



# **Solaris Host Utilities**

SAN hosts and cloud clients

NetApp  
March 29, 2024

# Table of Contents

- Solaris Host Utilities ..... 1
  - Solaris Host Utilities 6.2 Release Notes ..... 1
  - Install Solaris Host Utilities 6.2 ..... 1
  - Solaris Host Utilities 6.2 command reference ..... 4

# Solaris Host Utilities

## Solaris Host Utilities 6.2 Release Notes

The release notes describe new features and enhancements, issues fixed in the current release, known problems and limitations, and important cautions related to configuring and managing your specific Solaris host with your ONTAP storage system..

For specific information about the operating system versions and updates that the Host Utilities support, see the [NetApp Interoperability Matrix Tool](#).

### Known problems and limitations

You should be aware of the following known problems and limitations that might impact performance on your specific host.

Bug ID	Title	Description
<a href="#">1385189</a>	Solaris 11.4 FC driver binding changes required in HUK 6.2	Solaris 11.4 and HUK recommendations: FC driver binding is changed from <code>ssd(4D)</code> to <code>sd(4D)</code> . Move configuration that you have in <code>ssd.conf</code> to <code>sd.conf</code> as mentioned in Oracle (Doc ID 2595926.1). The behavior varies across newly installed Solaris 11.4 systems and systems upgraded from 11.3 or lower versions.

[NetApp Bugs Online](#) provides complete information for most known issues, including suggested workarounds where possible. Some keyword combinations and bug types that you might want to use include the following:

- FCP General: Displays FC and host bus adapter (HBA) bugs that are not associated with a specific host.
- FCP - Solaris

## Install Solaris Host Utilities 6.2

The Solaris Unified Host Utilities assists you in managing NetApp ONTAP storage attached to a Solaris host.

The Solaris Host Utilities 6.2 supports several Solaris environments and multiple protocols. The primary host utilities environments are:

- Native OS with MPxIO with either the Fibre Channel (FC) or iSCSI protocol on a system using either a SPARC processor or an x86/64 processor.
- Veritas Dynamic Multipathing (DMP) with either the FC or iSCSI protocol on a system using a SPARC processor, or the iSCSI protocol on a system using an x86/64 processor.

The Solaris Unified Host Utilities 6.2 continues to support the following versions of Solaris:

- Solaris 11.x series
- Solaris 10.x series

### What you'll need

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

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



The NetApp Solaris Host Utilities software package is available on the [NetApp Support Site](#) in a compressed file format for your processor. You can download the Host Utilities software package for your environment from the Support site.

### Steps

1. Login to your host as root.
2. Download a copy of the compressed file containing the Host Utilities from the [NetApp Support Site](#) to a directory on your host.

At the time this documentation was prepared, the compressed files were called:

- SPARC CPU: `netapp_solaris_host_utilities_6_2_sparc.tar.gz`
- x86/x64 CPU: `netapp_solaris_host_utilities_6_2_amd.tar.gz`

3. Go to the directory containing the download.
4. Unzip the file using the `gunzip` command:

```
# gunzip netapp_solaris_host_utilities_6_2_sparc.tar.gz
```

5. Unzip the file. You can use the `tar xvf` command to do this.

```
# tar xvf netapp_solaris_host_utilities_6_2_sparc.tar
```

6. Add the packages that you extracted from tar file to your host. You can use the `pkgadd` command to do this.

The packages are added to the `/opt/NTAP/SANToolkit/bin` directory. The following example uses the `pkgadd` command to install the Solaris installation package:

```
# pkgadd -d ./NTAPSANTool.pkg
```

7. Confirm that the toolkit was successfully installed by using the `pkginfo` command or the `ls -al` command.

```
# ls -alR /opt/NTAP/SANToolkit
/opt/NTAP/SANToolkit:
total 1038
drwxr-xr-x  3 root    sys          4 Jul 22  2019 .
drwxr-xr-x  3 root    sys          3 Jul 22  2019 ..
drwxr-xr-x  2 root    sys          6 Jul 22  2019 bin
-r-xr-xr-x  1 root    sys      432666 Sep 13  2017 NOTICES.PDF

/opt/NTAP/SANToolkit/bin:
total 7962
drwxr-xr-x  2 root    sys          6 Jul 22  2019 .
drwxr-xr-x  3 root    sys          4 Jul 22  2019 ..
-r-xr-xr-x  1 root    sys     2308252 Sep 13  2017 host_config
-r-xr-xr-x  1 root    sys        995 Sep 13  2017 san_version
-r-xr-xr-x  1 root    sys    1669204 Sep 13  2017 sanlun
-r-xr-xr-x  1 root    sys        677 Sep 13  2017 vidpid.dat

# (cd /usr/share/man/man1; ls -al host_config.1 sanlun.1)
-r-xr-xr-x  1 root    sys      12266 Sep 13  2017 host_config.1
-r-xr-xr-x  1 root    sys      9044 Sep 13  2017 sanlun.1
```

8. After you finish, configure the host parameters for your environment using the `/opt/NTAP/SANToolkit/bin/host_config` command:

- MPxIO
- Veritas DMP

9. Verify the installation:

```
sanlun version
```

## SAN Toolkit

Solaris Host Utilities is a NetApp host software that provides a command line toolkit on your Oracle Solaris host. The toolkit is installed when you install the NetApp Host Utilities package. This kit provides the `sanlun` utility which helps you manage LUNs and host bus adapters (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 the LUN information.

```
#sanlun lun show all
controller(7mode)/ device host lun
vserver(Cmode)                lun-pathname          filename
adapter protocol size mode
-----
data_vserver                    /vol/vol1/lun1
/dev/rdisk/c0t600A098038304437522B4E694E49792Dd0s2 qlc3    FCP      10g
cDOT
data_vserver                    /vol/vol0/lun2
/dev/rdisk/c0t600A098038304437522B4E694E497938d0s2 qlc3    FCP      10g
cDOT
data_vserver                    /vol/vol2/lun3
/dev/rdisk/c0t600A098038304437522B4E694E497939d0s2 qlc3    FCP      10g
cDOT
data_vserver                    /vol/vol3/lun4
/dev/rdisk/c0t600A098038304437522B4E694E497941d0s2 qlc3    FCP      10g
cDOT
```



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

## Solaris Host Utilities 6.2 command reference

You can use the Solaris Host Utilities 6.2 sample command reference for an end-to-end validation of the NetApp storage configuration using the host utilities tool.

### List all host initiators mapped to host

You can retrieve a list of all host initiators mapped to a host.

```
# sanlun fcp show adapter -v
```

### Example output

```
adapter name:      qlc3
WWPN:              21000024ff17a301
WWNN:              20000024ff17a301
driver name:       qlc
model:             7335902
model description: 7115462, Oracle Storage Dual-Port 32 Gb Fibre Channel
PCIe HBA
serial number:     463916R+1720333838
hardware version:  Not Available
driver version:    210226-5.10
firmware version:  8.08.04
Number of ports:   1 of 2
port type:         Fabric
port state:        Operational
supported speed:   8 GBit/sec, 16 GBit/sec, 32 GBit/sec
negotiated speed:  32 GBit/sec
OS device name:    /dev/cfg/c7
```

```
adapter name:      qlc2
WWPN:              21000024ff17a300
WWNN:              20000024ff17a300
driver name:       qlc
model:             7335902
model description: 7115462, Oracle Storage Dual-Port 32 Gb Fibre Channel
PCIe HBA
serial number:     463916R+1720333838
hardware version:  Not Available
driver version:    210226-5.10
firmware version:  8.08.04
Number of ports:   2 of 2
port type:         Fabric
port state:        Operational
supported speed:   8 GBit/sec, 16 GBit/sec, 32 GBit/sec
negotiated speed:  16 GBit/sec
OS device name:    /dev/cfg/c6
```

## List all LUNs mapped to host

You can retrieve a list of all LUNs mapped to a host.

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

## Example output

```

        ONTAP Path: data_vserver:/vol1/lun1
            LUN: 1
        LUN Size: 10g
    Host Device:
/dev/rdisk/c0t600A0980383044485A3F4E694E4F775Ad0s2
        Mode: C
    Multipath Provider: Sun Microsystems
    Multipath Policy: Native

```

## List all LUNs mapped to host from a given SVM/ List all attributes of a given LUN mapped to host

You can retrieve a list of all LUNs mapped to a host from a certain SVM.

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

### Example output

```

ONTAP Path: sanboot_unix:/vol/sol_boot/sanboot_lun
            LUN: 0
        LUN Size: 180.0g

```

## List ONTAP LUN attributes by host device filename

You can retrieve a list of all ONTAP LUN attributes by specifying a host device filename.

```
# sanlun lun show all
```

### Example output

```

controller(7mode/E-Series)/                                device
vserver(cDOT/FlashRay)      lun-pathname
filename
-----
sanboot_unix                /vol/sol_193_boot/chatsol_193_sanboot
/dev/rdisk/c0t600A098038304437522B4E694E4A3043d0s2

host adapter    protocol lun size    product
-----
qlc3            FCP      180.0g    cDOT

```



## Copyright information

Copyright © 2024 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.