QLx40xx FCode for Solaris SPARC

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1. OS Support

This FCode release supports Solaris 9 and 10 SPARC platforms.

2. Features

- Configurable iSCSI initiator parameters, such as initiator IP address, iSCSI name etc.
- Discovery and display of iSCSI targets and corresponding LUNS.
- Acquiring initiator IP address parameters via DHCP.
- Acquiring initiator's DNS server IP address via DHCP.
- iSCSI target discover via:
  - Send targets request protocol
  - SLP-UA (Service Locator Protocol User Agent) from a SLP-SA (SLP Service Agent)
  - SLP-DA (SLP Directory Agent)
  - SLP-DA obtained from DHCP (Dynamic Host Configuration Protocol)
- Persistent binding (flash-programming) of iSCSI targets into device-database (DDB) entries in flash.
- Erasable iSCSI targets from the device-database (DDB) entries (0x00 through 0x3f) in flash.

- Update iSCSI target device-database entries (0x00 through 0x3f) in flash.
- SAN (Storage Area Network) operating system boot from iSCSI target/LUNs.

NOTE: See the release notes for current supported features.

3. Quick Introduction

The objective is to provide an interface that lets you scan and list all available targets and their corresponding LUNs. In addition, the interface allows you to boot an operating system from a desired target and its associated LUN.

The list of scanned targets is known as device database (DDB) entries. You must understand that the list of scanned targets or device database entries resides in the device's volatile memory (RAM). You may (and in some cases must) store any target(s) from the device database (DDB) entries into the device's non-volatile memory (flash).

A maximum of 128 targets may be listed in the DDB in RAM. However, a maximum of only 64 targets may be stored in the DDB in flash. The DDB in RAM consists of a combination of targets scanned on the network and all targets that were previously stored in the DDB in flash. Copying a DDB entry from RAM into a DDB entry in flash is known as persistent binding.
Each target whether in RAM DDB or in flash DDB is listed as an index or ID, and is assigned a DDB number (DDB#).

Before it can scan targets, a device must be initialized. Although initialization of the device firmware is an automatic process when the device is first opened, the FCode provides the command `fw-init` that lets you initialize the device firmware to activate any changed DDB entries in flash.

After opening the device (which causes device firmware initialization) you can scan for available targets. Then you can list all inactive and active targets and may also choose to list the LUNs associated with each active target found. You may then choose to manipulate (erase or copy) the DDB entries in RAM and/or flash. You can then enter a boot command by specifying the target DDB# and the LUN ID from which to boot.

The target DDB# is essentially a number assigned to a target in the DDB list of targets. The LUN ID is the index number of a LUN in the list of LUNs of an associated target.

NOTE: Only the list of targets is referred to as DDB entries. The list of LUNs for each active target is not referred to as a DDB list.

IMPORTANT: Target entries DDB#s 0 and 1 in flash are reserved and will be reflected (after firmware initialization) in DDB#s 0 and 1 in RAM. These two entries store primary and secondary bootable targets. This product also consists of non-volatile memory (NVRAM) in addition to flash. The NVRAM stores various vendor-specific and iSCSI parameters in addition to the primary and secondary targets' DDB numbers.

The FCode provides a minimum set of commands that let you manipulate the DDB entries in flash and RAM.

4. Quick Start

This section guides you through a simple configuration where the iSCSI adapter Ethernet port is connected to a remote iSCSI storage system. The target discovery mechanism used is the send-targets-request iSCSI command.

Please flash and enable the latest FCode using SANSurfer or iSCLI. Reboot to OBP.

Select QLogic iSCSI HBA from OBP:

```
ok show-disks slect a,b,or c c) /pci@1f,2000/pci1077,128@1,3/sd
ok select /pci@1f,2000/pci1077,128@1,3
ok .properties  \ to check the configuration parameters.
```

Configure Target IP:

NOTE: This can be configured using SANsurfer or iSCLI.

```
ok " 192.168.54.10" t-ip-addr-set   \ Set iSCSI storage system IP address.
ok 2 ddb-entry-flash-update         \ If you wish to persistently bind 192.168.54.11
                                    \ into DDB entry 0x03 in flash.
ok fw-init                          \ Reinitialize the Firmware.
ok discover-targets                 \ Update the list of DDB entries in RAM.
ok display-targets-all              \ To display all targets, active and non_active.
ok 40 10 ddb-entry-flash-copy       \ Copy DDB X(40,..) in RAM to DDB 0x10 in flash
ok Reset-all
```

Set FCode for Booting:

NOTE: This can be configured using SANsurfer or iSCSI.

```
ok 10 1st-boot-target-set   \ Set the 1st boot target using target at ddb 10.
ok 1st-boot-target-validate \ Validate boot target.
ok 1st-boot-target-get      \ Show the 1st boot target
ok fcode-boot-enable        \ Enable booting to FCode.
```

Boot to iSCSI Target:

NOTE: This can be configured using SANsurfer or iSCLI.

```
ok boot /pci@1f,2000/pci1077,128@1,1/sd@10,8 \ Assuming that sd@10,8
                                             \ (cxt10d8s0) has already been
                                             \ built as a boot disk. Target
                                             \ 0x10 LUN 8.
```

5. Configuring Initiator iSCSI

This section describes how to configure initiator iSCSI parameters into the initialization firmware control block in flash.

iSCSI Initiator Parameters

Parameter	Description
i-name-set	Sets the iSCSi Name for QLogic iSCSI Adapter.
i-alias-set	Sets the iSCSI Alias for QLogic iSCSi Adapter.
i-1st-ip-addr-set	Sets the Primary IP Address.
i-1st-ip-addr-get	Shows the Primary IP Address.
i-subnet-mask-set	Sets the subnet mask.
i-subnet-mask-get	Shows the subnet mask.
i-gtwy-addr-set	Sets the Gateway Address.
i-gtwy-addr-get	Shows the Gateway Address.
1st-dns-ip-addr-set	Sets DNS Server IP Address.
1st-dns-ip-addr-get	Shows DNS Server IP Address.
dhcp-enable	Uses DHCP for iSCSI IP Address.
dhcp-disable	Disables DHCP so you can use a static IP address.
dns-dhcp-enable	Obtains DNS server from DHCP.
dns-dhcp-disable	Uses Static DNS Server IP Address.
slpda-ip-addr-set	Sets the SLP DA IP Address.
slpda-ip-addr-get	Shows the SLP DA IP Address.
slpua-enable	Enables SLP UA.
slpua-disable	Disables SLP UA.
slpda-enable	Enables SLP DA.
slpda-disable	Disables SLP DA.
slpda-dhcp-enable	Obtains SLP DA from DHCP Server.
slpda-dhcp-disable	Uses SLP DA IP Address that was set.
auto-discover-enable	Enables Automatic Target Discover from Target IP Address.
auto-discover-disable	Disables Automatic Target Discover from Target IP Address.
d# 45000 discover-timeout	Targets discovery timeout set to 45000 milli secs. **NOTE**: You may wish to set the targets discovery timeout to a value other than the default, which is 30 secs or 30000 milliseconds.
d# 45000 dhcp-timeout	Sets the (optional) initiator IP addr acquisition timeout to 45000 milliseconds. The default is 60000 milliseconds.
d# 120000 device-present-timeout	Sets the optional timeout to 120000 milliseconds in order to check the presence of the LUN/device. The default timeout is 180000 milliseconds.

To permanently store the parameters into flash after (un)setting them, enter this command, which writes to the Flash:
`ok init-fw-ctrl-blk-flash-write`

IMPORTANT: For the device-node properties to reflect the latest iSCSI parameters, reset the `OpenFirmware` system by issuing the `reset-all` command at the `OpenFirmware ok` prompt.

Example of How to configure QLogic iSCSI Adapter

NOTE: This example uses an imaginary device-node path for the purpose of illustration.

```
ok show-disks
a) /pci@4,2000/pci1077,128@1,3/sd
b) /pci@4,2000/pci1077,128@1,1/sd
c) /pci@1f,4000/scsi@2/disk
d) /pci@1f,4000/scsi@3/disk
e) /pci@1f,4000/ebus@1/fdthree@14,3023f0
q) NO SELECTION
Enter Selection, q to quit: b
/pci@4,2000/pci1077,128@1,1/sd has been selected.
Type ^Y ( Control-Y ) to insert it in the command line.
e.g. ok nvalias mydev ^Y
         for creating devalias mydev for
/pci@4,2000/pci1077,128@1,1/sd
" /pci@4,2000/pci1077,128@1,1" select-dev
..
ok " test" i-alias-set
ok init-fw-ctrl-blk-flash-write
pk fw-init
ok .properties
latency-timer            00000040
assigned-addresses       81800910 00000000 00000800 00000000 00000100
                         82800914 00000000 00100000 00000000 00002000
                         82800930 00000000 00180000 00000000 00080000
model                    QLGC,QLA4050
board-id                 00 00 00 05
primary-mac-address      00 c0 dd 01 2a 80
secondary-mac-address    00 00 00 00 00 00
iscsi-alias              test
iscsi-name               iqn.2000-04.com.qlogic:QLA4052C.fs30532a00199.1
slp-da-ip-addr           0.0.0.0
secondary-dns-ip-addr    0.0.0.0
primary-dns-ip-addr      0.0.0.0
gateway-ip-addr          192.168.54.1
subnet-mask              255.255.255.0
secondary-ip-addr        0.0.0.0
primary-ip-addr          192.168.54.5
chip-revision            00 00 00 03
firmware-version         2.0.0.7
#size-cells              00000000
#address-cells           00000002
compatible               70 63 69 31 30 37 37 2c 34 30 32 32 2e 31 30 37
name                     pci1077,122
reg                      00800900 00000000 00000000 00000000 00000000
                         01800910 00000000 00000000 00000000 00000100
                         02800914 00000000 00000000 00000000 00002000
                         02800930 00000000 00000000 00000000 00080000
function#                00 00 00 01
version                  FCode 01.05.35 12/06/05
product                  QLogic iSCSI Host Adapter
fcode-rom-offset         00000000
66mhz-capable
devsel-speed             00000001
class-code               00028000
interrupts               00000002
subsystem-vendor-id      00001077
subsystem-id             00000122
max-latency              00000000
min-grant                00000040
revision-id              00000003
device-id                00004022
vendor-id                00001077
```

6. Configuring the Adapter

For details on configuring the adapter, see the following topics:

6.1 Discover/Persistent Bind Targets

The iSCSI adapter can be configured to discover targets without using SLP (service locator protocol) and using the send-targets-request protocol iSCSI command instead. This requires you to first store the IP address of the iSCSI target storage system (assuming it supports the send-targets-request protocol) into one of the device-database entries (in RAM) ranging from 0x00 through 0x3f (63 decimal). Then you may choose to copy the DDB entry from RAM to flash making the entry persistent.

The following example depicts the DDB update of entry 0x40 which is then copied into DDB entry 0x00 in flash:

```
ok " 192.168.54.10" t-ip-addr-set \ Set the IP address of target
                                  \ associated with DDB# 0x18.
ok 02 ddb-entry-flash-update  \ To update DDB 0x2 in flash.
ok fw-init  \ Reinitialize the firmware.
ok discover-targets
ok display-targets \ At this point any of the DDB entries can to copied to any
                \ other DDB entries (from 0 through 63. Look at section on
                \ persistent binding.) The command display-targets-all can
                \ be used to display active and other than active targets.
                                  List of iSCSI targets:
ID -- DDB# -- IP Address      -- iSCSI Alias -- Target State -- iSCSI Name
================================================================================
00 -- 02   -- 192.168.54.10   --  -- assigned but no active connections --
01 -- 40   -- 192.168.54.10   -- 5428fc61 -- session active -- iqn.1987-05.com.cisco:00.78b75f03b788.5428fc61
02 -- 41   -- 192.168.54.10   -- 5428fc62 -- session active -- iqn.1987-05.com.cisco:00.2d5b0e1dd13a.5428fc62
40 00 ddb-entry-flash-copy \ copy DDB 0x40 from RAM to flash DDB 00. (00-3f are persisten Bind Targets)
ok fw-init
ok discover-targets
ok display-targets-all
List of iSCSI targets:
ID -- DDB# -- IP Address      -- iSCSI Alias -- Target State -- iSCSI Name
================================================================================
00 -- 00   -- 192.168.54.10   -- 5428fc61 -- session active -- iqn.1987-05.com.cisco:00.78b75f03b788.5428fc61
01 -- 02   -- 192.168.54.10   --  -- assigned but no active connections --
02 -- 41   -- 192.168.54.10   -- 5428fc62 -- session active -- iqn.1987-05.com.cisco:00.2d5b0e1dd13a.5428fc62
Note: DDB 40 is now is the Persistent bind DDB 0 in flash.
```

6.2 Obtain Initiator IP, Gateway IP Address and Subnet-Mask via DHCP

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok dhcp-enable
ok init-fw-ctrl-blk-flash-write
ok fw-init
ok .properties \ Will list all the properties in the device node.

Or you may view the acquired IP address by executing the following at the
OpenFirmware "ok" prompt:
i-1st-ip-addr-get \ Print the acquired initiator primary IP address.
i-subnet-mask-get \ Print the acquired initiator subnet-mask.
i-gtwy-addr-get   \ Print the acquired gateway IP address.
```

6.3 Obtain the DNS via DHCP

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok dns-dhcp-enable
ok dhcp-enable
ok init-fw-ctrl-blk-flash-write
ok fw-init
ok .properties \ Will list all the properties in the device node.
```

As an alternative, you may view the acquired IP address by executing the following at the OpenFirmware ok prompt:

```
1st-dns-ip-addr-get \ Print the acquired primary DNS IP address.
2nd-dns-ip-addr-get \ Print the acquired secondary DNS IP address.
```

6.4 Discover Targets as SLP-UA from SLP-SA

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok slpua-enable \ Enable SLP UA (user agent) service.
ok auto-discover-enable
ok init-fw-ctrl-blk-flash-write
ok fw-init
ok .properties \ Will list all the properties in the device node.
```

6.5 Discover Targets from SLP-DA

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok slpua-enable \ Enable SLP UA (user agent) service.
ok " 192.168.55.10" slpda-ip-addr-set \ Set SLP DA's IP address.
ok slpda-enable \ Enable SLP DA service.
ok auto-discover-enable
ok init-fw-ctrl-blk-flash-write
ok fw-init
ok .properties \ Will list all the properties in the device node.
```

6.6 Discover Targets from SLP-DA via DHCP Parameters (into the initialization firmware control block in flash)

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok slpua-enable \ Enable SLP UA (user agent) service.
ok slpda-dhcp-enable \ Obtain SLP DA IP address from DHCP.
ok dhcp-enable
ok auto-discover-enable
ok init-fw-ctrl-blk-flash-write
ok fw-init
ok .properties \ Will list all the properties in the device node.
```

7. Updating any Device-Database Entries from 0 through 63 (0x3f)

The following example shows how to update the (target) IP address, iSCSI alias, and iSCSI name of a device-database entry at 0x18.

Select QLogic iSCSI device (ie. `ok select /pci@4,2000/pci1077,128@1,1`)

```
ok " 192.168.54.10" t-ip-addr-set  \ Set the IP address of target associated
                                     with DDB# 0x18.
ok 18 ddb-entry-update             \ To update DDB entry in RAM.
ok 18 ddb-entry-flash-update       \ To update DDB entry in flash.
ok 50 0 ddb-entry-flash-copy       \ Alternatively you can copy DDB 0x50 from RAM to
                                     flash ddb 0.
ok fw-init                         \Initialize the Firmware.
ok discover-targets                \ Discover and update Targets Table.
ok display-targets-all             \ Display all targets.
```

8. Getting and Setting Primary and Secondary Boot Targets and LUNs

The following commands get, set, and validate primary and secondary boot targets, and to enable/disable booting in the Openfirmware environment:

```
ok 1st-boot-target-get      \ Get 1st boot target.
ok 4 1st-boot-target-set    \ Set the 1st boot target using target at ddb 4.
ok 1st-boot-target-validate \ Validate boot target.
ok 1st-boot-lun-get         \ show 1st boot LUN.
ok 10 1st-boot-lun-set      \ Set 1st boot LUN to LUN 10.
ok 2nd-boot-target-get      \ Show the 2nd boot target.
ok 5 2nd-boot-target-set    \ Set the 2nd boot target using target at ddb 5.
ok 2nd-boot-target-validate \ Validate 2nd boot target.
ok 2nd-boot-lun-get         \ Show the 1st boot LUN #.
ok 9 2nd-boot-lun-set       \ Set the 2nd boot LUN to lun 9.
ok fcode-boot-enable        \ Enable booting to FCode.
ok fcode-boot-disable       \ Disable booting to FCode.
```

NOTE: You must set a boot target from a list of persistent targets! It is also important to set DDB entry 0 to the primary boot target that is also set in the NVRAM. You must also set DDB entry 1 to the secondary boot target that is set in the NVRAM.

9. Discovering iSCSI Targets and LUNs

```
ok discover-targets
ok display-targets     \ Prints a list of ACTIVE targets and related info.
ok display-targets-all \ Prints a list of all targets including (in)active
                         and "send" targets and their corresponding status.
```

The following sample shows a list of targets:

```
ok display-targets-all

List of iSCSI targets:
ID -- DDB# -- IP Address      -- iSCSI Alias -- Target State -- iSCSI Name
================================================================================
00 -- 0a   -- 192.168.54.10   --  -- assigned but no active connections --
01 -- 14   -- 192.168.54.10   --  -- assigned but no active connections --
02 -- 40   -- 192.168.54.10   -- 5428fc61 -- session active -- iqn.1987-05.com.cisco:00.78b75f03b788.5428fc61
03 -- 41   -- 192.168.54.10   -- 5428fc62 -- session active -- iqn.1987-05.com.cisco:00.2d5b0e1dd13a.5428fc62
04 -- 42   -- 192.168.54.10   -- 5428fc64 -- session active -- iqn.1987-05.com.cisco:00.a5eeb370f170.5428fc64
```

NOTE: The first two entries in the list with `assigned but no active connections` status are the `send-targets-request` entries in the list of targets. The first column from the left lists the target IDs. The second column from the list depicts the target DDB numbers.

IMPORTANT: The target DDB# specifies the boot target in the boot command line. For details on booting, see Booting an Operating System from an iSCSI LUN.

A list of iSCSI LUNs can only be discovered after a list of targets have been discovered. To discover and display LUNs corresponding to the discovered targets, you must issue the following commands at the OpenFirmware ok prompt:

```
ok discover-luns
ok  display-luns \ Prints a list of LUNs corresponding to
                  \ .
NOTE:  is used from the list of IDs as displayed by the
      display-targets list.

ok 3 display-luns
```

The following sample displays a list of LUNs for target ID 1:

```
List of iSCSI LUNs for target ID 3:
ID -- LUN#             -- Vendor Identification
================================================
00 -- 0                -- DGC     RAID 10         0217
01 -- 1                -- DGC     RAID 10         0217
```

The first column from the left is a list of all the LUN IDs for the queried target. The second column depicts the actual LUN value as reported by the storage system in response to the report LUNs scsi cmd.

10. Persistent Binding iSCSI Targets to Device-Database Entries 0x00 through 63 (0x3f)

This simply means that any of a maximum of 64 discovered targets can be persistently bound (stored in the device-database block in flash) to specific device-database entries from 0 through 64 (0x40 hex).

NOTE: A maximum of 128 discovered targets may be listed.

A device-database (ddb) entry can be copied from a source ddb entry (ranging from 0 to 127) in RAM to a destination ddb entry (ranging from 0 to 63) in flash.

The following example shows the command structure of the ddb entry copy command:

ok <*source-DDB#*> <*destination-DDB#*> ddb-entry-flash-copy

The following example shows how to copy DDB# 65 (0x41 hex) to DDB# 1:

```
ok 41 1 ddb-entry-flash-copy \ Use DDB# and NOT the target ID.
ok fw-init
```

11. Erasing any Device-Database Entries from 0 through 63 (0x3f)

Any ddb entry ranging from 0 to 63 (0x3f) can be made non-persistent or erased from the flash. The following example shows the command structure for the ddb entry erase command:

<*DDB#*> ddb-entry-flash-erase

The following example shows the command structure for erasing the ddb entry 0x24:

```
ok 24 ddb-entry-flash-erase \ Use DDB# and NOT the target ID.
ok fw-init
```

12. Booting an Operating System from an iSCSI LUN

After building an iSCSI target boot disk, you can perform an iSCSI SAN (storage area network) boot. You must use the target DDB#s from the discovered list of targets along with the LUN ID from the discovered list of LUNs (for a particular target ID) in the boot command line. The following example shows a boot command line:

boot /<*DEVICE-PATH*>/pci1077,128@1,<FUNC#>/sd@<DDB#>,<LUN#>

Example boot command to boot from target DDB# 0x14 LUN ID 10:

```
ok boot /pci@4,2000/pci1077,128@1,1/sd@14,10
```

NOTE: If a particular vendor's storage device/LUN requires start-up/spin-up delays, you should (before issuing the boot command) set the optional device-present-timeout appropriately.

13. Building an iSCSI Target Boot Disk (also known as SAN boot install)

This procedure assumes the system is already booted from an existing system disk, and that you have already performed a full system backup. The device name shown in this example is for a device on the third PCI bus slot, target Id 130, Lun 0, slice 0. The device path will be different on each system depending on which PCI bus slot, target Id, Lun etc.

You must have already completed the steps listed above before attempting to create a bootable disk.

This procedure uses the Solaris command ufsdump to create temporary saveset files for each partition on your current boot disk. To make this method successful, you must have enough extra disk space to create the saveset files or your Solaris machine must have a high capacity tape drive attached.

1. Determine the amount of disk space used/available on your current boot disk using the command for a listing. For example:
   /usr/bin/df -k -l

```
Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t0d0s0    2577118 1650245  875331    66%    /
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
mnttab                     0       0       0     0%    /etc/mnttab
swap                 1310480       0 1310480     0%    /var/run
swap                 1311344     864 1310480     1%    /tmp
/dev/dsk/c0t0d0s7    5135326     114 5083859     1%    /home
    Example:  /usr/bin/df -k -l
```

   This df example shows that the current boot disk is /dev/dsk/c0t0d0s(x). There are two partitions of interest, slice 0 or "/" and slice 7 or "/home". Slice 0 is using 1.6GB and has 875MB free. Slice 7 uses 114KB and has 5GB free. Therefore, we can use Slice 7 or "/home" to store our temporary saveset files. If we did not have at least 1.7GB free on this disk, we would have to create a partition on the new bootable disk large enough to hold the largest temporary saveset plus the largest used space on a partition. In this example, that would be a partition at least 3.2GB (1.6GB +1.6GB).

2. Use the format command to create, label, and format partitions on the new bootable disk. These partitions must be able to contain the contents of your temporary savesets. If you are not familiar with the format command, please carefully read the Solaris documentation and man pages for the command. Misuse of format could destroy the data on your current disk drives. For example:

```
format
   partition
      print

Part      Tag    Flag     Cylinders        Size            Blocks
  0       root    wm       0 - 8738        4.00GB    (8739/0/0) 8389440
  1       swap    wu    8739 - 9188      210.94MB    (450/0/0)   432000
  2     backup    wu       0 - 9201        4.21GB    (9202/0/0) 8833920
  3 unassigned    wm       0               0         (0/0/0)          0
  4 unassigned    wm       0               0         (0/0/0)          0
  5 unassigned    wm       0               0         (0/0/0)          0
  6 unassigned    wm       0               0         (0/0/0)          0
  7 unassigned    wm       0               0         (0/0/0)          0

  label
  quit
  quit
```

3. Use the newfs command to create the file system. For example:
   `newfs -v /dev/rdsk/c3t130d0s0`
   NOTE: The target device ID (t130) is in decimal format. The hexadecimal value for the target ID is used in the boot command line shown in step 13.
4. Mount the boot partition to the /mnt mount point. For example:
   `mount /dev/dsk/c3t130d0s0 /mnt`
5. Change directory to the root partition mount point. For example:
   `cd /mnt`
6. Use the ufsdump utility to copy the root partition to the new boot disk. For example:
   `ufsdump 0f - / | ufsrestore rf -`
7. Enter:
   `rm restoresymtable`
8. Install the boot block on the new boot disk. For example:
   `installboot /usr/platform/`uname -i`/lib/fs/ufs/bootblk /dev/rdsk/c3t130d0s0`
9. Edit the new vfstab file to properly mount the new partition(s) during boot. In this case each reference to c0t0d0s0 would be changed to c3t130d0s0. For example:
   `vi /mnt/etc/vfstab`
10. Edit iSCSI target disk's system related files:

```
    /mnt/etc/vfstab : All references to the local disk must be changed to
                      that of the iSCSI target disk. Eg. c0t0d0s0 to c1t3d0s0.
     /mnt/etc/hosts : Change the hostname and IP address to desired values.
     /mnt/etc/hostname. : Change hostname to that desired.
     /mnt/etc/nodename : Change hostname to that desired.
     /mnt/etc/net/*/hosts : Change the hostname to that desired.
     /mnt/etc/inet/ipnodes (if hostname exists) : Change hostname to that
                                                  desired.
     /mnt/dumpadm.conf : Change hostname to that desired.
```

11. Shutdown the system. For example:
    `/sbin/init 0`
12. Boot from the newly created boot disk. For example:
    `boot boot /pci@1f,2000/pci1077,128@1,1/sd@41,1`
13. View the current dump device setting. For example:

```
# dumpadm
Dump content: kernel pages
Dump device: /dev/dsk/c0t0d0s1 (swap)
Savecore directory: /var/crash/saturn
Savecore enabled: yes
```

14. Change the dump device to the swap area of the new boot drive. For example:
    `# dumpadm -d /dev/dsk/c3t130d0s1`

14. Check the Target

Ping the target:

```
ok " 192.35.66.66" ping
192.35.66.66 is alive.
if target is not reachable please check the cable LED for link up
and check iSCSI Initiator for valide network settings.
ok .properties
```

15. Contacting QLogic

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

Web: http://support.qlogic.com

North America Contact Information
Email: support@qlogic.com
Phone: (952) 932-4040

Support contact information for other regions of the world is available at the QLogic website:
http://support.qlogic.com

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