Linux® Unified Host Utilities 7.1

Installation Guide

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NetApp®

Contents

Change in the Linux Host Utilities product name

Linux Host Utilities is now called Linux Unified Host Utilities because it supports NetApp E-Series storage systems running SANtricity and FAS systems running ONTAP.

Any mention of Host Utilities or Linux Host Utilities in this document refers to Linux Unified Host Utilities.

Components of the Linux Unified Host Utilities

The Host Utilities provide software programs and documentation that you can use to connect your Linux host to NetApp storage systems running ONTAP and SANtricity. The software is available as either a 32-bit or a 64-bit `.rpm` file that you can download from the NetApp Support Site.

The Host Utilities include the SAN Toolkit and documentation.

SAN Toolkit

The toolkit is installed automatically when you install the Host Utilities. This kit provides the following key tools:

- The `sanlun` utility, which helps you to manage LUNs and HBAs.
- The `sanlun version` command, which displays the versions of the Host Utilities.

See the man pages for these commands for details about using them.

Note: 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.

Note: The SAN Toolkit is not supported on Citrix XenServer, Oracle VM, and Red Hat Enterprise Virtualization Hypervisor. See the *Linux Unified Host Utilities Installation Guide* and *Using Linux hosts with Data ONTAP storage* document for host configuration settings for Citrix XenServer, Oracle VM, and Red Hat Enterprise Virtualization Hypervisor.

Documentation

The documentation provides information about installing, setting up, using, and troubleshooting the Host Utilities:

- Linux Unified Host Utilities Installation Guide
- *Recommended Host Settings for Linux Unified Host Utilities*
- *Linux Unified Host Utilities Release Notes*

  Note: The *Release Notes* are updated whenever new information about the Host Utilities is available. You should check the *Release Notes* before installing the Host Utilities to see whether there is new information about installing and working with the Host Utilities.

- *Using Linux Hosts with Data ONTAP Storage*

You can download the documentation from the NetApp Support Site when you download the Host Utilities software.

Verifying that the configuration is supported

To ensure reliable operation, you must verify that the entire iSCSI, FC or FCoE configuration is supported. The Interoperability Matrix lists the supported configurations.

Steps

1. Go to the Interoperability Matrix at *mysupport.netapp.com/matrix* to verify that you have a supported combination of the following components:
   - ONTAP or SANtricity operating system software
   - Host computer CPU architecture (for standard rack servers)
   - Specific processor blade model (for blade servers)
   - FC host bus adapter (HBA) model and driver, firmware, and BIOS versions
   - iSCSI initiator software version or hardware model, driver, firmware, and BIOS versions
   - Storage protocol (iSCSI, FC, or FCoE)
   - Linux operating system version
2. Click the configuration name for the selected configuration.

   Details for that configuration are displayed in the Configuration Details window.
3. Review the information in the following tabs:
   - Notes
     Lists important alerts and information that are specific to your configuration.
   - Policies and Guidelines
     Provides general guidelines for all SAN configurations.

Setup procedures for Intel NIC, QLogic, Brocade, and Emulex HBAs

Linux Unified Host Utilities environments using FC or hardware iSCSI require that you set up your HBAs before you install the Host Utilities. The setup involves making sure that the HBAs and their drivers use the correct parameter values. If you use Intel NIC, QLogic, Brocade, or Emulex HBAs, you will need to change some of these values from the default settings.

(FC) What you need to know about Fibre Channel HBAs and drivers

If your Linux Unified Host Utilities environment uses HBAs, you must install the HBAs before you install the Host Utilities software. There are certain things you need to know about working with the HBAs.

- Make sure you are using a supported HBA and driver.

  If your driver firmware is not supported, uninstall it and get a supported version of the firmware. If the HBA is not supported, remove it and get a supported HBA.

  Check the Interoperability Matrix for the most current information about supported HBAs and drivers.

  For information on installing and uninstalling the HBAs and drivers, see the instructions provided by the vendor.

- If you have multiple HBAs, make sure they are all the same brand.

  You should not use HBAs from different vendors on the same Linux host to access LUNs.

  Note: For hardware iSCSI, enabling or initializing an additional network driver or an additional iSCSI driver for a second port while accessing storage using iSCSI might result in inconsistent behavior by the host.

- Make sure you are using the correct values for the HBA and driver parameters.

  Note: The HBA and driver parameter values recommended in this guide apply only to environments using the FC protocol or a hardware iSCSI HBA, not to environments using the FCoE protocol. In some cases, the values you supply for the parameters differ based on whether the driver was bundled with the Linux operating system distribution or downloaded separately from an OEM.

  For QLogic and Emulex HBAs you can use the default values for the HBA and driver parameters.

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

  The management software enables the `sanlun` command to gather information about the FC HBAs, such as their WWPNs.

  Make sure you download the correct package for your host architecture. 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) package for your host

  Brocade HBA/CNA

  - Brocade Command Utility (BCU), which provides the APIs.

Note: The BCU is part of the Linux Adapter Software Installer.

- libhbaapi
- libhbalinux

Intel NIC

- libhbaapi
- libhbalinux

- If you did not record the WWPN of the HBAs, you can use the `sanlun fcp show adapter` command to list the HBAs.

Installing the Linux Unified Host Utilities software

The Linux Unified Host Utilities software is packaged in both a 32-bit and a 64-bit `.rpm` file. You must download the appropriate `.rpm` file from the NetApp Support Site. After you have the correct `.rpm` file for your system, you can use the `rpm -ivh` command to install the software.

Before you begin

It is a good practice to confirm that you are installing the correct version of the Host Utilities for your version of the Linux host. For the most current information about the correct version, see the Interoperability Matrix.

Steps

1. If you have a version of Linux Unified Host Utilities currently installed, you must remove it.

   If you are uninstalling Linux Unified Host Utilities 5.3 or 6.x, you can use the `rpm -e` command.

   If you are uninstalling Linux Unified Host Utilities 5.2 and earlier, go to the directory where the Host Utilities software is installed (the default is `/opt/netapp/santools`) and enter the `/uninstall` command.

   Note: Before Linux Unified Host Utilities 5.3, the software for the Host Utilities was not provided in `.rpm` format.

2. Download the appropriate `.rpm` file for your operating system from the NetApp Support Site to your Linux host.

   Linux Unified Host Utilities provides two versions of the software package:

   - A 32-bit version: netapp_linux_unified_host_utilities-7-1.i386.rpm
   - A 64-bit version: netapp_linux_unified_host_utilities-7-1.x86_64.rpm

3. Go to the directory to which you downloaded the latest Host Utilities file.

4. Install the Host Utilities software:

   `rpm -ivh netapp_linux_unified_host_utilities-7-1.<architecture>.rpm`

   If you are upgrading the Host Utilities from Linux Host Utilities 5.3 or later, you can use the `rpm -Uvh package_name` command.

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Index