

HP-UX® Host Utilities 6.0 Quick Command Reference

Data ONTAP® operating in Cluster-Mode	
Service management commands	
system license show	Verifies the FCP and iSCSI licenses are installed on the cluster.
vserver iscsi create -vserver name -status-admin up	Enables iSCSI on the specified Vserver.
vserver fcp create -vserver name -status-admin up	Enables FC on the specified Vserver.
vserver {iscsi fcp} start -vserver name	Starts the FC or iSCSI service on the specified Vserver.
vserver {iscsi fcp} stop -vserver name	Stops the FC or iSCSI service on the specified Vserver.
Logical interface (LIF) management commands	
network interface create -vserver name -lif lif_name -role data -dataprotocol {iscsi fcp} -home-node node -home-port port	Creates a data LIF for either iSCSI or FC. You must create a data LIF in each Vserver on each node to enable failover.
network interface show	Verifies status of LIFs.
portset create -vserver name -portset portset_name -protocol mixed -port-name lif_list	Creates a port set that you can add to an igroup to limit which LIFs can be used to access LUNs mapped to that igroup.
iSCSI authentication (CHAP) management commands	
vserver iscsi security create -initiator initiator -auth-type CHAP -user-name inname -password inpassword [-outbound-user-name outname -outboundpassword outpassword]	Defines authentication method for the specified initiator. For <i>initiator</i> , use the host's iSCSI node name in <i>iqn</i> or <i>eui</i> format. Note that <i>inname</i> on storage system is set to outgoing user name on host.
vserver iscsi security show	Displays the current iSCSI authentication configuration.
Target status and troubleshooting commands	
vserver {fcp iscsi} show	Displays current status of the FC or iSCSI targets.
vserver iscsi connection show	Displays details of iSCSI connections.
vserver fcp initiator show	Displays details of FC initiators.
LUN and igroup management commands	
vserver setup	Interactive Vserver, volume, LUN, and igroup creation.
igroup create -vserver name -igroup igroup_name -protocol {fcp iscsi mixed} -ostype hpux -initiator list [-portset portset name]	Manual initiator group creation. Specify the initiator WWPNs or iSCSI node name. Use the optional port set to limit which initiator ports access LUNs mapped to this igroup.
lun create -vserver name -volume vol_name -lun lun_name -size size -ostype type -space-reserve {enabled disabled}	Manual LUN creation. Enter <i>size</i> as an integer with one of the following suffixes: m (megabytes), g (gigabytes), or t (terabytes).
lun map -vserver name -volume vol_name -lun lun_name -igroup igroup_name [-lun-id integer]	Makes the specified LUN accessible to initiators in the specified igroup. Specify optional LUN ID or take default of lowest available value.
lun igroup show [-vserver name] [-igroup igroup_name]	Displays the initiators in all igroups or in the specified initiator group or for the specified Vserver.
lun show [-instance] [parameters]	Lists LUNs. Use -instance to display more details. Add parameters to filter the list; run man lun show for available parameters.
lun modify -vserver name -volume vol_name -lun lun_name -state {online offline}	Enables or disables block-protocol access to the specified LUN.
lun delete -vserver name -volume vol_name -lun lun_name	Deletes the specified LUN and all its data.
General notes	
The format of an iSCSI node name is iqn.yyyy-mm.reverse_domain_name:anything and is automatically set on the storage system (target) and each host (initiator). It is recommended that you use the host name for the <i>anything</i> portion of the initiator node name.	

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Cluster-Mode SAN requires Data ONTAP 8.1 or later.
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Data ONTAP® operating in 7-Mode

Fibre Channel (FC) and iSCSI protocol service and adapter management commands

fc {start stop}	Starts or stops the FC service.
iscsi {start stop}	Starts or stops the iSCSI service.
fc config [adapter [up down]] [partner {adapter None} -partner] [mediatype {ptp auto loop}]	Configures the FC target adapter up or down. Omit up or down to display configurable information. Omit <i>adapter</i> to display all.
fc show adapter [adapter]	Displays target adapter information for specified logical adapters.
fc show initiator [adapter]	Displays information about initiators connected to specified adapters.
iscsi initiator show	Displays information about the initiators.
iscsi interface [show enable disable]	Displays or configures the network interface to be used by iSCSI.
iscsi nodename [new_nodename]	Displays and sets the iSCSI node name.
ifconfig [-a] interface	Configures network interface parameters.
ifstat [-z] -a interface	Prints driver statistics.

Fibre Channel (FC) and iSCSI target status, performance, and troubleshooting commands

fc status	Displays current status of the FC service.
iscsi status	Displays current status of the iSCSI service.
fc stats [-z] -i interval [-a adapter]	Displays device-level statistics for the specified FC adapter over the specified reporting interval in integer seconds. Use -z to clear statistics. Use -a to display statistics for all adapters.
sysstat -f [interval]	Displays performance statistics. <i>interval</i> is an integer reporting the interval in seconds; default is 15 seconds.
lun stats [-z] -i interval[-o] [-a lun_path]	Displays block access statistics for the specified LUN. Use -z to clear statistics. Use -o for extended stats, -a to display stats for all LUNs.
cf status	Displays the status of the cluster.
fc show cfmode	Displays the current cfmode.
sysconfig -v	Displays information about system configuration.
vol status	Displays the status of the volume.

LUN and igroup management commands

vol options vol_name nosnap on	Turns off scheduled snapshot copies for a volume containing LUNs. It is best to enable use of space reservations.
vol create vol-name{ [-l language-code] [-s {none file volume}] hosting_aggr_name size[k m g t] }	Creates a FlexVol volume.
igroup create { -f -i } [-t ostype] initiator_group [node ...]	Creates a new initiator group (-i for iSCSI, -f for FC).
igroup show [-v] [initiator_group]	Displays the initiator nodes in the specified initiator group. Omit <i>initiator_group</i> to see all igroups.
igroup add initiator_group node...	Adds initiator nodes to the specified igroup.
igroup set [-f] initiator_group alua yes no	Configures ALUA on the igroup.
lun setup	Creates a LUN interactively. Combines the functions of the lun create , igroup create , igroup add , and lun map commands.
lun create -s size [-t aix hpux image netware linux solaris vld vmware windows] lun_path	Creates a LUN manually. Enter <i>size</i> as integer bytes with one of the following suffixes: m (megabytes), g (gigabytes), or t (terabytes).
lun map lun_path initiator_group [lun_id]	Makes the specified LUN accessible to initiators in the specified igroup. Specify optional LUN ID, or the lowest available value is taken by default.
lun show [-v -m -c] [all mapped offline online unmapped lun_path -g initiator_group]	Displays general (-v), mapping (-m), or clone (-c) information about the specified set of LUNs.
lun online offline lun_path...	Enables or disables block-protocol access to the specified LUNs.
lun move lun_path to lun_path	Moves a LUN to a new path in the same volume.
lun destroy [-f] lun_path...	Destroys the specified LUNs and all their data. Use -f if LUN is in use.
lun clone create clone_lunpath [-o noreserve] -b parent_lunpath parent_snap	Clones a LUN.

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<code>iscsi security add -i initiator -s [CHAP deny none] -p inpassword -n inname [-o outpassword -m outname]</code>	Defines security methods for initiators on the storage system. Use <code>-I</code> for the initiator's name in iqn format; use <code>-s</code> for the method [CHAP/none/deny].
<code>iscsi security default -s [CHAP deny none] -p inpassword -n inname [-o outpassword -m outname]</code>	Sets the default security method for all other initiators not formally defined.

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Host commands	
Commands for discovering or identifying LUNs	
<code>ioscan -fnC disk</code>	Discovers new disks. A reboot is not required.
<code>ioinit -i</code>	Creates device entries for new devices that are found after an ioscan.
<code>insf -e</code>	Installs device files in the /dev directory for new devices.
<code>tdlist</code>	For HBAs that support the Tachyon driver (td), this command lists target devices, including hardware paths and block device nodes.
<code>fcdlist</code>	For HBAs that support the fcd driver, this command lists target devices, including hardware paths and block device nodes.
<code>ls -l /dev/*/group</code>	Lists contents of a volume group directory. Helps to determine which minor numbers are in use.
<code>ioscan -kfnC iscsi</code>	Checks to see if the iSCSI software initiator is installed in the currently executing kernel.
<code>PATH=\$PATH:/opt/iscsi/bin</code>	Adds the path for <code>iscsiutil</code> .
<code>iscsiutil -l</code>	Displays the current iSCSI software initiator name, which is required to build igroups on the storage system.
<code>iscsiutil -a -I x.x.x.x</code>	Adds a statically linked iSCSI target device. x.x.x.x represents the IP address of the storage system.
<code>ioscan -H 255/0</code>	Discovers the operational target device(s).
<code>insf -H 255/0</code>	Creates device files for the target.
<code>iscsiutil -p -O</code>	Displays operational targets.
<code>iscsiutil -u -H CHAP_UNI</code>	Configures Uni-directional CHAP globally.
<code>iscsiutil -u -H CHAP_UNI -I x.x.x.x</code>	Configures Uni-directional CHAP for a specific Discovery Target Address.
<code>iscsiutil -u -W mychapsecret</code>	Configures the CHAP secret globally.
<code>iscsiutil [iscsi-device-file] -p [-S [ssn_inst [-C [cid]] [-V]]]</code>	Displays statistics from the iSCSI software initiator.
<code>swlist iscsi-00</code>	Displays if the iSCSI software initiator package is installed.
Commands for using HP-UX Logical Volume Manager (LVM)	
<code>enable_ontap_pvlincs [set show unset]</code>	Because the HP-UX 11iv3 February 2007 release does not support asymmetric logical unit access (ALUA), the default multipathing policy is active/active. This command sets the multipathing policy to active/passive, also displaying the current multipathing policy, and sets it back to active/active for all Data ONTAP LUNs without disturbing vendors' LUNs.
<code>pvcreate /dev/rdisk/primary_path_disk_device</code>	Initializes a raw disk device for use as a physical volume in a volume group. The argument specifies the primary path to the disk device with the LUN.
<code>mknod /dev/vg_name/group c 64 minor_number</code>	Creates a device node on the host for the physical volume group.
<code>vgcreate vg_name /dev/dsk/ primary_path</code>	Creates a new volume group.
<code>vgextend [-f] [-A autobackup] [-g pvg_name] [-x extensibility] [-z sparepv] vg_name pv_path</code>	Assigns additional physical volumes to a volume group. The volume group must be active.
<code>vgreduce [-A autobackup] vg_name pv_path</code>	Removes each physical volume (<i>pv_path</i>) from volume group <i>vg_name</i> .
<code>vgdisplay -v vg_name</code>	Displays information about volume groups.
<code>vgchange -a y/n vg_name /dev/vg_name</code>	Activates or deactivates a volume group.
<code>vgscan</code>	Scans physical volumes for LVM volume groups.
<code>vgimport</code>	Imports an LVM volume group onto the system.
<code>vgexport</code>	Exports an LVM volume group and its associated logical volumes.
<code>lvcreate -L size vg_name</code>	Creates logical volume(s) in LVM volume group with <i>size</i> specifying the total size of the logical volume.
<code>lvextend -L size vg_name</code>	Increases space for LVM logical volume.
<code>ntap_config_paths</code>	Checks available paths to LUNs and reorders them (PV-Links only) if needed.
<code>newfs -F {hfs vxfs} /dev/vg_name/lv_name</code>	Creates a new file system on a logical volume.
<code>mkdir -m 777 /dir_name</code>	Makes a directory for a mountpoint.
<code>mount /dev/vg_name/lv_name /dir_name</code>	Mounts a file system.
Commands for using scsimgr in HP-UX 11iv3	
<code>scsimgr get_stat</code>	Gets basic global statistics.
<code>scsimgr get_stat -D /dev/rdisk/disk0</code>	Gets basic statistics for disk0.
<code>scsimgr get_stat -D /dev/rdisk/disk0 all_lpt</code>	Gets basic statistics for all LUN paths of disk0.
<code>scsimgr -v get_stat -H 64000/0x0/0x0.0x0.0x4000000000000000</code>	Gets all the statistics for a target with the hardware path of 64000/0x0/0x0.0x0.0x4000000000000000.
<code>scsimgr get_info</code>	Gets basic global status and information.
<code>scsimgr -v get_info all_lun</code>	Gets all status information for all the LUNs.

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<code>scsimgr get_info -D /dev/rdisk/disk0</code>	Gets basic status information for disk0.
<code>scsimgr get_info -D /dev/rdisk/disk0 all_lpt</code>	Gets basic status information for all LUN paths of disk0.
<code>scsimgr lun_map</code>	Displays LUN path information for all LUNs.
<code>scsimgr lun_map -D /dev/rdisk/disk0</code>	Displays LUN path information for disk0.
<code>scsimgr replace_wwid -D /dev/rdisk/disk0 dsf</code>	Validates replacement of disk0 and reassigns its DSF to the replacing LUN.
<code>scsimgr replace_wwid -D /dev/rdisk/disk0</code> <code>scsimgr replace_wwid -H</code> <code>64000/0x0/0x0.0x0.0x4000000000000000</code>	Unbinds all LUN paths that are associated with disk0. For the LUN at hardware path 64000/0x0/0x0.0x0.0x4000000000000000, this command validates replacing it and re-assigning its DSF to the replacement LUN.
<code>scsimgr replace_leg_dsf -D /dev/rdisk/c0t5d0</code>	Validates change of LUN to which legacy DSF /dev/rdisk/c0t5d0 is bound.
<code>scsimgr inquiry -D /dev/rdisk/disk272</code>	Displays standard inquiry data for the LUN with DSF /dev/rdisk/disk272.
<code>scsimgr save_attr -D /dev/rdisk/device_name -a alua_enabled=0</code>	Disables ALUA on the Agile DSF and makes this attribute persistent across host reboots.
<code>scsimgr save_attr -N "/escsi/esdisk" -a alua_enabled=0</code>	Disables ALUA on the esdisk driver and makes this attribute persistent across host reboots.
<code>scsimgr set_attr -D /dev/rdisk/device_name -a alua_enabled=0</code>	Disables ALUA on the Agile DSF.
<code>scsimgr set_attr -N "/escsi/esdisk" -a alua_enabled=0</code>	Disables ALUA on the esdisk driver.

Veritas Volume Manager (VxVM) commands	
<code>vxctl enable</code>	Detects new LUNs on the storage system.
<code>vxdisk scandisks</code>	Initiates the rescanning of devices in the operating system device tree by VxVM. If necessary, DMP reconfiguration is triggered. This allows VxVM to configure and multi-path disks dynamically.
<code>vxdisk list</code>	Displays information about disks, including name, disk group, and status.
<code>vxctl stop</code> <code>vxconfigd</code>	Stops the VxVM configuration daemon. Restarts the VxVM configuration daemon.
<code>vxdisksetup -i device_name</code>	Initializes the disk for VxVM. <i>device_name</i> is the name listed for the LUN in the DEVICE column of the <code>vxdisk list</code> command output.
<code>vx dg init dg_name dg_name=device_name</code>	Creates a disk group for the LUN. <i>dg_name</i> is the name you assign to the disk group. <i>device_name</i> is the name listed for the LUN in the DEVICE column of the <code>vxdisk list</code> command output.
<code>/opt/VRTS/bin/vxpf to -g dg_name -t seconds</code>	Increases the Powerfail Timeout interval on a disk group containing LUNs to the specified seconds.
<code>vx dg -g dg_name adddisk dg_name=device_name</code>	Adds a disk to a diskgroup.
<code>vx dg import dg_name</code>	Imports a disk group to make the specified disk group available on the local computer.
<code>vx dg deport dg_name</code>	Disables access to the specified disk group.
<code>vx dg destroy dg_name</code>	Removes a disk group from the system.
<code>vxprint</code>	Displays records from the VxVM configuration.
<code>vx dmpadm listenclosure all</code>	Displays storage enclosure information.
<code>vxddladm listversion</code>	Lists the version numbers of ASLs and minimum VxVM release that is required for each library.
<code>vx dmpadm stat restored</code>	Displays the current values of the Veritas DMP restore daemon.
<code>vx dmpadm stop restore</code>	Stops the Veritas DMP restore daemon.
<code>vx dmpadm start restore interval= seconds policy= policy</code>	Starts the Veritas DMP restore daemon with the specified values.
<code>vx dmpadm getattr enclosure device_name iopolicy</code>	Gets the I/O Policy of the enclosure.
<code>vxassist -g dg_name make vol_name size</code>	Creates a logical volume.
Veritas commands for HP-UX 11iv3	
<code>vx dmpadm list dmpnode dmpnodename=agile_dsf</code>	Displays Veritas DMP-related information for an Agile device.
<code>vx disk reclaim dmpnode_name</code>	Reclaims space at the DMP node level.
<code>vx disk reclaim diskgroup_name</code>	Reclaims space at the disk group level.
<code>vx disk reclaim enclosure_name</code>	Reclaims space at the enclosure group level.
<code>fsadm -F vxfs -R mount point</code>	Reclaims space on the file system by using the <code>fsadm</code> command.
<code>vx disk -o thin list</code>	Displays the thin provisioning and space reclamation field for the DMP node.
LUN and igroup information commands	
<code>sanlun fcp show adapter -c</code>	Displays the ONTAP <code>igroup create</code> command with the host's WWPNs. You can copy and paste this command to the storage system command line to

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	create an igroup with the host's WWPNs.
<code>sanlun lun show -p</code>	Shows the block device nodes that correspond to LUNs on the storage system. Also shows the paths to the LUN that are primary and secondary, and provides information about the multipathing policy.
Resources	
http://support.netapp.com/	All NetApp documentation and software downloads.
http://support.netapp.com/NOW/products/interoperability/	The <i>Data ONTAP SAN Configuration Guide for 7-Mode</i> for your version of Data ONTAP includes information about supported HBAs, switch firmware, host operating systems, volume manager software, and the version of Data ONTAP supported with your host.
http://h20565.www2.hp.com/portal/site/hpsc/public/	Download the patches and drivers for HP-UX operating systems from HP Support Center.