

Operating FCoE using bnx2fc

Broadcom FCoE offload through bnx2fc is full stateful hardware offload that cooperates with all interfaces provided by the Linux ecosystem for FC/FCoE and SCSI controllers. As such, FCoE functionality, once enabled is largely transparent. Devices discovered on the SAN will be registered and unregistered automatically with the upper storage layers.

Despite the fact that the Broadcom's FCoE offload is fully offloaded, it does depend on the state of the network interfaces to operate. As such, the network interface (e.g. eth0) associated with the FCoE offload initiator must be 'up'. It is recommended that the network interfaces be configured to be brought up automatically at boot time.

Furthermore, the Broadcom FCoE offload solution creates VLAN interfaces to support the VLANs that have been discovered for FCoE operation (e.g. eth0.1001-fcoe). Do not delete or disable these interfaces or FCoE operation will be disrupted.

Driver Usage Model:

1. Ensure that fcoe-utils package is installed.
2. Configure the interfaces on which bnx2fc driver has to operate on. Here are the steps to configure:
 - a. `cd /etc/fcoe`
 - b. copy `cfg-ethx` to `cfg-eth5` if FCoE has to be enabled on `eth5`.
 - c. Repeat this for all the interfaces where FCoE has to be enabled.
 - d. Edit all the `cfg-eth` files to set "no" for `DCB_REQUIRED**` field, and "yes" for `AUTO_VLAN`.
 - e. Other configuration parameters should be left as default
3. Ensure that "bnx2fc" is in `SUPPORTED_DRIVERS` list in `/etc/fcoe/config`.
4. Start fcoe service. (`service fcoe start`). If Broadcom devices are present in the system, bnx2fc driver would automatically claim the interfaces, starts vlan discovery and log into the targets.
5. "Symbolic Name" in '`fcoeadm -l`' output would display if bnx2fc has claimed the interface.

Eg:

```
[root@bh2 ~]# fcoeadm -i
Description:      NetXtreme II BCM57712 10 Gigabit Ethernet
Revision:        01
Manufacturer:    Broadcom Corporation
Serial Number:    0010186FD558
Driver:          bnx2x 1.70.00-0
Number of Ports: 2
```

```
Symbolic Name:    bnx2fc v1.0.5 over eth5.4
OS Device Name:   host11
Node Name:        0x10000010186FD559
Port Name:        0x20000010186FD559
FabricName:       0x2001000DECB3B681
Speed:           10 Gbit
Supported Speed:  10 Gbit
MaxFrameSize:    2048
FC-ID (Port ID): 0x0F0377
State:           Online
```

6. Verify the vlan discovery is performed by running `ifconfig` and notice `<INTERFACE>.<VLAN>-fcoe` interfaces are automatically created.

Refer to `fcoeadm` manpage for more information on `fcoeadm` operations to create/destroy interfaces or to display lun/target information.

NOTE

** Broadcom FCoE capable devices implement a DCBX/LLDP client on-chip. Only one LLDP client is allowed per interface. For proper operation all host software based DCBX/LLDP clients (e.g. `lldpad`) must be disabled. To disable `lldpad` on a given interface, run the following command:

```
lldptool set-lldp -i <interface_name> adminStatus=disabled
```