Cumulus OS NVUE and ports configuration

Using Cumulus commands and configuring switch ports

Lenovo

NVUE CLI

NVUE commands all begin with `nv` and fall into one of three syntax categories:

- Configuration: `nv set/unset`
- Monitoring: `nv show`
- Configuration management: `nv config`

Command completion: As you enter commands, you can get help with valid keywords or options by using the tab key.
Command help: As you enter commands, you can get help with command syntax by entering `-h` or `--help` – for example: `nv set interface -h`
Command list: You can list all the NVUE commands by entering `nv list-commands`.
Command history: At the command prompt, press the up and down arrow keys to move through the list of previously entered commands.

Enabling a port and testing cable connectivity

By default, Cumulus Linux disables all data plane ports (every Ethernet port except the management interface – eth0). To test cable connectivity, administratively enable physical ports. To enable a port, use one of the following methods:

- NVUE commands:

```
cumulus@switch:~$ nv set interface swp1
```
for a single port

```
cumulus@switch:~$ nv set interface swp1-60
```
for all ports

```
cumulus@switch:~$ nv config apply
```

To check link status, run the `nv show interface` command.

Layer 2 port configuration

Cumulus Linux does not put all ports into a bridge by default. Use one of the following procedures to create a bridge and configure one or more front panel ports as members of the bridge. In the following examples, the bridge is named `br_default`.

- NVUE commands

  To configure a single port, swp1:

  ```
  cumulus@switch:~$ nv set interface swp1 bridge domain
  br_default cumulus@switch:~$ nv config apply
  ```

  To configure a range of ports – in this example, ports swp1 through swp3, swp6, and swp14 through swp20:

  ```
  cumulus@switch:~$ nv set interface swp1-3,swp6,swp14-20 bridge
  domain br_default
  ```

To check link status, run the `nv show interface` command.

Configuring breakout ports with splitter cables

The SN5600 64 OSFP interfaces support speeds down to 10 G. For 1 G operation, the SFP28 port must be used.
The switch has a limit of 256 logical ports (plus 1 SFP28 25 GbE port). Lanes on each port run at a maximum speed of 100 G PAM4.

If a physical port is split into 64 interfaces, you must disable the adjacent port.
For example, when splitting port 1 into eight 50 G interfaces, you must disable port 2 in the `/etc/cumulus/ports.conf` file:

```
1=8x100G
2=disabled
```

All 64 OSFP ports can be split into two or four ports without disabling any ports.

Using NVUE to configure breakout ports

By default, Cumulus Linux disables all data plane ports (every Ethernet port except the management interface – eth0). To configure a breakout port, use the following NVUE commands:

```
cumulus@switch:~$ nv set interface swp1 link breakout 2x400G
cumulus@switch:~$ nv config apply
```

To remove a breakout port:

- Run the `nv unset interface <interface>` command – for example:

```
cumulus@switch:~$ nv unset interface swp1s0
cumulus@switch:~$ nv unset interface swp1s1
cumulus@switch:~$ nv config apply
```

- Run the `nv unset interface <interface> link breakout` command to configure the interface for the original speed – for example:

```
cumulus@switch:~$ nv unset interface swp1 link breakout
cumulus@switch:~$ nv config apply
```

Using Linux to configure breakout ports

Cumulus Linux 5.4 and later versions use a new format for port splitting. To split ports, users have to edit the `/etc/network/ports` file in a text editor and use the `/etc/network/interfaces` command to set an interface speed parameter.
The following example illustrates the procedure used to configure breakout port 1 into four interfaces and set the speed of each interface.

Click each number in turn to see the procedure.

Step 1 2 3 4

Using Linux to configure breakout ports

Step 1: Edit the `/etc/cumulus/ports.conf` file as follows:

```
cumulus@switch:~$ sudo cat /etc/cumulus/ports.conf
...
1=2x400G
2=800G
3=800G
4=400G
...
```

Note: `1=4x` means splitting port 1 into four ports, and `2=1x` means port 2 is not split and will keep the default port setting. The SN5600 supports 1x, 2x, 4x, and 8x.

Using Linux to configure breakout ports

Step 2: Reload `switchd` with the `sudo systemctl reload switchd.service` command. The reload does not interrupt network services.

```
cumulus@switch:~$ sudo systemctl reload switchd.service
```


Using Linux to configure breakout ports

Step 3: To configure specific speeds for the split ports, edit the `/etc/network/interfaces` file, and then run the `ifreload -a` command. In the following example, the speed of each swp1 breakout port (swp1s0, swp1s1, swp1s2, and swp1s3) is configured to 10 G with auto-negotiation off.

```
cumulus@switch:~$ sudo cat /etc/network/interfaces
...
auto swp1s0
iface swp1s0
    link-speed 10000
    link-duplex full
    link-autoneg off
auto swp1s1
iface swp1s1
    link-speed 10000
    link-duplex full
    link-swp1s2autoneg off
```

Step 1 — 2 — 3 — 4

Using Linux to configure breakout ports

```
iface swp1s1
    link-speed 10000
    link-duplex full
    link-swp1s2autoneg off
auto
iface swp1s2
    link-speed 10000
    link-duplex full
    link-autoneg off
auto swp1s3
iface swp1s3
    link-speed 10000
    link-duplex full
    link-autoneg off
...
```

Step 1 2 3 4

Using Linux to configure breakout ports

Step 4: Users can also run the `nv set interface <interface> link speed <speed>` NVUE command to configure each port before running the `ifreload -a` command.