



## **Install hardware**

### **Cluster and storage switches**

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# Install hardware

## Install the hardware for the NVIDIA SN2100 switch

To install the SN2100 hardware, refer to NVIDIA’s documentation.

**Steps**

- 1. Review the [configuration requirements](#).
- 2. Follow the instructions in [NVIDIA Switch Installation Guide](#).

**What’s next?**

[Configure the switch](#).

## Configure the NVIDIA SN2100 switch

To configure the SN2100 switch, refer to NVIDIA’s documentation.

**Steps**

- 1. Review the [configuration requirements](#).
- 2. Follow the instructions in [NVIDIA System Bring-Up..](#)

**What’s next?**

[Review cabling and configuration considerations](#).

## Review cabling and configuration considerations

Before configuring your NVIDIA SN2100 switch, review the following considerations.

### NVIDIA port details

| Switch ports                      | Ports usage                                   |
|-----------------------------------|---|
| swp1s0-3                          | 10/40 cluster port nodes                      |
| swp2s0-3                          | 25/100 cluster port nodes                     |
| swp3-14 40/100 cluster port nodes | swp15-16 40/100 Inter-Switch Link (ISL) ports |

See the [Hardware Universe](#) for more information on switch ports.

### Optical connections

Only optical connections are supported on SN2100 switches with X1151A NIC, X1146A NIC, or onboard 100GbE ports. For example:

- AFF A800 on ports e0a and e0b

- AFF A320 on ports e0g and e0h

## QSA adapter

When a QSA adapter is used to connect to the onboard Intel cluster ports on a platform, not all links come up. Example platforms are: FAS2750, AFF A300, and FAS8200 (all 10G) and AFF A250 (25G).

To resolve this issue, do the following:

1. For Intel 10G, manually set the swp1s0-3 link speed to 10000 and set auto-negotiation to off.
2. For Chelsio 25G, manually set the swp2s0-3 link speed to 25000 and set auto-negotiation to off.



Using 10G/25G QSA, use the non-breakout 40/100G ports. Do not insert the QSA adapter on ports that are configured for breakout.

## Switchport speed

Depending on the transceiver in the switchport, you might need to set the speed on the switchport to fixed speed. If using 10G and 25G breakout ports, make sure that auto-negotiation is off and hard set the port speed on the switch. For example:

```

cumulus@cumulus:mgmt:~$ net add int swp1s3 link autoneg off && net com
--- /etc/network/interfaces      2019-11-17 00:17:13.470687027 +0000
+++ /run/nclu/ifupdown2/interfaces.tmp  2019-11-24 00:09:19.435226258
+0000
@@ -37,21 +37,21 @@
    alias 10G Intra-Cluster Node
    link-autoneg off
    link-speed 10000 <---- port speed set
    mstpctl-bpduguard yes
    mstpctl-portadminedge yes
    mtu 9216

auto swp1s3
iface swp1s3
    alias 10G Intra-Cluster Node
-   link-autoneg off
+   link-autoneg on
    link-speed 10000 <---- port speed set
    mstpctl-bpduguard yes
    mstpctl-portadminedge yes
    mtu 9216

auto swp2s0
iface swp2s0
    alias 25G Intra-Cluster Node
    link-autoneg off
    link-speed 25000 <---- port speed set

```

### What's next?

[Cable NS224 shelves as switch-attached storage.](#)

## Cable NS224 shelves as switch-attached storage

If you have a system in which the NS224 drive shelves need to be cabled as switch-attached storage (not direct-attached storage), use the information provided here.

- Cable NS224 drive shelves through storage switches:

[Information for cabling switch-attached NS224 drive shelves](#)

- Install your storage switches:

[AFF and FAS Switch Documentation](#)

- Confirm supported hardware, such as storage switches and cables, for your platform model:

[NetApp Hardware Universe](#)

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