

## Understanding Virtual Chassis Components

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A Virtual Chassis configuration allows you to interconnect two to ten EX 4200 switches and run them as a single network entity. While it is true that you need at least two interconnected switches to take advantage of Virtual Chassis features, it is also true that any individual EX 4200 switch has some Virtual Chassis components.

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### ***Virtual Chassis Ports (VCPs)***

There are two dedicated Virtual Chassis ports (VCPs) on the rear panel of the EX 4200 switch that are used exclusively to interconnect EX 4200 switches in a Virtual Chassis configuration. The interfaces for these dedicated ports are operational by default when the ports are properly cabled. For an example of two EX 4200 switches interconnected with their dedicated VCPs, see *Example: Configuring a Virtual Chassis with a Master and Backup in a Single Wiring Closet*. In addition, you can interconnect the switch with another EX 4200 switch across a wider distance by installing an optional EX-UM-2XFP or EX-UM-4SFP uplink module in an EX 4200 switch. To do this, you need to install one uplink module in at least one EX 4200 switch at each end of the link. You must set these ports to function as VCPs in order for the interconnected switches to be recognized as members of the same Virtual Chassis configuration. This procedure includes setting the uplink ports of a standalone EX 4200 switch as VCPs prior to interconnecting the new member switch with the existing Virtual Chassis configuration. For an example of EX 4200 switches interconnected with the uplink ports functioning as VCPs, see *Example: Configuring a Virtual Chassis Interconnected Across Multiple Wiring Closets*.

You can display the status of both the dedicated VCP interfaces and the uplink ports configured as VCP interfaces with the `show virtual-chassis vc-port` command.

### ***Master Role***

The member that functions in the master role:

- Manages the member switches.
- Runs JUNOS software for EX-series switches in a master role.
- Runs the chassis management processes and control protocols.
- Represents all the member switches interconnected within the Virtual Chassis configuration. (The hostname and other properties that you assign to this switch during setup apply to all members of the Virtual Chassis configuration.)

When an EX 4200 switch is powered on as a standalone switch, it is considered the master member. In a multimember Virtual Chassis, two members function as the master and the backup of the Virtual Chassis configuration:

- In a preprovisioned configuration, one of the two members assigned as **routing-engine** functions as the master member. The selection of which member assigned as **routing-engine** functions as master and which as backup is determined by the software based on the master election algorithm. See Understanding How the Master in a Virtual Chassis Configuration Is Elected.
- In a configuration that is not preprovisioned, the selection of the master and backup is determined by the mastership priority value and secondary factors in the master election algorithm.

## **Backup Role**

The member that functions in the backup role:

- Maintains a state of readiness to take over the master role if the master fails.
- Runs JUNOS software for EX-series switches in a backup role.
- Synchronizes with the master in terms of protocol states, forwarding tables, and so forth, so that it is prepared to preserve routing information and maintain network connectivity without disruption in case the master is unavailable.

You must have at least two member switches in a Virtual Chassis configuration in order to have a backup member.

- In a preprovisioned configuration, one of the two members assigned as **routing-engine** functions in the backup role. The selection of which member assigned as **routing-engine** functions as master and which as backup is determined by the software based on the master election algorithm. See Understanding How the Master in a Virtual Chassis Configuration Is Elected.
- In a configuration that is not preprovisioned, the selection of the master and backup is determined by the mastership priority value and secondary factors in the master election algorithm.

## **Linecard Role**

A member that functions in the linecard role:

- Runs only a subset of JUNOS software for EX-series switches.
- Does not run the chassis control protocols.
- Can detect certain error conditions (such as an unplugged cable) on any interfaces that have been configured on it through the master.

A Virtual Chassis configuration must have at least three members in order to include a linecard member.

- In a preprovisioned configuration, you can explicitly configure a member with the role of linecard, which makes it ineligible for functioning as a master or backup.

- In a configuration that is not preprovisioned, the members that are not selected as master or backup function as linecard members of the Virtual Chassis configuration. The selection of the master and backup is determined by the mastership priority value and secondary factors in the master election algorithm.

## **Member Switch and Member ID**

Each physically discrete EX 4200 switch is a potential member of a Virtual Chassis configuration. When an EX 4200 switch is powered on, it receives a member ID that is displayed on the front-panel LCD. If the switch is powered on as a standalone switch, its member ID is always 0. When the switch is interconnected with other EX 4200 switches in a Virtual Chassis configuration, its member ID (0 through 9) is assigned by the master based on various factors, such as the order in which the switch was added to the Virtual Chassis configuration. As each switch is added and powered on, it receives the next available (unused) member ID.

If the Virtual Chassis configuration previously included a member switch and that member was physically disconnected or removed from the Virtual Chassis, its member ID is not available for assignment as part of the standard sequential assignment by the master. For example, you might have a Virtual Chassis configuration composed of member 0, member 2, and member 3, because member 1 was removed. When you add another member switch and power it on, the master assigns it as member 4. However, you can use the `request virtual-chassis renumber` command to explicitly change the member ID of the new member switch to use member ID 1.

The member ID distinguishes the member switches from one another. You use the member ID:

- To assign a mastership priority value to a member switch
- To configure interfaces for a member switch (the function is similar to a slot number on Juniper Networks routers)
- To apply some operational commands to a member switch
- To display status or characteristics of a member switch

## **Mastership Priority**

In a configuration that is not preprovisioned, you can designate the role (master, backup, or linecard) that a member switch performs within the Virtual Chassis configuration by configuring its mastership priority (from 1 to 255). The mastership priority value is the factor with the highest precedence for selecting the master of the Virtual Chassis configuration.

The default value for mastership priority is **128**. When an EX 4200 switch is powered on, it receives the default mastership priority value. Because it is the only member of the Virtual Chassis configuration, it is also the master. When you interconnect a standalone switch to an existing Virtual Chassis configuration (which implicitly includes its own master), we recommend that you explicitly configure the mastership priority of the members that you want to function as the master and backup.

We recommend that you specify the same mastership priority value for both the master and backup members.



**NOTE:** Configuring the same mastership priority value for both the master and backup helps to ensure a smooth transition from master to backup in case the master becomes unavailable. It prevents the old master from preempting control from the backup in situations where the backup has taken control of the Virtual Chassis configuration due to the original master being unavailable.

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We also recommend that you configure the highest possible mastership priority value (255) for those two members, because that guarantees that these two members continue to function as the master and backup when other members are added to the Virtual Chassis configuration. Any other members of the Virtual Chassis configuration (members with lower mastership priority) are considered linecard members.

In a preprovisioned configuration, the mastership priority value is assigned by the software, based on the specified role.

### ***Virtual Chassis Identifier (VCID)***

All members of a Virtual Chassis configuration share one Virtual Chassis identifier (VCID). This identifier is derived from internal parameters. When you are monitoring a Virtual Chassis configuration, the VCID is displayed in the user interface.

#### **Related Topics**

- Virtual Chassis Overview
- Example: Configuring a Virtual Chassis with a Master and Backup in a Single Wiring Closet
- Example: Configuring a Virtual Chassis Interconnected Across Multiple Wiring Closets
- Example: Configuring a Virtual Chassis with a Preprovisioned Configuration File
- Setting an Uplink Port as a Virtual Chassis Port (CLI Procedure)
- Command Forwarding Usage with a Virtual Chassis Configuration