IBM System Storage
N series

IBM

The Solaris Host Utilities 6.0 Quick Start Guide

This guide is for experienced Solaris users. It provides the basic information required to get the Solaris Host Utilities installed and set up on a Solaris host.

The steps listed are for a typical installation and cover multiple Solaris environments, including MPxIO and Veritas Storage Foundation with Veritas Dynamic Multipathing (VxDMP). While many steps are common to all environments, some steps apply only to a specific environment.

If you are not an experienced Solaris user, see the *Solaris Host Utilities Installation and Setup Guide*. This document provides detailed steps and examples. It also includes instructions for optional tasks, such as troubleshooting and setting up a SAN boot LUN.

For information about installing and setting up third-party hardware and applications such as host bus adapters or Veritas Storage Foundation, see the documentation that accompanies that product.

Note: There are known problems that can affect your system setup. Read the *Solaris Host Utilities Release Notes* before you install the Host Utilities. The *Release Notes* are updated whenever an issue is found and contain the information that was discovered after this guide was produced.

Task 1: Make sure the prerequisites for installing and setting up the Host Utilities have been met

There are several tasks that you should perform before you install the Host Utilities.

These tasks include the following:

1. Verify your system setup:
   - Host operating system and appropriate updates
   - HBAs or software initiators
   - Drivers
   - **Veritas environments only:** Veritas Storage Foundation, the Array Support Library (ASL) for the storage controllers, and if you are using Veritas Storage Foundation 5.0, the Array Policy Module (APM)

     Note: Make sure you have the Veritas Volume Manager (VxVM) installed before you install the ASL and APM software. The ASL and APM are available from the Symantec website.
   - Volume management and multipathing, if used
   - Storage system with Data ONTAP installed
   - **iSCSI environments only:** Record or set the host's iSCSI node name
   - **FC environments only:** Switches, if used

     Note: For information about supported topologies, see the *SAN Configuration Guide* (called *Fibre Channel and iSCSI Configuration Guide* in Data ONTAP 8.1 and earlier) for your version of Data ONTAP, which is available online.

   For the most current information about system requirements, see the N series interoperability matrix website at www.ibm.com/systems/storage/network/interophome.html
2. Verify that your storage system is:

- Licensed correctly for the protocol you are using and running that protocol service
- Using the recommended `cfmode`(single-image)
- Configured to work with the target HBAs, as needed by your protocol
- Set up to work with the Solaris host and the initiator HBAs or software initiators, as needed by your protocol.
- **FC active/active environments only:** Set up to work with ALUA, if it is supported with your version of Data ONTAP and you are using the FC protocol

  Note: ALUA is not supported with iSCSI.
- **Data ONTAP operating in 7-Mode only:** Set up with working volumes and qtrees (if desired)

3. **FC environments only:** If you are using a switch, verify that it is:
   - Set up correctly
   - Zoned
   - Cabled correctly
   - Powered on in the correct order: switches, disk shelves, storage systems, and then the host
4. Confirm that the host and the storage system can communicate.
5. If you currently have the Host Utilities installed, remove that software.

Task 2: Install and set up the Host Utilities

To install and set up the Host Utilities, you must get the software package for your Host Utilities. After you install this software, you may need to perform additional configuration steps for your environment.

You must be logged on as root to install or uninstall the Host Utilities.

1. Get a copy of the compressed Host Utilities file, which contains the software package for your multipathing solution and the SAN Toolkit software package.
   - Download the compressed file containing the packages for your processor.
   - Extract the software packages from the compressed file you downloaded.
2. Install the Host Utilities software packages.
   - Go to the directory containing the extracted software packages.
   - Use the **pkgadd -d** command to install the Host Utilities package for your stack.
   - Set the driver and system parameters. You do this using the **host_config** tool provided by the Host Utilities.

     Note: You can also set the parameters manually.
3. Complete the configuration based on your Solaris environment.

Task 3: Configure the iSCSI protocol

If you are using iSCSI protocol, then you must perform some additional configuration to get it set up correctly for your environment.

1. Use the **iscsiadm list initiator-node** command to record the host's iSCSI node name. You will need to supply this node name when you create an igroup.
2. Configure the initiator with the IP address for each storage system. You can use static, ISNS or dynamic discovery.
3. **Veritas iSCSI environment only:** Make sure MPxIO is disabled. If you had an earlier version of the Host Utilities installed, you may need to remove the MPxIO settings that it set up and then reboot your host.
4. (Optional) Configure CHAP on the host and the storage system.

Task 4: Set up access between the host and the LUNs on the storage system

To complete your setup of the Host Utilities, you need to create LUNs and get the host to see them.

The method you use when working with LUNs often varies depending on your system environment and factors such as whether you are using multipathing, whether you have an HBA, hardware iSCSI initiator, or a software iSCSI initiator, whether you are using Veritas, and which version of Linux you are using.

Keep the following notes in mind as you work with LUNs:

- You must be logged in as root to execute the Host Utilities commands, such as **sanlun**.
- If you have more than one path from a host to a LUN, you should use multipathing.

  Without multipathing software, the host cannot distinguish multiple LUNs from multiple paths to the same LUN.

- If you are not using multipathing, you should:
  - Limit each LUN to a single path
  - Provide persistent identification for the LUNs (this is a best practice).

1. Create and map igroups and LUNs.

   You must create at least one igroup and at least LUN and then map the LUN to the igroup. The **lun setup** command steps you through this process. Specify `solaris` as the value for the `ostype` attribute. You will need to supply a WWPN for each of the host's HBAs or software initiators.

2. Enable ALUA, if you have not already done so.

3. Configure the host to discover the LUNs.
   - **iSCSI:** Use the **devfsadm -i iscsi** command on the host console to discover the LUNs and create iSCSI device links.
   - **Native drivers:** Use the **/usr/sbin/cfgadm -c configure cx** command, where **x** is the controller number of the HBA where the LUN is expected to be visible.

4. Label the LUNs using the Solaris format utility (**/usr/sbin/format**).

5. Configure the volume management software.

6. Display information about the LUNs and HBA

   You can use the **sanlun** command to do this.