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Brocade ClearLink and Marvell StorFusion D_Port Test with Marvell QLogic Fibre Channel Adapters

Products Affected

Marvell QLogic® Model	Description
2600 Series	16Gb Fibre Channel Adapters
2700 Series	32Gb Fibre Channel Adapters

1 Introduction

This application note provides instructions to system administrators for using the Brocade® ClearLink diagnostic port (D_Port) test feature on Marvell® QLogic® StorFusion™-enabled Fibre Channel Host Bus Adapters and Brocade switches. The D_Port test allows a SAN administrator to quickly verify and validate all physical connections between hosts and switches, including cabling, SFPs, and latency.

The D_Port integrated test uses both Brocade ClearLink and Marvell StorFusion technology. When enabled, the D_Port feature tests and measures electrical and optical loopback, link traffic, round-trip link latency, and the estimated cable distance and buffers required.

2 Prerequisites

Before you begin, ensure that the following components are installed:

■ Brocade 16/32Gb Fibre Channel switch with a Fabric Vision® license enabled and Fabric OS® (FOS) 7.3 or later

■ Marvell QLogic 2600/2700 Series Fibre Channel Host Bus Adapters with firmware version 8.2.1 or later installed in the server and connected to one or more Brocade switches

■ 16Gbps optics on both sides of the connection

■ Access to a remote desktop or Telnet session

3 Validating Ports with D_Port Test

To validate the functionality and latency of a port, access the Brocade switch from a remote desktop or Telnet session and issue the `switchshow` and various `port` commands. To perform the diagnostics, follow these steps:

1. Log in to the Brocade switch.
2. Choose the ports to test.
3. Disable the Fibre Channel port (F_Port) and enable the D_Port.
4. Run the D_Port test.
5. Disable D_Port and re-enable F_Port.

3.1 Port Validation Details

1. Log in to the Brocade switch.

To access the Brocade switch and use the `switchshow` command to view ports and status, follow these steps:

a. Open a remote desktop or Telnet session.

b. Enter the Brocade switch IP address.

c. Log in and enter the username and password.

d. At the command prompt, issue the `switchshow` command, and then press the ENTER key.

The `switchshow` command output shows the status of all ports on the switch. For example:

```
SW6505_SW1_bottom:admin> switchshow
switchName:      SW6505_SW1_bottom
switchType:      118.1
switchState:     Online
switchMode:      Native
switchRole:      Principal
switchDomain:    1
switchId:        fffc01
switchWwn:       10:00:00:27:f8:c8:65:1b
zoning:          ON (Zone2Config)
switchBeacon:    OFF

Index Port Address Media Speed     State     Proto
==================================================
   0    0   010000   id   N16    No_Light    FC
   1    1   010100   id   N16    No_Light    FC
   2    2   010200   id   N16    No_Light    FC
   3    3   010300   id   N16    No_Light    FC
   4    4   010400   --   N16    No_Module   FC
   5    5   010500   --   N16    No_Module   FC
   6    6   010600   --   N16    No_Module   FC
   7    7   010700   --   N16    No_Module   FC
   8    8   010800   id   N16    No_Light    FC
   9    9   010900   id   N16    Online      FC   F-Port  50:01:43:80:23:1c:4e:2e
  10   10   010a00   id   N4     Online      FC   F-Port  24:70:00:c0:ff:d7:81:73
  11   11   010b00   id   N8     No_Light    FC
```

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```
  12  12   010b00   --   N16   No_Module  FC
. . .
```

2. **Choose the ports to test.**

   Write down the port numbers that you want to test.

3. **Disable the Fibre Channel port (F_Port) and enable the D_Port.**

   To run a D_Port test, the F_Port must be disabled and then re-enabled as a D_Port as follows:

   a. At the command prompt, issue the `portdisable x` command (where `x` indicates the port number), and then press ENTER.

   b. Issue the `portcfgdport --enable x` command, and then press ENTER.

   c. Issue the `portenable x` command, and then press ENTER.

   For example:

```
SW6505_SW1_bottom:admin>
SW6505_SW1_bottom:admin> portdisable 9
SW6505_SW1_bottom:admin> portcfgdport --enable 9

Caution: D_Port functionality is only available on 16G-capable platforms with 16Gb FC SFPs, 10Gb FC
SFPs, 8Gb LWL/ELWL FC SFPs, QSFPs or QSFP+.

SW6505_SW1_bottom:admin> portenable 9
SW6505_SW1_bottom:admin> _
```

   d. To verify that the D_Port is enabled, issue the `switchshow` command, and then press ENTER. For example:

```
SW6505_SW1_bottom:admin> switchshow
switchName:      SW6505_SW1_bottom
switchType:      118.1
switchState:     Online
switchMode:      Native
switchRole:      Principal
switchDomain:    1
switchId:        fffc01
switchWwn:       10:00:00:27:f8:c8:65:1b
zoning:          ON (Zone2Config)
switchBeacon:    OFF

Index Port Address Media Speed      State    Proto
===================================================
   0    0   010000   id    N16    No_Light   FC
   1    1   010100   id    N16    No_Light   FC
   2    2   010200   id    N16    No_Light   FC
   3    3   010300   id    N16    No_Light   FC
   4    4   010400   --    N16    No_Module  FC
   5    5   010500   --    N16    No_Module  FC
   6    6   010600   --    N16    No_Module  FC
   7    7   010700   --    N16    No_Module  FC
   8    8   010800   id    N16    No_Light   FC
   9    9   010900   id    N16    Online     FC   D-Port F-Port  50:01:43:80:23:1c:4e:2e
  10   10   010a00   id    N4     Online     FC   F-Port  24:70:00:c0:ff:d7:81:73
  11   11   010b00   id    N8     No_Light   FC
```

```
 12  12   010c00   --    N16   No_Module  FC
. . .
```

    e.   To configure additional ports, repeat the preceding steps.

4. Run the D_Port test.

    a.   At the command prompt, issue the `portdporttest --show` x command (where x indicates the port number), and then press ENTER.

        The following example shows the results of the D_Port test.

```
SW6505_SW1_bottom:admin> portdporttest --show 9
D-Port Information
==================
Port:                            9
Remote WWPN:                     50:01:43:80:23:1c:4e:2e
Mode:                            Automatic
No. of test frames:              1 Million
Test frame size:                 1024 Bytes
FEC (enabled/option/active):     Yes/No/No
CR (enabled/option/active):      Yes/No/No
Start time:                      Thu Jan 21 21:45:00 2016
End time:                        Thu Jan 21 21:45:42 2016
Status:                          PASSED
===============================================================================
Test                      Start time      Result       EST (HH:MM:SS)   Comments
===============================================================================
Electrical loopback       21:45:16        PASSED       ----------       --------
--
Optical loopback          21:45:32        PASSED       ----------       --------
--
Link traffic test         --------        SKIPPED      ----------       --------
--

===============================================================================
Roundtrip link latency:          136 nano-seconds
Estimated cable distance:        1 meters
Buffers required:                1 (for 2112 byte frames at 16Gbps speed)
SW6505_SW1_bottom:admin> _
```

        If the port does not pass, check the optics, cabling, and connections and repeat the preceding steps; otherwise, continue to Step b.

    b.   To test other ports that have been configured as D_Ports, repeat Step a.

5.   Disable D_Port and re-enable F_Port.

To disable a D_Port and then re-enable it as an F_Port, follow these steps:

a. At the command prompt, issue the `portdisable x` command (where `x` indicates the port number), and then press ENTER.

b. Issue the `portcfgdport --disable x` command, and then press ENTER.

c. Issue the `portenable x` command, and then press ENTER.

For example:

```
SW6505_SW1_bottom:admin>
SW6505_SW1_bottom:admin> portdisable 9
SW6505_SW1_bottom:admin> portcfgdport --disable 9
SW6505_SW1_bottom:admin> portenable 9
SW6505_SW1_bottom:admin> _
```

d. To verify that the F_Port is enabled, issue the `switchshow` command, and then press ENTER. In the command output, confirm the enabled F_Port.

For example:

```
. . .
  8   8   010800   id   N16   No_Light   FC
  9   9   010900   id   N16   Online     FC  F-Port  50:01:43:80:23:1c:4e:2e
 10  10   010a00   id   N4    Online     FC  F-Port  24:70:00:c0:ff:d7:81:73
 11  11   010b00   id   N8    No_Light   FC
 12  12   010c00   --   N16   No_Module  FC
. . .
```

e. To re-enable additional F_Ports, repeat the preceding steps.

The D_Port test is complete.

Document Revision History
Revision A, February 8, 2016.
Revision B, August 31, 2019
Revision C, February 5, 2021
Changes
Update to new Marvell logo.
Removed references to Gen5/Enhanced Gen5.
Added 2700 Series 32Gb Fibre Channel adapters to the Products Affected list.