# NetApp® iSCSI storage system commands for Data ONTAP® 6.4.*x*, 6.5.*x*, 7.0.*x*

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| **iSCSI service and adapter management commands** | |
| **iscsi start\|stop** | Starts or stops the iSCSI service. |
| **iscsi config** [*adapter* [**up**\|**down**]] | Configures the iSCSI target adapter up or down. Leave off **up** or **down** to display configurable information. Omit *adapter* to display all. |
| **iscsi nodename** [*new_nodename*] | Displays or sets the iSCSI target node name. |
| **iscsi show adapter** [*adapter…*] | Displays target adapter information for specified logical adapters. |
| **iscsi show initiator** [*adapter…*] | Displays information about initiators connected to specified adapters. |
| **ifconfig** [**-a** \| *interface*] | Displays or configures network parameters for the specified interface. Use **-a** to display all network interfaces. |
| **iSCSI software target (iswt) management commands** | |
| **iswt interface show** [**-a**\|*interface …*] | Show ISWT driver use of network interfaces |
| **iswt interface enable** {**-a**\|*interface***…**} | Enable use of specified network interfaces by iswt. Use **-a** to enable all. NetApp recommends against enabling e0 for iSCSI traffic. |
| **iswt interface disable** [**-f**] {**-a**\|*interface***…**} | Disable use of specified network interfaces by iswt. Use **-a** to disable all. Use **-f** to force termination of current sessions. |
| **iswt session show** [**-v**] *adapter* [*session_num*] | Show status of one session, or for all connections associated with a specified logical adapter if no session number is specified. |
| **iSCSI authentication (CHAP) management commands** | |
| **iscsi security add -i** *initiator* **-s CHAP -p** *inpassword* **-n** *inname* [**-o** *outpassword* **-m** *outname*] | Defines authentication method for specified initiator. For *initiator*, use node name in iqn format. Note that *inname* on storage system is set to outgoing user name on host. Use **-o** and **-m** for bidirectional CHAP. |
| **iscsi security default -s CHAP -p** *inpassword* **-n** *inname* **[-o** *outpassword* **-m** *outname***]** | Sets the default authentication method, user names, and passwords for all initiators not specifically configured. |
| **iSCSI target status, performance, and troubleshooting commands** | |
| **iscsi status** | Displays current status of the iSCSI service. |
| **iscsi stats** | Displays numbers of iSCSI PDUs and CDBs, and error statistics |
| **ifstat** [**-z**] **-a** \| *interface* | Displays device-level statistics for the specified network interface. Use **-z** to clear statistics. Use **-a** to display statistics for all interfaces. |
| **sysstat -i** [*interval*] | Displays iSCSI performance statistics. *interval* is integer reporting interval in seconds; default is 15 seconds. |
| **lun stats** [**-z**] [**-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. |
| **LUN and igroup management commands** | |
| **vol options** *vol_name* **nosnap on** | Turns off schedule snapshots for a volume containing LUNs. Strongly recommend to enable use of space reservations. |
| **lun setup** | Interactive LUN creation. Combines the `lun create`, `igroup create`, `igroup add`, and `lun map` command functions. |
| **lun create -s** *size* [**-t aix\|hpux\|image\|netware\|linux\|solaris\|vld\|vmware\|windows**] *lun_path* | Manual LUN creation. Enter *size* as integer bytes with one of the following suffixes: **m** (megabytes), **g** (gigabytes), or **t** (terabytes). |
| **igroup create -i** [**-t aix\|hpux\|default\|linux\|netware\|solaris\|vmware\|windows**] *initiator_group* [ *node…*] | Creates a new iSCSI initiator group. Optionally specify the initiator node names (*node…*), or add them using the `igroup add` command. |
| **igroup show** [*initiator_group*] | Displays the initiator nodes in the specified initiator group. Omit *initiator_group* to see all igroups. |
| **igroup add** *initiator_group node…* | Adds initiator nodes to the specified igroup. |
| **lun map** *lun_path initiator_group* [*lun_id*] | Makes the specified LUN accessible to initiators in the specified igroup. Specify optional LUN ID, or take default of lowest available value. |
| **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. |
| **General iSCSI notes** | |
| The FilerView™ GUI can also be used for the above commands (**http://***filer_ip_address***/na_admin**). | The iSCSI service on the storage system uses IP port 3260. |
| 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). NetApp recommends using the host name for the *anything* portion of the initiator node name. | |

# iSCSI SUSE® Linux® Enterprise Server commands for Host Utilities 3.0

| iSCSI host configuration files | |
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| **/etc/initiatorname.iscsi** | Contains the iSCSI node name of the initiator. |
| **/etc/iscsi.conf** | Lists most settings for iSCSI initiator. |
| **/etc/fstab.iscsi** | Lists file systems on iSCSI LUNs to mount. |
| **/etc/multipath.conf** | Lists local disks to exclude (blacklist) from multipathing. |
| **iSCSI service management commands** | |
| **/etc/init.d/iscsi start** | Manually start the iSCSI service on the Linux host. |
| **chkconfig iscsi** | Verify/modify whether the iSCSI service starts automatically. |
| **Multipathing (dm-multipath) commands** | |
| **/etc/init.d/boot.multipath start**<br>**/etc/init.d/multipathd start** | Manually start the multipathing service on the Linux host. |
| **insserv boot.multipath multipathd** | Configure the multipath service to start automatically. |
| **multipath -ll -v3 -d** | Display the multipathing configuration. |
| **multipath -v2** | Add new LUNs to the multipath configuration. |
| **Accessing LUNs as Linux disk devices** | |
| **/etc/init.d/iscsi reload** | Make new LUNs visible on the host; does not affect other LUNs. |
| **/etc/init.d/iscsi restart** | Discover and automount LUNs; interrupts all iSCSI sessions. |
| **/sbin/iscsi-ls -l** | Lists available LUNs as seen by Linux host. |
| **/opt/netapp/santools/sanlun lun show all** | Lists available LUNs as seen by the sanlun script. |
| **ls -l** | List symbolic links generated for LUNs in the directory:<br>**/dev/iscsi** (SLES 8 SP3)<br>**/dev/disk/by-id** (SLES 9)<br>**/dev/disk/by-name** (dm-multipath)<br>NOTE: No symbolic links for SLES 8 SP4–see Setup guide. |
| **/sbin/fdisk** *symbolic_link* | Partition the LUN. *symbolic_link* is the name generated for the LUN. At least one partition is required. For dm-multipath, partition any one of the /dev/sd*x* devices, not the /dev/disk/by-name/ device. |
| **mkfs -V -t ext3** *symbolic_link* | Create an ext3 file system on the partition *symbolic_link*. For dm-multipath, create the file system on the /dev/disk/by-name/ device. |
| **iscsi-mountall** | Mounts unmounted file systems listed in `/etc/fstab.iscsi`. |
| **df** | Lists all mounted file systems. |
| **Troubleshooting** | |
| **ping** *storage_system_IP_address* (from host console)<br>**ping** *host_IP_address* (from storage system console) | Verify basic network connectivity between storage system and host. |
| **license** (from storage system console) | Verify that iSCSI is licensed on the storage system. |
| **ifconfig** (from storage system console and host console) | Verify that network parameters are compatible on host and storage system, especially duplex and jumbo frame (mtu) settings. |
| If using jumbo frames, verify that jumbo frames are configured on all switches between the host and storage system. | |
| If using CHAP, verify correct user names and passwords. The incoming values on the host are the outgoing values on the storage system. The outgoing values on the storage system are the incoming values on the host. | |
| Check the log file on the storage system (/etc/messages) for error messages. | |
| Search the NetApp Service and Support Knowledgebase at **https://now.netapp.com/eservice/SupportHome.jsp** for information about the problem. | |
| Before contacting NetApp Global Services with a problem, run the **/opt/netapp/santools/linux_info** and **/opt/netapp/santools/filer_info** scripts on the host to collect information to help diagnose the problem. | |
| **Note**: SLES 9 is not supported with Data ONTAP 6.4.*x* | |
| **Resources** | |
| **http://now.netapp.com** | All NetApp documentation and software downloads. |
| **http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/iscsi_support_matrix.shtml** | iSCSI support matrix. |

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