



SAN Host Utilities

ONTAP SAN Host

NetApp
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Linux Unified Host Utilities 7.1

Pre-requisites

Before you begin

- For reliable operation, you must verify that your entire iSCSI, FC, or FCoE configuration is supported.

You can use the [NetApp Interoperability Matrix Tool](#) to verify your configuration.

- You must install the HBA management packages provided by the vendors on their web sites.

The management software enables the SAN Tool kit commands to gather information about the FC HBAs, such as their WWPNs. For `sanlun fcp show adapter` to work, ensure that the following packages are installed:

- QLogic HBA – QConvergeConsole CLI
- Emulex HBA - OneCommand Manager core application CLI
- Brocade HBA – Brocade Command Utility CLI

RPM Packages “libhbaapi” & “libhbalinux” available for each Linux Distribution should be installed on the host OS.

SAN Toolkit

Linux Unified Host Utilities is a NetApp host software that provides a command line tool kit on your Linux host.

The toolkit is installed automatically when you install the NetApp Host Utilities package. This kit provides the `sanlun` utility, which helps you manage LUNs and HBAs. The `sanlun` command returns information about the LUNs mapped to your host, multipathing, and information necessary to create initiator groups.

Example

In the following example, the `sanlun lun show command` returns LUN information.

```
# sanlun lun show all
controller(7mode/E-Series)/          device      host          lun
vserver(cDOT/FlashRay)  lun-pathname filename  adapter  protocol  size
Product
-----
data_vserver          /vol/vol1/lun1  /dev/sdb  host16  FCP
120.0g  cDOT
data_vserver          /vol/vol1/lun1  /dev/sdc  host15  FCP
120.0g  cDOT
data_vserver          /vol/vol2/lun2  /dev/sdd  host16  FCP
120.0g  cDOT
data_vserver          /vol/vol2/lun2  /dev/sde  host15  FCP
120.0g  cDOT
```



This toolkit is common across all configurations and protocols of the Host Utilities. As a result some of its contents apply to one configuration, but not another. Having unused components does not affect your system performance.



The SAN toolkit is not supported on Citrix XenServer, Oracle VM, and Red Hat Enterprise Virtualization Hypervisor.

Installing Linux Unified Host Utilities

The NetApp Linux Unified Host Utilities software package is available on the [NetApp Support Site](#) in a 32-bit or 64-bit .rpm file.

Installing the Linux Unified Host Utilities is strongly recommended, but not mandatory. The utilities do not change any settings on your Linux host. The utilities improve management and assist NetApp customer support in gathering information about your configuration.

1. If you have a version of Linux Unified Host Utilities currently installed, use the following command to remove it:

```
rpm -e netapp_linux_unified_host_utilities-7-1
```

For older versions of Linux Host Utilities, go to the directory where the host utility software is installed and enter the `uninstall` command.

2. Download the either the 32-bit or 64-bit Linux Unified Host Utilities software package from the [NetApp Support Site](#) to your host.
3. Go to the directory to which you downloaded the software package and use the following command to install it:

```
rpm -ivh netapp_linux_unified_host_utilities-7-1.x86_xx.rpm
```

```
Verifying... #####  
[100%]  
Preparing... #####  
[100%]  
Updating / installing...  
  1:netapp_linux_unified_host_utiliti#####  
[100%]
```

4. Verify the installation:

```
sanlun version
```

```
sanlun version 7.1.386.1644
```

Sample command reference

List all host initiators mapped to host

```
# sanlun fcp show adapter -v

adapter name:      host15
WWPN:             10000090fa022736
WWNN:             20000090fa022736
driver name:      lpfc
model:            LPe16002B-M6
model description: Emulex LPe16002B-M6 PCIe 2-port 16Gb Fibre Channel
Adapter
serial number:    FC24637890
hardware version: 0000000b 00000010 00000000
driver version:   12.8.0.5; HBAAPI(I) v2.3.d, 07-12-10
firmware version: 12.8.340.8
Number of ports:  1
port type:       Fabric
port state:      Operational
supported speed:  4 GBit/sec, 8 GBit/sec, 16 GBit/sec
negotiated speed: 16 GBit/sec
OS device name:  /sys/class/scsi_host/host15

adapter name:      host16
WWPN:             10000090fa022737
WWNN:             20000090fa022737
driver name:      lpfc
model:            LPe16002B-M6
model description: Emulex LPe16002B-M6 PCIe 2-port 16Gb Fibre Channel
Adapter
serial number:    FC24637890
hardware version: 0000000b 00000010 00000000
driver version:   12.8.0.5; HBAAPI(I) v2.3.d, 07-12-10
firmware version: 12.8.340.8
Number of ports:  1
port type:       Fabric
port state:      Operational
supported speed:  4 GBit/sec, 8 GBit/sec, 16 GBit/sec
negotiated speed: 16 GBit/sec
OS device name:  /sys/class/scsi_host/host16
```

List all LUNs mapped to host

```
# sanlun lun show -p -v all
```

```
ONTAP Path: vs_sanboot:/vol/sanboot_169/lun
LUN: 0
LUN Size: 150g
Product: cDOT
Host Device: 3600a0980383143393124515873683561
Multipath Policy: service-time 0
DM-MP Features: 3 queue_if_no_path pg_init_retries 50
Hardware Handler: 1 alua
Multipath Provider: Native
```

```
-----
-----
dm-mp      host      vservers      host:
state      path      path          /dev/         chan:         vservers      major:
           state    type          node          id:lun        LIF           minor
-----
-----
active     up        primary       sdq           15:0:5:0      lif_18        65:0
active     up        primary       sds           16:0:5:0      lif_17        65:32
active     up        primary       sdac          16:0:7:0      lif_25        65:192
active     up        primary       sdad          15:0:7:0      lif_26        65:208
active     up        secondary     sdt           15:0:4:0      lif_20        65:48
active     up        secondary     sdr           15:0:6:0      lif_19        65:16
active     up        secondary     sdad          16:0:4:0      lif_27        66:96
active     up        secondary     sdan          16:0:6:0      lif_28        66:112
```

List all LUNs mapped to host from a given SVM

```
# sanlun lun show -p -v vs_sanboot
```

```
ONTAP Path: vs_sanboot:/vol/sanboot_169/lun
LUN: 0
LUN Size: 160g
Product: cDOT
Host Device: 3600a0980383143393124515873683561
Multipath Policy: service-time 0
DM-MP Features: 3 queue_if_no_path pg_init_retries 50
Hardware Handler: 1 alua
Multipath Provider: Native
```

```
-----
-----
dm-mp      host      vservers  host:
major:    path      path      /dev/    chan:      vservers
state     state     type      node     id:lun     LIF
minor
-----
-----
active    up        primary   sdce     15:0:5:0   lif_16g_5
69:32
active    up        primary   sdfk     16:0:5:0   lif_16g_7
130:96
active    up        primary   sdfm     16:0:7:0   lif_16g_8
130:128
active    up        primary   sdcg     15:0:7:0   lif_16g_6
69:64
active    up        secondary sdcd     15:0:4:0   lif_16g_1
69:16
active    up        secondary sdcf     15:0:6:0   lif_16g_2
69:48
active    up        secondary sdfj     16:0:4:0   lif_16g_3
130:80
active    up        secondary sdfl     16:0:6:0   lif_16g_4
130:112
```

List all attributes of a given LUN mapped to host


```
# sanlun lun show -p -v vs_sanboot:/vol/sanboot_169/lun
```

```
ONTAP Path: vs_sanboot:/vol/sanboot_169/lun
LUN: 0
LUN Size: 160g
Product: cDOT
Host Device: 3600a0980383143393124515873683561
Multipath Policy: service-time 0
DM-MP Features: 3 queue_if_no_path pg_init_retries 50
Hardware Handler: 1 alua
Multipath Provider: Native
```

```
-----
-----
dm-mp      host      vsserver      host:
major:    path      path          /dev/      chan:      vsserver
state     state     type          node      id:lun     LIF
minor
-----
-----
active     up        primary      sdce      15:0:5:0   lif_16g_5
69:32
active     up        primary      sdfk      16:0:5:0   lif_16g_7
130:96
active     up        primary      sdfm      16:0:7:0   lif_16g_8
130:128
active     up        primary      sdcg      15:0:7:0   lif_16g_6
69:64
active     up        secondary    sdcd      15:0:4:0   lif_16g_1
69:16
active     up        secondary    sdcf      15:0:6:0   lif_16g_2
69:48
active     up        secondary    sdfj      16:0:4:0   lif_16g_3
130:80
active     up        secondary    sdfl      16:0:6:0   lif_16g_4
130:112
```

List the ONTAP SVM identity from which a given LUN is mapped to host

```

# sanlun lun show -m -v vs_sanboot:/vol/sanboot_169/lun
                                device
host                            lun
vserver                          lun-pathname      filename
adapter  protocol  size  product
-----
vs_sanboot                        /vol/sanboot_169/lun      /dev/sdfm
host16    FCP        160g  cDOT
        LUN Serial number: 81C91$QXsh5a
        Controller Model Name: AFF-A400
        Vserver FCP nodename: 2008d039ea1308e5
        Vserver FCP portname: 2010d039ea1308e5
        Vserver LIF name: lif_16g_8
        Vserver IP address: 10.141.12.165
                                10.141.12.161
                                10.141.12.163
        Vserver volume name: sanboot_169
MSID::0x00000000000000000000000000000809E7CC3
        Vserver snapshot name:

```

List ONTAP LUN attributes by Host Device File name

```

# sanlun lun show -d /dev/sdce
controller(7mode/E-Series)/      device      host
lun
vserver(cDOT/FlashRay)          lun-pathname  filename    adapter
protocol  size  product
-----
vs_sanboot                        /vol/sanboot_169/lun      /dev/sdce   host15
FCP        160g  cDOT
[root@sr630-13-169 ~]#

```

List all SVM target LIF WWPNS attached to host

```

# sanlun lun show -wwpn
controller(7mode/E-Series)/ target
device          host          lun
vserver(cDOT/FlashRay)      wwpn          lun-pathname
filename        adapter      size    product
-----
-----
vs_169_16gEmu          202cd039ea1308e5  /vol/VOL_8g_169_2_8/lun
/dev/sdlo             host18          10g     cDOT
vs_169_16gEmu          202cd039ea1308e5  /vol/VOL_8g_169_2_9/lun
/dev/sdlp             host18          10g     cDOT
vs_169_16gEmu          202cd039ea1308e5  /vol/VOL_8g_169_2_7/lun
/dev/sdln             host18          10g     cDOT
vs_169_16gEmu          202cd039ea1308e5  /vol/VOL_8g_169_2_5/lun
/dev/sdll             host18          10g     cDOT

```

List ONTAP LUNs seen on host by a given SVM target LIF WWPN

```

# sanlun lun show -wwpn 2010d039ea1308e5
controller(7mode/E-Series)/ target
device          host          lun
vserver(cDOT/FlashRay)      wwpn          lun-pathname
filename        adapter      size    product
-----
-----
vs_sanboot          2010d039ea1308e5  /vol/sanboot_169/lun
/dev/sdfm           host16          160g    cDOT

```

Notice File

[Linux Unified Host Utilities Notice File](#)

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