



IBM i integration with BladeCenter® and System x™

iSCSI Initiator Hardware Configuration

Second Edition (May 2009)

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1 Introduction

This document describes various iSCSI initiator configuration tasks that are required for BladeCenter blade and System x servers that are attached to IBM i via an iSCSI network.

The **Information Center** refers to this document to perform various iSCSI initiator configuration tasks. When you are directed by the Information Center to perform a specific task:

1. Locate the chapter in this document that corresponds to the type of iSCSI initiator hardware used in your server and the primary configuration method that is used for that iSCSI initiator hardware:

- **Chapter 2 iSCSI HBA (Fast!UTIL)** on page 5

This chapter addresses servers that use a QLogic iSCSI host bus adapter (iSCSI HBA) as the iSCSI initiator hardware.

Fast!UTIL is the primary utility that is used to configure the iSCSI initiator in this environment.

- **Chapter 3 Ethernet NIC (UEFI)** on page 16

This chapter addresses servers that support Unified Extensible Firmware Interface (UEFI) and use an Ethernet NIC as the iSCSI initiator hardware.

UEFI Setup is the primary utility that is used to configure the iSCSI initiators in this environment.

- **Chapter 4 Ethernet NIC (BladeBoot)** on page 24

This chapter addresses BladeCenter blade servers that support BladeBoot™ technology and use an Ethernet NIC as the iSCSI initiator hardware.

iSCSI Configuration Manager is the primary utility that is used to configure the iSCSI initiators in this environment.

2. Go to the appropriate sub-section in that chapter to perform the specific task.

2 iSCSI HBA (Fast!UTIL)

This chapter addresses servers that use the following QLogic iSCSI host bus adapters (**iSCSI HBAs**) as the iSCSI initiator hardware:

Part Number	Server Type	Description
32R1923	Blade	Blade expansion card with 2 ports
39Y6146	System x	PCIe adapter with 1 copper port
42C1770	System x	PCIe adapter with 2 copper ports
30R5201	System x	PCI-X adapter with 1 copper port
30R5501	System x	PCI-X adapter with 1 fiber port

Note: These iSCSI HBAs are also known as “hardware initiators” because the iSCSI protocol is implemented in the iSCSI HBA hardware.

The iSCSI initiator configuration utility for these iSCSI HBAs is the QLogic **Fast!UTIL** utility.

The following sections of this chapter describe various iSCSI initiator configuration tasks for iSCSI HBAs.

2.1 Updating iSCSI initiator firmware (Fast!UTIL)

Perform this task to update the iSCSI initiator firmware in servers that use QLogic iSCSI HBAs.

Note: Download the required iSCSI initiator firmware version using the appropriate link in **Note 1** on the [BladeCenter and System x models supported with iSCSI](#) Web page.

Note: Windows® and VMware ESX Server might require different versions of iSCSI initiator BIOS and firmware which might not be compatible between the two servers. If an iSCSI initiator has been updated in Windows and you now want to use that same iSCSI initiator with an ESX server, you might need to manually update the iSCSI initiator BIOS and firmware to the version required by the ESX server. See [IBM BladeCenter and System x iSCSI HBA update for integration with System i - Servers](#) for information about compatible firmware versions.

Do these steps to update the iSCSI HBA firmware in the server:

1. If you are updating a System x server, plug the ac power cords into a power source. Refer to the System x hardware documentation to complete this step.
2. If you are updating a blade server, select the appropriate blade server for the BladeCenter KVM and media tray. Refer to the BladeCenter hardware documentation to complete this step.
3. Insert the media containing the iSCSI HBA update in the drive and turn on the server power. Refer to the BladeCenter or System x hardware documentation to complete this step.
4. Wait for the server to complete power on system test (POST). It should then access the media drive with the update media and proceed to boot off the media. It will take several minutes to complete this.
5. The server should boot to the update utility, which will present a screen informing about the contents of the update. Type **y** to continue with the update.
Note: If multiple iSCSI HBAs are installed in a System x server, the update will be performed on all of them.
6. When the update completes, remove the media and turn off the server power. Refer to the BladeCenter or System x hardware documentation to complete this step.

2.2 Starting the Fast!UTIL utility

Perform this task to start the Fast!UTIL utility for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**. You can use the configuration utility to make changes to the iSCSI initiator settings.

The steps below are performed from the BladeCenter blade or System x display and keyboard or using the service processor remote console support.

Do these steps to start the Fast!UTIL utility on the server:

1. If you are configuring a blade server, select the appropriate blade server for the BladeCenter KVM and media tray. Refer to the BladeCenter hardware documentation to complete this step.
2. Turn the server power on. Refer to the BladeCenter or System x hardware documentation to complete this step. This will start the power on system test (POST) on the server.
3. Wait for the QLogic BIOS prompt on the server display. This will appear sometime after the eServer™ logo has been displayed.

Important: If you have more than one adapter version installed in a System x server, the prompt will appear for each version. The screen will display QLA405x then QLA406x. You must respond to the prompt for the adapter version that you want to configure.

The prompt will read something like this: **Press CTRL-Q for Fast!UTIL**. Respond to this prompt by pressing Ctrl + Q. This will start the configuration utility.

4. Successful initiation of the utility is confirmed by a message that reads **CTRL-Q Detected, Initialization in progress, Please wait...**

Note: It may take several minutes before the next screen is displayed.

Tip: A red status bar may appear at the bottom of the screen. This bar provides information about status or errors.

5. If more than one iSCSI HBA port is available for use, either because the iSCSI HBA has multiple ports (as in a blade server) or there are multiple iSCSI HBAs plugged into the server (as can be done with System x), the **Select Host Adapter** menu will appear. Highlight the iSCSI HBA port you will be configuring as identified by its MAC address using the up or down arrow keys and press **Enter**. It might take several seconds for the next window to appear.
6. The next **Configuration Settings** window will have two panes:
 - The **Selected Adapter** pane is at the top. This pane shows the iSCSI HBA port currently selected for configuration.
 - On the lower pane is the **Fast!UTIL Options** pane.
7. Continue with the specific iSCSI initiator configuration task that you are performing.

2.3 Ending the Fast!UTIL utility

Perform this task to exit the Fast!UTIL utility.

Note: This procedure starts from the **Configuration Settings** menu. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Press **Esc** on the **Fast!UTIL Options** menu.
2. Highlight **Reboot system** using the up or down arrow keys and press **Enter**.

The BladeCenter blade or System x server restarts. Turn off the server. Refer to the BladeCenter or System x hardware documentation to complete this step.

2.4 Configuring the boot iSCSI initiator port (Fast!UTIL)

Perform this task to configure the iSCSI initiator boot settings for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: The following tasks reference items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “**CQ**”.
- [i5/OS remote system configuration object work sheet](#). Item names from this work sheet start with “**RS**”.

Attention: When the iSCSI initiator may have been previously used, do these procedures before continuing:

- **2.7 Restoring factory defaults for an iSCSI initiator** on page 11.
- **2.8 Resetting cached iSCSI initiator configuration information** on page 11.

Select one of the two procedures listed below, based on the boot parameter delivery method selected in work sheet item **RS6**:

- **2.4.1 Configuring an iSCSI initiator for dynamic addressing** on page 7.
Configure an iSCSI initiator to obtain an address on the network by using DHCP (dynamic addressing).
- **2.4.2 Configuring an iSCSI initiator for manual addressing** on page 8.
Configure the iSCSI initiator to use manual addressing. You will need to configure an IP address for the iSCSI initiator.

2.4.1 Configuring an iSCSI initiator for dynamic addressing (Fast!UTIL)

Configure an iSCSI HBA to obtain an address on the network by using DHCP (dynamic addressing).

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Highlight **Host Adapter settings** using the up or down arrow keys and press **Enter**
2. Specify CHAP settings.
 - If **Enabled** is selected for work sheet item **RS10**, highlight the **Initiator Chap Name** field, type the name from work sheet item **RS11** and press **Enter**. Then highlight the **Initiator Chap Secret** field, type the name from work sheet item **RS12** and press **Enter**.
 - If **Disabled** is selected for work sheet item **RS10**, clear the **Initiator Chap Name** and **Initiator Chap Secret** fields. Highlight each field using the up or down arrow keys, press **Enter**, type in a single space and press **Enter** to clear each field.
3. Highlight **Initiator IP address by DHCP** using the up or down arrow keys and press **Enter** until the value shows **NO**.
4. Press Esc to return to the **Configuration Settings** menu.
5. Highlight **iSCSI Boot Settings** using the up or down arrow keys and press **Enter**.
6. The **iSCSI Boot Settings** menu will be displayed.
7. Highlight **Adapter Boot Mode** using the up or down arrow keys and press **Enter**.
8. Highlight **DHCP using vendor ID** (or **DHCP** if only **DHCP** is shown on the panel) using the up or down arrow keys and press **Enter**.
9. Highlight **Primary Boot Device Settings** using the up or down arrow keys and press **Enter**.

10. Highlight **Security Settings** using the up or down arrow keys and press **Enter** to select. The next menu displayed will be the **Primary Boot Security Settings** menu.
11. Highlight **Chap** using the up or down arrow keys and press **Enter** to change the value to **Enabled** or **Disabled**, depending on whether or not CHAP will be used. Refer to work sheet item **CQ12** for this information. Skip to step 13 if CHAP has been disabled.
12. Highlight **Chap Name** using the up or down arrow keys and press **Enter**. This will bring up the **Enter Chap Name** pane. Type the target CHAP name from work sheet item **RS8** and press **Enter**.
13. Highlight **Chap Secret** using the up or down arrow keys and press **Enter**. This will bring up the **Enter New Secret** pane. Type the target CHAP secret from work sheet item **RS9** and press **Enter**. The **Confirm New Secret** pane is then displayed. Retype the same secret and press **Enter**.
14. Highlight **Bidirectional Chap** using the up or down arrow keys.
 - If **Enabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Enabled**.
 - If **Disabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Disabled**.
15. Press **Esc** to return to the **Primary Boot Device Settings** menu.
16. Press **Esc** to return to the **iSCSI Boot Settings** menu.
17. Press **Esc** to return to the **Configuration Settings** menu.
18. Press **Esc**. The **Configuration setting modified** pane is displayed.
19. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.4.2 Configuring an iSCSI initiator for manual addressing (Fast!UTIL)

Configure the iSCSI HBA to use manual addressing. You will need to configure an IP address for the iSCSI HBA.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Highlight **Host Adapter settings** using the up or down arrow keys and press **Enter**.
2. Highlight **LUNs per Target** using the up or down arrow keys and press **Enter**. Use the arrow keys to select the value **64** and press **Enter**. This option is not available in System x adapter version 406x.
3. Highlight **Initiator IP Address via DHCP** using the up or down arrow keys and press **Enter** until the value shows **NO**.

Important: In adapter version 406x select only the **IPv4** options for the following steps.

4. Highlight **Initiator IP address** using the up or down arrow keys and press **Enter**. Type the Integrated Server HBA iSCSI Initiator IP address from work sheet item **CQ3** and press **Enter**.
5. Highlight **Subnet mask** using the up or down arrow keys and press **Enter** to select. Type the iSCSI Initiator subnet mask from work sheet item **CQ4** and press **Enter**.
6. Highlight **Gateway IP Address** using the up or down arrow keys and press **Enter** to select. Clear any value currently in the field or set it to blanks, then press **Enter**.
7. Highlight **Initiator iSCSI Name** using the up or down arrow keys and press **Enter** to select. Type the name (iqn.1924-02.com.ibm:...) from work sheet item **CQ6** and press **Enter**.

8. Do one of the following:
 - If **Enabled** is selected for work sheet item **RS10**, highlight the **Initiator Chap Name** field, type the name from item **RS11** and press **Enter**. Then highlight the **Initiator Chap Secret** field, type the name from item **RS12** and press **Enter**.
 - If **Disabled** is selected for work sheet item **RS10**, clear the **Initiator Chap Name** and **Initiator Chap Secret** fields. Highlight each field using the up or down arrow keys, press **Enter**, type in a single space and press **Enter** to clear each field.
9. Press **Esc** to return to the **Configuration Settings** menu.
10. Highlight **iSCSI Boot Settings** using the up or down arrow keys and press **Enter** to display the iSCSI Boot Settings menu.
11. Highlight **Adapter Boot Mode** using the up or down arrow keys and press **Enter**.
12. Highlight **Manual** using the up or down arrow keys and press **Enter**.
13. Highlight **Primary Boot Device Settings** using the up or down arrow keys and press **Enter**.
14. Highlight **Target IP** using the up or down arrow keys and press **Enter** to select. Type the target (IBM i) iSCSI HBA iSCSI IP address from work sheet item **CQ10** and press **Enter**.
15. Highlight **iSCSI Name** using the up or down arrow keys and press **Enter**. IBM i will generate the IQN for the target side and it must be matched here. Type the iSCSI name from work sheet item **CQ11** and press **Enter**.
16. Highlight **Security Settings** using the up or down arrow keys and press **Enter** to display the **Primary Boot Security Settings** menu.
17. Highlight **Chap** using the up or down arrow keys and press **Enter** to change the value to **Enabled** or **Disabled**, based on whether or not CHAP will be used. Refer to work sheet item **CQ12** for this information. Skip to step 21 if CHAP has been disabled.
18. Highlight **Chap Name** using the up or down arrow keys and press **Enter** to select. This will bring up the **Enter Chap Name** pane. Type the target CHAP name from work sheet item **RS8** and press **Enter**.
19. Highlight **Chap Secret** using the up or down arrow keys and press **Enter** to select. This will bring up the **Enter New Secret** pane. Type the target chap secret from work sheet item **RS9** and press **Enter** and confirm by retyping the same chap secret on the next pane and press **Enter**.
20. Highlight **Bidirectional Chap** using the up or down arrow keys.
 - If **Enabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Enabled**.
 - If **Disabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Disabled**.
21. Press **Esc** to return to the **Primary Boot Device Settings** menu.
22. Press **Esc** to return to the **iSCSI Boot Settings** menu.
23. Press **Esc** to return to the **Configuration Settings** menu.
24. Press **Esc**. The **Configuration setting modified** pane is displayed.
25. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.5 Configuring advanced iSCSI initiator port settings (Fast!UTIL)

Perform this task to configure iSCSI initiator Maximum Transmission Unit (MTU) and acknowledgement (ACK) settings for a BladeCenter blade or System x server that uses QLogic iSCSI HBAs.

Note: The following task references items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “CQ”.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Highlight **Advanced Adapter Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Delayed ACK** using the up or down arrow keys and press **Enter** until the value shows **Disabled**.
3. Highlight **MTU** (maximum transmission unit) using the up or down arrow keys and press **Enter** until the value shows the desired frame size setting from work sheet item **CQ16** (either 1500 or 9000). Ensure the network the iSCSI HBA will be attached to supports the value selected here.
4. Press **Esc** to return to the **Configuration Settings** menu.
5. Press **Esc**. The **Configuration setting modified** pane is displayed.
6. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.6 Disabling boot for additional iSCSI initiator ports (Fast!UTIL)

Perform this task to disable iSCSI initiator ports other than the boot device for a BladeCenter blade or System x server that uses QLogic iSCSI HBAs.

Note: The following task references items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “CQ”.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Press **Esc**. Highlight **Return to Fast!UTIL** and press **Enter**.
2. From the **Select Host Adapter** menu, find any unused adapter ports and check to see if the **Adapter Boot Mode** is already set to **Disable**. If so, there is no need to continue. Otherwise, highlight the unused adapter port using the up or down arrow keys and press **Enter** to select. It may take several seconds for the next screen to appear.
3. On the **Fast!UTIL Options** menu, highlight **Configuration Settings** using the up or down arrow keys and press **Enter** to select.
4. On the **Configuration Settings** menu, highlight **iSCSI Boot Settings** using the up and down arrow keys and press **Enter** to select.
5. Highlight **Adapter Boot Mode** using the up or down arrow keys and press **Enter** to select.
6. Highlight **Disable** using the up or down arrow keys and press **Enter** to select.
7. Press **Esc** to return to the **Configuration Settings** menu.

8. Highlight **Advanced Adapter Settings** using the up or down arrow keys and press **Enter**.
9. Highlight **MTU** (maximum transmission unit) using the up or down arrow keys and press **Enter** until the value shows the desired frame size setting from work sheet item **CQ16** (either 1500 or 9000). Ensure the network the iSCSI HBA will be attached to supports the value selected here.
10. Press **Esc** to return to the **Configuration Settings** menu.
11. Press **Esc**. The **Configuration setting modified** pane is displayed.
12. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.7 Restoring factory defaults for an iSCSI initiator (Fast!UTIL)

Perform this task to restore default settings for an iSCSI initiator in a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

If your iSCSI initiator is not working properly or you are installing it in a new system, you can reset it to use the factory default settings.

1. Highlight **Configuration Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Restore Adapter Defaults** using the up or down arrow keys and press **Enter**.
3. Press **Esc**. The **Configuration settings modified** pane is displayed.
4. On the **Restore Adapter Defaults** menu, highlight **Restore Adapter Defaults** using the up or down arrow keys and press **Enter** to restore the default settings.
5. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.8 Resetting cached iSCSI initiator configuration information (Fast!UTIL)

Perform this task to reset iSCSI initiator configuration information that is stored in a BladeCenter blade or System x server **QLogic iSCSI HBA**.

Important: performing this procedure will likely erase iSCSI boot information, making it necessary to reconfigure the boot iSCSI initiator settings.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

Do these steps to reset iSCSI initiator configuration information.

1. Press **Esc**. Highlight **Return to Fast!UTIL** and press **Enter**.
2. Highlight **Configuration Settings** using the up or down arrow keys and press **Enter**.

3. Highlight **Clear persistent targets** using the up or down arrow keys and press **Enter**.
4. On the next screen, highlight **Clear persistent targets** using the up or down arrow keys and press **Enter**. The text in the **Clear Persistent Targets** pane will change to **Clearing Persistent Targets** while the clear is in progress. It might take several minutes to complete.
5. Once the clear is complete, the text in the **Clear Persistent Targets** pane will change to **Persistent Targets Cleared**; hit any key to return to the **Configuration Settings** menu.
6. Press **Esc** to return to the **Fast!UTIL Options** menu.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.9 Verifying the iSCSI connection using ping (Fast!UTIL)

Perform this task to verify that an iSCSI initiator on the BladeCenter blade or System x server can communicate with an iSCSI target on the IBM i system over the iSCSI network. This task applies to a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

Before you can use the ping utility, the iSCSI initiator must have an IP address. If you have already configured and know the IP address of the iSCSI initiator, continue with the rest of the procedure. To set the IP address, choose one of the two following options:

- If you are configuring the iSCSI initiator with dynamic addressing via DHCP, see 2.4.1 **Configuring an iSCSI initiator for dynamic addressing** on page 7.
- If you are configuring the iSCSI initiator with manual addressing see 2.4.2 **Configuring an iSCSI initiator for manual addressing** on page 8.

Note: If you have configured the iSCSI initiator to use DHCP, the network server description (NWSD) for the server must be started. This enables the integrated DHCP server on IBM i to provide the IP address to the iSCSI initiator.

Use the following steps to access the ping utility to verify the physical connection of the BladeCenter blade or System x server to the IBM i system.

1. Highlight **Ping Utility** and press **Enter**.
2. Highlight the values for **Target IP** and press **Enter** to select. A red **Enter IP Address** pane is displayed.
3. Type the IP address of the iSCSI target adapter on the IBM i system into the **Enter IP Address** pane and press **Enter**. The **Enter IP Address** pane will disappear and the address just entered will be displayed in the **Target IP** field on the **Ping Utility** pane.
4. Highlight **Ping Target** and press **Enter** to perform the ping. A small pane will open with the results of the ping:
 - **Ping successful:** verifies the path from the BladeCenter blade or System x server iSCSI initiator to the IBM i iSCSI target.
 - **Ping unsuccessful:** means the path from the BladeCenter blade or System x server iSCSI initiator to the IBM i iSCSI target cannot be verified. This may occur when the Ping Target is an iSCSI initiator LAN IP address in a different subnet, but on the same switched network as the BladeCenter blade or System x server iSCSI initiator used to send the ping.
5. Press **Enter** to close the ping utility pane.
6. Press **Esc** to return to the **Fast!UTIL Options** menu.

If you are done, exit the Fast!UTIL utility. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.10 Configuring target CHAP (Fast!UTIL)

Perform this task to configure the iSCSI initiator to authenticate the iSCSI target for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Select the iSCSI initiator port that is configured to boot the integrated server operating system.
2. Enter the target CHAP name and secret from the remote system configuration properties into the CHAP name and secret fields of the target security configuration panel.

Note: Do not enter this information into the initiator configuration panel.

Note: For integrated servers running Windows, any non-boot iSCSI HBAs in the hosted system are automatically configured from the IBM i configuration.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.11 Configuring initiator CHAP (Fast!UTIL)

Perform this task to configure the iSCSI target to authenticate the iSCSI initiator for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Select the iSCSI initiator port that is configured to boot the integrated server operating system.
2. Enter the initiator CHAP name and secret from the remote system configuration properties into the CHAP name and secret fields of the CTRL-Q initiator security configuration panel. Do not enter this information into the CTRL-Q target configuration panel.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.12 Changing the iSCSI initiator CHAP secret (Fast!UTIL)

Perform this task to change the CHAP secret that is stored in the iSCSI initiator settings for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

The generation of a CHAP secret can be deferred to when the IBM i remote system configuration object is created. This can be done when using either dynamic or manual addressing. This section provides a procedure for updating the CHAP secret once the initial configuration has already been done.

Note: The following task references items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “CQ”.
- [i5/OS remote system configuration object work sheet](#). Item names from this work sheet start with “RS”.

Note: If you have previously set the challenge handshake authentication protocol (CHAP) secret and plan to change it you must know the original CHAP secret. If you do not know the original CHAP secret, you will need to restore the factory defaults and reconfigure the iSCSI initiator. Refer to 2.7 **Restoring factory defaults for an iSCSI initiator** on page 11, then refer to 2.4 **Configuring the boot iSCSI initiator port** on page 7 in this case.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Highlight **Configuration Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Host Adapter** settings using the up or down arrow keys and press **Enter**.
3. If **Enabled** is selected for work sheet item **RS10**, highlight the **Initiator Chap Name** field, type the name from work sheet item **RS11** and press **Enter**. Then highlight the **Initiator Chap Secret** field, type the name from work sheet item **RS12** and press **Enter**.
4. Press **Esc** to return to the **Configuration Settings** menu.
5. Highlight **iSCSI Boot Settings** using the up or down arrow keys and press **Enter** to display the **iSCSI Boot Settings** menu.
6. Highlight **Primary Boot Device Settings** using the up or down arrow keys and press **Enter**.
7. Highlight **Security Settings** using the up or down arrow keys and press **Enter** to select. The next menu displayed will be the **Primary Boot Security Settings** menu
8. Highlight **Chap** using the up or down arrow keys and press **Enter** to change the value to **Enabled**, if necessary.
9. Highlight **Chap Name** using the up or down arrow keys and press **Enter** to select. This will bring up the **Enter Chap Name** pane. Type the target CHAP name if this hasn't been previously done, using work sheet item **RS8** and press **Enter**.
10. Highlight **Chap Secret** using the up or down arrow keys and press **Enter**. If CHAP was previously configured, the **Enter Old Secret** pane will be displayed. Type the original CHAP secret and press **Enter**. At this point, in either case the **Enter New Secret** pane is displayed. Type the target chap secret from work sheet item **RS9** and press **Enter**. The **Confirm New Secret** pane is then displayed. Retype the same secret and press **Enter**.

Remember: the chap secret is case sensitive.

11. Highlight **Bidirectional Chap** using the up or down arrow keys.
 - If **Enabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Enabled**.
 - If **Disabled** is selected for work sheet item **RS10**, press **Enter** to change the value to **Disabled**.
12. Press **Esc** to return to the **Primary Boot Device Settings** menu.
13. Press **Esc** to return to the **Configuration Settings** menu.
14. Press **Esc**. The **Configuration setting modified** pane is displayed.
15. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

2.13 Changing the iSCSI initiator MTU (Fast!UTIL)

Perform this task to change the iSCSI initiator maximum transmission unit (MTU) settings for a BladeCenter blade or System x server that uses **QLogic iSCSI HBAs**.

Note: The following task references items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “**CQ**”.

Note: This procedure starts from the **Configuration Settings** menu in the configuration utility. If you need to restore this menu see, 2.2 **Starting the Fast!UTIL utility** on page 4, then return to this procedure.

1. Highlight **Configuration Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Advanced Adapter Settings** using the up or down arrow keys and press **Enter**.
3. Highlight **MTU** using the up or down arrow keys and press **Enter** until the value shows the desired frame size setting from work sheet item **CQ16**.
4. Press **Esc** to return to the **Configuration Settings** menu.
5. Press **Esc**. The **Configuration setting modified** pane is displayed.
6. Highlight **Save changes** using the up or down arrow keys and press **Enter**. It might take several minutes to complete the save process. When complete, the **Fast!UTIL Options** menu is displayed.

If you are done making changes to the iSCSI initiator configuration, exit the Fast!UTIL utility and restart the system. See 2.3 **Ending the Fast!UTIL utility** on page 6 for details.

3 Ethernet NIC (UEFI)

This chapter contains iSCSI initiator configuration tasks for **UEFI**-based servers that use the following **Ethernet NICs** as the iSCSI initiator hardware:

Part Number	Server Type	Description
None	System x	Broadcom NetXtreme embedded Ethernet
None	Blade	Broadcom NetXtreme embedded Ethernet
44W4479	Blade	Broadcom 2/4 port Ethernet Expansion Card (CFFh) for IBM BladeCenter
44W4475	Blade	Broadcom Ethernet Expansion Card (CIOv) for IBM BladeCenter

Note: These Ethernet NICs are also known as “software initiators” because the iSCSI protocol is implemented in the operating system, rather than in the Ethernet NIC hardware.

The iSCSI initiator configuration utility for these Ethernet NICs is the Unified Extensible Firmware Interface (**UEFI Setup**) utility.

The following sections of this chapter describe various iSCSI initiator configuration tasks for UEFI-based servers that use an Ethernet NIC as the iSCSI initiator hardware.

3.1 Updating iSCSI initiator firmware (UEFI)

Perform this task to update the iSCSI initiator firmware in a server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: Download the required iSCSI initiator firmware version using the appropriate link in **Note 1** on the [BladeCenter and System x models supported with iSCSI](#) Web page.

Do these steps to update the Ethernet NIC firmware in the server:

1. If using a blade server, select the appropriate blade server for the BladeCenter KVM and media tray. Refer to the BladeCenter hardware documentation to complete this step.
2. Insert the media containing the Ethernet NIC update in the drive and turn on the server power. Refer to the BladeCenter or System x hardware documentation to complete this step.
3. Wait for the server to complete power on system test (POST). It should then access the media drive with the update media and proceed to boot off the media. It will take several minutes to complete this.
4. The server should boot to DOS. Refer to the README documentation provided with the firmware update utility for instructions on how to update the adapter firmware.
5. When the update completes, remove the media and turn off the server power. Refer to the BladeCenter or System x hardware documentation to complete this step.

3.2 Starting the UEFI Setup utility

Perform this task to enter the **UEFI Setup** utility for a BladeCenter or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators. Use the UEFI Setup utility to make changes to the iSCSI initiator settings.

The steps below are performed from the BladeCenter blade or System x display and keyboard or using the service processor remote console support.

Do these steps to start the UEFI Setup utility on the server:

1. If you are configuring a blade server, select the appropriate blade server for the BladeCenter KVM and media tray. Refer to the BladeCenter hardware documentation to complete this step.

2. Turn the server power on. Refer to the BladeCenter or System x hardware documentation to complete this step.
3. After a short period of time an IBM System x server firmware dialog with an IBM logo will be presented. When presented, select **<F1> Setup** from the System x firmware panel.
4. After pressing **F1**, the **System Configuration and Boot Management** menu will be displayed.
5. Continue with the specific iSCSI initiator configuration task that you are performing.

3.3 *Ending the UEFI Setup utility*

Perform this task to exit the **UEFI Setup** utility.

Note: This procedure starts from the **System Configuration and Boot Management** menu. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **Save Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Exit Setup** using the up or down arrow keys and press **Enter**.
3. A dialog asking for confirmation to exit the **Setup** Utility will be presented. Type **y** to exit **Setup**.

The BladeCenter blade or System x server continues with the boot process. Turn off the system. Refer to the BladeCenter or System x hardware documentation to complete this step.

3.4 *Configuring the boot iSCSI initiator port (UEFI)*

Perform this task to configure the iSCSI initiator boot settings for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: The following tasks reference items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “**CQ**”.
- [i5/OS remote system configuration object work sheet](#). Item names from this work sheet start with “**RS**”.

Select one of the two procedures listed below, based on the boot parameter delivery method selected in work sheet item **RS6**:

- **3.4.1 Configuring an iSCSI initiator for dynamic addressing** on page 18.
Configure an iSCSI initiator to obtain an address on the network by using DHCP (dynamic addressing).
- **3.4.2 Configuring an iSCSI initiator for manual addressing** on page 19.
Configure the iSCSI initiator to use manual addressing. You will need to configure an IP address for the iSCSI initiator.

Next, perform the steps in section 3.4.3 **Configuring start options for boot (UEFI)** on page 20 in to ensure that the server will start up in legacy mode.

3.4.1 Configuring an iSCSI initiator for dynamic addressing (UEFI)

Configure an Ethernet NIC to obtain an address on the network by using DHCP (dynamic addressing).

Note: This procedure starts from the **System Configuration and Boot Management** menu in the UEFI **Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **System Settings** using the up or down arrow keys and press **Enter**
2. Highlight **Network** using the up or down arrow keys and press **Enter**.
3. Highlight **iSCSI Configuration** using the up or down arrow keys and press **Enter**.
4. Highlight **iSCSI Initiator Name** using the up or down arrow keys and press **Enter** to select. Type the name (iqn.1924-02.com.ibm:...) from work sheet item **CQ6** and press **Enter**.
5. Highlight **Add an Attempt** using the up or down arrow keys and press **Enter** to select.
6. Highlight the MAC address for the initiator you are attempting to configure using the up and down arrow keys and press **Enter** to select.
7. Highlight **iSCSI Attempt Name** using the up or down arrow keys and press **Enter** to select. Type in a name to identify the attempt.
8. Highlight **iSCSI Mode** using the up or down arrow keys and press **Enter** to select. From the pull down menu highlight **Legacy Support** and press **Enter** to select.
9. Highlight **Enable DHCP** using the up or down arrow keys and press **Space** to indicate DHCP will be used.
10. Highlight **Get target info via DHCP** using the up or down arrow keys and press **Space** to indicate the target information will be retrieved via DHCP.
11. Highlight **CHAP Type** using the up or down arrow keys and press **Enter** to select the appropriate CHAP type. Refer to work sheet item **CQ12** for this information. For **One Way CHAP** skip to step 14. If CHAP is disabled skip to step 16.
12. Highlight **Reverse CHAP Name** using the up or down arrow keys and press **Enter**. Type the initiator CHAP name from work sheet item **RS11** and press **Enter**.
13. Highlight **Reverse CHAP Secret** using the up or down arrow keys and press **Enter**. Type the initiator CHAP secret from work sheet item **RS12** and press **Enter**.
14. Highlight **CHAP Name** using the up or down arrow keys and press **Enter**. Type the target CHAP name from work sheet item **RS8** and press **Enter**.
15. Highlight **CHAP Secret** using the up or down arrow keys and press **Enter**. Type the target CHAP secret from work sheet item **RS9** and press **Enter**.
16. Highlight **Save Changes** using the up or down arrow keys and press **Enter**.
17. Press **Esc** to return to the **MAC Selection** menu.
18. Press **Esc** to return to the **iSCSI Configuration** menu.
19. Press **Esc** to return to the **Network** menu.
20. Press **Esc** to return to the **System Settings** menu.
21. Press **Esc** to return to the **System Configuration and Boot Management** menu.

Next, perform the steps in section 3.4.3 **Configuring start options for boot (UEFI)** on page 20 in to ensure that the server will start up in legacy mode.

If you are done making changes to the iSCSI initiator configuration, exit the iSCSI initiator configuration utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.4.2 Configuring an iSCSI initiator for manual addressing (UEFI)

Configure the Ethernet NIC to use manual addressing. You will need to configure an IP address for the Ethernet NIC.

Note: This procedure starts from the **System Configuration and Boot Management** menu in the **UEFI Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **System Settings** using the up or down arrow keys and press **Enter**
2. Highlight **Network** using the up or down arrow keys and press **Enter**.
3. Highlight **iSCSI Configuration** using the up or down arrow keys and press **Enter**.
4. Highlight **iSCSI Initiator Name** using the up or down arrow keys and press **Enter** to select. Type the name (iqn.1924-02.com.ibm:...) from work sheet item **CQ6** and press **Enter**.
5. Highlight **Add an Attempt** using the up or down arrow keys and press **Enter** to select.
6. Highlight the MAC address for the initiator you are attempting to configure using the up and down arrow keys and press **Enter** to select.
7. Highlight **iSCSI Mode** using the up or down arrow keys and press **Enter** to select.
8. Highlight **Legacy Support** using the up or down arrow keys and press **Enter** to select.
9. Highlight **Initiator IP address** using the up or down arrow keys and press **Enter**. Type the Integrated Server HBA iSCSI Initiator IP address from work sheet item **CQ3** and press **Enter**.
10. Highlight **Initiator Subnet mask** using the up or down arrow keys and press **Enter** to select. Type the iSCSI Initiator subnet mask from work sheet item **CQ4** and press **Enter**.
11. Highlight **Gateway IP Address** using the up or down arrow keys and press **Enter** to select. Clear any value currently in the field or set it to blanks, then press **Enter**.
12. Highlight **Target Name** using the up or down arrow keys and press **Enter**. IBM i will generate the IQN for the target side and it must be matched here. Type the iSCSI name from work sheet item **CQ11** and press **Enter**.
13. Highlight **Target IP Address** using the up or down arrow keys and press **Enter** to select. Type the IBM i iSCSI target IP address from work sheet item **CQ10** and press **Enter**.
14. Highlight **CHAP Type** using the up or down arrow keys and press **Enter** to change the value to **Mutual**, **One Way**, or **Disabled**, based on whether or not CHAP will be used. Refer to work sheet item **CQ12** for this information. Skip to step 17 if using One Way CHAP or skip to step 19 if CHAP has been disabled
15. Highlight **Reverse CHAP Name** using the up or down arrow keys and press **Enter**. Type the initiator CHAP name from work sheet item **RS11** and press **Enter**.
16. Highlight **Reverse CHAP Secret** using the up or down arrow keys and press **Enter**. Type the initiator CHAP secret from work sheet item **RS12** and press **Enter**.
17. Highlight **CHAP Name** using the up or down arrow keys and press **Enter**. Type the target CHAP name from work sheet item **RS8** and press **Enter**.
18. Highlight **CHAP Secret** using the up or down arrow keys and press **Enter**. Type the target CHAP secret from work sheet item **RS9** and press **Enter**.
19. Highlight **Save Changes** using the up or down arrow keys and press **Enter**.

20. Press **Esc** to return to the **MAC Selection** menu.
21. Press **Esc** to return to the **iSCSI Configuration** menu.
22. Press **Esc** to return to the **Network** menu.
23. Press **Esc** to return to the **System Settings** menu.
24. Press **Esc** to return to the **System Configuration and Boot Management** menu.

Next, perform the steps in section 3.4.3 **Configuring start options for boot (UEFI)** on page 20 in to ensure that the server will start up in legacy mode.

If you are done making changes to the iSCSI initiator configuration, exit the UEFI Setup utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.4.3 Configuring start options for boot (UEFI)

Perform this task to configure the **Start Options** in the UEFI Setup utility for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: This procedure starts from the **System Configuration and Boot Management** menu in the **UEFI Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **Boot Manager** using the up or down arrow keys and press **Enter**.
2. Highlight **Add Boot Option** using the up or down arrow keys and press **Enter**.
3. Highlight **Legacy Only** using the up or down arrow keys and press **Enter**.
4. Press **Esc** to return to the **Boot Manager** menu.
5. Highlight **Change Boot Order** using the up or down arrow keys and press **Enter**.
6. The list of available boot options is highlighted, press **Enter**. Select **Legacy Only** using the up or down arrow keys and press the **+** key to move the boot option to the top of the list and press **Enter**.
7. Highlight **Commit Changes** using the up or down arrow key and press **Enter**.
8. Press **Esc** to return to the **Boot Manager** menu.
9. Press **Esc** to return to the **System Configuration and Boot Management** menu.

If you are done making changes to the iSCSI initiator configuration, exit the UEFI Setup utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.5 *Configuring advanced iSCSI initiator port settings (UEFI)*

Refer to section 3.13 **Changing the iSCSI initiator MTU (UEFI)** on page for the steps required to change the MTU settings on an Ethernet NIC.

3.6 Disabling boot for additional iSCSI initiator ports (UEFI)

Perform this task to remove an attempt to boot for specific Ethernet NICs on a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: This procedure starts from the System Configuration and Boot Management menu in the UEFI **Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **System Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Network** using the up or down arrow keys and press **Enter**.
3. Highlight **iSCSI Configuration** using the up or down arrow keys and press **Enter**.
4. Highlight **Delete Attempts** using the up or down arrow keys and press **Enter**.
5. Select the attempt(s) you wish to delete by pressing the **Space bar**. Note: The MAC address used for a given attempt will be displayed on the right side of the screen for reference.
6. Highlight **Save Changes** using the up or down arrow keys and press **Enter**.
7. Press **Esc** to return to the **iSCSI Configuration** menu.
8. Press **Esc** to return to the **Network** menu.
9. Press **Esc** to return to the **System Settings** menu.
10. Press **Esc** to return to the **System Configuration and Boot Management** menu.

If you are done making changes to the iSCSI initiator configuration, exit the iSCSI initiator configuration utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.7 Restoring factory defaults for an iSCSI initiator (UEFI)

This task is not applicable for **UEFI**-based servers that use an **Ethernet NIC** as the iSCSI initiator.

3.8 Resetting cached iSCSI initiator configuration information (UEFI)

This task is not applicable for **UEFI**-based servers that use an **Ethernet NIC** as the iSCSI initiator.

3.9 Verifying the iSCSI connection using ping (UEFI)

This task is not applicable for **UEFI**-based servers that use an **Ethernet NIC** as the iSCSI initiator.

3.10 Configuring target CHAP (UEFI)

Perform this task to configure the iSCSI initiator to authenticate the iSCSI target for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: This procedure starts from the System Configuration and Boot Management menu in the UEFI **Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **System Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Network** using the up or down arrow keys and press **Enter**.
3. Highlight **iSCSI Configuration** using the up or down arrow keys and press **Enter**.
4. Highlight the attempt you wish to add the target CHAP credentials to using the up or down arrow keys and press **Enter**.
5. Highlight **CHAP Type** using the up or down arrow keys and press **Enter**.
6. Highlight **One Way** using the up or down arrow keys and press **Enter**.
7. Enter the target CHAP name and secret from the remote system configuration properties into the **CHAP Name** and **CHAP Secret** fields.
8. Highlight **Save Changes** using the up or down arrow keys and press **Enter**.
9. Press **Esc** to return to the **iSCSI Configuration** menu.
10. Press **Esc** to return to the **Network** menu.
11. Press **Esc** to return to the **System Settings** menu.
12. Press **Esc** to return to the **System Configuration and Boot Management** menu.

Note: For integrated servers running Windows, any non-boot iSCSI HBAs in the hosted system are automatically configured from the IBM i configuration.

If you are done making changes to the iSCSI initiator configuration, exit the iSCSI initiator configuration utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.11 Configuring initiator CHAP (UEFI)

Perform this task to configure the iSCSI target to authenticate the iSCSI initiator for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: This procedure starts from the System Configuration and Boot Management menu in the UEFI **Setup** utility. If you need to restore this menu see, 3.2 **Starting the UEFI Setup utility** on page 16, then return to this procedure.

1. Highlight **System Settings** using the up or down arrow keys and press **Enter**.
2. Highlight **Network** using the up or down arrow keys and press **Enter**.
3. Highlight **iSCSI Configuration** using the up or down arrow keys and press **Enter**.
4. Highlight the attempt you wish to add the initiator CHAP credentials to using the up or down arrow keys and press **Enter**.
5. Highlight **CHAP Type** using the up or down arrow keys and press **Enter**.
6. Highlight **Mutual** using the up or down arrow keys and press **Enter**.

7. Enter the target CHAP name and secret from the remote system configuration properties into the **CHAP Name** and **CHAP Secret** fields.
8. Enter the initiator CHAP name and secret from the remote system configuration properties into the **Reverse CHAP Name** and **Reverse CHAP Secret** fields.
9. Highlight **Save Changes** using the up or down arrow keys and press **Enter**.
10. Press **Esc** to return to the **iSCSI Configuration** menu.
11. Press **Esc** to return to the **Network** menu.
12. Press **Esc** to return to the **System Settings** menu.
13. Press **Esc** to return to the **System Configuration and Boot Management** menu.

If you are done making changes to the iSCSI initiator configuration, exit the iSCSI initiator configuration utility and restart the system. See 3.3 **Ending the UEFI Setup utility** on page 17 for details.

3.12 Changing the iSCSI initiator CHAP secret (UEFI)

Perform this task to change the CHAP secret that is stored in the iSCSI initiator settings for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators. The procedure for changing the CHAP secret is the same as initially configuring it. See 3.11 **Configuring initiator CHAP (UEFI)** on page 22 for details.

Note: The generation of a CHAP secret can be deferred to when the IBM i remote system configuration object is created. This can be done when using either dynamic or manual addressing. This section provides a procedure for updating the CHAP secret once the initial configuration has already been done.

3.13 Changing the iSCSI initiator MTU (UEFI)

Perform this task to configure iSCSI initiator Maximum Transmission Unit (MTU) settings for a BladeCenter blade or System x server that supports **UEFI** and uses **Ethernet NICs** as the iSCSI initiators.

Note: Not all adapters support jumbo frames. Refer to the adapter documentation for information regarding support for jumbo frames.

Note: This procedure starts from the Microsoft Windows **Network Connections** panel.

1. **Right-click** the **Network Adapter** you wish to configure the MTU settings on.
2. Select **Properties**.
3. Click on the **Configure** button.
4. Select the **Advanced** tab.
5. Modify the **Jumbo MTU** setting to the desired value. By default this parameter will be 1500 bytes. When modifying this value use 500-byte increments up to 9000 bytes.

4 Ethernet NIC (BladeBoot)

This chapter contains iSCSI initiator configuration tasks for BladeCenter blades that use **BladeBoot** technology to boot using the following **Ethernet NICs** as the iSCSI initiator hardware:

Part Number	Server Type	Description
None	Blade	Broadcom NetXtreme embedded Ethernet
44W4479	Blade	Broadcom 2/4 port Ethernet Expansion Card (CFFh) for IBM BladeCenter

Note: These Ethernet NICs are also known as “software initiators” because the iSCSI protocol is implemented in the operating system, rather than in the Ethernet NIC hardware.

The iSCSI initiator configuration utility for BladeBoot is the **iSCSI Configuration Manager**.

The following sections of this chapter describe various iSCSI initiator configuration tasks for BladeCenter blades that support BladeBoot and use an Ethernet NIC as the iSCSI initiator hardware.

4.1 Updating iSCSI initiator firmware (BladeBoot)

Perform this task to update the iSCSI initiator firmware in a blade server that supports **BladeBoot** and uses **Ethernet NICs** as the iSCSI initiators.

Note: Download the required iSCSI initiator firmware version using the appropriate link in **Note 1** on the [BladeCenter and System x models supported with iSCSI](#) Web page.

Do these steps to update the Ethernet NIC firmware in the server:

1. Select the appropriate blade server for the BladeCenter KVM and media tray. Refer to the BladeCenter hardware documentation to complete this step.
2. Insert the media containing the Ethernet NIC update in the drive and turn on the server power. Refer to the BladeCenter hardware documentation to complete this step.
3. Wait for the server to complete power on system test (POST). It should then access the media drive with the update media and proceed to boot off the media. It will take several minutes to complete this.
4. The server should boot to DOS. Refer to the README documentation provided with the firmware update utility for instructions on how to update the adapter firmware.
5. When the update completes, remove the media and turn off the server power. Refer to the BladeCenter hardware documentation to complete this step.

4.2 Starting the iSCSI Configuration Manger utility (BladeBoot)

Blades that use BladeBoot require the use of the **iSCSI Configuration Manger** utility running on a separate management PC to setup the Ethernet NIC that is used to boot a blade server using iSCSI.

Note: If you have not already installed the **iSCSI Configuration Manger** utility on a management PC, see 4.2.1 **Installing the iSCSI Configuration Manager application (BladeBoot)** on page 25 before performing this procedure.

Do these steps to start the iSCSI Configuration Manager utility on the management PC:

1. Launch the iSCSI Configuration Manager wizard using one of the following methods:
 - a. For a Windows management PC, use the desktop shortcut to the application or type on the command line or double click on the **wizard.bat** file in the directory where the iSCSI Configuration Manager utility was unzipped to.

b. For a Linux management PC, type on the command line or double click on the **wizard.sh** file in the directory where the iSCSI Configuration Manager utility was unzipped to.

Note: a “.” might be needed on the command line to execute the file, like **.wizard.sh**.

2. Once the utility is active, a window appears asking which type of configuration to perform. The choices are **Quick configuration** and **Advanced configuration**.
3. Select the **Advanced configuration** method, and then click on the **Next** button.

4.2.1 Installing the iSCSI Configuration Manager application (BladeBoot)

The **iSCSI Configuration Manager** is a stand-alone application that is installed on a Windows or Linux management PC that is connected to the IP Network of the BladeCenter Management Module. See the [iSCSI Configuration Manager](#) documentation for a list of supported platforms and minimum system requirements.

To install the iSCSI Configuration Manager on the management PC:

1. Download the zip file for the iSCSI Configuration Manager utility from the [iSCSI Configuration Manager](#) Web site.
 - For a Windows management PC, download the MSI file to the PC.
 - For a Linux management PC, download the ZIP file and unzip it to the PC.
2. Install the iSCSI Configuration Manager utility.
 - The steps necessary to install the utility vary depending on what operating system is running on your management PC. Refer to the iSCSI Configuration Manager documentation to complete this step.
 - On a Windows PC, the installation process adds a desktop shortcut to start the utility.

4.3 Ending the iSCSI Configuration Manger utility (BladeBoot)

After doing the **Flash NVS on Blade(s)** on the last **Advanced configuration** page, just click on the **Finished** button. The utility will ask if you want to save the configuration given before exiting. It is recommended to save the configuration for later use.

4.4 Configuring the boot iSCSI initiator port (BladeBoot)

Perform this task to configure the iSCSI initiator boot settings for a System x or blade server that uses **Ethernet NICs**.

Note: The following tasks reference items from the [iSCSI Network Planning Guide](#) worksheets in the Information Center. These work sheets should be filled out and available for reference while completing the tasks:

- [iSCSI initiator work sheet](#). Item names from this work sheet start with “**CQ**”.
- [i5/OS remote system configuration object work sheet](#). Item names from this work sheet start with “**RS**”.

Select one of the two procedures listed below, based on the boot parameter delivery method selected in work sheet item **RS6**:

- **4.4.1 Configuring an iSCSI initiator for dynamic addressing (BladeBoot)** on page 26.
Configure an iSCSI initiator to obtain an address on the network by using DHCP (dynamic addressing).
- **4.4.2 Configuring an iSCSI initiator for manual addressing (BladeBoot)** on page 28.
Configure the iSCSI initiator to use manual addressing. You will need to configure an IP address for the iSCSI initiator.

Next, perform the steps in section 4.4.3 **Configuring start options for boot (BladeBoot)** on page 30 in to finish the setup and enable of the iSCSI initiator port for boot.

4.4.1 Configuring an iSCSI initiator for dynamic addressing (BladeBoot)

Configure an Ethernet NIC to obtain an address on the network by using DHCP (dynamic addressing).

Note: This procedure starts from the first page after selecting **Advanced configuration** from the main page for the **iSCSI Configuration Manager** utility. If you need to start the utility see, 4.2 **Starting the iSCSI Configuration Manger utility (BladeBoot)** on page 24, then return to this procedure.

1. On the **Welcome** page:
 - a. Select or type in a new configuration file to save the data for later use.
 - b. Click on the **Next** button to move to the next page.
2. On the **BladeCenter Initiator Retrieval – Login** page:
 - a. Select Enter Initiator Data Manually radio button and fill in the connection information (the IP Address and User Login information) for BladeCenter's Management Module if it hasn't been filled in before.
 - b. Click on the **Next** button to move to the next page.
3. On the **Target Properties** page:
 - a. If a previous target has been setup and saved, select a **Known Targets** by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
Note: A target configuration is not needed unless CHAP has been enabled.
 - b. Refer to the work sheet items **RS7** and **RS10** for this information. Click on the **Next** button to skip if CHAP has been disabled. If work sheet item **RS10** is enabled, then select **Mutual** under the **Security Context** selection. Otherwise if work sheet item **RS7** is enabled with work sheet item **RS10** is disabled, select **Oneway** under the **Security Context** selection.

Note: The Target CHAP information is filled in the **Initiator Properties** page and the Initiator CHAP is supplied on the **Target Properties** page if **Mutual CHAP** is selected.
 - c. If **Mutual CHAP** is selected, refer to work sheet item **RS11** for the initiator CHAP Name/ID to fill in for the **CHAP ID** field and work sheet item **RS12** for the initiator CHAP password/secret to fill in for the **CHAP Password**, and **Confirm Password** fields
 - d. Leave all the other fields as default and click on the **Add/Update** button to save Target configuration.
 - e. Click on the **Next** button to move to the next page.
4. On the **Initiator Properties** page:
 - a. Select a **Known Initiator** by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
 - b. In the **Dynamic Mode** area, select **All via DHCP except Security** if CHAP has been enabled. Otherwise select **All Parameters via DHCP**.
 1. If **All via DHCP except Security** has been selected, refer to work sheet item **RS8** for the target CHAP Name/ID to fill in for the **CHAP ID** field and work sheet item **RS9** for the target CHAP password/secret to fill in for the **CHAP Password**, and **Confirm Password** fields.
 - c. Leave all the other fields as default and click on the **Add/Update** button to save the Initiator configuration.
 - d. Click on the **Next** button to move to the next page.
5. On the **Blade Properties** page:
 - a. Select configuration from the **Known Blades** section by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
 - b. Fill in the slot number of the blade in the **Slot #** field if it is empty or if it needs to be updated.

- c. Click on the **Scan Blade** button to have the data filled in for the **Attempts**.
 - d. Click on the **Enabled** box under **Attempt 1** to enable the attempt.
 - e. Pull down the menu for the **Port Index** selection window and select the correct port to use. Either 0 or 1 should be selected if the internal Broadcom adapter on the blade is to be used (0 goes through Ethernet switch 1 and 1 goes through Ethernet switch 2).
 - f. Pull down the **Initiator selection** box and select which Initiator configuration should be associated with this **Attempt**. In this case, select the configuration identified under step **4-a** above.
 - g. Leave all the other fields as default and click on the **Add/Update** button to save the configuration.
 - h. Click on the **Next** button to move to the next page.
6. On the **Initiator/Target Mapping** page:
- a. Select configuration from the **Known Targets** section by double clicking on it or select it, then click on the **Update** button.
 - b. If CHAP was enabled, then select the **Target configuration** from the pull down menu under the **Target 1** section.
 - c. Click on **Update** to save the mapping.
 - d. Click on the **Next** button to move to the next page.
7. On the **Blade(s) Available to Flash** page:
- a. Select the checkboxes next to the specific configurations from the **Blade Properties** page to be flashed onto the blades themselves. Or select the checkbox to flash all configurations.
 - b. Click on the **Flash NVS on Blade** button to flash the selected configurations from the previous step. The updating of the servers might take a minute or two to update. If the flash was successful or not will be identified on a pop-up window once the flash is done. Click on the **Okay** button to get back to the main utility.
 - c. Click on the **Finished** button to exit the utility. The utility asks if the new/modified configuration should be saved to a file before exiting. Save the configuration so that it can be retrieved later if needed.

Next, perform the steps in section 4.4.3 **Configuring start options for boot (BladeBoot)** on page 30 in to finish the setup and enable of the iSCSI initiator port for boot.

4.4.2 Configuring an iSCSI initiator for manual addressing (BladeBoot)

Configure the Ethernet NIC to use manual addressing. You will need to configure an IP address for the Ethernet NIC.

This procedure starts from the first page after selecting **Advanced configuration** from the main page for the **iSCSI Configuration Manager** utility. If you need to start the utility see, 4.2 **Starting the iSCSI Configuration Manger utility (BladeBoot)** on page 24, then return to this procedure.

1. On the **Welcome** page:
 - a. Select or type in a new configuration file to save the data for later use.
 - b. Click on the **Next** button to move to the next page.
2. On the **BladeCenter Initiator Retrieval – Login** page:
 - a. Select **Enter Initiator Data Manually** radio button and fill in the connection information (the IP Address and User Login information) for BladeCenter's Management Module if it hasn't been filled in before.
 - b. Click on the **Next** button to move to the next page.
3. On the **Target Properties** page:
 - a. If a previous Target has been setup and saved, select a **Known Targets** by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
 - b. Fill in the **IP** using work sheet item **CQ10**.
 - c. Fill in the **Target IQN** using work sheet item **CQ11**.
 - d. Select the appropriate CHAP authentication method. Refer to the work sheet items **RS7** and **RS10** for this information. If work sheet item **RS10** is enabled, then select **Mutual** under the **Security Context** selection. Otherwise if work sheet item **RS7** is enabled and work sheet item **RS10** is disabled, select **Oneway** under the **Security Context** selection.
Note: The Target CHAP is filled in the **Initiator Properties** page and the Initiator CHAP is supplied on the **Target Properties** page if Mutual CHAP is selected.
 - e. If Mutual CHAP has been selected, refer to work sheet item **RS11** for the initiator CHAP Name/ID to fill in for the **CHAP ID** field and work sheet item **RS12** for the initiator CHAP password/secret to fill in for the **CHAP Password**, and **Confirm Password** fields
 - f. Leave all the other fields as default and click on the **Add/Update** button to save the Target configuration.
 - g. Click on the **Next** button to move to the next page.
4. On the **Initiator Properties** page:
 - a. Select a **Known Initiator** by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
 - b. Fill in the **IP Address** box using work sheet item **CQ3**.
 - c. Fill in the **Initiator IQN** box using work sheet item **CQ6**.
 - d. Fill in the **Subnet** box using work sheet item **CQ4**.
 - e. Clear any value currently in the **Gateway Address** box or set it to blanks.
 - f. Click on **All in VPD** for the **Dynamic Mode** selection.
 - g. Leave all the other fields as default and click on the **Add/Update** button to save the initiator configuration.
 - h. Click on the **Next** button to move to the next page.

5. On the **Blade Properties** page:
 - a. Select configuration from the **Known Blades** section by double clicking on it or select it, then click on the **Add/Update** button. Otherwise fill in a new name in the **Description** box.
 - b. Fill in the slot number of the blade in the **Slot #** field if it is empty or update if needed.
 - c. Click on the **Scan Blade** button to have the data filled in for the **Attempts**.
 - d. Click on the **Enabled** box under **Attempt 1** to enable the attempt.
 - e. Pull down the menu for **Port Index** selection window, and select the correct port to use. Either 0 or 1 should be selected if the internal Broadcom adapter on the blade is to be used (0 goes through Ethernet Switch 1 and 1 goes through Ethernet Switch 2).
 - f. Pull down the **Initiator selection** box and select which Initiator configuration should be associated with this **Attempt**. In this case, select the configuration identified under step **4-a**.
 - g. Leave all the other fields as default and click on the **Add/Update** button to save the configuration.
 - h. Click on the **Next** button to move to the next page.
6. On the **Initiator/Target Mapping** page:
 - a. Select configuration from the **Known Targets** section by double clicking on it or select it, then click on the **Update** button.
 - b. Select the Target configuration from the pull down menu under the **Target 1** section.
 - c. Leave the **Retry Count** and **Timeout** fields as their default values.
 - d. Click on **Update** to save the mapping.
 - e. Click on the **Next** button to move to the next page.
7. On the **Blade(s) Available to Flash** page:
 - a. Select the checkboxes next to the specific configurations from the **Blade Properties** page to be flashed onto the blades themselves. Or select the checkbox to flash all configurations.
 - b. Click on the **Flash NVS on Blade** button to flash the selected configurations from the previous step. The updating of the servers might take a minute or two to update. If the flash was successful or not will be identified on a pop-up window once the flash is done. Click on the **Okay** button to get back to the main utility.
 - c. Click on the **Finished** button to exit out the utility. The utility asks if the new/modified configuration should be saved to a file before exiting. Save the configuration so that it can be retrieved later if needed.

Next, perform the steps in section 4.4.3 **Configuring start options for boot (BladeBoot)** on page 30 in to finish the setup and enable of the iSCSI initiator port for boot.

4.4.3 Configuring start options for boot (BladeBoot)

Perform the following steps in the blade server BIOS Setup to enable the iSCSI initiator for a blade:

1. Power on the blade server and using the console. Then press **F1** to enter **Configuration/Setup Utility** when the menu option appears on the boot screen.
2. Highlight **Load Default Settings** using the up or down arrow keys and press the **Enter** key twice.
3. Highlight **Start Options** using the up or down arrow keys and press **Enter**.
 - a. Highlight **Startup Sequence Options** using the up or down arrow keys and press **Enter**.
 - b. Under the **Primary Startup Sequence**, using the right or left arrow keys, select **iSCSI** as the **First Startup Device**.
 - c. Press the **Esc** key to exit out of the **Startup Sequence Options**.
 - d. Highlight **Planar Ethernet PXE/DHCP**. Select the correct Planar Ethernet device by pressing the right or left arrow keys.
 - e. Highlight **iSCSI Initiator** using the up or down arrow keys. Using the right or left arrow keys select **Enabled**.
 - f. Press the **Esc** key to exit out of the **Startup Options**.
4. Highlight **Save Settings** using the up or down arrow keys and press **Enter** twice.
5. Press the **Esc** key to exit the **Configuration/Setup Utility**.

For questions and troubleshooting help, refer to the BladeBoot [SAN Guide](#).

4.5 *Configuring advanced iSCSI initiator port settings (BladeBoot)*

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

4.6 *Disabling boot for additional iSCSI initiator ports (BladeBoot)*

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

4.7 *Restoring factory defaults for an iSCSI initiator (BladeBoot)*

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

4.8 *Resetting cached iSCSI initiator configuration information (BladeBoot)*

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

4.9 Verifying the iSCSI connection using ping (BladeBoot)

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

4.10 Configuring target CHAP (BladeBoot)

To configure target CHAP (both Oneway and Mutual), follow the instructions in 4.4 **Configuring the boot iSCSI initiator port (BladeBoot)** on page 25 to set up or change the configuration.

4.11 Configuring initiator CHAP (BladeBoot)

To configure initiator (Mutual) CHAP, follow the instructions in 4.4 **Configuring the boot iSCSI initiator port (BladeBoot)** on page 25 to set up or change the configuration.

4.12 Changing the iSCSI initiator CHAP secret (BladeBoot)

To change the CHAP secret for either target or initiator CHAP, follow the instructions in 4.4 **Configuring the boot iSCSI initiator port (BladeBoot)** on page 25 to set up or change the configuration.

4.13 Changing the iSCSI initiator MTU (BladeBoot)

This task is not applicable for blades that use **BladeBoot** technology to boot using the iSCSI protocol over **Ethernet NICs**.

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