

Example: Setting Up a Multimember Virtual Chassis Access Switch with a Default Configuration

You can configure a multimember Virtual Chassis access switch in a single wiring closet without setting any parameters—by simply cabling the switches together, using the dedicated Virtual Chassis ports (VCPs). You do not need to modify the default configuration to enable these ports. They are operational by default. The Virtual Chassis configuration automatically assigns the master, backup, and linecard roles, based on the sequence in which the switches are powered on and other factors in the master election algorithm. See *Understanding How the Master in a Virtual Chassis Configuration Is Elected*.



TIP: We recommend that you explicitly configure the mastership priority of the switches to ensure that the switches continue to perform the desired roles when additional switches are added or other changes occur. However, it is possible to use the default configuration described in this example.

This example describes how to configure a multimember Virtual Chassis in a single wiring closet, using the default role assignments:

- Requirements on page 1
- Overview and Topology on page 1
- Configuration on page 2
- Verification on page 3
- Troubleshooting on page 5

Requirements

This example uses the following hardware and software components:

- JUNOS Release 9.0 or later for EX-series switches
- Two EX 4200-48P switches
- Four EX 4200-24P switches

Overview and Topology

A Virtual Chassis configuration is easily expandable. This example shows a Virtual Chassis configuration composed of six EX 4200 switches. It provides networking access for 180 onsite workers, who are sitting within range of a single wiring closet. The six combined switches are identified by a single host name and managed through a global management IP address.

To set up a multimember Virtual Chassis configuration within a single wiring closet, you need to run the EZ Setup program only once. Connect to the master and run EZ Setup to specify its identification, time zone, and network properties. When additional

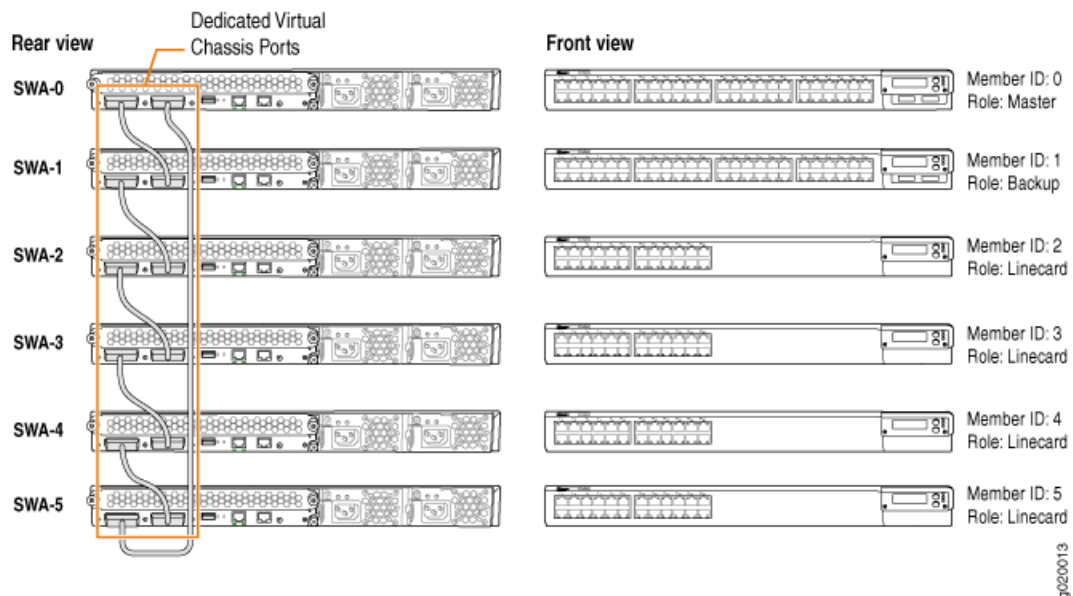
switches are connected through the Virtual Chassis ports (VCPs), they automatically receive the same properties that were specified for the master.

The topology for this example (see Figure 1) consists of six switches:

- Two EX 4200-48P switches (SWA-0 and SWA-1) with 48 access ports, all of which support Power over Ethernet (PoE)
- Four EX 4200-24P switches (SWA-2, SWA-3, SWA-4, and SWA-5) with 24 access ports, all of which support PoE

Figure 1 shows that all the member switches are interconnected with the dedicated VCPs on the rear panel. The LCD on the front displays the member ID and role.

Figure 1: Default Configuration of Multimember Virtual Chassis in a Single Wiring Closet



Configuration

Configure a multimember Virtual Chassis access switch in a single wiring closet using the factory defaults:

CLI Quick Configuration By default, after you interconnect the switches with the dedicated VCPs and power on the switches, the VCPs are operational. The mastership priorities and member IDs are assigned by the software. To determine which switch has been selected as the master, check the LCD on the front panel. It should be the first switch that you power on. The backup should be the second switch that you power on. The other switches are all linecards. Wait at least one minute after powering on the master, before continuing to power on the other switches.

Step-by-Step Procedure To configure a multimember Virtual Chassis with default role assignments:

1. Make sure the dedicated VCPs on the rear panel are properly cabled. See Virtual Chassis Cabling Configuration Examples for EX4200 Switches for additional information.
2. Power on the switch that you want to function as the master (SWA-0). This example uses one of the larger switches (EX 4200-48P) as the master.
3. Check the front panel LCD to confirm that the switch has powered on correctly and that a member ID has been assigned.
4. Run the EZ Setup program on SWA-0, the master, specifying the identification parameters. See Connecting and Configuring an EX Series Switch (CLI Procedure) or Connecting and Configuring an EX Series Switch (J-Web Procedure) for details.
5. Configure SWA-0 with the virtual management Ethernet (VME) interface for out-of-band management of the Virtual Chassis configuration, if desired.

```
[edit]
user@SWA-0# set interfaces vme unit 0 family inet address /ip-address/mask/
```

6. After a lapse of at least one minute, power on SWA-1. This example uses the second EX 4200-48P switch as the backup.
7. Check the front panel LCD to confirm that the switch has powered on correctly and that a member ID has been assigned.
8. Power on SWA-2, and check the front panels to make sure that the switch is operating correctly.
9. Continue to power on the member switches one by one, checking the front panels as you proceed.

Verification

To confirm that the configuration is working properly, perform these tasks:

- Verifying the Member IDs and Roles of the Member Switches on page 3
- Verifying That the VCPs Are Operational on page 4

Verifying the Member IDs and Roles of the Member Switches

Purpose Verify that all the interconnected member switches are included within the Virtual Chassis configuration and that their roles are assigned appropriately.

Action Display the members of the Virtual Chassis configuration:

```
user@SWA-0> show virtual-chassis status
```

```
Virtual Chassis ID: 0000.e255.00e0
```

| Member ID | Status | Serial No | Model | Mastership Priority | Role | Neighbor List ID Interface |
|-----------|--------|-----------|-------|------------------------|------|-------------------------------|
|-----------|--------|-----------|-------|------------------------|------|-------------------------------|

| | | | | | | |
|-----------|-------|---------|------------|-----|----------|--------------------|
| 0 (FPC 0) | Prsnt | abc123 | ex4200-48p | 128 | Master* | 1 vcp-0 5 vcp-1 |
| 1 (FPC 1) | Prsnt | def123 | ex4200-48p | 128 | Backup | 2 vcp-0 0 vcp-1 |
| 2 (FPC 2) | Prsnt | abd231 | ex4200-24p | 128 | Linecard | 3 vcp-0 1 vcp-1 |
| 3 (FPC 3) | Prsnt | cab123 | ex4200-24p | 128 | Linecard | 4 vcp-0 2 vcp-1 |
| 4 (FPC 4) | Prsnt | fed456 | ex4200-24p | 128 | Linecard | 5 vcp-0 3 vcp-1 |
| 5 (FPC 5) | Prsnt | jdk1231 | ex4200-24p | 128 | Linecard | 0 vcp-0 4 vcp-1 |

Meaning The `show virtual-chassis status` command lists the member switches of the Virtual Chassis configuration with the member IDs and mastership priority values. It also displays the neighbor members with which each member is interconnected. The `fpc` number is the same as the member ID.

Verifying That the VCPs Are Operational

Purpose Verify that the dedicated VCPs interconnecting the member switches are operational.

Action Display the Virtual Chassis interfaces.

```
user@SWA-0> show virtual-chassis vc-port all-members
fpc0:
```

| Interface or PIC / Port | Type | Status |
|-------------------------------|-----------|--------|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

```
fpc1:
```

| Interface or PIC / Port | Type | Status |
|-------------------------------|-----------|--------|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

```
fpc2:
```

| Interface or PIC / Port | Type | Status |
|-------------------------------|-----------|--------|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

```
fpc3:
```

| Interface or PIC / Port | Type | Status |
|-------------------------------|------|--------|
|-------------------------------|------|--------|

| | | |
|-------|-----------|----|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

fpc4:

| Interface or PIC / Port | Type | Status |
|-------------------------------|-----------|--------|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

fpc5:

| Interface or PIC / Port | Type | Status |
|-------------------------------|-----------|--------|
| vcp-0 | Dedicated | Up |
| vcp-1 | Dedicated | Up |

Meaning The `show virtual-chassis vc-port all-members` command lists the Virtual Chassis interfaces that are enabled for the member switches of the Virtual Chassis configuration and shows the status of the interfaces. In this case, no VCP uplinks have been configured. However, the VCP interfaces are automatically configured and enabled when you interconnect member switches using the dedicated VCPs. There are two dedicated VCPs on the rear panel of each EX 4200 switch. The dedicated VCP interfaces are identified simply as vcp-0 and vcp-1. They do not use the standard interface address (in which the member ID is represented by the first digit). The output in this example shows that all interfaces are operational. The fpc number is the same as the member ID.

Troubleshooting

To troubleshoot the configuration of a multimember Virtual Chassis in a single wiring closet, perform these tasks:

Troubleshooting Mastership Priority

Problem You want to explicitly designate one member as the master and another as backup.

Solution Change the mastership priority value of the member that you want to function as master, designating the highest mastership priority value that member.



NOTE: These configuration changes are made through the current master, SWA-0.

1. Configure mastership priority of member 0 to be the highest possible value.

```
[edit virtual-chassis]
user@SWA-0# set member 0 mastership-priority 255
```

2. Set the mastership priority of another member that you want to function as the backup member as the same value:

```
[edit virtual-chassis]
user@SWA-0# set member 2 mastership-priority 255
```

Troubleshooting Nonoperational VCPs

Problem The VCP interface shows a status of **down**.

Solution Check the cable to make sure that it is properly and securely connected to the VCPs.

- Related Topics**
- 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
 - Configuring a Virtual Chassis (CLI Procedure)
 - Configuring a Virtual Chassis (J-Web Procedure)

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