-0/0/1	Engr	vlan1
ge-0/0/2	Engr	vlan2
ge-0/0/3	Engr	vlan3
ge-0/0/4	Engr	vlan4

- Related Topics**
- Port Profile Overview on page 7
 - Creating Customized Port Profiles on page 13

- Modifying Customized Port Profiles on page 24
- Deleting a Customized Port Profile on page 24

Modifying Customized Port Profiles

You can use Junos Space Campus Builder to modify a customized port profile. This option is only available for customized port profiles. You cannot modify a predefined port profile.

To modify a customized port profile follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile**. Select the customized port profile that you want to modify and click **Modify Profile**. The **General Settings** dialog box of the **Modify Profile** wizard appears.
2. Enter the desired values of the port profile in the appropriate fields. For more information on modifying customized port profiles, see “Creating Customized Port Profiles” on page 13. All existing port associations are lost when you modify a customized port profile.

- Related Topics**
- Port Profile Overview on page 7
 - Creating Customized Port Profiles on page 13
 - Deleting a Customized Port Profile on page 24
 - Viewing Port Associations on page 23

Deleting a Customized Port Profile

You can use JUNOS Space Campus Builder to delete a customized port profile from the Junos Space database. This option is only available for customized port profiles. You cannot delete a predefined port profile.

To delete a customized port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile**. Select the customized port profile(s) that you want to delete and click **Delete Profile**. The **Confirm Delete Port Profiles** dialog appears displaying the profiles that you have selected for deletion.
2. Click **Delete** to delete the selected port profile(s) and remove it from the list. All existing port associations are lost when you delete a customized port profile.

- Related Topics**
- Port Profile Overview on page 7
 - Creating Customized Port Profiles on page 13

- Modifying Customized Port Profiles on page 24
- Viewing Port Associations on page 23

Chapter 6

Port Profile Provisioning Overview

- Port Profile Provisioning Overview on page 27

Port Profile Provisioning Overview

In Junos Space, a port profile is a collection of predefined configuration parameters that can be applied to a port. When you select a port profile and apply it to a port on a device, Junos Space invokes CLI commands to modify the port configuration to the configuration specified in the applied port profile. Once the profile has been applied or provisioned to the port, that port will be able to perform according to the role that was defined in the applied profile.

Junos Space provides a user interface where you can select the port profile and the devices to which you want to provision these profiles. Junos Space devices are displayed on the **Provision Port Profile** page. You can choose to display the devices either as a table arranged according to device name, OS version, platform, IP address, connection status, and managed status, or as icons, as shown in the following figure.



NOTE: Port profiles can only be provisioned to EX platform access devices. This feature is only supported for JUNOS Release 9.6 and later. The supported device platforms are:

- EX3200-24T
- EX3200-24P
- EX3200-48T
- EX3200-48P
- EX4200-24T
- EX4200-24P
- EX4200-24F
- EX4200-48T
- EX4200-48P
- EX2200-24P
- EX2200-48T
- EX2200-48P
- EX2200-24T
- EX 4200 - Virtual Chassis

Currently, port profile provisioning is not available for link aggregation ports.

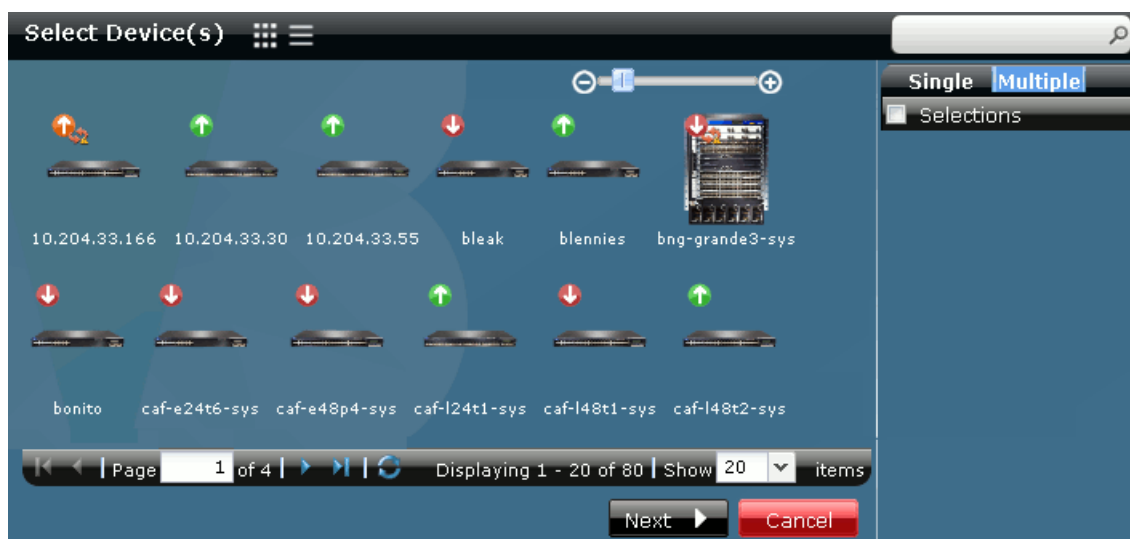


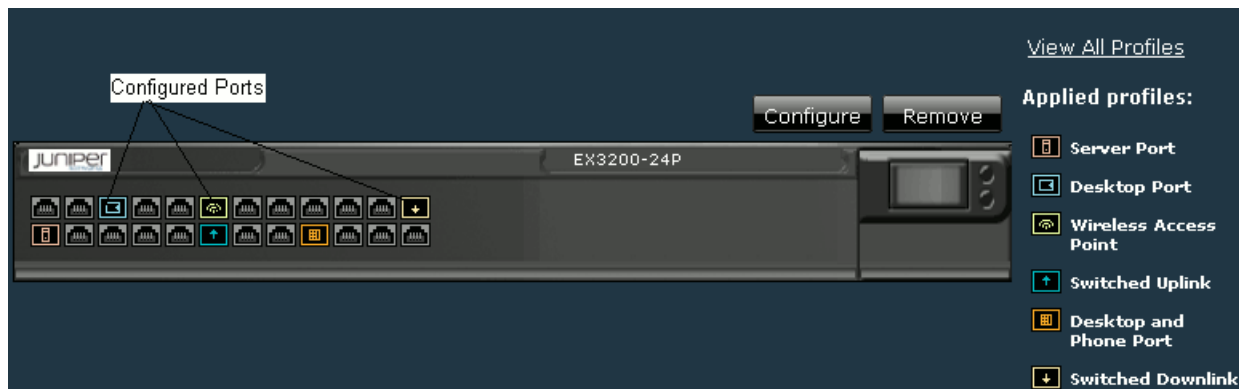
Table 3: Port Profile Column Descriptions

Column Name	Description
Device Name	Displays the host name configured by the user.
OS Version	Displays the version of the Junos operating system that is running on the device.
Platform	Displays the model number of the device. For example. EX 3200-24p
IP Address	Displays the management IP address of the device.
Connection Status	<p>Displays the connection of the device in Junos Space. The possible options and their definitions are:</p> <ul style="list-style-type: none"> ■ Up— The device is connected to Junos Space. When the connection status is Up, the Managed status can be either Out of Sync, Synchronizing, In Sync, or Sync Failed. ■ Down— The device is not connected to the Junos Space platform or that an event has occurred, either due to administrative intervention or automatically by the flow of a type of traffic, which disconnected the device. When Connection status is down, the managed status can be either None or Connecting.
Managed Status	<p>Displays the status of the devices that are managed in Junos Space. The possible options and their definitions are:</p> <ul style="list-style-type: none"> ■ Connecting— Junos Space has sent a connection remote procedure call (RPC) and is waiting for the first connection from the device. ■ In Sync— Junos Space and the device are synchronized. ■ None— Although the device was discovered, Junos Space had not sent the connection RPC yet. ■ Out of Sync— Although the device has connected to Junos Space, the sync operation was not initiated. ■ Synchronizing— The sync operation has started either because of device discovery, a manual re-sync operation, or an automatic re-sync operation. ■ Sync Failed - This means that the sync operation has failed.



NOTE: You cannot provision to a device whose Managed Status is **Sync Failed**.

The Junos Space user interface also provides you with a facility to display the ports graphically, as shown in the following figure. This chassis view is a high-level, graphical view of the selected device to which you want to apply the port profile. The chassis view shows the dynamic display of all the profiles that have been applied to the ports of that device. Ports that have been configured with port profiles are displayed in different colors. You can use this representation to select the port(s) to which you want to apply a port profile.



The devices whose ports are to be provisioned to, are displayed on the left side of the screen. By default, Junos Space displays the graphical representation that is the chassis view for the first device on the device list.

You can choose to view these devices individually or grouped according to model number. The **Group** option helps you apply port profiles to any number of devices belongs to the same platform (for example, EX3200), by simply configuring a single chassis model.

For example, if you want to configure all the EX3200-48T devices in a large branch office or headquarter campus network with certain specified port profiles, you can click the **Group** button, select **EX3200-48T** from the Device list on the left side of the screen, and follow the steps given in “Applying Port Profiles to a Port” on page 31. When you click **Provision**, all the EX3200-48T devices in that campus network are configured according to the port profiles you had selected.



NOTE: Any configuration that you make at the group level overrides the existing device level configurations. Similarly, any configuration that you make at the device level overrides the existing group level configurations.

- Related Topics**
- Applying Port Profiles to a Port on page 31
 - Port Profile Overview on page 7

Chapter 7

Provisioning a Port Profile

- Applying Port Profiles to a Port on page 31
- Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
- Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
- Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
- Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
- Specifying Parameters for Applying a Server Port Profile to a Port on page 43
- Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Applying Port Profiles to a Port

When you select a port profile and apply it to a port on a device, Junos Space modifies the configuration of that port according to the port profile that was applied to it. Once the profile has been applied or provisioned to the port, that port will be able to perform according to the role that was defined in the applied profile.

To provision a desktop port profile to a device port, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Provision Port Profile**. The **Provision Port Profile** page appears displaying all the available devices arranged according to device name, OS version, platform, device IP address, connection status, and managed status, as shown in the following figure.

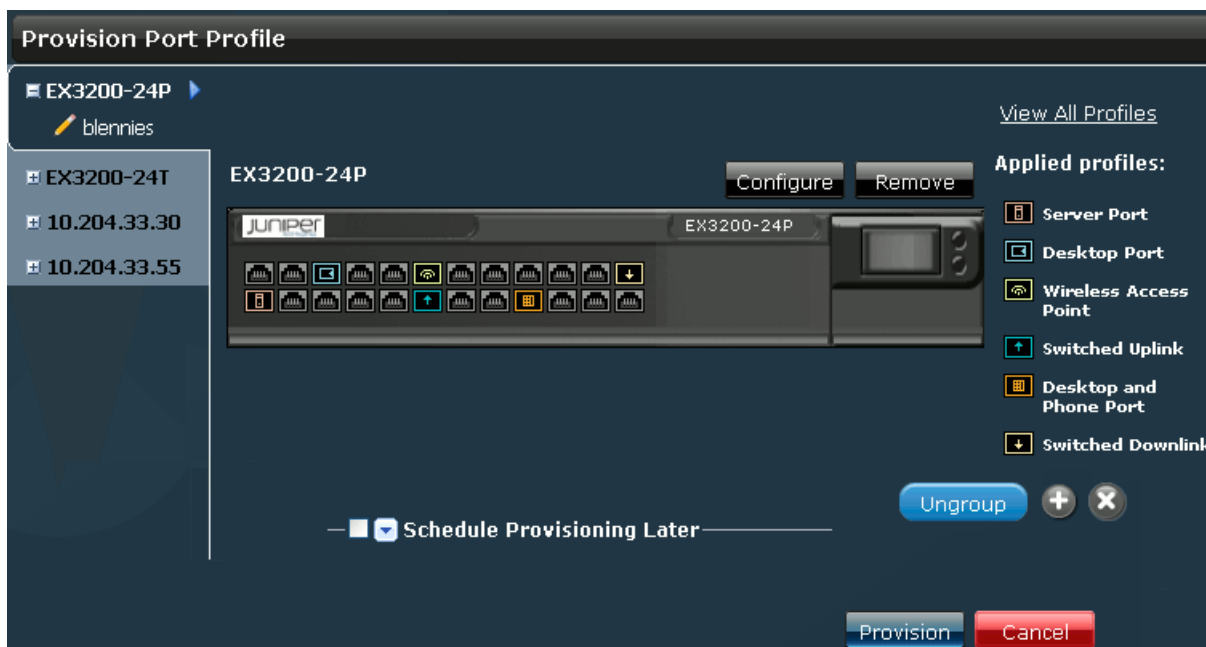
Name	OS Version	Platform	IP Address	Connection Status	Managed Status
10.204.33.30	10.0R1.2	EX4200-24T	10.204.33.30	up	In Sync
10.205.2.1	10.0R2.10	EX2200-48T-4G	10.205.2.1	up	Out Of Sync
10.205.2.10	10.0R2.10	EX2200-48T-4G	10.205.2.10	up	Out Of Sync
10.205.2.100	10.0R2.10	EX3200-24T	10.205.2.100	up	In Sync
10.205.2.102	10.0R2.10	EX3200-24T	10.205.2.102	up	In Sync
10.205.2.113	10.0R2.10	EX3200-24T	10.205.2.113	up	In Sync
10.205.2.114	10.0R2.10	EX3200-24T	10.205.2.114	up	In Sync
10.205.2.115	10.0R2.10	EX3200-24T	10.205.2.115	up	In Sync
10.205.2.116	10.0R2.10	EX3200-24T	10.205.2.116	up	In Sync
10.205.2.117	10.0R2.10	EX3200-24T	10.205.2.117	up	In Sync
10.205.2.118	10.0R2.10	EX3200-24T	10.205.2.118	up	In Sync
10.205.2.119	10.0R2.10	EX3200-24T	10.205.2.119	up	In Sync

2. Select the device(s) to which you want to provision a port profile, and click **Provision Port Profile**. To select only one device, click **Single**, select the device that you want to provision the profile to, and click **Provision Port Profile**. The **Provision Port Profile** dialog box appears as shown in the following figure.

3. In addition to selecting multiple devices from the device list on the **Provision Port Profile** main page, you can also add devices to the **Selected Devices** list by clicking **+**. The **Add Devices to the Selected List** dialog box appears. Select the device(s) from the **Add Devices to the Selected List**. These device(s) appear in the **Selected Devices** panel. The maximum number of devices that you can select for provisioning is 50.

If you want to delete a device from the **Selected Devices** panel, select the device that you want to delete, and click **x** to remove the device from the list.

You can also choose to group the devices by their model number. To group devices according to their model number, click **Group**. As shown in the following figure, the **Group** option allows you to apply port profiles to any number of devices that belong to the same platform (for example, EX3200), by configuring a single chassis model.



NOTE: The facility to add more devices to the **Selected Devices** list in the current workflow is disabled when you select the **Group** option.

Any configuration that you make at the group level overrides the existing device level configurations.

4. Select the device whose ports you want to configure from the device list on the left pane. A graphical representation of the device and its ports appears on the right side of the window.
5. Select the port to which you want to provision the port profile and click **Configure**. The **Port Configuration Parameters** dialog box opens.

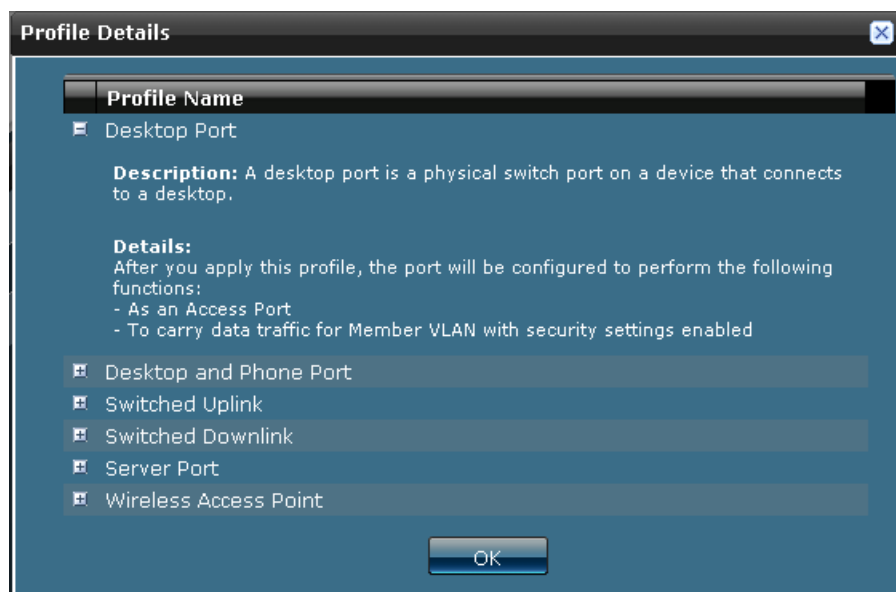
If you want to simultaneously provision a port profile to a group of ports on the device, click and drag the cursor over the selected ports and click **Configure**. The **Port Configuration Parameters** dialog box opens.

6. From the **Profile** drop down list, select the port profile that you want to apply to the selected port. The parameters vary depending on the profile that you have selected. The available options are:

- Desktop port. For more information, see “Specifying Parameters for Applying a Desktop Port Profile to a Port” on page 35.
 - Desktop and Phone port. For more information, see “Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port” on page 37.
 - Switched Uplink port. For more information, see “Specifying Parameters for Applying a Switched Uplink Port Profile to a Port” on page 39.
 - Switched Downlink port. For more information, see “Specifying Parameters for Applying a Switched Downlink Port Profile to a Port” on page 41.
 - Server port. For more information, see “Specifying Parameters for Applying a Server Port Profile to a Port” on page 43.
 - Wireless Access Point port. For more information, see “Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port” on page 45.
7. After you have selected the parameters, click **OK**. The provisioned port is now displayed in a different color.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

8. If you want schedule the profile provision to a later date and time, select the **Schedule Provisioning Later** checkbox and select the date from the pop out calendar and the time from the drop down list.
9. Click **Provision** to apply the selected profile to the selected ports. If you have selected the **Schedule Provisioning Later** checkbox, the profile will be provisioned to the ports at the time you specified.



NOTE: If there is a conflict between the applied profile and the parameters of the port to which you are applying the profile, a dialog box containing a conflict message is displayed when you click **Provision**. This dialog box will display a list of all the devices and the conflicts. You can choose to override the existing configuration and apply the profile to the port, or cancel the provisioning job and keep the existing configuration. When you apply a port profile to a port, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

When you apply a port profile to a device, the CLI commands in the port profile are bundled together and applied to the device ports as a config-group. While checking for conflicts, Junos Space compares the applied port profile configuration with the existing configuration running on the device. If there are any user-defined config-groups applied at the device or interface level, Junos Space will not consider these CLI commands while computing port profile conflicts. For more information on the CLI commands used in port profiles, see Port Profile CLI Reference.

Click **Cancel** to go back to the EZ Campus Design workspace.

- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Desktop Port Profile to a Port

By provisioning a desktop port profile to a port on the device, you are configuring settings such as the VLAN, port security, and RSTP settings on the port so that you can connect a desktop to a switch port.

To specify parameters in order to apply a desktop port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Desktop Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.

Port Configuration Parameters

Profile: Desktop Port

Note: Applying port-profiles on the selected port(s) will remove its existing configuration.

Parameters

Member VLAN: vlan2

OK Cancel

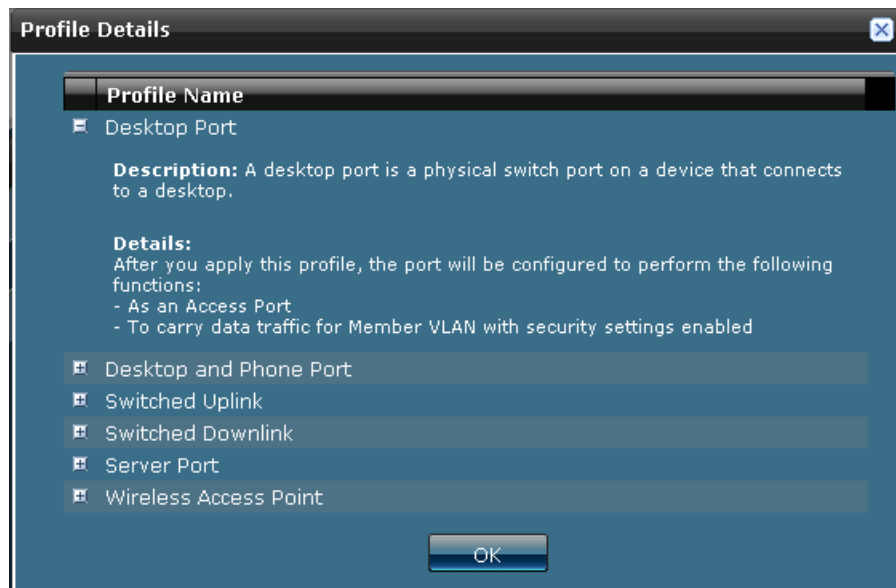
2. Select the VLAN for data traffic that you want to associate with the port from the **Member VLAN** drop down list.
3. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port

By provisioning a desktop port profile to a port on the device, you are configuring settings such as the port security, RSTP, and CoS settings on the port so that you can connect a desktop and phone port to a switch port.

To specify parameters in order to apply a desktop and phone port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Desktop and Phone Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.

Port Configuration Parameters

Profile: Desktop and Phone Port

Note: Applying port-profiles on the selected port(s) will remove its existing configuration.

Parameters

Member VLAN: default

Voice VLAN: vlan2

OK Cancel

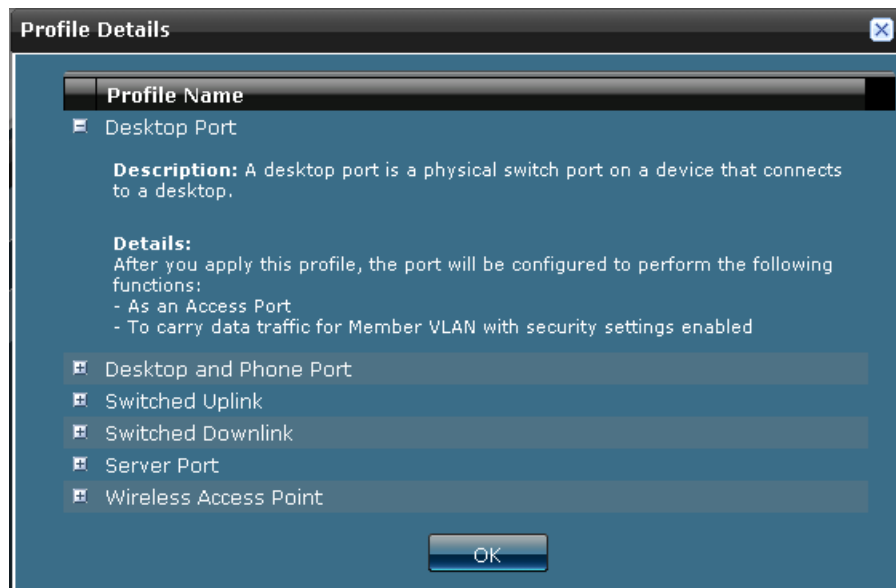
2. Select the VLAN for data traffic and the VoIP VLAN that you want to associate with the port from the **Member VLAN** and **Voice VLAN** drop down lists respectively.
3. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

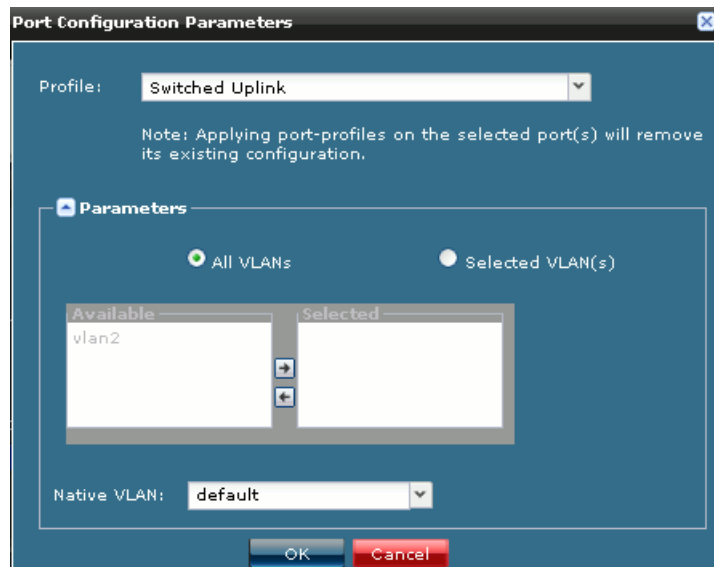
- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Switched Uplink Port Profile to a Port

By provisioning a switched uplink port profile to a port on the device, you are configuring settings such as the VLAN, port security, and CoS settings on the port so that you can connect an access switch to an aggregation or a core switch.

To specify parameters in order to apply a switched uplink port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Switched Uplink Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.



2. Select the VLANs that you want to associate with the port. You can choose to associate multiple VLANs with the port.
 - To associate all the available VLANs with the port, select the **All VLANs** option button.
 - To associate selected VLANs with the ports, select the **Selected VLAN(s)** option button, select the VLANs from the **Available** column and click the right arrow button to add it to the **Selected** column. Hold down the **Shift** key and click to select multiple VLANs from the **Available** column.

To remove VLANs from the **Selected** column, select the VLAN and click the left arrow button. Hold down the **Shift** key and click to select multiple VLANs from the **Selected** column.

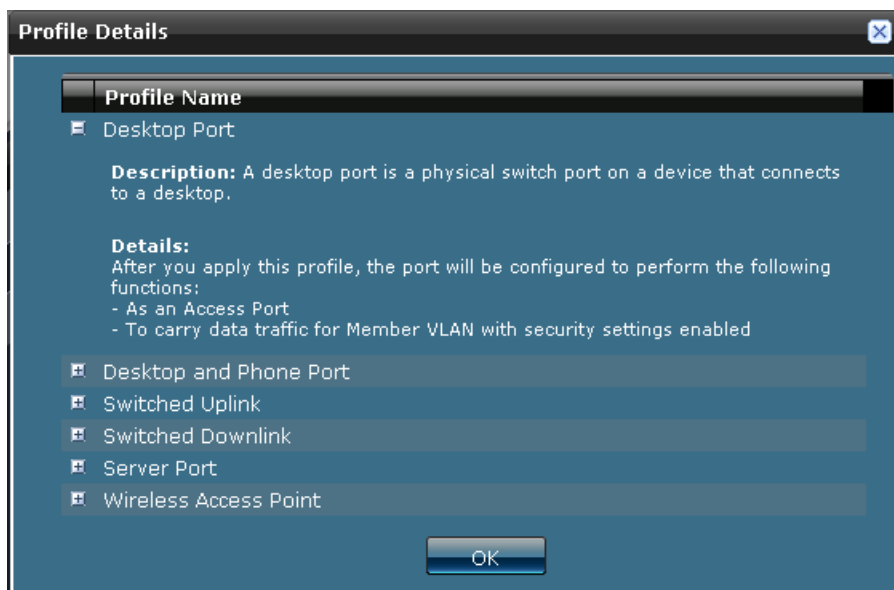
3. Select the native VLAN that you want to associate with the port from the **Native VLAN** drop down list.
4. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

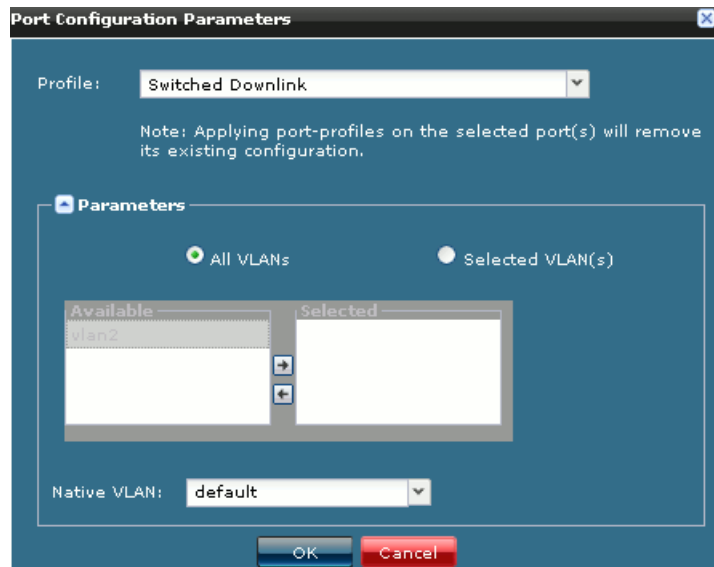
- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Switched Downlink Port Profile to a Port

By provisioning a switched downlink port profile to a port on the device, you are configuring settings such as the VLAN, port security, and CoS settings on the port so that you can connect desktops and phones in a campus or branch environment, or servers in a data center environment.

To specify parameters in order to apply a switched downlink port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Switched Downlink Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.



2. Select the VLANs that you want to associate with the port. You can choose to associate multiple VLANs with the port.
 - To associate all the available VLANs with the port, select the **All VLANs** option button.
 - To associate selected VLANs with the ports, select the **Selected VLAN(s)** option button, select the VLANs from the **Available** column and click the right arrow button to add it to the **Selected** column. Hold down the **Shift** key and click to select multiple VLANs from the **Available** column.

To remove VLANs from the **Selected** column, select the VLAN and click the left arrow button. Hold down the **Shift** key and click to select multiple VLANs from the **Selected** column.

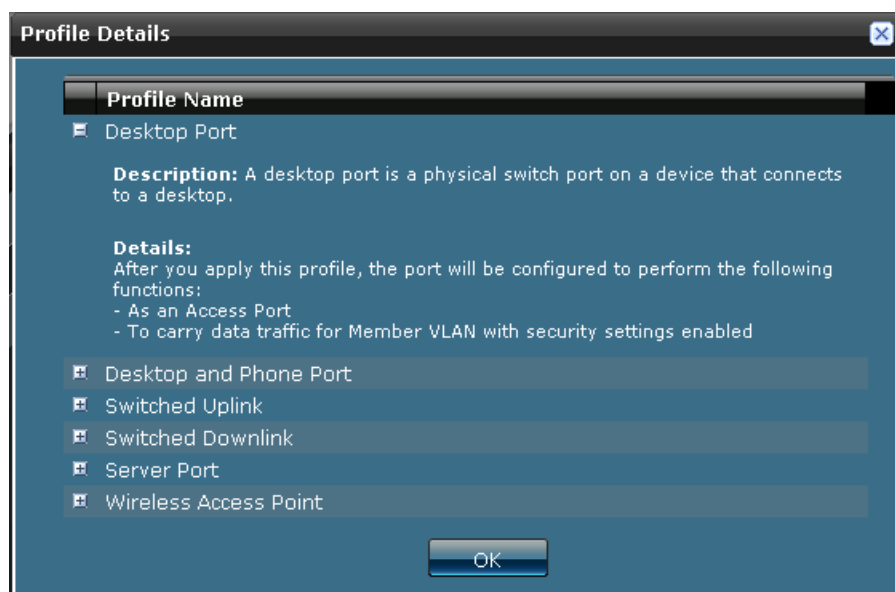
3. Select the native VLAN that you want to associate with the port from the **Native VLAN** drop down list.
4. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

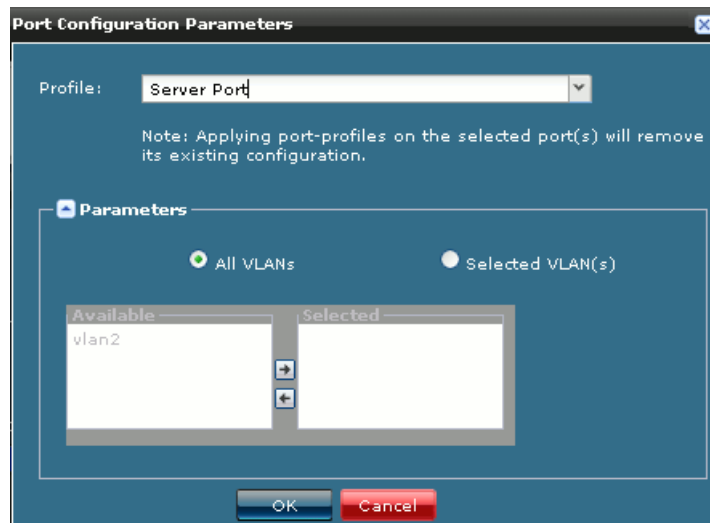
- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Server Port Profile to a Port

By provisioning a switched downlink port profile to a port on the device, you are configuring settings such as VLAN, RSTP, and CoS settings on the port so that users from multiple VLANs can connect to a machine with virtual servers.

To specify parameters in order to apply a server port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Server Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.



2. Select the VLANs that you want to associate with the port. You can choose to associate multiple VLANs with the port.
 - To associate all the available VLANs with the port, select the **All VLANs** option button.
 - To associate selected VLANs with the ports, select the **Selected VLAN(s)** option button, select the VLANs from the **Available** column and click the right arrow button to add it to the **Selected** column. Hold down the **Shift** key and click to select multiple VLANs from the **Available** column.

To remove VLANs from the **Selected** column, select the VLAN and click the left arrow button. Hold down the **Shift** key and click to select multiple VLANs from the **Selected** column.

3. Select the native VLAN that you want to associate with the port from the **Native VLAN** drop down list.
4. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.

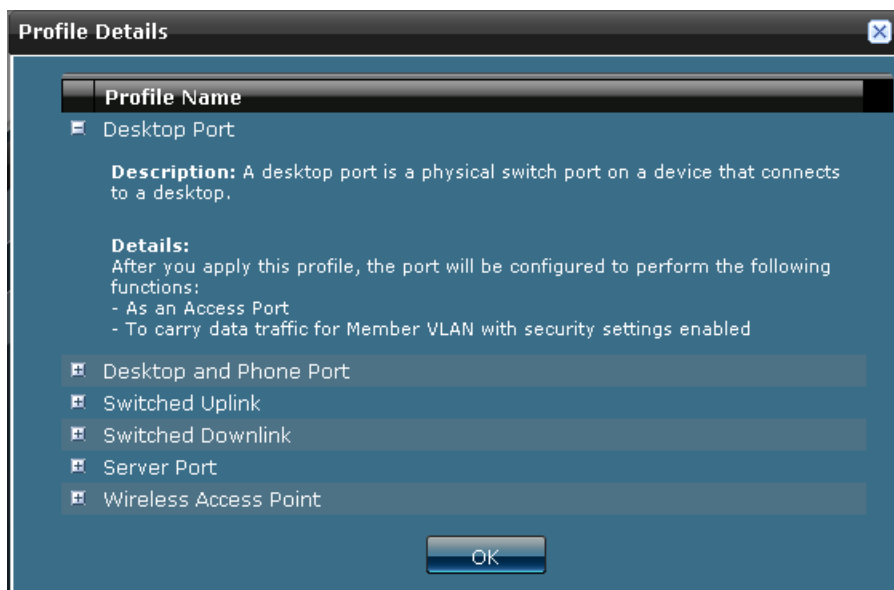


NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port

profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

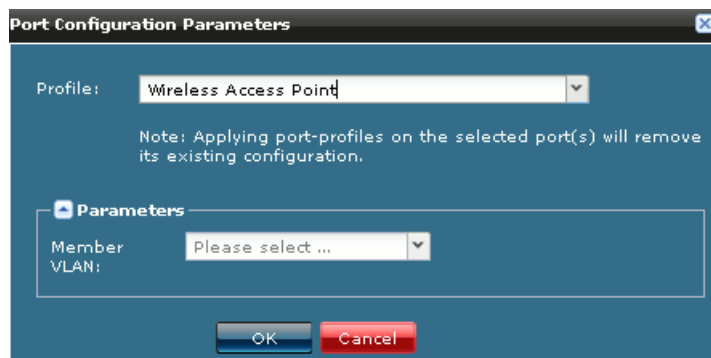
- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port

By provisioning a wireless access point port profile to a port on the device, you are configuring settings such as the VLAN, RSTP, and CoS settings on the port so that you can connect a wireless access point port to a switch port.

To specify parameters in order to apply a wireless access point port profile to a port, follow these steps:

1. From the **Profile** drop down list, select **Wireless Access Point Port**. The **Port Configuration Parameters** panel appears as shown in the following figure.



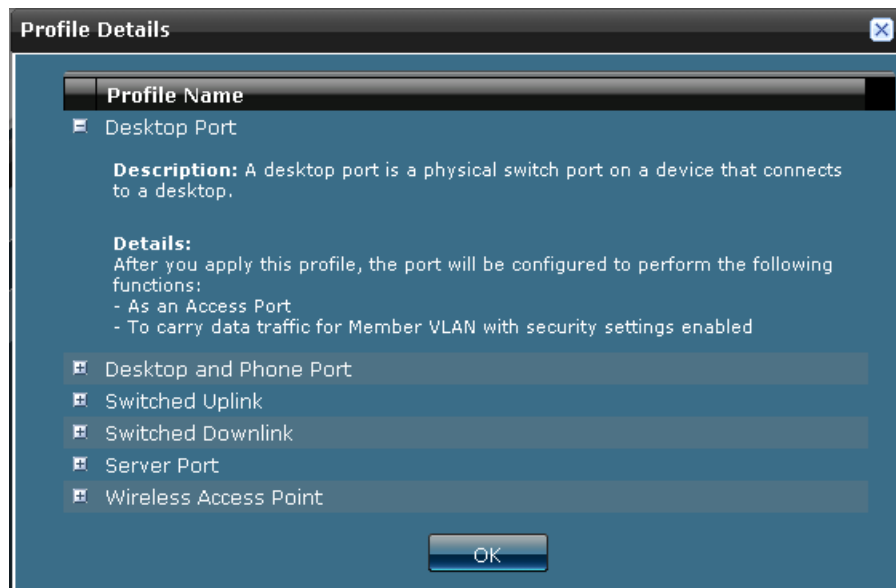
2. Select the VLAN configuration for data traffic that you want to associate with the port, from the **Member VLAN** drop down list.
3. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the selected device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

- Related Topics**
- Port Profile Provisioning Overview on page 27
 - Applying Port Profiles to a Port on page 31
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43

Chapter 8

Port Profile CLI Reference

- Desktop Port Profile CLI on page 49
- Desktop and Phone Port Profile CLI on page 50
- Switched Uplink Port Profile CLI on page 52
- Switched Downlink Port Profile CLI on page 53
- Server Port Profile CLI on page 55
- Wireless Access Point Port Profile CLI on page 57

Desktop Port Profile CLI

Interface Config:

```
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode access
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <vlan_name>
```

Access Secure Config:

```
set groups <config_group_name> ethernet-switching-options secure-access-port
interface <logical_interface_name> mac-limit 1
set groups <config_group_name> ethernet-switching-options secure-access-port
interface <logical_interface_name> mac-limit action drop
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> examine-dhcp
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> arp-inspection
set groups <config_group_name> ethernet-switching-options storm-control interface
<logical_interface_name> bandwidth <5,0000>
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> ip-source-guard
set groups <config_group_name> protocols dot1x authenticator
authentication-profile-name <authentication-profile-name> interface
<logical_interface_name>
set groups <config_group_name> protocols dot1x authenticator interface
<logical_interface_name> mac-radius
set groups <config_group_name> services captive-portal authentication-profile-name
<authentication-profile-name> interface <logical_interface_name>
```

RSTP Config:

```

set groups <config_group_name> protocols rstp interface <logical_interface_name>
edge
set groups <config_group_name> protocols rstp bpdv-block-on-edge
set groups <config_group_name> protocols rstp interface <logical_interface_name>
no-root-port

```

Apply Config Group:

```

set apply-groups <config_group_name>

```

- Related Topics**
- Creating a Customized Desktop Port Profile on page 16
 - Specifying Parameters for Applying a Desktop Port Profile to a Port on page 35

Desktop and Phone Port Profile CLI

Interface Config:

```

set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode access
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <vlan_name>
set groups <config_group_name> ethernet-switching-options voip interface
<logical_interface_name> vlan <voip_vlan_name>

```

Access Secure Config:

```

set groups <config_group_name> ethernet-switching-options secure-access-port
interface <logical_interface_name> mac-limit 2
set groups <config_group_name> ethernet-switching-options secure-access-port
interface <logical_interface_name> mac-limit action drop
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> examine-dhcp
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> arp-inspection
set groups <config_group_name> ethernet-switching-options storm-control interface
<logical_interface_name> bandwidth <50000>
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <vlan_name> ip-source-guard
set groups <config_group_name> protocols dot1x authenticator
authentication-profile-name <authentication-profile-name> interface
<logical_interface_name>
set groups <config_group_name> protocols dot1x authenticator interface
<logical_interface_name> mac-radius
set groups <config_group_name> services captive-portal authentication-profile-name
<authentication-profile-name> interface <logical_interface_name>

```

RSTP Config:

```

set groups <config_group_name> protocols rstp interface <logical_interface_name>
edge
set groups <config_group_name> protocols rstp bpdv-block-on-edge
set groups <config_group_name> protocols rstp interface <logical_interface_name>
no-root-port

```

CoS Config:

```

set groups <config_group_name> class-of-service forwarding-classes class voice
queue-num 7
set groups <config_group_name> class-of-service forwarding-classes class
expedited-forwarding queue-num 5
set groups <config_group_name> class-of-service forwarding-classes class
assured-forwarding queue-num 1
set groups <config_group_name> class-of-service forwarding-classes class best-effort
queue-num 0
set groups <config_group_name> class-of-service classifiers ieee-802.1
juniper_ieee_classifier import default forwarding-class voice loss-priority low
code-points 101
set groups <config_group_name> class-of-service classifiers dscp
juniper_dscp_classifier import default forwarding-class voice loss-priority low
code-points 101110
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler buffer-size percent 5
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler priority strict-high
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler transmit-rate percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler buffer-size percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler transmit-rate percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler buffer-size percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler transmit-rate percent 35
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler buffer-size percent 40
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler priority low
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class voice scheduler
juniper-port-profile-strict-priority-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class expedited-forwarding scheduler
juniper-port-profile-expedited-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class assured-forwarding scheduler
juniper-port-profile-assured-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class best-effort scheduler
juniper-port-profile-best-effort-scheduler
set groups <config_group_name> class-of-service interfaces <interface_name>
scheduler-map juniper-port-profile-map
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers ieee-802.1 juniper_ieee_classifier

```

```
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers dscp juniper-dscp-classifier
```

Apply Config Group:

```
set apply-groups <config_group_name>
```

- Related Topics**
- Creating a Customized Desktop and Phone Port Profile on page 17
 - Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port on page 37

Switched Uplink Port Profile CLI

Interface Config:

```
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode trunk
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching native-vlan-id <native_vlan_name>
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <all_the_vlans>
```

Access Secure Config + Loop Guard + 802.3ah:

```
set groups <config_group_name> ethernet-switching-options secure-access-port
interface <interface_name> dhcp-trusted
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <native_vlan_name> examine-dhcp
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <native_vlan_name> arp-inspection
set groups <config_group_name> protocols rstp interface <logical_interface_name>
bpdu-timeout-action block
set groups <config_group_name> protocols oam ethernet link-fault-management
interface <logical_interface_name> link-discovery <active/passive>
```

CoS Config:

```
set groups <config_group_name> class-of-service forwarding-classes class voice
queue-num 7
set groups <config_group_name> class-of-service forwarding-classes class
expedited-forwarding queue-num 5
set groups <config_group_name> class-of-service forwarding-classes class
assured-forwarding queue-num 1
set groups <config_group_name> class-of-service forwarding-classes class best-effort
queue-num 0
set groups <config_group_name> class-of-service classifiers ieee-802.1
juniper_ieee_classifier import default forwarding-class voice loss-priority low
code-points 101
set groups <config_group_name> class-of-service classifiers dscp
juniper_dscp_classifier import default forwarding-class voice loss-priority low
code-points 101110
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler buffer-size percent 5
```

```

set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler priority strict-high
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler transmit-rate percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler buffer-size percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler transmit-rate percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler buffer-size percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler transmit-rate percent 35
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler buffer-size percent 40
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler priority low
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class voice scheduler
juniper-port-profile-strict-priority-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class expedited-forwarding scheduler
juniper-port-profile-expedited-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class assured-forwarding scheduler
juniper-port-profile-assured-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class best-effort scheduler
juniper-port-profile-best-effort-scheduler
set groups <config_group_name> class-of-service interfaces <interface_name>
scheduler-map juniper-port-profile-map
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers ieee-802.1 juniper_ieee_classifier
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers dscp juniper-dscp-classifier

```

Apply Config Group:

```
set apply-groups <config_group_name>
```

- Related Topics**
- Creating a Customized Switched Uplink Port Profile on page 18
 - Specifying Parameters for Applying a Switched Uplink Port Profile to a Port on page 39

Switched Downlink Port Profile CLI

Interface Config:

```

set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode trunk
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching native-vlan-id <native_vlan_name>
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <all_the_vlans>

```

Access Secure Config + Loop Guard + Root Guard + 802.3ah:

```

set groups <config_group_name> ethernet-switching-options secure-access-port
interface <interface_name> dhcp-trusted
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <native_vlan_name> examine-dhcp
set groups <config_group_name> ethernet-switching-options secure-access-port
vlan <native_vlan_name> arp-inspection
set groups <config_group_name> protocols rstp interface <logical_interface_name>
bpdu-timeout-action block
set groups <config_group_name> protocols rstp interface <logical_interface_name>
no-root-port
set groups <config_group_name> protocols oam ethernet link-fault-management
interface <logical_interface_name> link-discovery <active/passive>

```

CoS Config:

```

set groups <config_group_name> class-of-service forwarding-classes class voice
queue-num 7
set groups <config_group_name> class-of-service forwarding-classes class
expedited-forwarding queue-num 5
set groups <config_group_name> class-of-service forwarding-classes class
assured-forwarding queue-num 1
set groups <config_group_name> class-of-service forwarding-classes class best-effort
queue-num 0
set groups <config_group_name> class-of-service classifiers ieee-802.1
juniper_ieee_classifier import default forwarding-class voice loss-priority low
code-points 101
set groups <config_group_name> class-of-service classifiers dscp
juniper_dscp_classifier import default forwarding-class voice loss-priority low
code-points 101110
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler buffer-size percent 5
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler priority strict-high
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler transmit-rate percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler buffer-size percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler transmit-rate percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler buffer-size percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler priority low

```

```

set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler transmit-rate percent 35
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler buffer-size percent 40
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler priority low
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class voice scheduler
juniper-port-profile-strict-priority-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class expedited-forwarding scheduler
juniper-port-profile-expedited-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class assured-forwarding scheduler
juniper-port-profile-assured-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class best-effort scheduler
juniper-port-profile-best-effort-scheduler
set groups <config_group_name> class-of-service interfaces <interface_name>
scheduler-map juniper-port-profile-map
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers ieee-802.1 juniper_ieee_classifier
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers dscp juniper-dscp-classifier

```

Apply Config Group:

```
set apply-groups <config_group_name>
```

- Related Topics**
- Creating a Customized Switched Downlink Port Profile on page 19
 - Specifying Parameters for Applying a Switched Downlink Port Profile to a Port on page 41

Server Port Profile CLI

Interface Config:

```

set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode trunk
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching native-vlan-id <native_vlan_name>
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <all_the_vlans>

```

Access Secure Config:

```

set groups <config_group_name> ethernet-switching-options storm-control interface
<logical_interface_name> bandwidth <100000>

```

RSTP Config:

```

set groups <config_group_name> protocols rstp interface <logical_interface_name>
edge
set groups <config_group_name> protocols rstp bpdu-block-on-edge

```

```
set groups <config_group_name> protocols rstp interface <logical_interface_name>
no-root-port
```

CoS Config [Trusted or Untrusted]:

```
set groups <config_group_name> class-of-service forwarding-classes class voice
queue-num 7
set groups <config_group_name> class-of-service forwarding-classes class
expedited-forwarding queue-num 5
set groups <config_group_name> class-of-service forwarding-classes class
assured-forwarding queue-num 1
set groups <config_group_name> class-of-service forwarding-classes class best-effort
queue-num 0
set groups <config_group_name> class-of-service classifiers ieee-802.1
juniper_ieee_classifier import default forwarding-class voice loss-priority low
code-points 101
set groups <config_group_name> class-of-service classifiers dscp
juniper_dscp_classifier import default forwarding-class voice loss-priority low
code-points 101110
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler buffer-size percent 5
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-strict-priority-scheduler priority strict-high
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler transmit-rate percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler buffer-size percent 30
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-expedited-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler transmit-rate percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler buffer-size percent 25
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-assured-scheduler priority low
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler transmit-rate percent 35
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler buffer-size percent 40
set groups <config_group_name> class-of-service schedulers
juniper-port-profile-best-effort-scheduler priority low
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class voice scheduler
juniper-port-profile-strict-priority-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class expedited-forwarding scheduler
juniper-port-profile-expedited-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class assured-forwarding scheduler
juniper-port-profile-assured-scheduler
set groups <config_group_name> class-of-service scheduler-maps
juniper-port-profile-map forwarding-class best-effort scheduler
juniper-port-profile-best-effort-scheduler
```



```

set groups <config_group_name> class-of-service interfaces <interface_name>
scheduler-map juniper-port-profile-map
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers ieee-802.1 juniper_ieee_classifier
set groups <config_group_name> class-of-service interfaces <interface_name> unit
0 classifiers dscp juniper-dscp-classifier

```

Apply Config Group:

```
set apply-groups <config_group_name>
```

- Related Topics**
- Creating a Customized Server Port Profile on page 20
 - Specifying Parameters for Applying a Server Port Profile to a Port on page 43

Wireless Access Point Port Profile CLI

Interface Config:

```

set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching port-mode access
set groups <config_group_name> interfaces <interface_name> unit 0 family
ethernet-switching vlan members <vlan_name>

```

RSTP Config:

```
set groups <config_group_name> protocols rstp interface <logical_interface_name>
edge
```

```
set groups <config_group_name> protocols rstp bpdu-block-on-edge
```

```
set groups <config_group_name> protocols rstp interface <
logical_interface_name> no-root-port
```

Apply Config Group:

```
set apply-groups <config_group_name>
```

- Related Topics**
- Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port on page 45

Chapter 9

Campus Builder Getting Started Assistant

- Using the Campus Builder Getting Started Assistant on page 59
- Provision Port Profile on page 60
- Create Port Profile on page 64

Using the Campus Builder Getting Started Assistant

The **Getting Started** assistant is a section in the sidebar that provides instructions on how to perform common tasks. Topics in the **Getting Started** section are workspace specific that is, the content displayed on the **Getting Started** section varies according to the workspace to which you have navigated.

To get to the Campus Builder **Getting Started** section, click **Campus Builder** from the **Application Chooser** and click **EZ Campus Design** from the resulting task ribbon that appears. If **Show Getting Started on Startup** checkbox is selected, the **Getting Started** section automatically displays the most frequently performed tasks relevant to that workspace when you log in. If this checkbox was not selected, click the **Help** icon and expand the **Getting Started** topic link from the resulting sidebar that appears.

For the **Campus Builder EZ Campus Design** workspace, the **Getting Started** section displays instructions on how to provision a port profile. Click on the **Provision Port Profile** link to view the required and optional tasks you must perform in order to provision a port profile.

The required step is:

- Provision Port Profile. For more information, see “Provision Port Profile” on page 60.

The optional step is:

- Create Port Profile. For more information, see “Create Port Profile” on page 64.

Related Topics

- Provision Port Profile on page 60
- Create Port Profile on page 64

Provision Port Profile

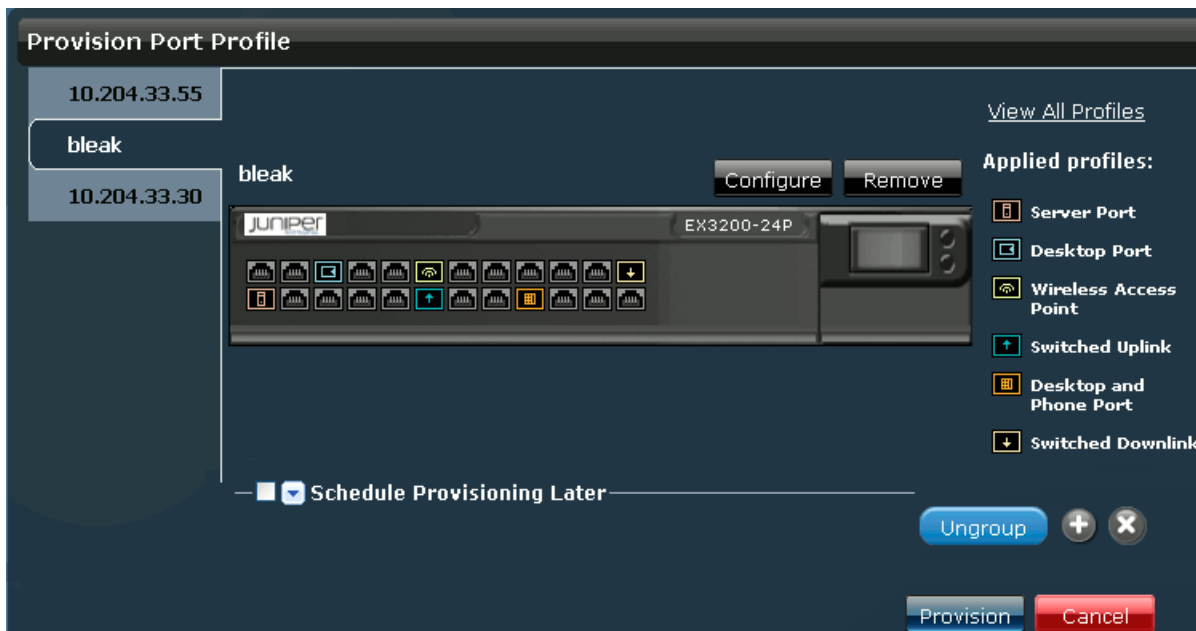
When you select a port profile and apply it to a port on a device, Junos Space modifies the configuration of that port according to the port profile that you have applied to it.. Once the profile has been applied or provisioned to the port, that port will be able to perform according to the role that was defined in the applied profile.

To provision a desktop port profile to a device port, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Provision Port Profile**. The **Provision Port Profile** page appears displaying all the available devices arranged according to device name, OS version, platform, device IP address, connection status, and managed status.

Name	OS Version	Platform	IP Address	Connection Status	Managed Status
10.204.33.30	10.0R1.2	EX4200-24T	10.204.33.30	up	In Sync
10.205.2.1	10.0R2.10	EX2200-48T-4G	10.205.2.1	up	Out Of Sync
10.205.2.10	10.0R2.10	EX2200-48T-4G	10.205.2.10	up	Out Of Sync
10.205.2.100	10.0R2.10	EX3200-24T	10.205.2.100	up	In Sync
10.205.2.102	10.0R2.10	EX3200-24T	10.205.2.102	up	In Sync
10.205.2.113	10.0R2.10	EX3200-24T	10.205.2.113	up	In Sync
10.205.2.114	10.0R2.10	EX3200-24T	10.205.2.114	up	In Sync
10.205.2.115	10.0R2.10	EX3200-24T	10.205.2.115	up	In Sync
10.205.2.116	10.0R2.10	EX3200-24T	10.205.2.116	up	In Sync
10.205.2.117	10.0R2.10	EX3200-24T	10.205.2.117	up	In Sync
10.205.2.118	10.0R2.10	EX3200-24T	10.205.2.118	up	In Sync
10.205.2.119	10.0R2.10	EX3200-24T	10.205.2.119	up	In Sync

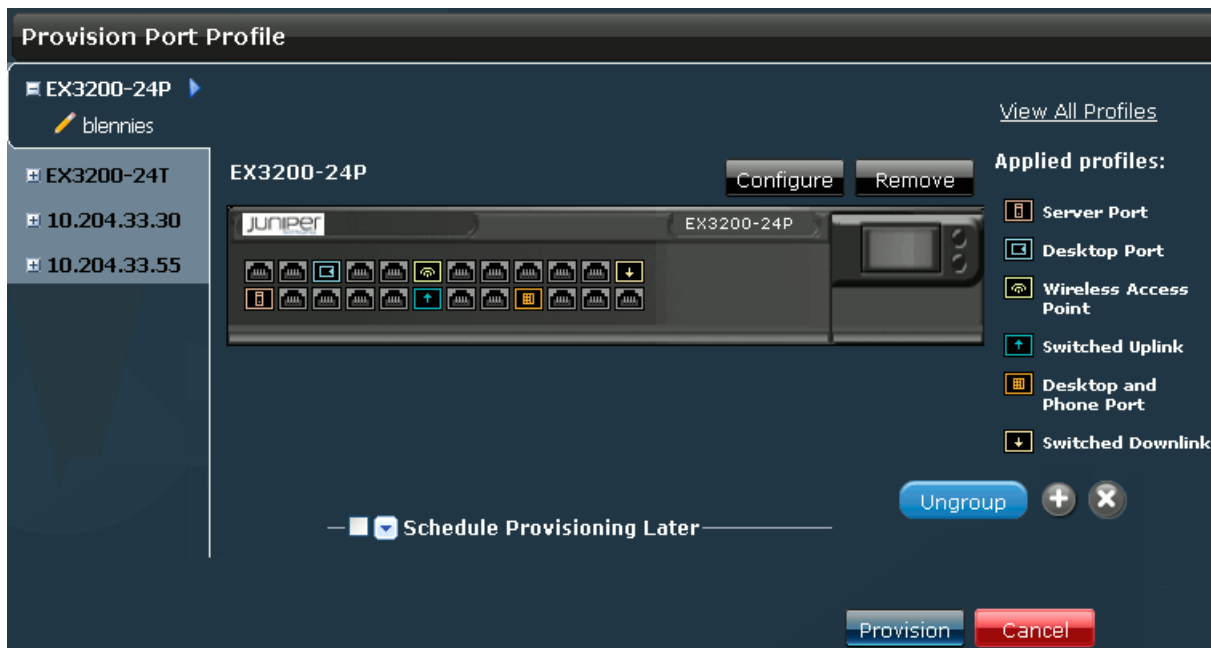
2. Select the device(s) to which you want to provision a port profile, and click **Provision Port Profile**. To select only one device, click **Single**, select the device that you want to provision the profile to, and click **Provision Port Profile**. The **Provision Port Profile** dialog box appears.



3. In addition to selecting multiple devices from the device list on the **Provision Port Profile** main page, you can also add devices to the **Selected Devices** list by clicking **+**. The **Add Devices to the Selected List** dialog box appears. Select the device(s) from the **Add Devices to the Selected List**. These device(s) appears in the **Selected Devices** panel. The maximum number of devices that you can select for provisioning is 50.

If you want to delete a device from the **Selected Devices** panel, select the device that you want to delete, and click **x** to remove the device from the list.

You can also choose to group the devices by their model number. To group devices according to their model number, select the **Group** checkbox. The **Group** option helps you apply port profiles to any number of devices belongs to the same platform (Ex: EX3200), by configuring a single chassis model.



NOTE: The facility to add more devices to the **Selected Devices** list in the current workflow is disabled when you select the **Group** option.

Any configuration that you make at the group level will override the existing device level configurations.

4. Select the device whose ports you want to configure from the device list on the left pane. A graphical representation of the device and its ports appears on the right side of the window.
5. Select the port to which you want to provision the port profile and click **Configure**. The **Port Configuration Parameters** dialog box opens.

If you want to simultaneously provision a port profile to a group of ports on the device, click and drag the cursor over the selected ports and click **Configure**. The **Port Configuration Parameters** dialog box opens.

6. From the **Profile** drop down list, select the port profile that you want to apply to the selected port. The parameters vary depending on the profile that you have selected. The available options are:
 - Desktop port. For more information, see “Specifying Parameters for Applying a Desktop Port Profile to a Port” on page 35
 - Desktop and Phone port. For more information, see “Specifying Parameters for Applying a Desktop and Phone Port Profile to a Port” on page 37
 - Switched Uplink port. For more information, see “Specifying Parameters for Applying a Switched Uplink Port Profile to a Port” on page 39

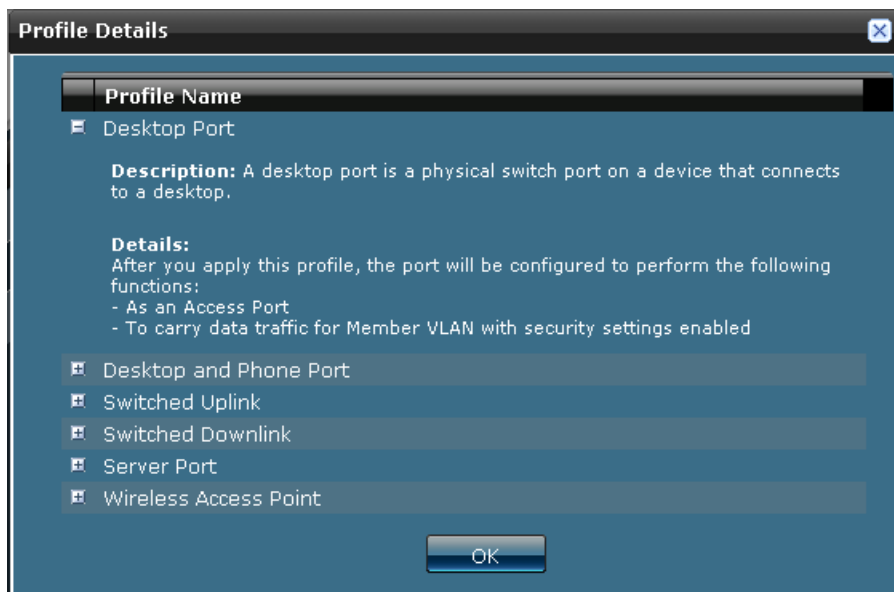
- Switched Downlink port. For more information, see “Specifying Parameters for Applying a Switched Downlink Port Profile to a Port” on page 41
 - Server port. For more information, see “Specifying Parameters for Applying a Server Port Profile to a Port” on page 43
 - Wireless Access Point port. For more information, see “Specifying Parameters for Applying a Wireless Access Point Port Profile to a Port” on page 45
7. After you have selected the parameters, click **OK**. The provisioned port will now be displayed in a different color.



NOTE: When you click **Configure**, all existing configurations on the selected port are permanently removed. The selected port will only have the newly applied configuration.

The **Applied Profiles** list displays all the profiles that have been applied to the ports of the device. Double click a profile on the **Applied Profile** list to view the summary of the selected port profile.

Click **View All Profiles** to open the **Profile Details** dialog box which lists out all the available port profiles. Click a port profile to view a description of the port profile along with details about the functions that can be performed by a port that is configured with this profile. An example of the **Profile Details** dialog box is as follows.



To remove a port profile from a port, select the port on the chassis view and click **Remove**.

8. If you want schedule the profile provision to a later date and time, select the **Schedule Provisioning Later** checkbox and select the date from the pop out calendar and the time from the drop down list.
9. Click **Provision** to apply the selected profile to the selected ports. If you have selected the **Schedule Provisioning Later** checkbox, the profile will be provisioned to the ports at the time you specified.

Click **Cancel** to go back to the EZ Campus Design workspace.



NOTE: If there is a conflict between the applied profile and the parameters of the port to which you are applying the profile, a dialog box containing a conflict message is displayed when you click **Provision**. This dialog box will display a list of all the devices and the conflicts. You can choose to override the existing configuration and apply the profile to the port, or cancel the provisioning job and keep the existing configuration.

Create Port Profile

While you cannot modify predefined port profiles, Junos Space does allow you to create new port profiles that are similar to the predefined profiles but with a few parameters that you can customize. These profiles will retain the values of the original port profile until you change it. To create a customized port profile, you need to configure one or more of the following settings:

General Settings

Configuring general settings for a customized port profiles includes setting parameters such as a name and description for the profile. Junos Space automatically generates a profile name for the new customized profile. For example, DesktopPort_1.

CoS Settings

A scheduler configuration block specifies the buffer size, bandwidth, and priority for a queue. By defining schedulers, you can configure the properties of output queues

that determine the transmission service level for each queue. These properties include the amount of interface bandwidth assigned to the queue, the size of the memory buffer allocated for storing packets, and the priority of the queue. After defining schedulers you associate them with forwarding classes by means of scheduler maps. By default, the schedulers values are already set.

Forwarding classes allow you to group packets for transmission. You then associate each scheduler map with an interface, and configure the hardware queues and packet schedulers that operate according to this mapping.

When applying or provisioning a port role to an interface, you must map the forwarding classes and schedulers using the scheduler map.

Create Port Profile: CoS Settings

Scheduler Map Configuration

	High Priority	Bandwidth reserved(%)	Buffer size(%)
Voice	<input checked="" type="checkbox"/>	10 (0)	5 (5)
Expedited forwarding	<input type="checkbox"/>	30 (30)	30 (30)
Assured forwarding	<input type="checkbox"/>	25 (25)	25 (25)
Best effort forwarding	<input type="checkbox"/>	35 (35)	40 (40)
		Total (90)	Total (100)

Note: The cumulative bandwidth or buffer allocation must be 100% or less. Reduce the allocation of one of the bandwidth or buffer categories in order to increase the allocation of another.

Legend:

- voice
- expedited-forwarding
- assured-forwarding
- best-effort

Bandwidth allocation

Buffer size allocation

Back Next Create Cancel

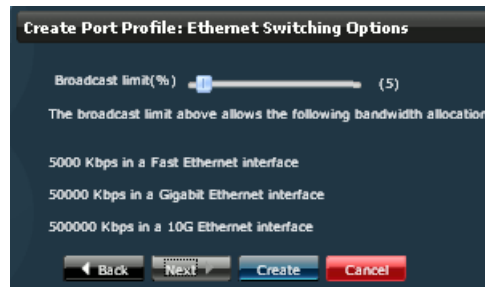
The schedulers and their settings are:

- Voice- The transmission rate is set to 10 percent and buffer size to 5 percent.
- Expedited-forwarding - The transmission rate is set to 30 percent, the buffer size to 30 percent, and priority is set to low.
- Assured-forwarding - The transmission rate is set to 25 percent, the buffer size to 25 percent, and priority is set to low.
- Best-effort - The transmission-rate is set to 35 percent, the buffer size to 40 percent, and priority is set to low.

These are the settings for the Juniper predefined port profiles. While customizing, you can change the transmission rate and buffer size to optimize your communication with the network. You must ensure that the cumulative bandwidth and buffer percentages is always be 100 percent or less. For example, if the total bandwidth percentage already adds up to 100, you must reduce the bandwidth of one of the categories to increase the bandwidth of another.

Ethernet Switching Options

You can use the Ethernet Switching Options page to set the broadcast limit for network traffic. The broadcast limit is the theoretical maximum of network bandwidth in percent that can be used for broadcast and multicast traffic. Any broadcast or multicast traffic exceeding that limit will be dropped. A zero value (0) indicates that the feature is disabled.



To create a customized port profile, follow these steps:

1. From the task ribbon, select **EZ Campus Design > Port Profile > Create Port Profile**. This opens the **Create Port Profile** wizard.
2. Enter a name for the profile in the **Profile Name** field.
3. Select the port profile that you want to customize from the **Profile type** drop down list. The **Profile Details** field appears showing information about the customized profile such as the roles or actions that the port will be able to perform after the port profile has been applied to it. This content in this field varies depending on the port profile that you have selected.
4. Enter a description for the customized profile in the **Profile Description** field.
5. The settings that are available for customization vary based on the port profile. The description of the six port profiles and the settings that are available for customization is provided in Table 4 on page 66.

Table 4: Port Profile Descriptions and Customization Options

Port Profile	Description and Customization Options
Desktop Port	<p>A desktop port enables you to connect a desktop to a switch port. By applying this profile to the port, you are configuring settings such as the VLAN, port security, and RSTP settings.</p> <p>For more information about the CLI commands used in a desktop port profile, see “Desktop Port Profile CLI” on page 49.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ Ethernet Switching Options. <p>For more information on customizing a desktop port profile, see “Creating a Customized Desktop Port Profile” on page 16.</p>

Table 4: Port Profile Descriptions and Customization Options *(continued)*

Port Profile	Description and Customization Options
Desktop and phone port	<p>A desktop and phone port enables you to connect a desktop and phone port to a switch port. By applying this profile to the port, you are configuring settings such as port security, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a desktop and phone port profile, see “Desktop and Phone Port Profile CLI” on page 50.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. ■ Ethernet Switching Options. <p>For more information on customizing a desktop and phone port profile, see “Creating a Customized Desktop and Phone Port Profile” on page 17</p>
Switched Uplink Port	<p>A switched uplink port enables you to connect a switch port on the access layer to a switch port on the distribution layer. By applying this profile to the port, you are configuring settings such as VLAN, port security, and CoS settings.</p> <p>For more information about the CLI commands used in a switched uplink port profile, see “Switched Uplink Port Profile CLI” on page 52.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. <p>For more information on customizing a switched uplink port profile, see “Creating a Customized Switched Uplink Port Profile” on page 18.</p>
Switched Downlink Port	<p>A switched downlink port enables you to connect a switch port on the distribution layer to a switch layer on the access layer. By applying this profile to the port, you are configuring settings such as VLAN, port security, and CoS settings.</p> <p>For more information about the CLI commands used in a switched downlink port profile, see “Switched Downlink Port Profile CLI” on page 53.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. <p>For more information on customizing a switched downlink port profile, see “Creating a Customized Switched Downlink Port Profile” on page 19.</p>

Table 4: Port Profile Descriptions and Customization Options *(continued)*

Port Profile	Description and Customization Options
Server Port	<p>A server port is a trunk port that enables users from multiple VLANs to connect to a machine with virtual servers. By applying this profile to the port, you are configuring settings such as VLAN, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a server port profile, see “Server Port Profile CLI” on page 55.</p> <p>The customizing options that are available for this profile are:</p> <ul style="list-style-type: none"> ■ General Settings. ■ CoS Settings. ■ Ethernet Switching Options. <p>For more information on customizing a server port profile, see “Creating a Customized Server Port Profile” on page 20.</p>
Wireless Access Point Port	<p>A wireless access point port enables you to connect a wireless access point, which is a device that allows wireless communication devices to connect to a wireless network using Wi-Fi, Bluetooth or related standards, to a switch port. By applying this profile to the port, you are configuring settings such as VLAN, RSTP, and CoS settings.</p> <p>For more information about the CLI commands used in a wireless access point port profile, see “Wireless Access Point Port Profile CLI” on page 57.</p> <p>NOTE: Junos Space does not allow you to customize a wireless access point port profile.</p>

6. Click **Back** to go to the previous step of the Customize Port Profile wizard. Click **Create** to save your changes and create a new customized profile. The customized port profile appears on the **Port Profile** page. Click **Cancel** to go back to the **Port Profile** page without creating a new port profile.

Chapter 10

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