Technical Notes

# Data Domain Fibre Channel Configuration and Integration with Data Domain Boost for Enterprise Applications Database Application Agent

Version 1.0, 2.x, 3.x, and 4.0

## Technical Notes

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These technical notes provide details about the configuration of Data Domain over Fibre Channel and the integration of Fibre Channel connections with the Data Domain Boost for Enterprise Applications (DDBEA) database application agent.

Topics include:



EMC²

# Revision history

The following table presents the revision history of this document.

**Table 1** Revision history

| Revision | Date | Description |
|---|---|---|
| 04 | July 10, 2017 | Updated the following information:<br>• Added version 4.0 to the document title.<br>• Implemented minor editorial updates throughout the document. |
| 03 | March 16, 2017 | Updated the following information:<br>• Creating and configuring the DD Boost FC groups on page 7 - Added command examples for configuring an AIX DFC setup without DFC drivers by adding disk type devices. |
| 02 | March 2, 2016 | Updating the following information:<br>• Verifying the DFC visibility on different operating systems on page 12 - Added the reference to the article, *Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*, in all the Linux and UNIX subsections.<br>• Verifying the DFC visibility on Solaris SPARC, x86, AMD64 - Added this topic about verifying the DFC devices on Solaris systems.<br>• Removed a topic about the permissions required for running DFC backups and restores.<br>• Reference documentation on page 17 - Added information about the database application agent 2.5 documentation and the article *Fibre Channel Devices with Products using DDBoost in Linux/ UNIX Environment*. |
| 01 | August 27, 2015 | Initial release of this technical notes document. |

# Introduction

Data Domain supports the Data Domain Fibre Channel (DFC or FC) mechanism of communication between the Data Domain Boost (DD Boost) library and the Data Domain system.

# Purpose and scope

This document describes the details of Data Domain over Fibre Channel configurations and the DFC integration with the Data Domain Boost for Enterprise Applications database application agent.

The purpose of this document is to describe how to perform the DFC configuration and verify the DFC backups and restores.

This document does not describe other features of Data Domain over Fibre Channel.

# Intended audience

This document is intended for the solution architects, administrators, and support agents who are involved in the planning and deployment of Data Domain Boost for Enterprise Applications database application agent in DFC environments.

Users of this document must be familiar with the relevant architecture and the basic backup and recovery practices of the database application agent.

# Administrator requirements

The storage administrator must properly zone the clients with the Data Domain systems. The Data Domain administrator must configure DD Boost-over-FC correctly for the DFC backups and restores.

The DBA or application administrator must meet the following requirements:

- Obtain the root or administrator access to the database server.
- Obtain the Data Domain system hostname and DD Boost username and password.
- Create a storage unit on the Data Domain system to be used for DFC backups and restores.
- If Data Domain replication will be used, obtain the corresponding hostname, storage unit, and DD Boost (OST) username and password for the replication target.

# DFC configuration through the CLI

You can perform the procedures to configure the Data Domain Fibre Channel (DFC) through the command line interface (CLI) or the DD System Manager UI.

The following topics describe the DFC configuration procedures through the CLI. The *Data Domain Operating System Command Reference Guide* provides details about each CLI command. Online help also provides the complete syntax for each command.

## Verifying the DD Boost and replication licenses

You can run the appropriate commands as an administrative user on the Data Domain system to verify the DD Boost and replication licenses:

**Procedure**

- Run the following command to verify that DD Boost is licensed:

```
# license show
```

```
Feature: CAPACITY-ACTIVE
------------------------
##   License Key                        Model   Capacity*
--   --------------------------------   -----   ---------
1    195W-G8DZ-PLSJ-944R-TSCD-XXXX-7J   ES30     21.8 TiB
2    XP3U-VLHD-R52E-MNG2-9XEM-XXXX-32   ES30     21.8 TiB
```

```
--   --------------------------------   -----   ---------
Licensed Active Tier Capacity: 43.6 TiB*
```

**Note**

Depending on the hardware or model, the usable file system capacities might vary.

The following output displays the feature licenses:

```
##   License Key           Feature
--   -------------------   -------------------------
1    GXAS-ZHED-HSBW-XXXX   ARCHIVESTORE
2    WZHZ-XHEY-EACF-XXXX   ENCRYPTION
3    BCXC-FAHS-WVYE-XXXX   DDBOOST
4    FHBG-HCRR-SYWF-XXXX   REPLICATION
5    AARR-XFBB-GGZH-XXXX   VTL
6    ACRC-THBW-XHRZ-XXXX   RETENTION-LOCK-GOVERNANCE
--   -------------------   -------------------------
```

- Run the following command to verify that DD Boost is enabled:

```
# ddboost status
```

```
DD Boost status: enabled
```

- Run the following command to verify the DD Boost username:

```
# ddboost show user
```

```
DD Boost user-name: qa_ost
```

## Verifying the DD Boost-over-FC status

You can run the appropriate commands as an administrative user on the Data Domain system to verify the DD Boost-over-FC status.

The DD Boost-over-FC status depends on the SCSI target and the Data Domain file system:

**Procedure**

- The SCSI target must be enabled and running. Run the following command to verify the SCSI target status:

```
# scsitarget status
```

```
SCSI Target subsystem admin state: enabled, process is running,
modules loaded
```

If the SCSI target is not enabled, run the following command to enable the SCSI target:

```
# scsitarget enable
```

- The DD Boost-over-FC option must be enabled. Run one of the following commands to verify the option status:

```
# ddboost option show fc
```

```
DD Boost option "FC" is enabled
```

```
# ddboost fc status
```

```
DDBoost FC admin_state: enabled, process_state: running, licensed
```

If the DD Boost-over-FC option is not enabled, run the following command to enable the option:

```
# ddboost option set fc enabled
```

## Verifying the HBA on the Data Domain system

You can run the appropriate command as an administrative user on the Data Domain system to verify the host bus adapter (HBA) status.

### Procedure

- Run the following command to verify that at least one HBA on the Data Domain system is enabled and online:

```
# scsitarget endpoint show list
```

```
Endpoint         System Address   Transport      Enabled   Status
-------------    --------------   ------------   -------   -------
endpoint-fc-0    5a               FibreChannel   Yes       Online
endpoint-fc-1    5b               FibreChannel   No        Offline
-------------    --------------   ------------   -------   -------
```

## Verifying the FC connectivity between the Data Domain system and clients

You can run the appropriate commands as an administrative user on the Data Domain system to verify the Fibre Channel (FC) connectivity.

An initiator is a port on an HBA attached to a backup client that connects to the system for the purpose of reading and writing data using the FC protocol. The WWPN is the unique world-wide port name of the FC port in the media server.

If the clients and Data Domain system have been zoned correctly, the WWPN of the clients will be visible on the Data Domain system.

### Procedure

- Run the following command to verify the DFC configuration:

```
# scsitarget initiator show list
```

```
Initiator     System Address            Group   Service
-----------   -----------------------   -----   -------
```

```
initiator-1   20:01:bc: 30:5b:62:e6:83    n/a       n/a
initiator-2   10:00:00:00:c9:f1:7b:db     n/a       n/a
-----------   ----------------------   -----   -------
```

The displayed initiators are attached to the clients configured for DFC.

- If required, rename the initiators with client names to identify them appropriately. For example:

```
# scsitarget initiator rename initiator-1 aidbanana
```

```
Initiator 'initiator-1' successfully renamed.
```

```
# scsitarget initiator rename initiator-2 aiqkrnagar
```

```
Initiator 'initiator-2' successfully renamed.
```

Here, aidbanana and aiqkrnagar are the client names. The following command displays the renamed initiators:

```
# scsitarget initiator show list
```

```
Initiator   System Address            Group   Service
----------  ----------------------   -----   -------
aidbanana   20:01:bc:30:5b:62:e6:83     n/a       n/a
aiqkrnagar  10:00:00:00:c9:f1:7b:db     n/a       n/a
----------  ----------------------   -----   -------
```

- Run the following command to verify that the endpoints are present and enabled:

```
# scsitarget endpoint show detailed
```

```
Endpoint:          endpoint-fc-0
System Address:    5a
Enabled:           Yes
Status:            Online
Transport:         FibreChannel
FC Port:           5a
Port ID:           0x011300
Model:             QLE2562
Firmware:          5.04.01
FC WWNN:           20:00:00:22:3a:d0:66:d2
FC WWPN:           25:00:00:22:3a:d0:66:d2
Connection Type:   N-Port
Link Speed:        8 Gbps
FCP2-Retry:        Enabled
FC Topology:       Default

Endpoint:          endpoint-fc-1
System Address:    5b
Enabled:           No
Status:            Offline
Transport:         FibreChannel
FC Port:           5b
Port ID:           0x000000
Model:
Firmware:          0.00.00
FC WWNN:           20:00:00:22:3a:d0:66:d2
FC WWPN:           25:10:00:22:3a:d0:66:d2
```

```
Connection Type:   N-Port
Link Speed:        Unknown
FCP2-Retry:        Enabled
FC Topology:       Default
```

## Listing the dfc-server-name

You can run the appropriate command as an administrative user on the Data Domain system to list the dfc-server-name:

**Procedure**

- Run the following command to display the default dfc-server-name:

```
# ddboost fc dfc-server-name show
```

```
DDBoost dfc-server-name: not configured.
Using hostname "ddavamartwo" as default.
```

In this case, you must configure the clients to use the name DFC-ddavamartwo for DD Boost-over-FC.

The database application agent supports only the default name.

## Creating and configuring the DD Boost FC groups

You can run the appropriate commands as an administrative user on the Data Domain system to create and configure the DD Boost FC groups:

**Procedure**

- Run the following command to create a DD Boost FC group named DDBEA-test:

```
# ddboost fc group create DDBEA-test
```

```
DDBoost FC Group "DDBEA-test" successfully created.
```

- Run the following command to add DD Boost devices to the DD Boost FC group:

```
# ddboost fc group add DDBEA-test device-set count 8 endpoint
all
```

```
Added 8 devices.
Endpoint for all devices in the group is set to "all".
DDBoost FC Group "DDBEA-test" successfully updated.
```

- Run the following command to show details of the DD Boost FC group:

```
# ddboost fc group show detailed DDBEA-test
```

```
DDBoost FC Group: DDBEA-test
State: active

DDBoost FC Initiators: None
DDBoost FC Devices:
```

```
Device Name    LUN   Endpoints
-----------    ---   ---------
ddboost-dev0     0         all
ddboost-dev1     1         all
ddboost-dev2     2         all
ddboost-dev3     3         all
ddboost-dev4     4         all
ddboost-dev5     5         all
ddboost-dev6     6         all
ddboost-dev7     7         all
-----------    ---   ---------
```

- Run the following commands to add initiators to the DD Boost FC group and show the details:

```
# ddboost fc group add DDBEA-test initiator aidbanana
```

```
Initiator(s) "aidbanana" added to group "DDBEA-test".
```

```
# ddboost fc group add DDBEA-test initiator aiqkrnagar
```

```
Initiator(s) "aiqkrnagar" added to group "DDBEA-test".
```

```
# ddboost fc group show detailed DDBEA-test
```

```
DDBoost FC Group: DDBEA-test
State: active

DDBoost FC Initiators:
Initiator Name   System Address
--------------   ----------------------
aidbanana        20:01:bc:30:5b:62:e6:83
aiqkrnagar       10:00:00:00:c9:f1:7b:db
--------------   ----------------------

DDBoost FC Devices:
Device Name    LUN   Endpoints
-----------    ---   ---------
ddboost-dev0     0         all
ddboost-dev1     1         all
ddboost-dev2     2         all
ddboost-dev3     3         all
ddboost-dev4     4         all
ddboost-dev5     5         all
ddboost-dev6     6         all
ddboost-dev7     7         all
-----------    ---   ---------
```

- Run the following command to configure an AIX DFC setup without DFC drivers by adding disk type devices:

**Note**

An AIX DFC setup without DFC drivers is supported only with the database application agent 3.5 and later.

```
# ddboost fc group add DDBEA-test device-set count 8 endpoint
all disk
```

```
Added 8 devices.
Endpoint for all devices in the group is set to "all".
DDBoost FC Group "DDBEA-test" successfully updated.
```

Run the following command to list the disk type devices on the Data Domain system:

```
# ddboost fc group show detailed DDBEA-test
```

```
DDBoost FC Group: DDBEA-test
State: active

DDBoost FC Initiators:
Initiator Name   System Address
--------------   ----------------------
DDBEA-test       10:00:00:00:c9:b7:ff:48
--------------   ----------------------
DDBoost FC Devices:
Device Name      LUN   Endpoints
--------------   ---   ---------
ddboost-disk0      0         all
ddboost-disk1      1         all
ddboost-disk2      2         all
ddboost-disk3      3         all
ddboost-disk4      4         all
ddboost-disk5      5         all
ddboost-disk6      6         all
ddboost-disk7      7         all
ddboost-disk8      8         all
```

# DFC configuration through the Data Domain UI

You can perform the procedures to configure the Data Domain Fibre Channel (DFC) through the command line interface (CLI) or the DD System Manager UI.

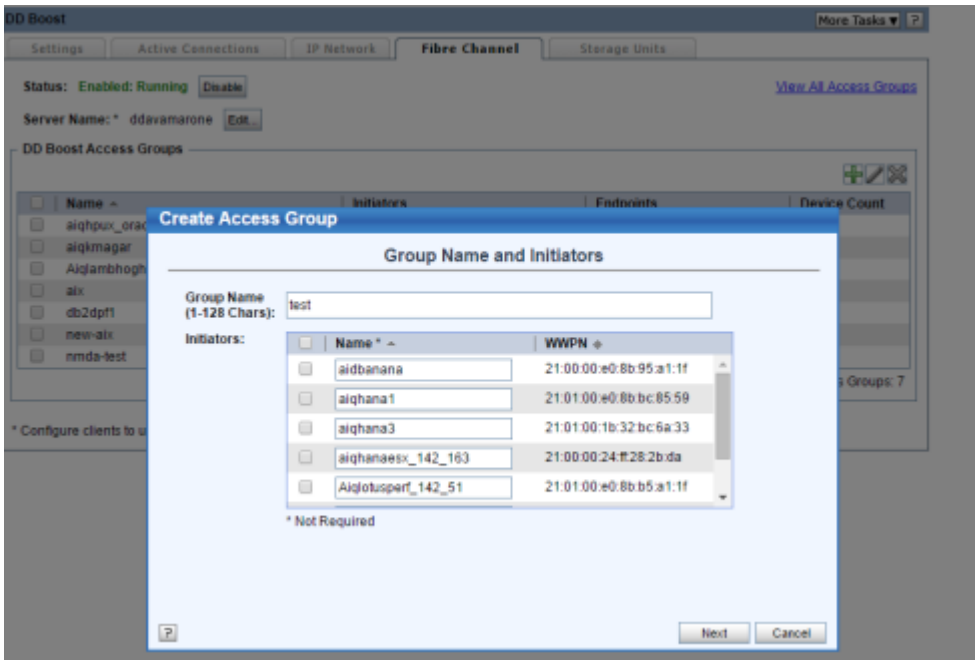
This topic describes the DFC configuration procedures through the Data Domain UI. You can use the DD System Manager UI to create and configure the DD Boost FC groups. The *Data Domain Operating System Administration Guide* provides details about the DD system Manager UI.

1. Go to **Data Management** > **DD Boost** > **Fibre Channel**. In the **DD Boost Access Groups** area, click the **+** icon create an access group.
2. In the **Group Name and Initiators** dialog box, type a unique name for the access group in the **Group Name** text box and select one or more initiators. Click **Next** to continue to the **Devices** dialog box.

   An initiator is a port on an HBA attached to a backup client that connects to the system for the purpose of reading and writing data using the FC protocol. The WWPN is the unique world-wide port name of the FC port in the media server.

The following figure shows the **Group Name and Initiators** dialog box with the specified access group name, test, and a list of initiators.

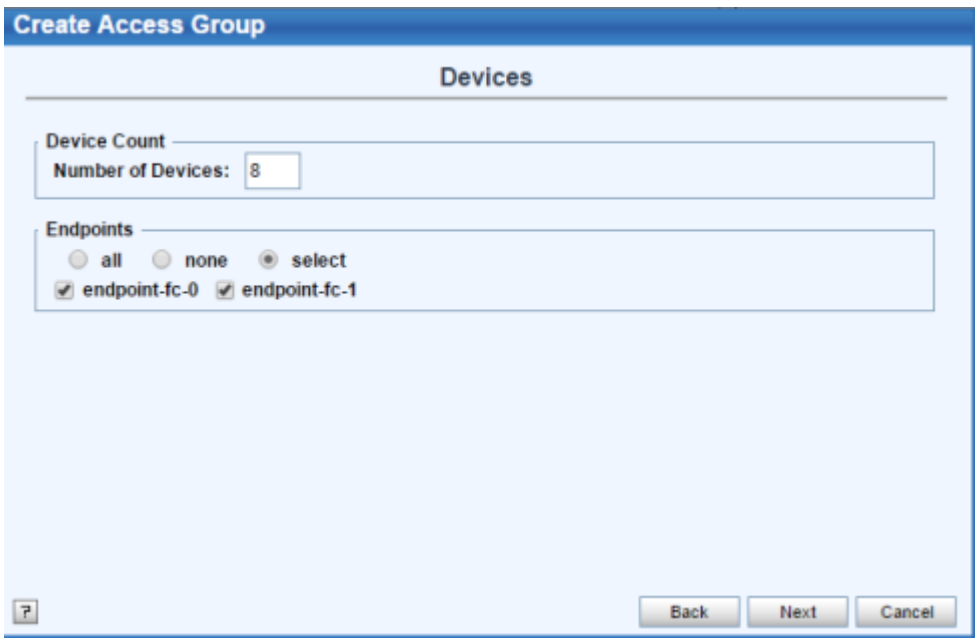
**Figure 1** Specified access group name and list of initiators




3. In the **Devices** dialog box, type a number in the **Number of Devices** text box for the number of DD Boost devices to be used by the access group. Select which endpoints to include in the group: **all**, **none**, or **select** from the list of endpoints. Click **Next** to continue to the **Summary** dialog box.

   The following figure shows the **Devices** dialog box with the specified number of devices and endpoints.

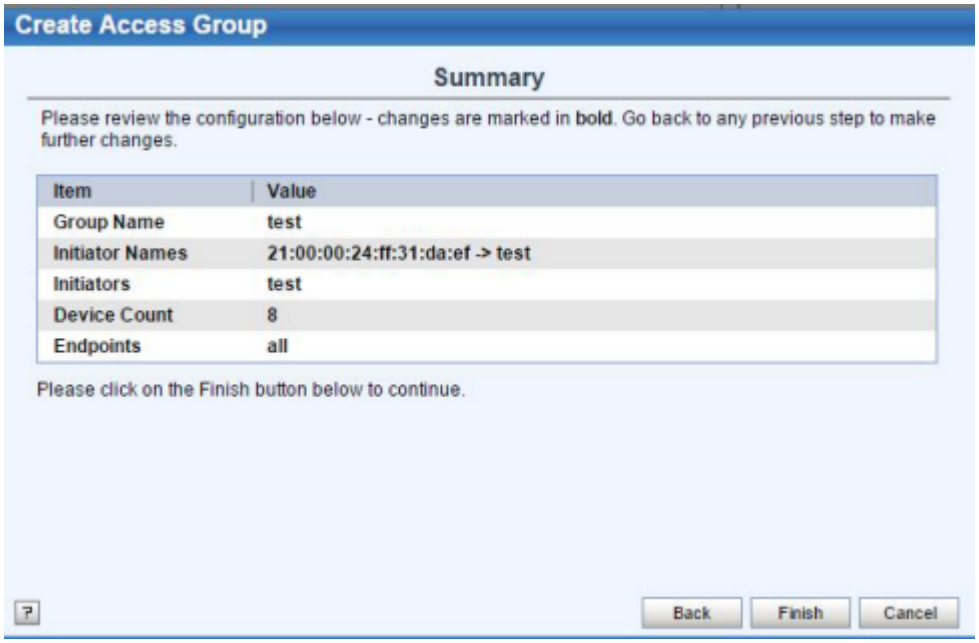
   **Figure 2** Specified number of devices and endpoints for the access group



4. In the **Summary** dialog box, review the configuration information for the access group and go back to previous steps to make any required modifications. Click **Finish** in the **Summary** dialog box to create the access group.

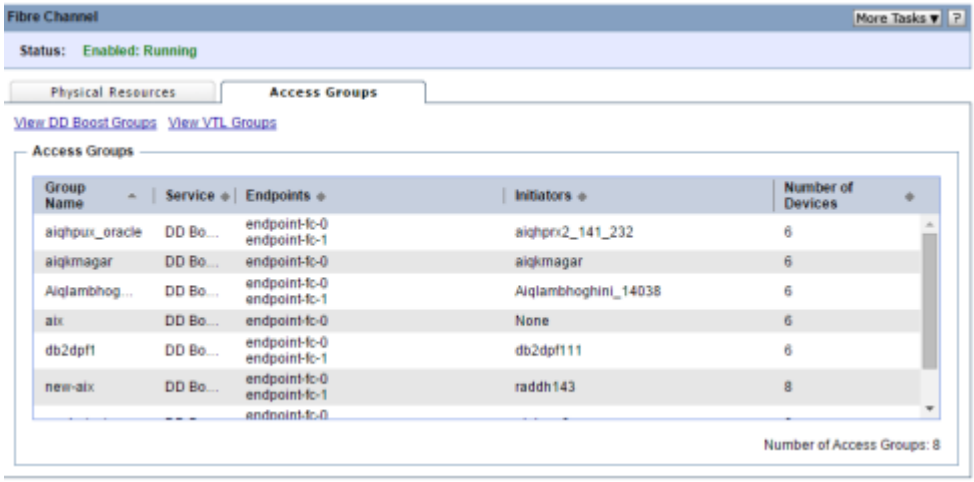
   The following figure shows the **Summary** dialog box with the access group name, test, and the initiator names, assigned device count, initiators, and endpoints.

   **Figure 3** Summary of the access group configuration



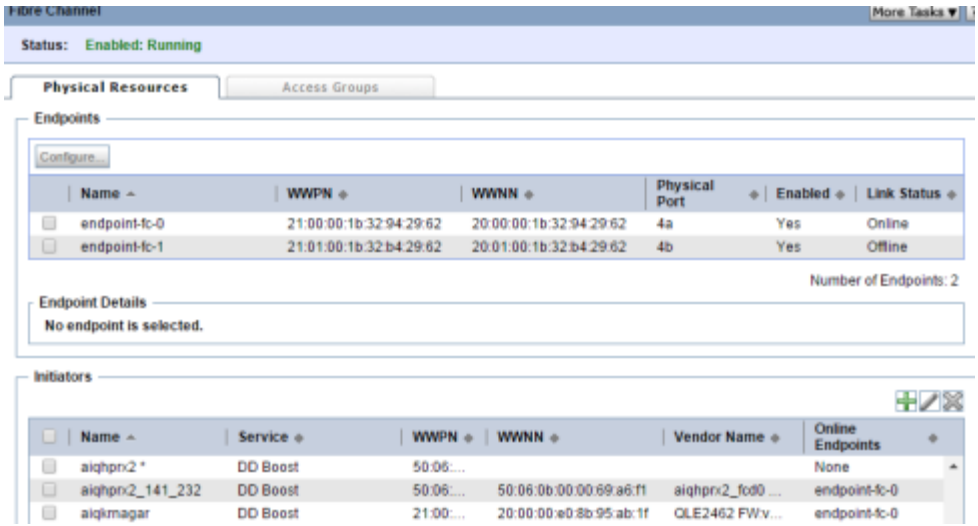

The **Hardware** > **Fibre Channel** > **Access Groups** tab displays the access groups by group name, service (DD Boost in this case), endpoints, initiators, and number of devices, as shown in the following figure.

**Figure 4** Access Groups tab




The **Hardware** > **Fibre Channel** > **Physical Resources** tab displays information about the endpoints and initiators, as shown in the following figure.

**Figure 5** Physical Resources tab




# Verifying the DFC visibility on different operating systems

You must follow the appropriate procedure on the specific type of operating system to verify the DFC visibility.

### Verifying the DFC visibility on AIX

On AIX, you must install the DFC driver 1.0 that is packaged with the Data Domain Boost for Enterprise Applications installation binary.

You can run the `lsdev` command to list the DFC devices. For example:

```
# lsdev
```

```
DDdfc       Available              Data Domain DDdfc Release 1.0.0.4
DDdfc1      Available              Data Domain DDdfc Release 1.0.0.4
DDdfc2      Available              Data Domain DDdfc Release 1.0.0.4
DDdfc3      Available              Data Domain DDdfc Release 1.0.0.4
```

The following Knowledgebase article provides details about permission related issues:

*Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*

(Article Number 000182275, Version 5)

### Verifying the DFC visibility on HP-UX

On HP-UX, you can run the `ioscan` command to list the DFC devices. For example:

```
# ioscan -fnNC ctl
```

```
0/0/0/9/0/0/0.1.237.64.0.0.0       ctl      EMC      DataDomain DFC
0/0/0/9/0/0/0.1.237.64.0.0.1       ctl      EMC      DataDomain DFC
0/0/0/9/0/0/0.1.237.64.0.0.2       ctl      EMC      DataDomain DFC
0/0/0/9/0/0/0.1.237.64.0.0.3       ctl      EMC      DataDomain DFC
```

The following Knowledgebase article provides details about permission related issues:

*Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*

(Article Number 000182275, Version 5)

**Verifying the DFC visibility on Linux**

On Linux, you can reboot to display the DFC devices. If a reboot is not preferred, you can run the following command:

```
# echo "- - -" > /sys/class/scsi_host/host/scan
```

Verify that the following type of device listing appears in `/proc/scsi/scsi`:

```
# cat /proc/scsi/scsi
```

```
Host: scsi2 Channel: 00 Id: 01 Lun: 00
  Vendor: EMC      Model: DataDomain DFC   Rev: 1.0
  Type:   Processor                        ANSI  SCSI revision: 03
Host: scsi2 Channel: 00 Id: 01 Lun: 01
  Vendor: EMC      Model: DataDomain DFC   Rev: 1.0
  Type:   Processor                        ANSI  SCSI revision: 03
Host: scsi2 Channel: 00 Id: 01 Lun: 02
  Vendor: EMC      Model: DataDomain DFC   Rev: 1.0
  Type:   Processor                        ANSI  SCSI revision: 03
Host: scsi2 Channel: 00 Id: 01 Lun: 03
  Vendor: EMC      Model: DataDomain DFC   Rev: 1.0
  Type:   Processor                        ANSI  SCSI revision: 03
Host: scsi2 Channel: 00 Id: 01 Lun: 04
  Vendor: EMC      Model: DataDomain DFC   Rev: 1.0
  Type:   Processor                        ANSI  SCSI revision: 03
```

The following Knowledgebase article provides details about permission related issues:

*Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*

(Article Number 000182275, Version 5)

**Verifying the DFC visibility on Solaris SPARC, x86, AMD64**

On Solaris, you can run the `fcinfo` command to list the HBA information. For example, the following command output is from a Solaris SPARC 10 system:

```
# fcinfo hba-port
```

```
HBA Port WWN: 10000000c9a788aa
OS Device Name: /dev/cfg/c2
Manufacturer: Emulex
Model: LPe12000-S
Firmware Version: 1.00a12 (U3D1.00A12)
FCode/BIOS Version: Boot:5.03a0 Fcode:3.01a1
Serial Number: 0999VM0-1042001GOF
Driver Name: emlxs
Driver Version: 2.60k (2011.03.24.16.45)
Type: N-port
State: online
Supported Speeds: 2Gb 4Gb 8Gb
Current Speed: 8Gb
Node WWN: 20000000c9a788aa
```

You can check the DFC devices by running the `fcinfo remote-port` command with the WWN number as listed in the preceding command output:

```
# fcinfo remote-port –ls –p 20000000c9a788aa
```

```
Invalid CRC Count: 0
LUN: 0
Vendor: EMC
Product: DataDomain DFC
OS Device Name: /devices/pci@400/pci@0/pci@d/SUNW,emlxs@0/fp@0,0/
processor@w21000024ff2fdc86,0
```

The `fcinfo remote-port` command output should list at least one Data Domain device. Look for the line `Vendor: EMC`, followed by the line `Product: Data Domain DFC`. If `sgen` is already configured for the DFC processor devices, the command displays an `OS Device Name:` line that contains the word `processor`, immediately after the line `Product: DataDomain DFC`.

If the lines `Vendor: EMC` and `Product: DataDomain DFC` are not listed, configure `sgen` as follows and enable connectivity to a Data Domain device:

1. Edit the `/etc/system` file, and add the following line in the forceload section:

   ```
   forceload: drv/sgen
   ```

   This line enables the loading of `sgen` during the machine startup.

2. Run the following command to check for existing usage of `sgen`:

   ```
   # grep sgen /etc/driver_aliases
   ```

   If `sgen` already exists, then run the following command to remove it:

   ```
   # rem_drv sgen
   ```

3. Run the `add_drv` command to add the `sgen` driver. Ensure that you specify scsiclass,03 for the processor:

   ```
   # add_drv -m '* 0600 root sys' -i "scsiclass,03" sgen
   ```

You can run the following command to verify the proper DFC device configuration, where the type should be listed as processor:

```
# cfgadm -al
```

```
Ap_Id                          Type          Receptacle   Occupant     Condition
c1                             scsi-sata     connected    configured   unknown
c1::dsk/c1t0d0                 disk          connected    configured   unknown
c1::dsk/c1t1d0                 disk          connected    configured   unknown
c2                             fc-fabric     connected    configured   unknown
c2::21000024ff2fdc86           processor     connected    configured   unknown
c3                             fc            connected    configured   unknown
```

For example, if the Ap_Id c2 is not configured, you can run the following command to configure c2:

```
# cfgadm -c configure c2
```

Then you can run the following command to list the corresponding DFC devices:

```
# cfgadm -al -o show_FCP_dev c2
```

```
Ap_Id                          Type         Receptacle   Occupant     Condition
c2                             fc-fabric    connected    configured   unknown
c2::21000024ff2fdc86,0         processor    connected    configured   unknown
c2::21000024ff2fdc86,1         processor    connected    configured   unknown
c2::21000024ff2fdc86,2         processor    connected    configured   unknown
c2::21000024ff2fdc86,3         processor    connected    configured   unknown
c2::21000024ff2fdc86,4         processor    connected    configured   unknown
c2::21000024ff2fdc86,5         processor    connected    configured   unknown
c2::21000024ff2fdc86,6         processor    connected    configured   unknown
c2::21000024ff2fdc86,7         processor    connected    configured   unknown
c2::21000024ff2fdc86,8         processor    connected    configured   unknown
c2::21000024ff2fdc86,9         processor    connected    configured   unknown
c2::21000024ff2fdc86,10        processor    connected    configured   unknown
c2::21000024ff2fdc86,11        processor    connected    configured   unknown
c2::21000024ff2fdc86,12        processor    connected    configured   unknown
c2::21000024ff2fdc86,13        processor    connected    configured   unknown
c2::21000024ff2fdc86,14        processor    connected    configured   unknown
c2::21000024ff2fdc86,15        processor    connected    configured   unknown
c2::21000024ff2fdc86,16        processor    connected    configured   unknown
c2::21000024ff2fdc86,17        processor    connected    configured   unknown
c2::21000024ff2fdc86,18        processor    connected    configured   unknown
c2::21000024ff2fdc86,19        processor    connected    configured   unknown
c2::21000024ff2fdc86,20        processor    connected    configured   unknown
c2::21000024ff2fdc86,21        processor    connected    configured   unknown
```

The following Knowledgebase article provides details about permission related issues:

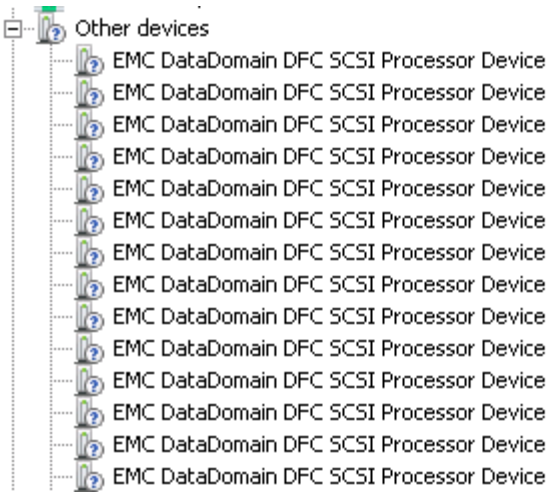
*Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*

(Article Number 000182275, Version 5)

**Verifying the DFC visibility on Windows**

On Windows, go to **Computer Management** > **Device Manager** > **Scan for Hardware Changes**. The DFC devices are listed in the Device Manager under Other Devices, as shown in the following figure.

**Figure 6** DFC device listing on Windows




# Verifying DFC backups and restores from the client and Data Domain

You can run the appropriate command as an administrative user on the Data Domain system to verify the DFC backups and restores from the client and Data Domain.

Run the following command to verify the status of existing DFC connections in the interface group:

```
# ddboost show connections
```

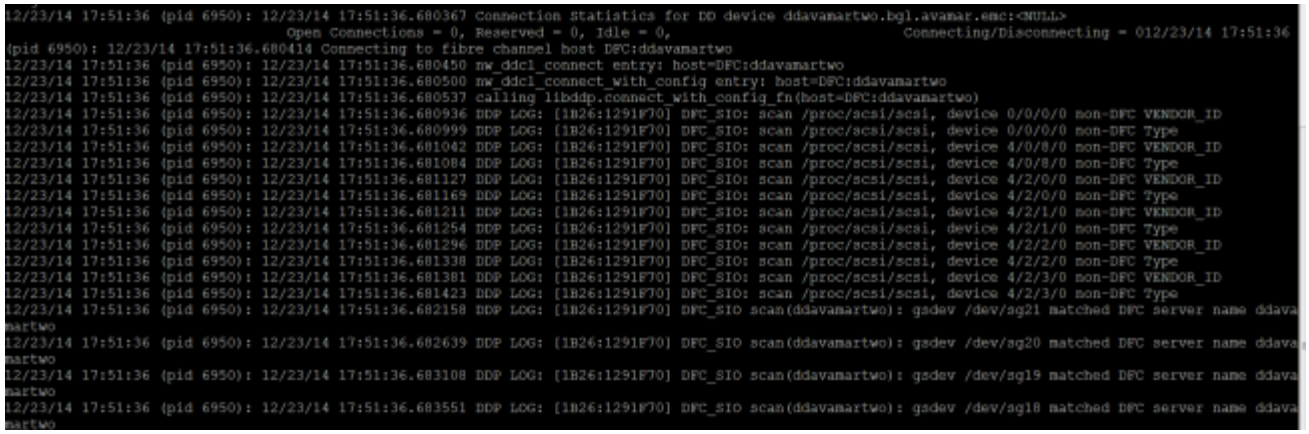
The following figure shows an example of output from the `ddboost show connections` command.

**Figure 7** Output of the `ddboost show connections` command

```
Client Connections:
Max Client Connections: 90
-------------- ifgroup --------------   ---------------- Client Connections -----------   - DD Connections -   -----
                                             ----- Control -----                 ------ Data ------
Group-name   Status            Interface   Write   Read   Src-repl   Dst-repl   Synthetic   Repl-out   Repl-in   Total
----------   -------   ------------------   -----   ----   --------   --------   ---------   --------   -------   -----
none                       10.31.140.253       0      0          0          0           0          0         0       0
n/a                          DDBOOST_FC        1      0          0          0           0          0         0       1
----------   -------   ------------------   -----   ----   --------   --------   ---------   --------   -------   -----
                     Total Connections:        1      0          0          0           0          0         0       1
----------   -------   ------------------   -----   ----   --------   --------   ---------   --------   -------   -----
```

The following figure shows an example of logs for DFC backups to a Data Domain system.

**Figure 8** Example of DFC backup logs




# Reference documentation

The following documents provide additional information about the database application agent:

- *Data Domain Boost for Databases and Applications 1.0 Administration Guide*
- *Data Domain Boost for Databases and Applications 1.0 Release Notes*
- *Data Domain Boost for Enterprise Applications and ProtectPoint Database Application Agent Installation and Administration Guide* for the database application agent version 2.0 or later
- *Data Domain Boost for Enterprise Applications and ProtectPoint Database Application Agent Release Notes* for the database application agent version 2.0 or later

The following Knowledgebase article provides details about permission related issues for DFC devices on Linux and UNIX systems:

*Fibre Channel Devices with Products using DDBoost in Linux/UNIX Environment*

(Article Number 000182275, Version 5)

You can access all the documentation from Support website at https://support.emc.com.

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