R15

# xSeries Education

## IBM @server BladeCenter Boot from SAN Lab

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# Preface

This publication is primarily intended for use by students enrolled in the IBM @server BladeCenter™ Boot from SAN hands-on lab.

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|---|---|
| **Current release date:** | **August 2004** |
| **Current release level:** | **Version 1** |
| **Supported lab release levels:** | **Version 1** |
| **Filename:** | **ibm eserver bladecenter boot from san lab** |
| **Test number for this guide is:** | **N/A** |

The information contained within this publication is current as of the date of the latest revision and is subject to change at any time without notice.

Please forward all comments and suggestions regarding the course material format and content to your local IBM @server xSeries Education country coordinator or contact.

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# Safety Precautions and Housekeeping

## General Safety Guidelines

1. Maintain good housekeeping in the area of the machines during and after completing maintenance/configuration.
2. Do not use solvents, cleaners, or oils that have not been approved by IBM.
3. Lift by standing or pushing up with stronger leg muscles to take the strain off back muscles. Do not attempt to lift any parts or equipment with which you feel uncomfortable. Service personnel are responsible for making certain that no action on his or her part renders a product unsafe or exposes the customer to hazards.
4. Place removed machine covers in a safe out-of-the-way location while servicing the machine. These covers must be back in place on the machine before the machine is returned to the customer.
5. Always place tool kits away from walk areas where no one can trip over them (for example, under a desk or table).
6. Avoid wearing loose clothing that may be caught in machinery. Shirt sleeves must be left buttoned or rolled up above the elbow. Long hair and scarves must be secured.
7. Remove all watches and rings before removing the cover of any system.
8. When servicing a machine, ties must be tucked into shirt or a tie clasp (preferably non-conductive) must be worn approximately three inches from the end.
9. Before starting equipment, make sure that other service or customer personnel are not in a hazardous position.

Do not place books, tools, or test equipment on top of the machine.

## System Safety

Before beginning any of the lab projects, please review the following safety guidelines:

1. Turn off your display, remove all diskettes from the diskette drive, and unplug the power cord to the system unit before attempting to remove the covers from the system.
2. Use the electrostatic device kit (one should have been provided for your lab group) to minimize the risk of damage to electronic components inside the system. Please ask your instructor for assistance if you do not know how to use an ESD kit.

| **Note:** | Avoid touching the internal electronic components unless you are specifically requested to do so within a lab exercise. |
|---|---|

# Introduction to the Student Lab Guide

## Introduction

These lab projects are designed to teach you the skills that have been introduced in the previous topics. In the lab activities, you will practice installing and operating server systems by using the documentation and maintenance philosophy for the systems.

## Limitations

3. No computer game playing or copying of games is allowed in this class.
4. Do not copy diskettes on any of the systems in the lab.
5. Do not write on or exchange diskettes with another system.
6. No beverages are allowed at your workstation when the covers are off.
7. You will be expected to practice the proper ESD procedures while performing maintenance on IBM systems.

# IP Address Chart

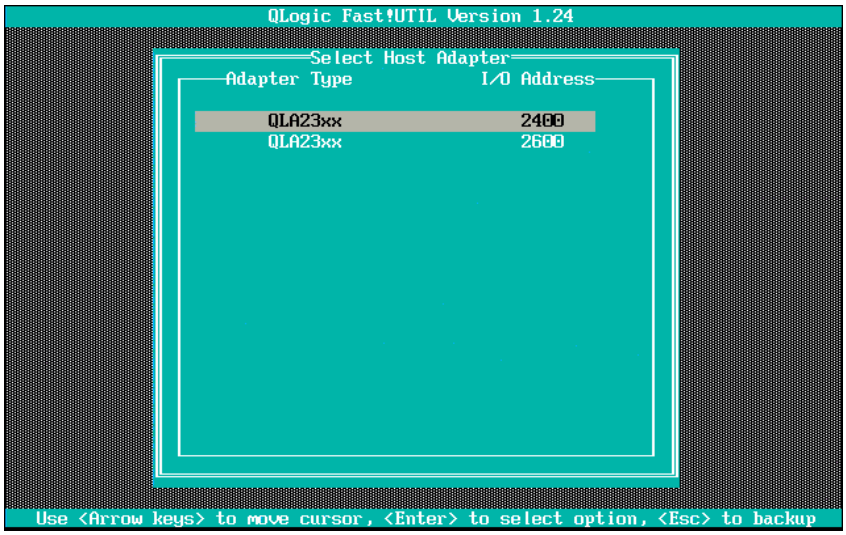
| The IP Address of this resource is … | IP Address |
|---|---|
| Management Machine FAStT Management LAN | |
| Management Machine BladeCenter Management LAN | |
| BladeCenter Management Module 1 | |
| BladeCenter Management Module 2 | |
| BladeCenter Ethernet Switch Module 1 | |
| BladeCenter Ethernet Switch Module 2 | |
| BladeCenter Fibre Channel Switch Module 1 | |
| BladeCenter Fibre Channel Switch Module 2 | |
| FAStT Storage Controller A | |
| FAStT Storage Controller B | |
| User ID for BladeCenter Modules | |
| Password for BladeCenter Modules | |

# Obtaining the Host Port Identifier / World Wide Name / Adapter Port Name:

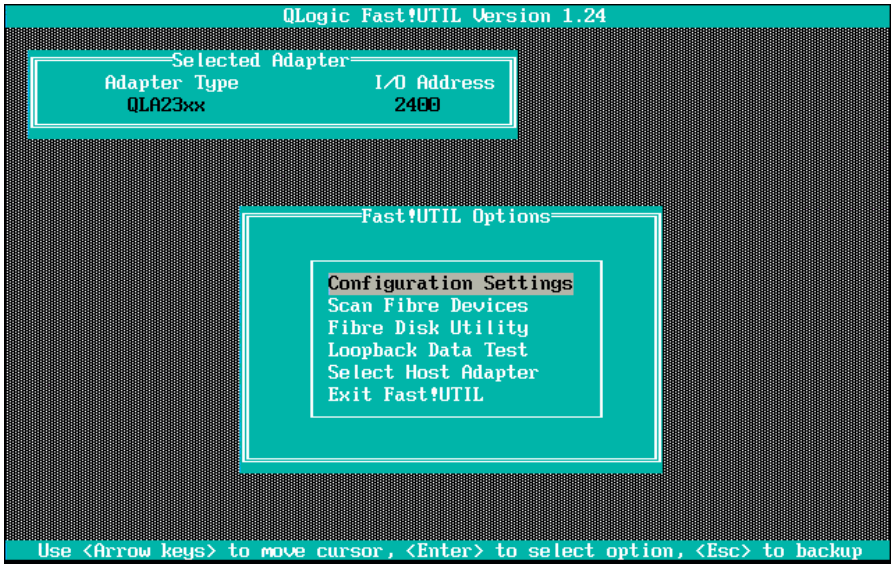
**____1.** Boot the desired Blade Server using the HS20 power button.

**____2.** During the boot process, press `Ctrl+Q` when prompted to enter the Fibre Channel Daughter Card BIOS configuration option.

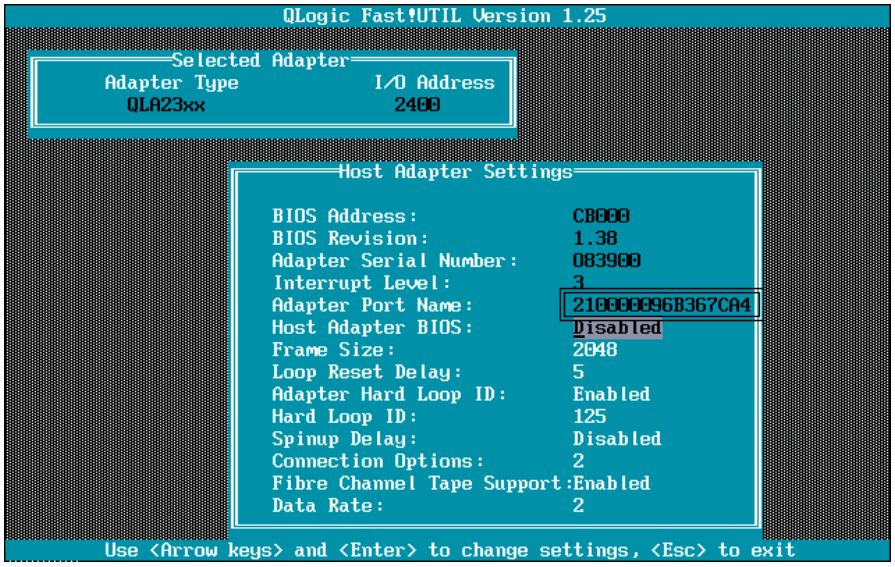
**____3.** Select the first Host Adapter listed in the BIOS, this card will correspond to the Switch in module bay 3.



____4. Select `Configuration Settings`.




____5. Obtain the Adapter Port Name of the adapter and record it below.




## Record the Host Port Identifier / World Wide Name / Adapter Port Name here:

_____

____6. Press `Esc` to return to the Fast!UtilOptions screen.

____7. Select `Select Host Adapter.`

____**8.** Select the 2nd Host Adapter and press `Enter`.

____**9.** Select `Configuration Settings`.

____**10.** Obtain the Adapter Port Name of the adapter and record it below.

____**11.** Press `Esc` once to return to the Fast!UtilOptions screen.

____**12.** Select `Exit Fast!Util`.

## Record the Host Port Identifier / World Wide Name / Adapter Port Name of the second adapter here:

_____

**This concludes this section.**

# Lab 1. – Booting the Blade from a SAN

## Part I. Installing Storage Manager 8.x

____1. Open a command prompt and type **ping** and the IP address of each RAID controller to check the IP connections. See the IP Address Chart on page 9 for the IP Addresses you should use.

____2. Locate the FAStT Client Code for Microsoft Windows Server 2003 IA-32 installation folder (C:\Program Files\IBM\FAStTCode_WS03_32b\IBM FAStT Storage Manager 8.4 for Windows 2003 (32 Bit)\SM8clientcode\SMclient).

____3. Run the installation program "SMclient-WS32-0840G504.exe"

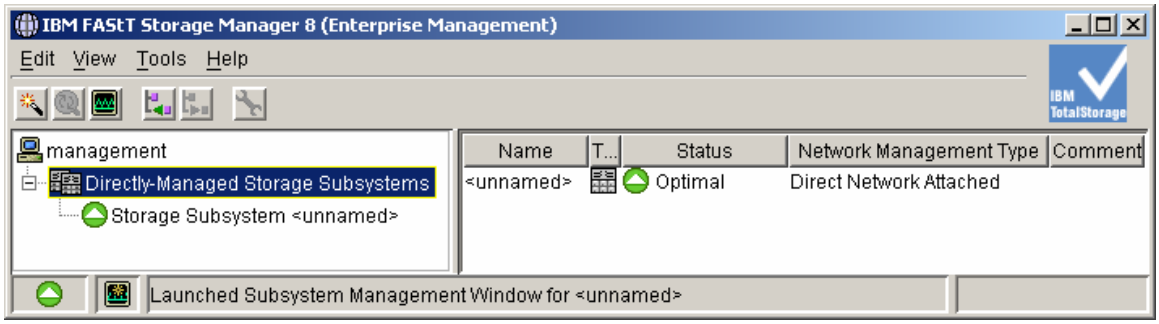
____4. The Installation Wizard begins. Follow the on-screen instructions selecting the default selections.

## Part II. Connecting to the Controllers Using Direct Management

____1. Start Storage Manager (Start → All Programs → IBM FAStT Storage Manager).

____2. When you are prompted for Automatic Discovery, click <Yes>.

____3. If no devices are skip to the Troubleshooting section on page 62.



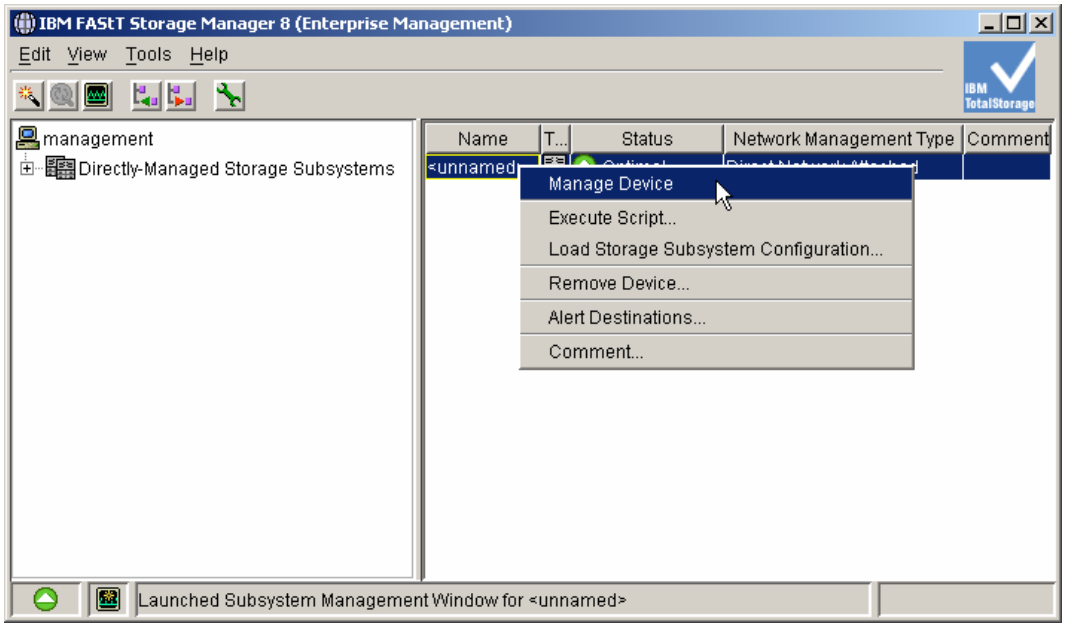
# Part III. Resetting and Naming the Storage Server (optional).

In this section you will reset the Storage Server and assign a name so that it can be distinguished from other Storage Server in the Fabric.

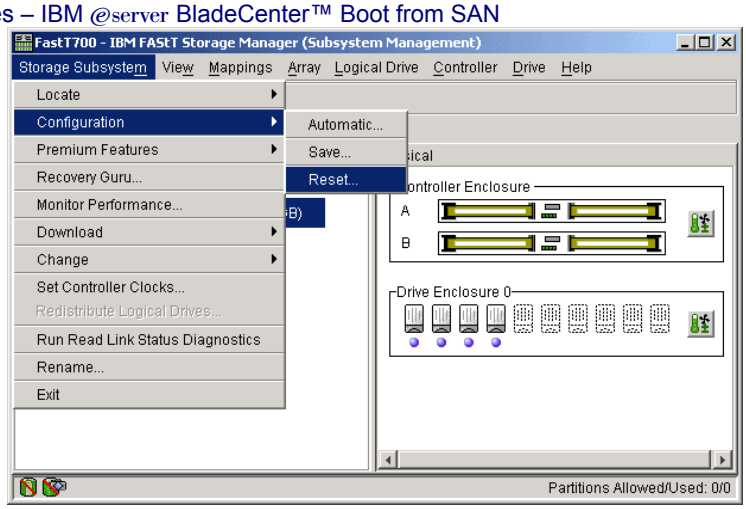
| **Note:** | Resetting the Storage Server is done is this environment to erase what previous students have done. This is not necessarily an action you would take to configure a Storage Server in a production environment. |
|---|---|

**____1.** Locate the Storage System icon under your host in the right pane of the Enterprise Management window.

**____2.** Right-click on the Storage Subsystem icon and choose <Manage Device>.

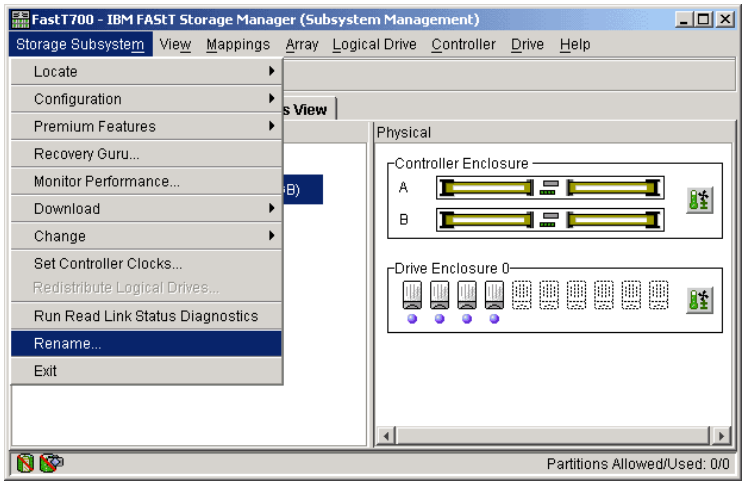



**____3.** From the Storage Subsystem menu, choose <Configuration>, then <Reset>.




**____4.** In the Reset Configuration dialog box, type **yes**, then click <OK>.

**____5.** From the Storage Subsystem menu, choose <Rename>.

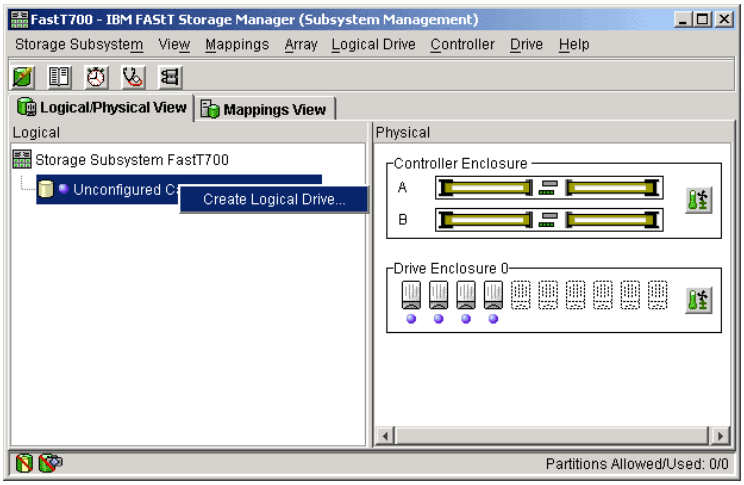



**____6.** Type a name that corresponds to your RAID controller, or type another name of your choosing.

**This concludes this section.**

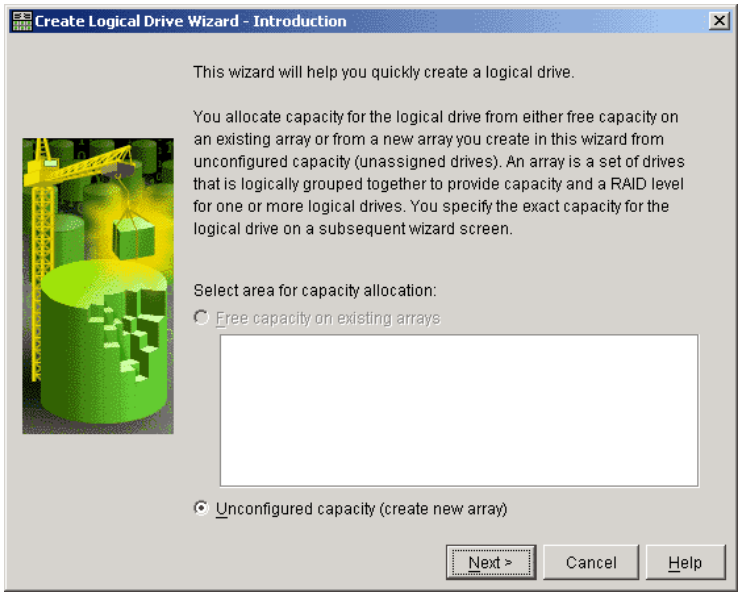
# Part IV. Creating Arrays and Logical Drives.

**____1.** Right-click <Unconfigured Space> then click <Logical Drives>.

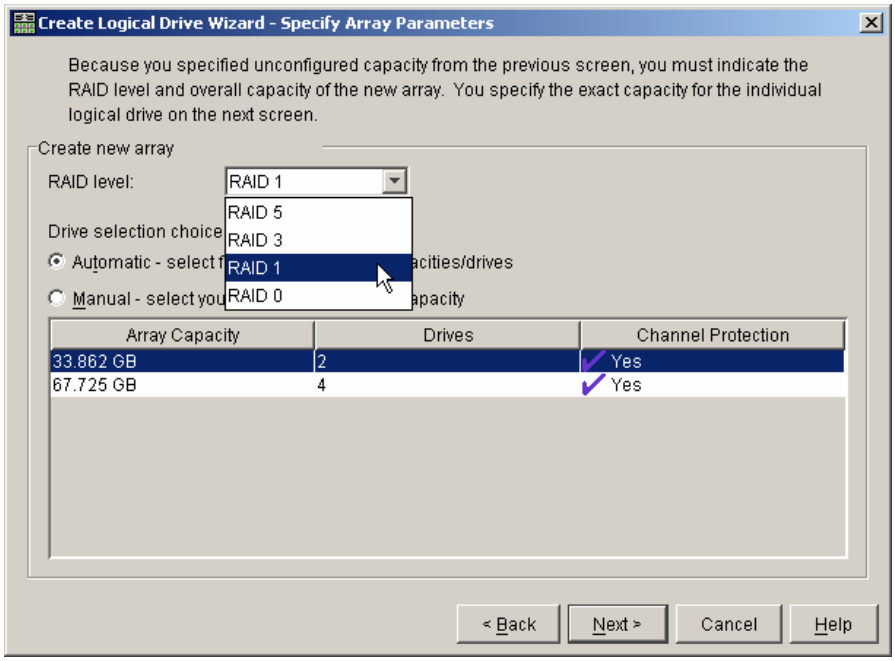



**____2.** In the Default Host Type window, <Windows 2000 Non-Clustered>.

**____3.** From the Create Logical Drive Wizard – Introduction screen, fill in the radio button for **Unconfigured capacity (create new array)**, and then click <Next>.



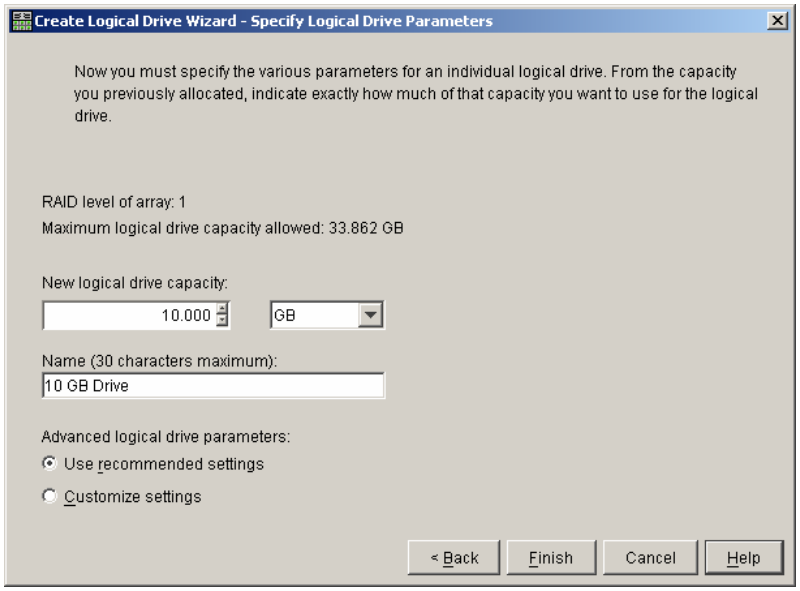
**____4.** Select <RAID 1> from the drop-down menu. Select <2> drives and click <Next>.




**____5.** Change the capacity to **10 GB**.

**____6.** Name the logical drive **10 GB DRIVE**.

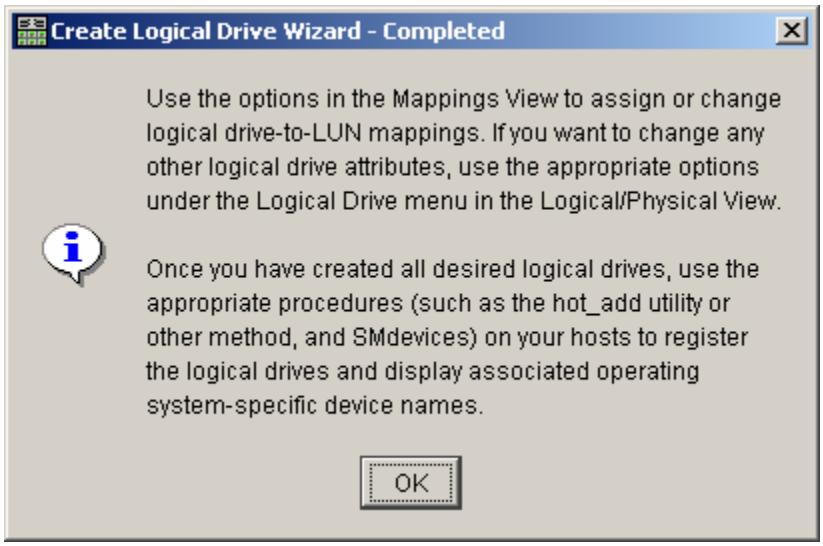
**____7.** Fill in the radio button for **Customize Settings**, and click <Next>.



**____8.** Click <Finish>.

**____9.** At the Create Logical Drive Wizard – Creation Successful screen, click <No>.

**____10.** At the Create Logical Drive Wizard – Completed screen, click <OK>.




**This concludes this section.**

# Part V. Defining Storage Partitions.

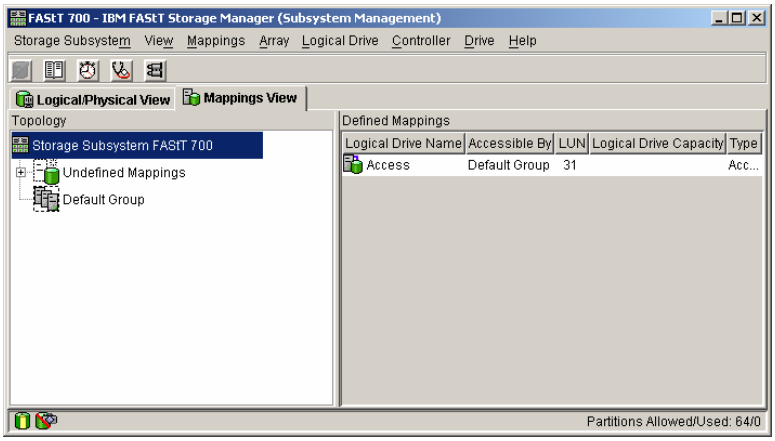
To define storage partitions in SM8 the Storage Partitioning Premium Feature must be enabled.

| | |
|---|---|
| **Note:** | To determine if Storage Partitioning is enabled click <Storage Subsystem, → Premium Features, → List>. |

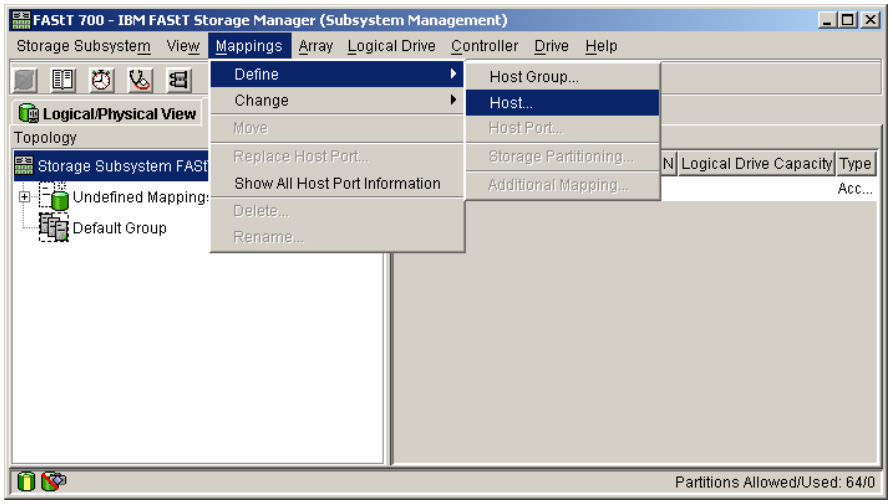
| | |
|---|---|
| **Note:** | If storage Partitioning is ***not*** enabled then skip to the Troubleshooting section on page 62. |

**____1.** On the Storage Manager Subsystem Management screen, click on the <Mappings View> tab, and click <OK> to accept the mapping information.

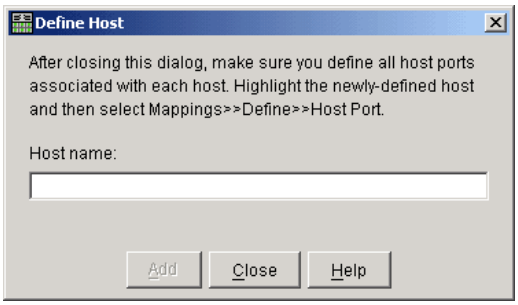
**____2.** The following screen (or similar) should appear.



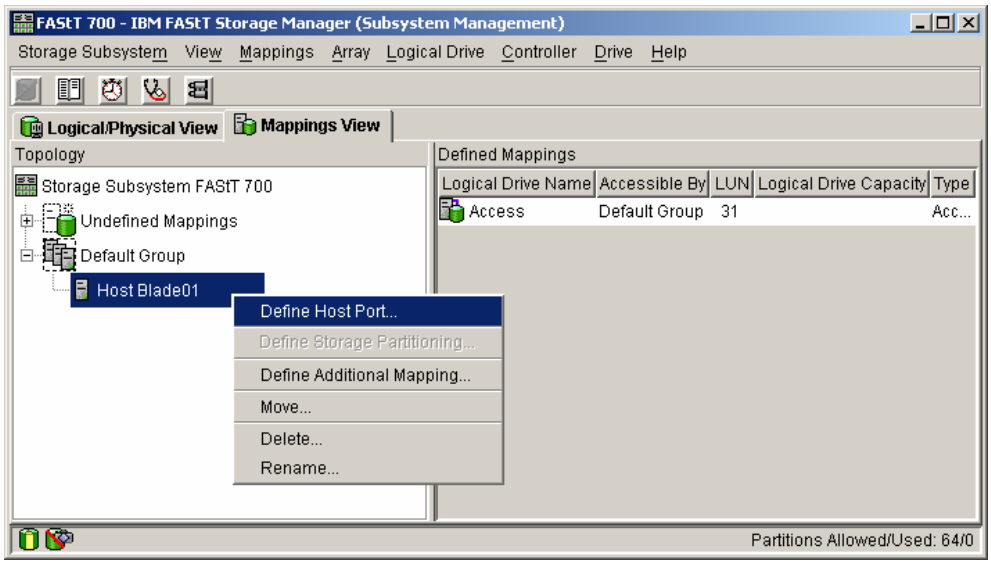

**____3.** Next, click <Mappings → Define → Host>.



**____4.** Type the name of your server, click <Add>, and then click <Close>.

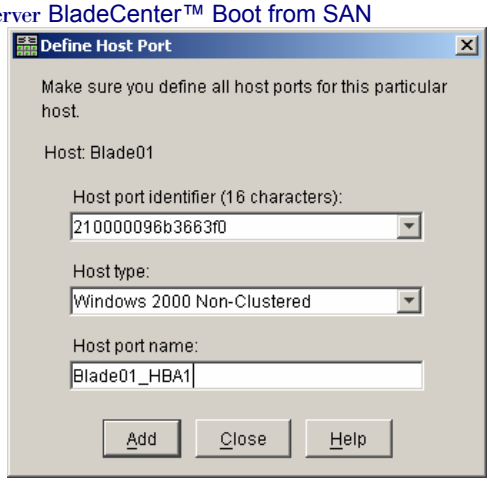



**____5.** Default Group now contains the host name you added. Right-click on the name of the host you just added, then click on <Define Host Port>.




**____6.** From the drop-down menu, select the appropriate Host Port Identifier. If your host port identifier is not present, you may need to type it. See page 10 for your host port identifier.

**____7.** In Host Type, select <Windows 2000 Non-Clustered>, and set the Host port name to <*hostname*_HBA1>. (Replace *hostname* with the name of your server).



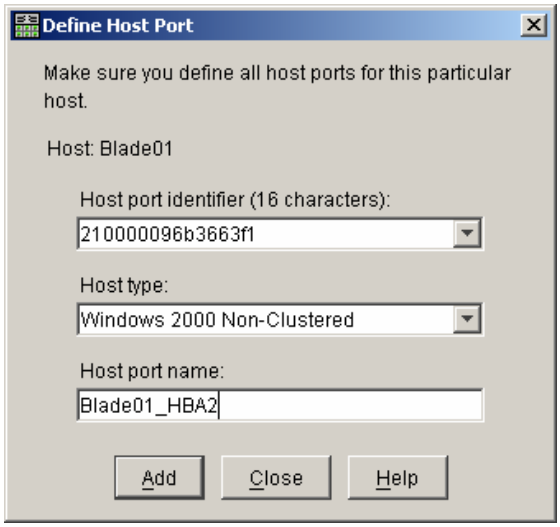

**Note:** Make sure that the Host port identifier is one of the HBAs in the server you are working with.

**____8.** Click <Add>.

## Next, define the second host port for this host.

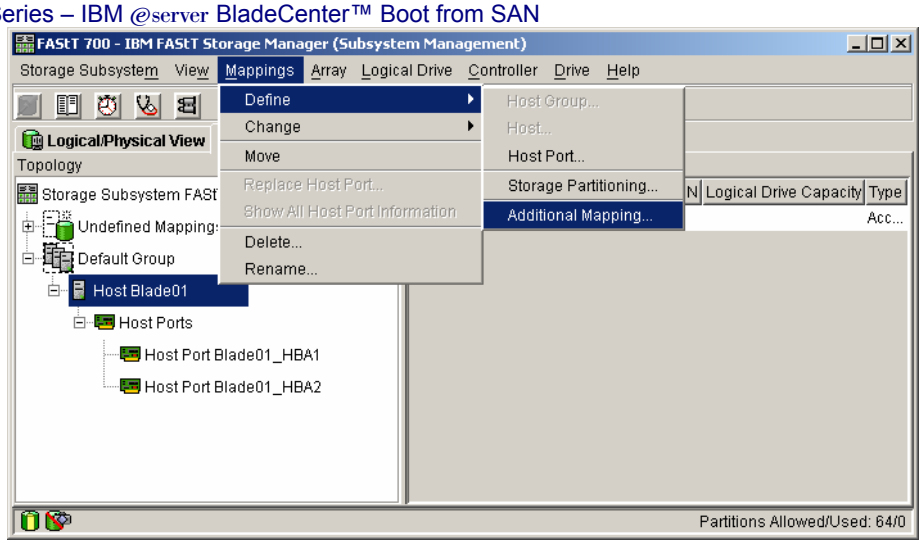
**____1.** From the drop-down menu, select the appropriate Host Port Identifier. If your host port identifier is not present, you may need to type it. See page 10 for your host port identifier.

**____2.** In Host Type, select <Windows 2000 Non-Clustered>, and set the Host port name to < *hostname* _HBA2>. (Replace *hostname* with the name of your server).



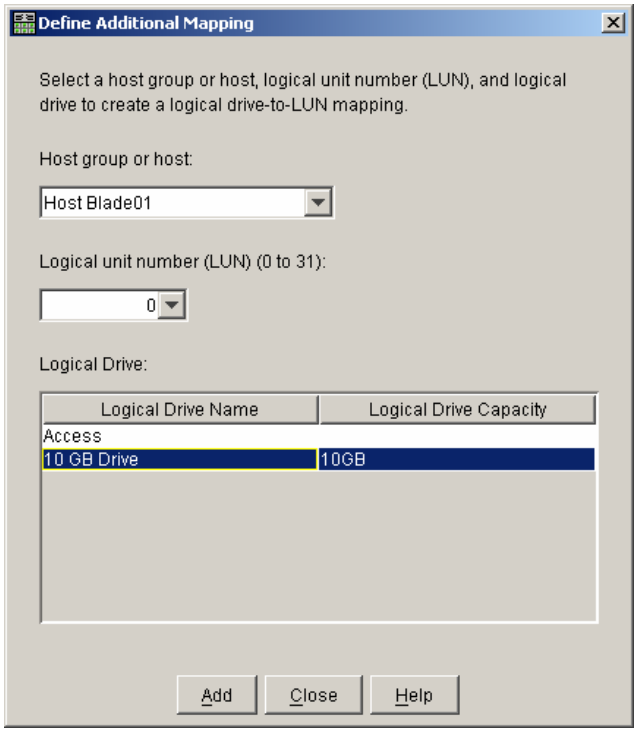

**____3.** Click <Add>, and then click <Close>.

**____4.** From the Mappings menu, choose <Define →Additional Mapping>.



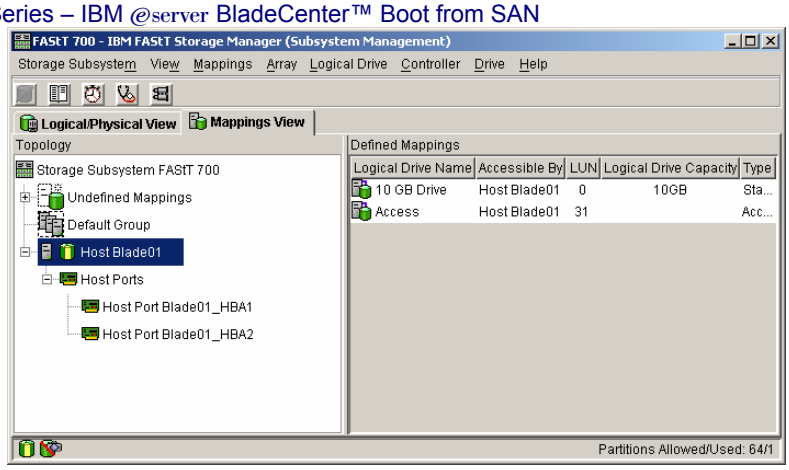

**____5.** Select the host group or host (<Host *hostname*> of your server).

**____6.** From the list of drives available, select the <10 GB drive>, and set the Logical Unit Number to <0>. Click <Add>.

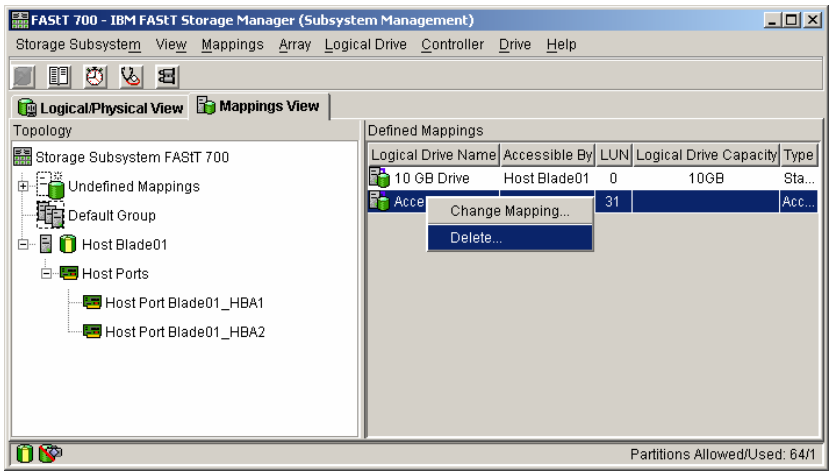



**____7.** Click <Close>.

**____8.** Right click the Host (Host *hostname* of your server) to select it.




**____9.** Right click the Access Logical Drive which is LUN 31 and Select <Delete>.




**____10.** Click <Yes> to answer the "Are you sure you want to delete this drive-to-LUN mapping?" question.

**____11.** Close all Storage Manager Windows.

**This concludes this section.**

# Part VI. Creating Zones and Zone Sets in the FCSM.

____1. Launch the BladeCenter SAN Utility installation program. It is located in the `C:\software\BladeCenter SAN Utility` directory.

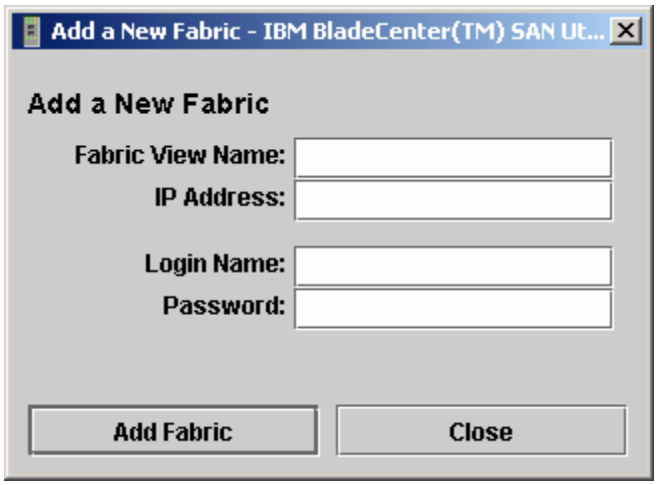
____2. Follow the on-screen instructions, taking the default selections until the application is installed.

____3. Click Start → All Programs → BladeCenterSANUtility → BladeCenterSANUtility.

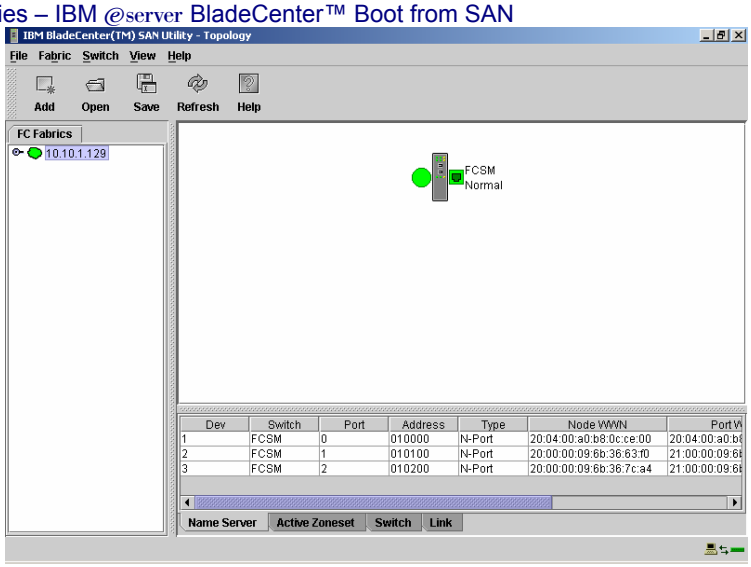
____4. The first step is to add a fabric. Click the `Add` icon 

.

____5. Enter the IP Address of the Fibre Channel Switch Module and the User ID and Password. The IP Address of the Fibre Channel Switch Module, User ID and Password are found on page 9.

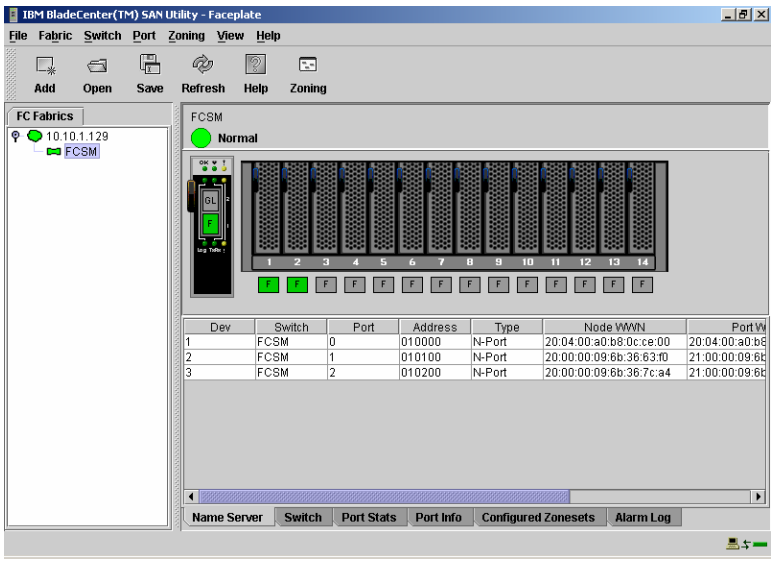



____6. You should see a Topology window that looks similar to what is shown below.




**____7.** Double click the Fibre Channel Switch Module (FCSM) icon in the upper right frame.

**____8.** The BladeCenter SAN Utility shows a graphical representation of the BladeCenter Chassis and Fibre Channel Switch Module.

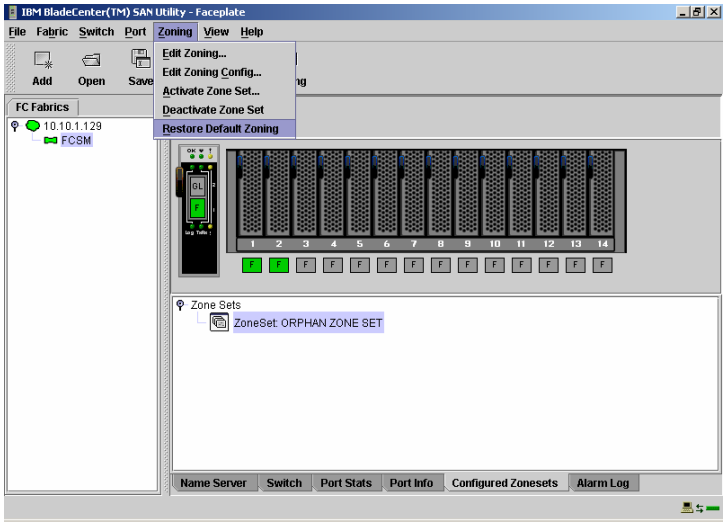



| **Note:** | Blade Servers with Fibre Channel Daughter Cards have a green status icon below the corresponding blade server. In this example, Blade Servers one and tow have Fibre Channel Daughter Cards. Your BladeCenter many have different placement of the Fibre Channel Daughter Card and you may have more or fewer Fibre Channel Daughter Cards than depicted here. |
|---|---|

**____9.** Click the `Configured ZoneSets` icon at the bottom of the window.

| **Note:** | The Orphan Zone Set is created by default. No other Zone Sets should be present. If other zone sets are present, continue to step 10. If the Orphan Zone set is the only Zone set, or if there are no Zone Sets, go to step 13. |
|---|---|

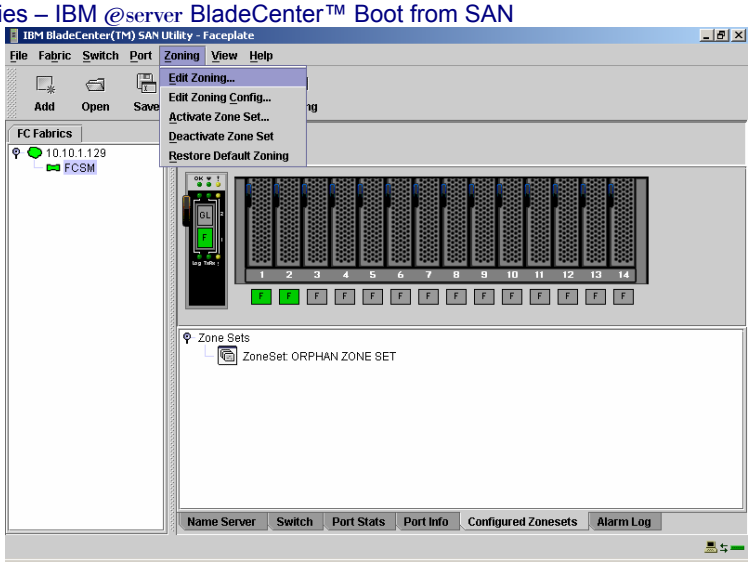
**____10.** From the `Zoning` menu, select `Restore Default Zoning`.




**____11.** At the warning, click `OK` to continue.

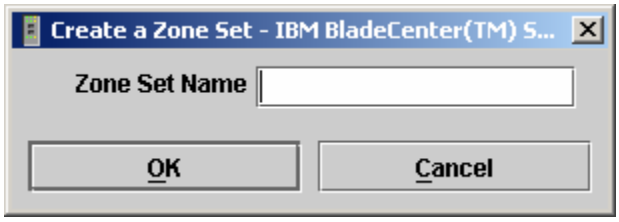
**____12.** The BladeCenter SAN Utility informs you that the default zoning has been restored.


**____13.** From the `Zoning` Menu, select `Edit Zoning…`



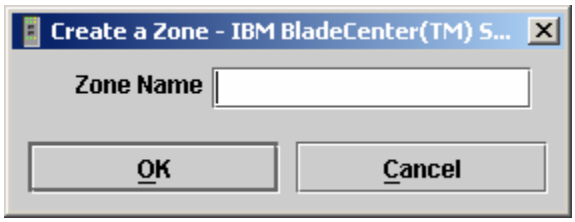

**____14.** We do not want to use the Orphan Zone Set for our Boot From SAN Zone. The Orphan Zone set is a placeholder for Zones that are not in a Zone Set. We will create a new zone by clicking the `Zone Set` icon.


**____15.** Type a name for your zone set. "SANBoot" was used to create this document.



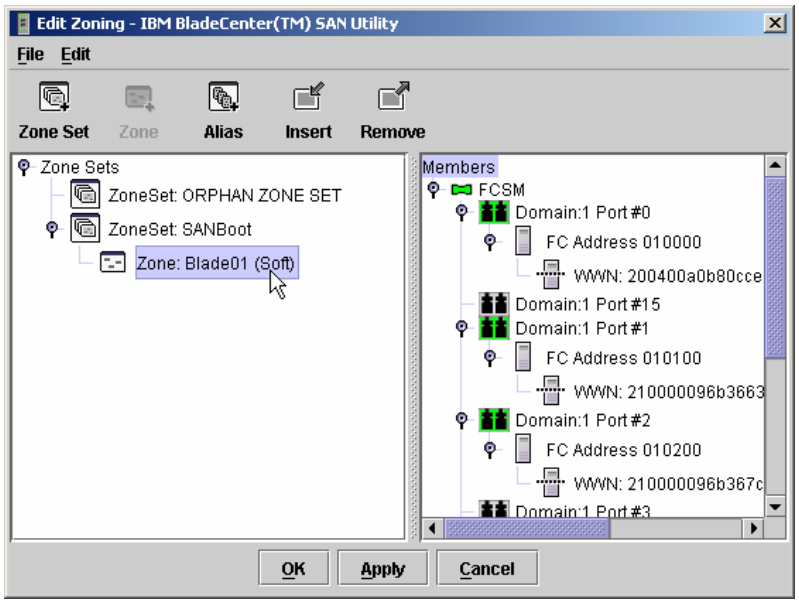

**____16.** Click the `Zone` icon. 


**____17.** Enter the name of the zone. Here we use the name of the Blade Server as the name of the zone. To create this document, "Blade01" was used as the zone name. Click `OK` once a name for the zone has been entered.

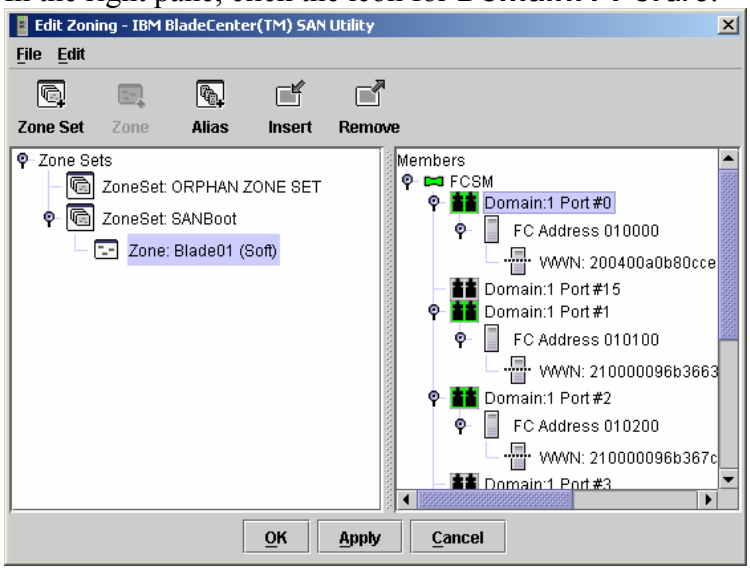


**____18.** Click the recently appeared Expand/Collapse icon next to your zone set. You should see the zone that you just created. This zone has no members so we will add the members now.

**____19.** Click your zone to select it.




**____20.** In the right pane, click the icon for **Domain:1 Port#0**.




| **Note:** | Ports zero and fifteen are the external ports, ports 1 through 14 correspond with the Blade Server bays. |
|---|---|

**____21.** Click the `Insert` icon. 


**____22.** This port is now in your zone. Notice the change in font for Domain:1 Port#0. Also notice that your zone now has an Expand/Collapse icon. If you like, you can expand the zone and see that Port#0 is in the zone.

**____23.** Click `Domain:1 Port#1` to select it. You can click the `Insert` icon as you did previously, or you can drag and drop Port#1 to your zone.

**____24.** Once **Domain:1 Port#1** has been added to your zone, expand your zone and confirm that there are two ports in the zone: the external port that leads to the Fibre Channel Storage Server and the port on the Daughter Card in one of your Blade Servers.

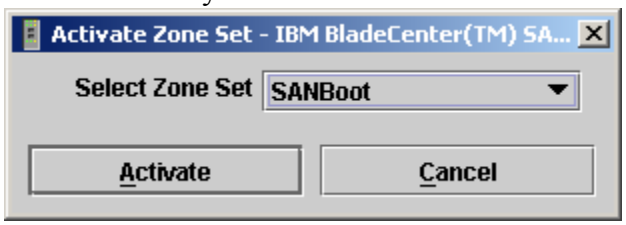
**____25.** Click `Apply`.

**____26.** The information dialog box indicates that the zoning information has been saved. Click `OK`.

**____27.** Click `OK` to exit the Edit Zoning window.

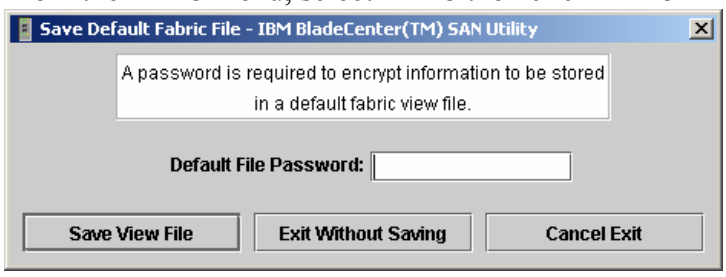
**____28.** From the `Zoning` Menu, select `Activate Zone Set…`

**____29.** Make sure that your Zone set is selected. Click `Activate`.



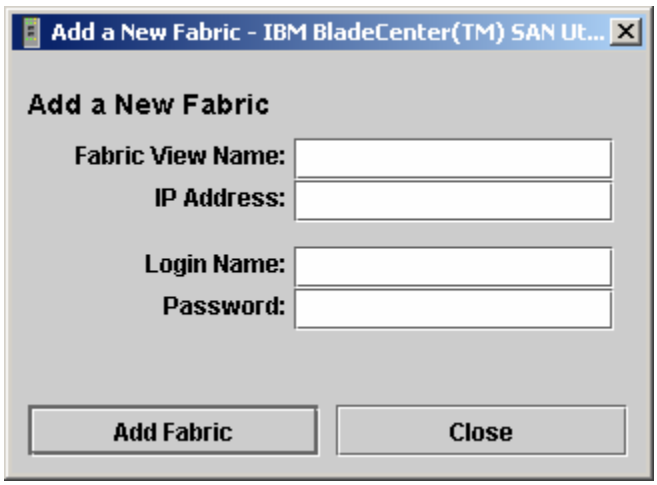

**____30.** The information dialog box indicates that your zone is now active. Click `OK`.

**____31.** From the `File` menu, select `Exit` then click `Exit Without Saving`.



## Creating a zone set in the second switch.

____1. Click the Add icon.

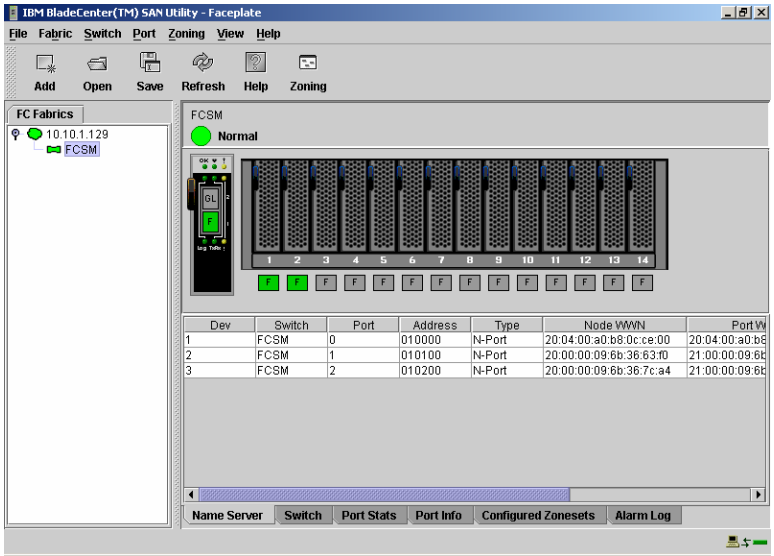



____2. In the IP Address field, enter the IP Address of the second Fibre Channel Switch Module and click Add Fabric.

____3. You should see a Topology window that looks similar to what is shown below.

____4. Double click the Fibre Channel Switch Module (FCSM) icon in the upper right frame.

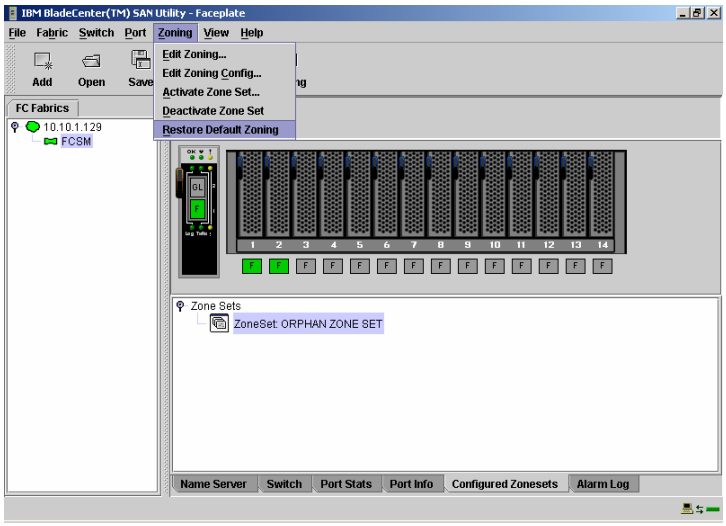
____5. The BladeCenter SAN Utility shows a graphical representation of the BladeCenter Chassis and Fibre Channel Switch Module.



**____6.** Click the `Configured ZoneSets` icon at the bottom of the window.


| **Note:** | The Orphan Zone Set is created by default. No other Zone Sets should be present. If other zone sets are present, continue to step ____3. If the Orphan Zone set is the only Zone set, or if there are no Zone Sets, go to step ____6. |
|---|---|

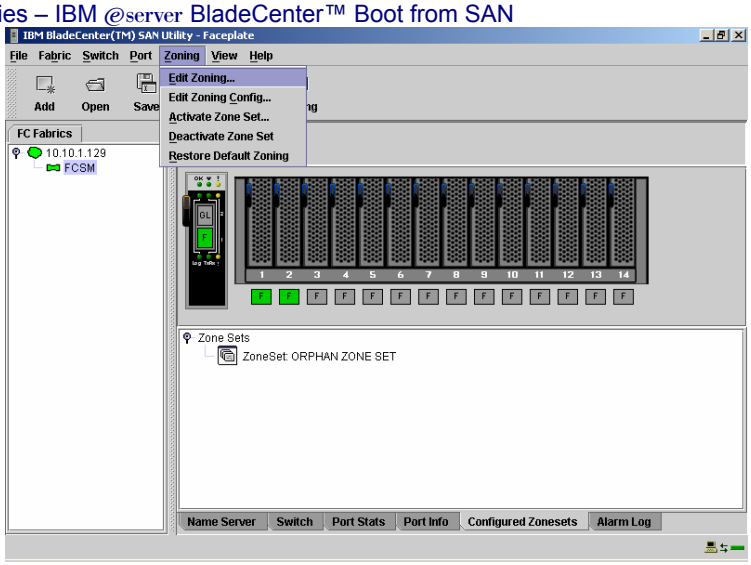
**____3.** From the `Zoning` menu, select `Restore Default Zoning`.




**____4.** At the warning, click `OK` to continue.

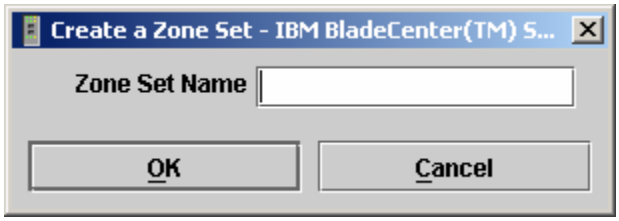
**____5.** The BladeCenter SAN Utility informs you that the default zoning has been restored.


**____6.** From the `Zoning` Menu, select `Edit Zoning...`




**____7.** We do not want to use the Orphan Zone Set for our Boot From SAN Zone. The Orphan Zone set is a placeholder for Zones that are not in a Zone Set. We will create a new zone by clicking the `Zone Set` icon.


**____8.** Type a name for your zone set. "SANBoot" was used to create this document and click `OK`.

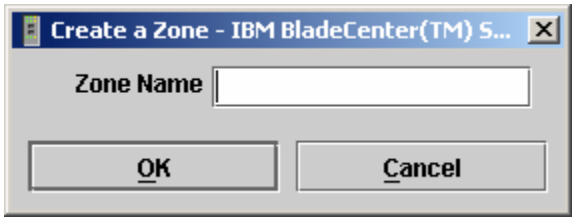



**____7.** Click your newly created Zone Set to select it.

**____9.** Click the `Zone` icon. 


**____10.** Enter the name of the zone. Here we use the name of the Blade Server as the name of the zone. To create this document, "Blade01" was used as the

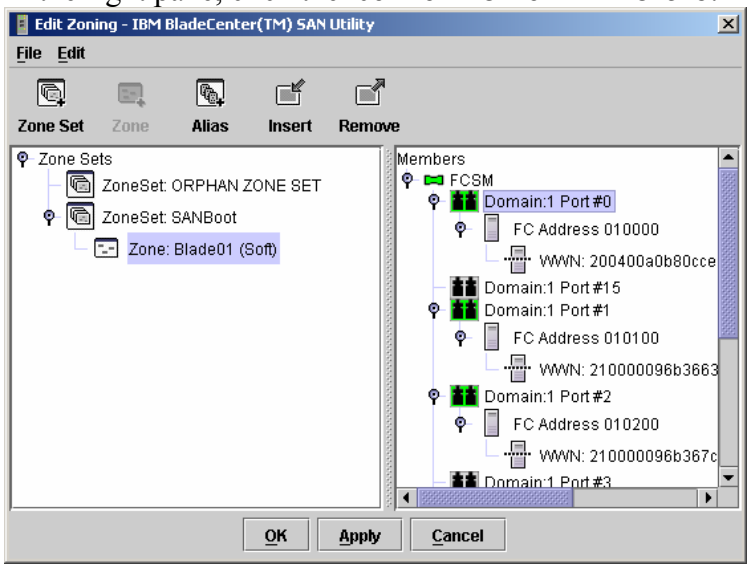
zone name. Click `OK` once a name for the zone has been entered.




**____11.** Click the recently appeared Expand/Collapse icon next to your zone set. You should see the zone that you just created. This zone has no members so we will add the members now.

**____12.** Click your zone to select it.

**____13.** In the right pane, click the icon for **Domain:1 Port#0**.




**____14.** Click the `Insert` icon. 


**____15.** This port is now in your zone. Notice the change in font for Domain:1 Port#0. Also notice that your zone now has an Expand/Collapse icon. If you like, you can expand the zone and see that Port#0 is in the zone.

**____16.** Click `Domain:1 Port#1` to select it. You can click the `Insert` icon as you did previously, or you can drag and drop Port#1 to your zone.

**____17.** Once **Domain:1 Port#1** has been added to your zone, expand your zone and confirm that there are two ports in the zone: the external port that leads to the Fibre Channel Storage Server and the port on the Daughter Card in one of your Blade Servers.

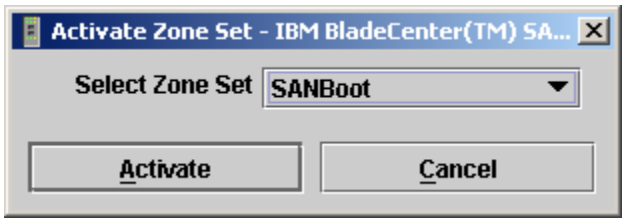
**____18.** Click `Apply`.

**____19.** The information dialog box indicates that the zoning information has been saved. Click `OK`.

**____20.** Click `OK` to exit the Edit Zoning window.

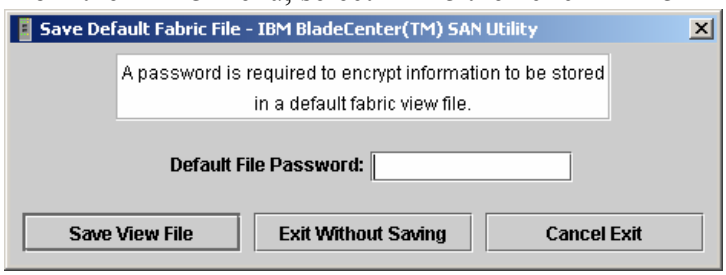
**____21.** From the `Zoning` Menu, select `Activate Zone Set…`

**____22.** Make sure that your Zone set is selected. Click `Activate`.




**____23.** The information dialog box indicates that your zone is now active. Click `OK`.

**____24.** From the `File` menu, select `Exit` then click `Exit Without Saving`.




**This concludes this section.**

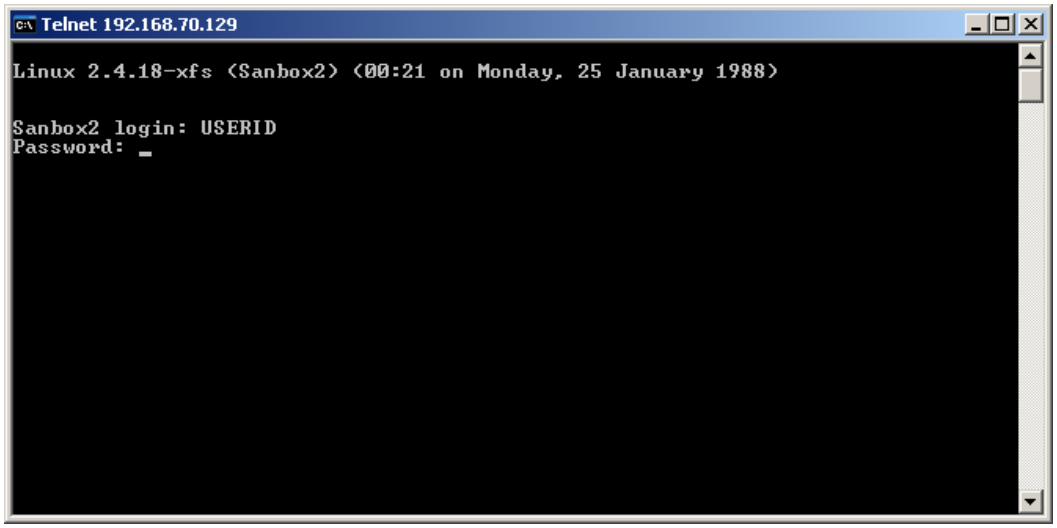
# Part VII. Configuring the Fibre Channel Switch Module (Optional).

Enable the I/O Stream Guard for the internal ports of the switch and disable it for the external ports.

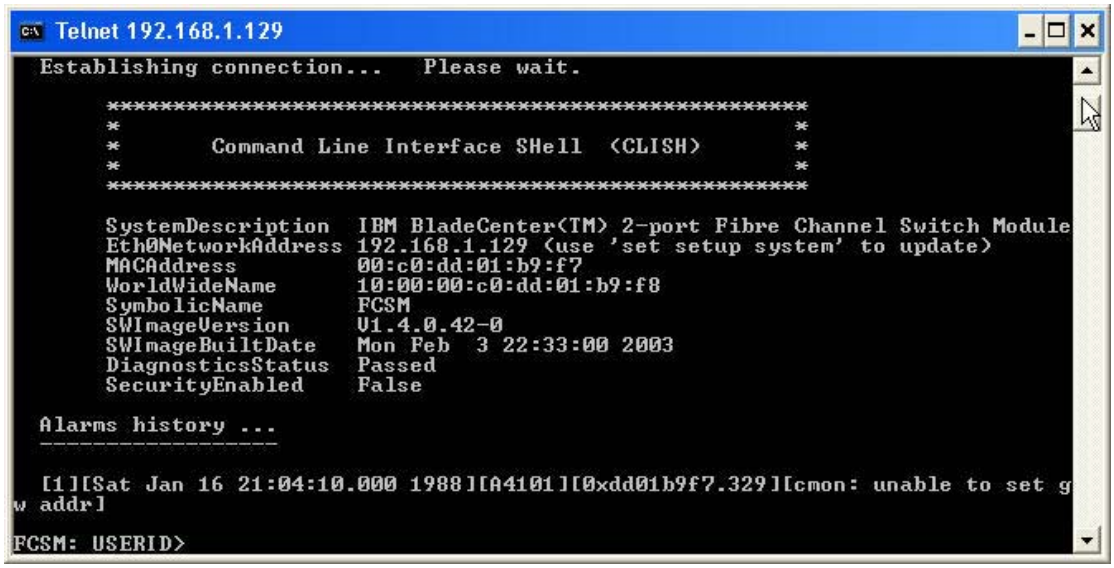
| | |
|---|---|
| **Note:** | With the firmware version 1.38 on the Fibre Channel Daughter Card, this procedure is not necessary. Check with your instructor before performing this procedure as it may not be necessary depending on the firmware level of the Fibre Channel Daughter card. |

| | |
|---|---|
| **Note:** | This procedure is not performed on the Fibre Channel Switch Module from Brocade. Check with your instructor before performing this procedure as it may not be necessary depending which Fibre Channel Switch Module is installed in the BladeCenter. |

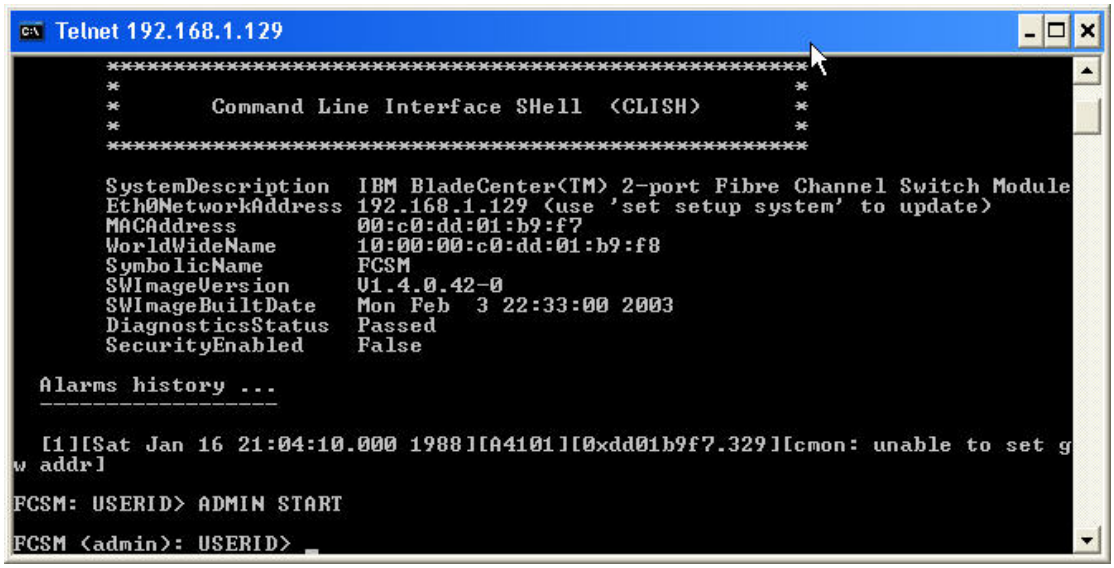
**____1.** Connect to the switch by opening a command prompt and typing `telnet 192.168.1.129` and then press `Enter`.



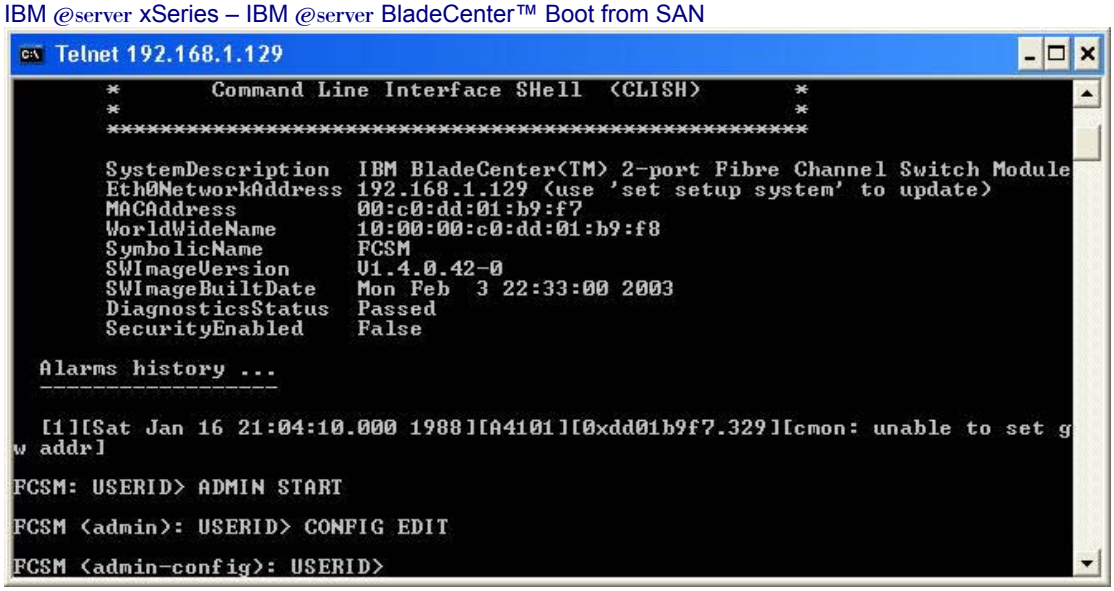
____2. Use the standard login user id and password. If they haven't been changed they will be USERID and PASSW0RD.




____3. Type ADMIN START and then press Enter.

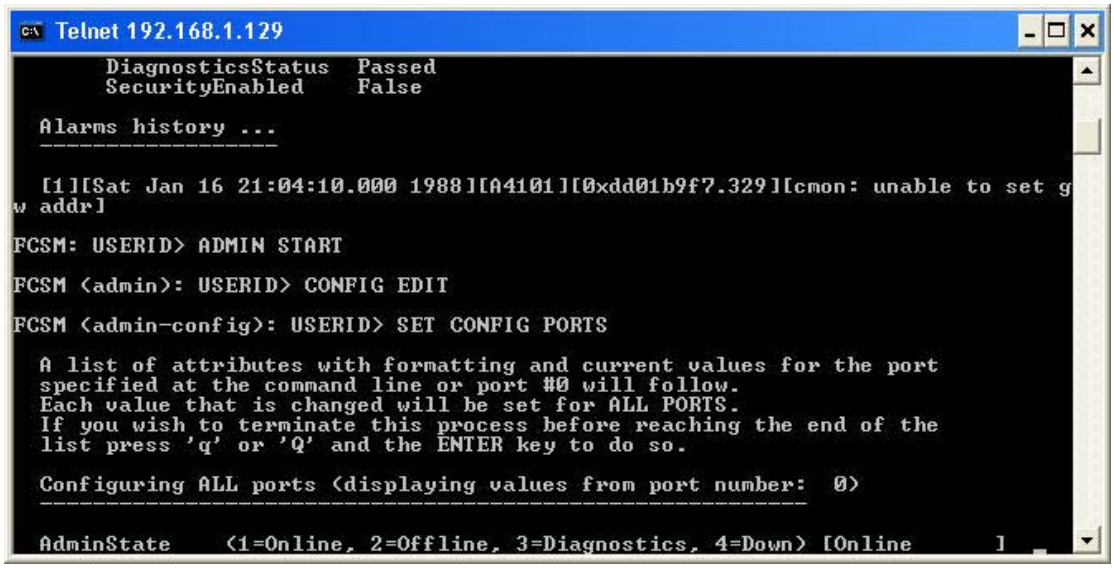



____4. Type CONFIG EDIT and then press Enter.



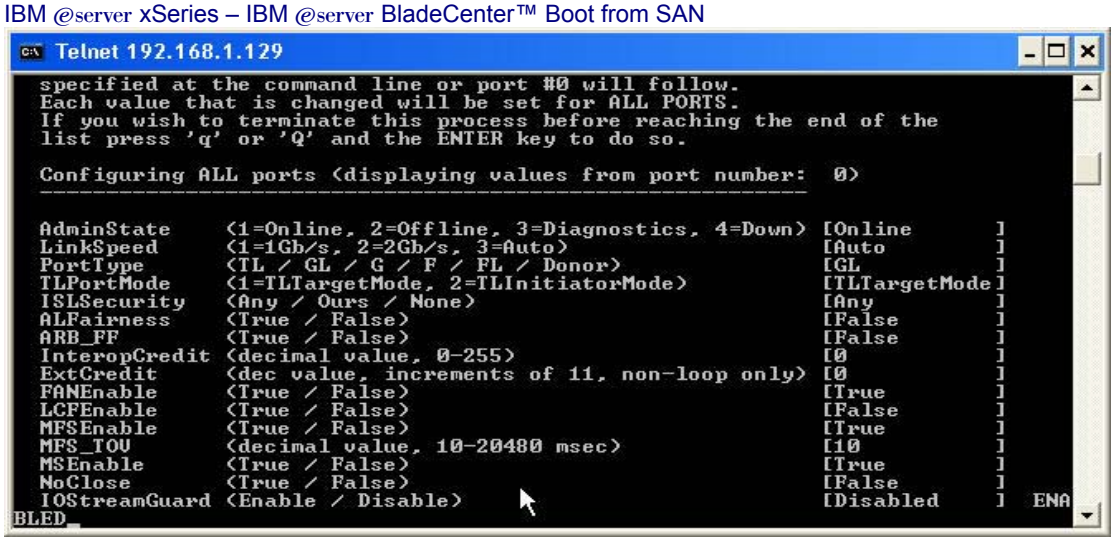

**____5.** Type `SET CONFIG PORTS` and then press `Enter`.

| **Note:** | This will set the configuration of all switch ports external and internal. |
|---|---|




**____6.** Keep pressing `ENTER` until you reach the I/O Stream Guard line.

**____7.** Type "`ENABLE`" and press `Enter`. This will enable all ports.




____8. Press ENTER until you return to the FCSM (admin-config): USERID prompt.

____9. Save the configuration by typing "CONFIG SAVE" then press Enter.

____10. Type "CONFIG ACTIVATE" then press Enter.

____11. Press "Y" to activate the configuration and then press Enter.

____12. Type "SET CONFIG PORT 0" and press Enter.

| **Note:** | Ports zero (0) and fifteen (15) are the external ports. Ports one (1) through fourteen (14) are internal ports. We are going to disable I/O Stream Guard for ports zero and 15. |
|---|---|

____13. Press ENTER until you reach the I/O Stream Guard line.

____14. Type "DISABLE" then press Enter.

____15. Press ENTER until you reach the (admin-config): USERID prompt.

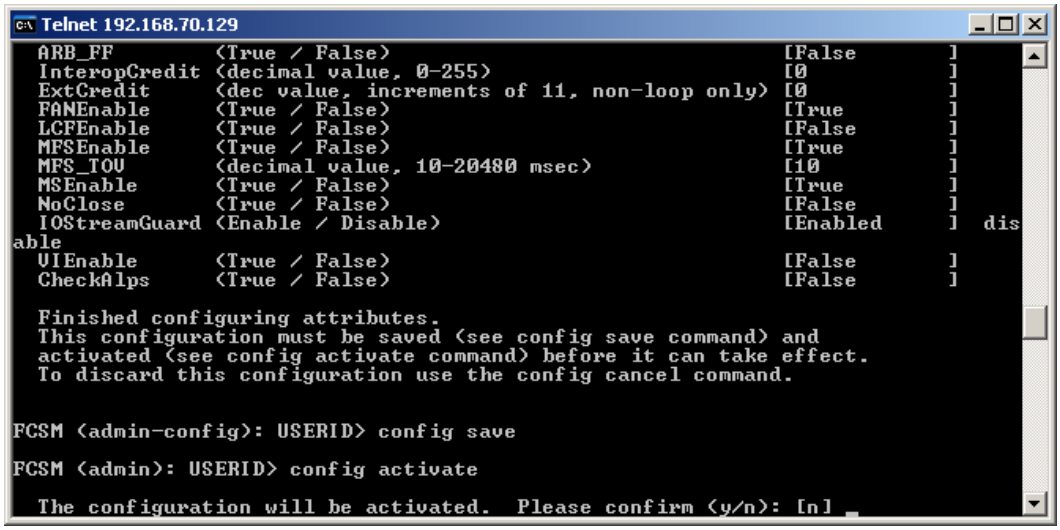
____16. Type "SET CONFIG PORT 15" then press Enter.

____17. Press ENTER until you reach the I/O Stream Guard line.

____18. Type "DISABLE" then press Enter.

____19. Save the configuration by typing "CONFIG SAVE" then press Enter.

**____20.** Type "CONFIG ACTIVATE" then press Enter.




**____21.** Press "Y" to activate the configuration and then press Enter.

**____22.** Type Quit and press Enter.

**____23.** Connect to the second switch by opening a command prompt and typing telnet 192.168.1.130 and then press Enter

**____24.** Repeat steps 2 through 22 on the second switch.

**____25.** Close the Command Prompt Window.

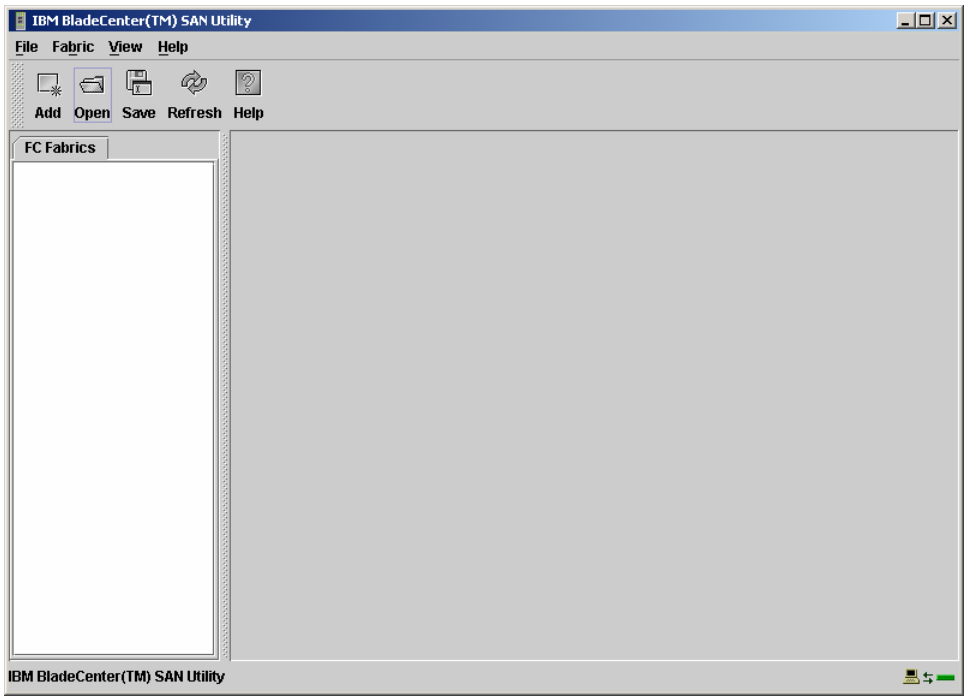
**This concludes this section.**

# Part VIII. Viewing the Fibre Channel Switch Module via the Graphical Interface (Optional).

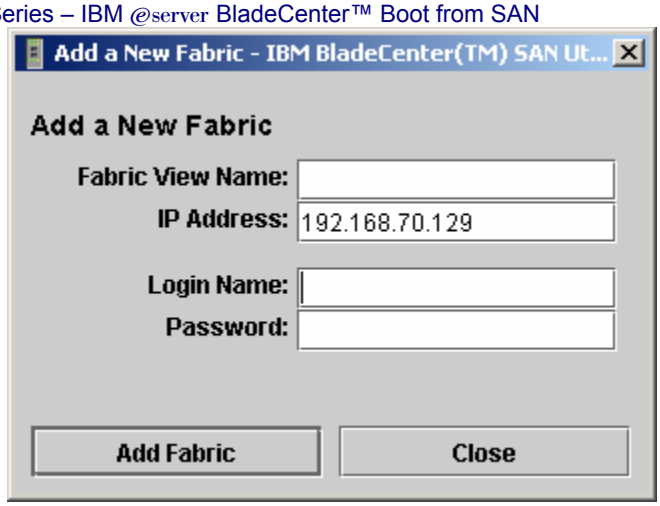
To ensure that the settings implemented via telnet are applied, ensure that the I/O stream guard value is set on Disable also on the GUI interface of the two switches.

____1. Start → All Programs →BladeCenter SAN Utility

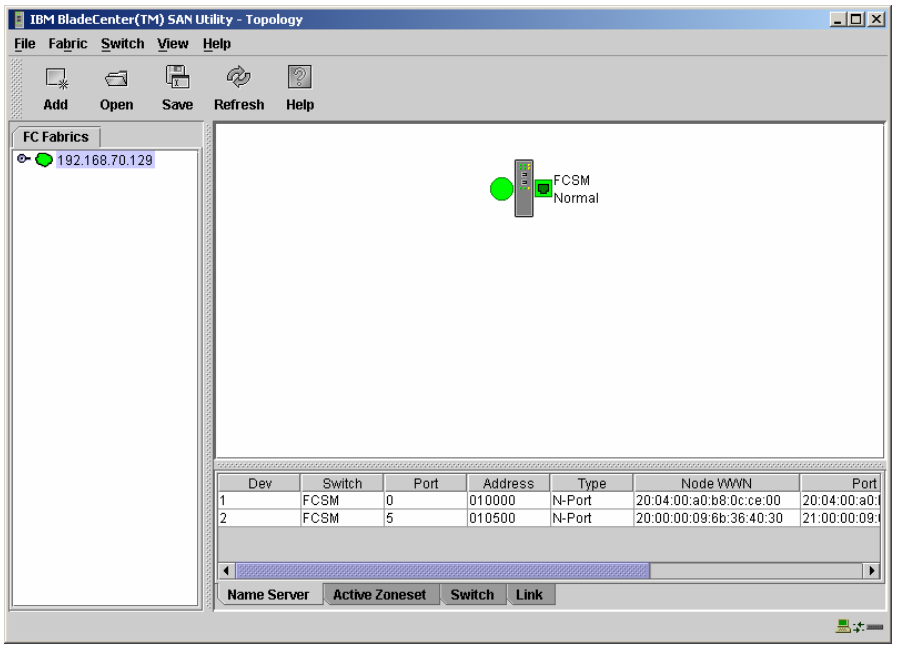
____2. Select Add.




____3. Type the IP address of the Fibre Channel Switch Module.

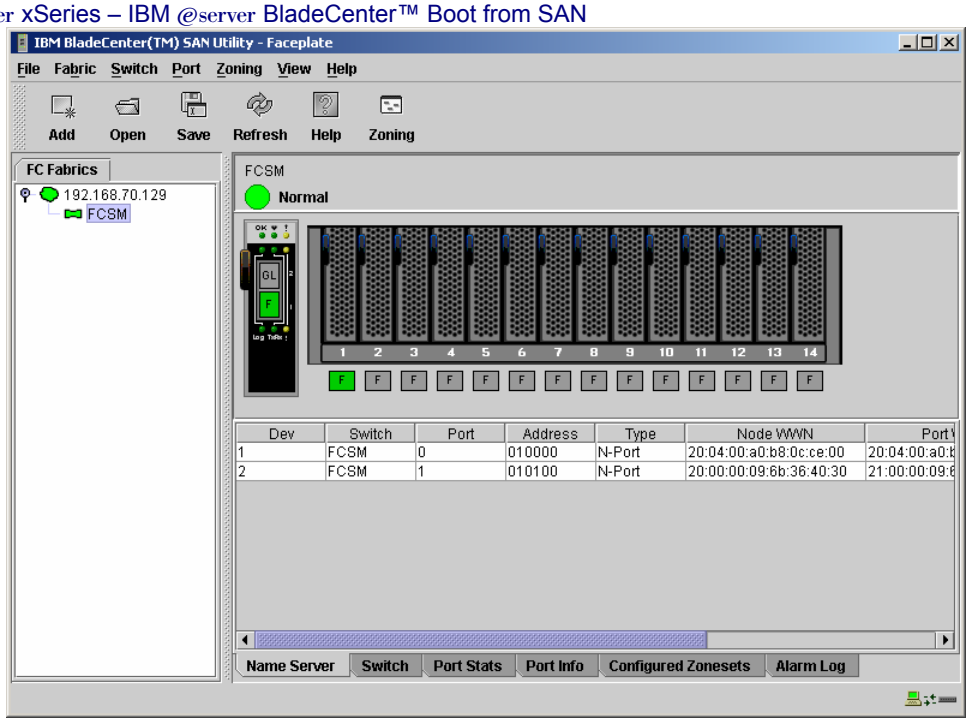



**____4.** Once the system recognizes the switch module, it will show the active ports available and their relative WWN node and Port Numbers.

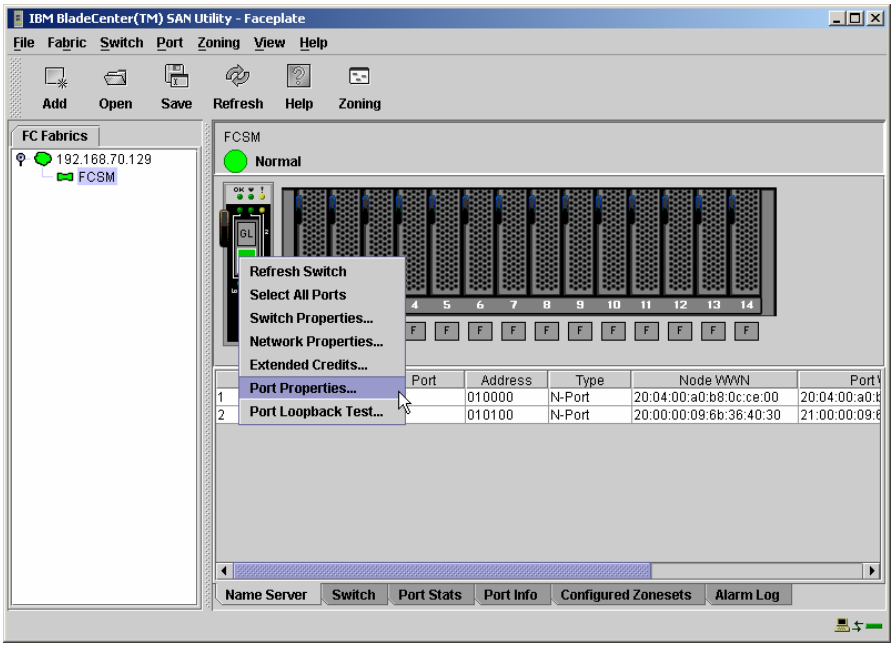



**____5.** In this case external port 1 on the Fibre Channel Switch Module (also known as port 0) and port 1 for the HS20 Blade server with the Fibre Channel Daughter Card are displayed.

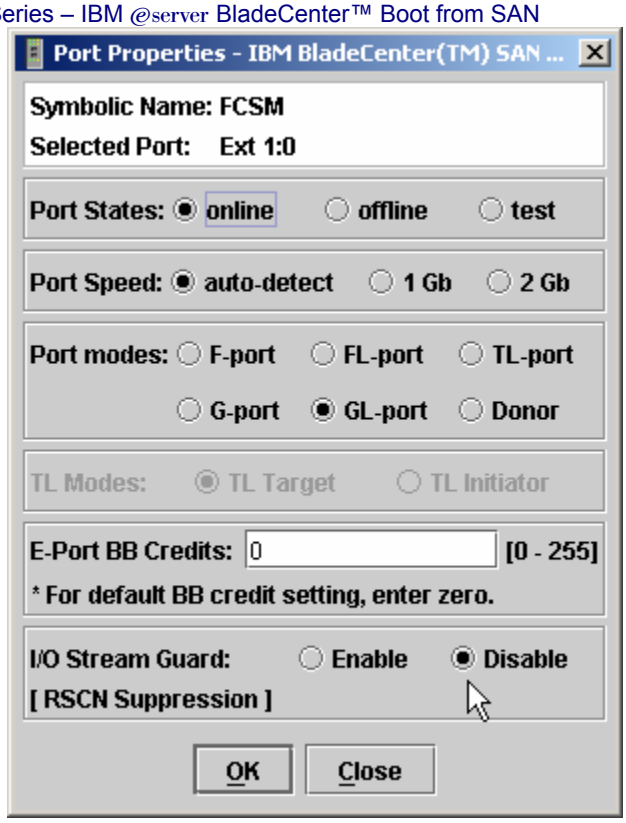
**____6.** Double click the FCSM icon in the top pane.




**____7.** Right-click the active external port and select “Port Properties"




**____8.** Ensure that the I/O Stream Guard as disabled (which we did earlier in this lab).




**____9.** Ensure that the I/O Stream Guard as disabled (which we did earlier in this lab).

**____10.** Click the "Port Info" tab. 

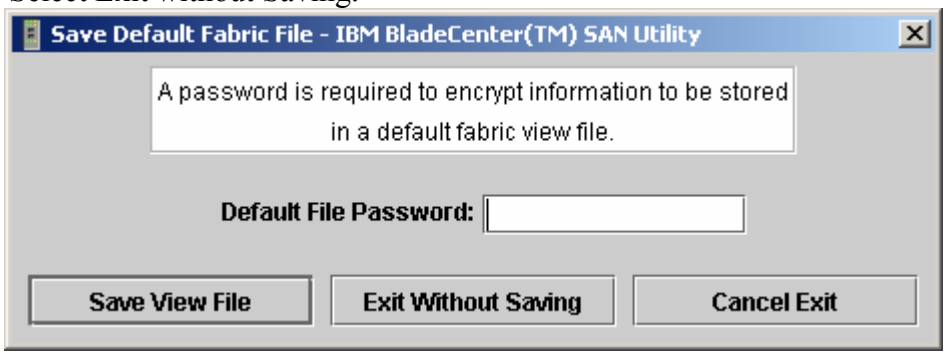

**____11.** Click the Port Icon the BladeServer with the Fibre Channel Daughter Card. In this example, it is Blade 1.

**____12.** In the bottom pane, scroll down to I/O Stream Guard. It should be enabled.

| Note: | I/O Stream Guard is Disabled on the external ports to stop this traffic from going to the Storage Server, and I/O Stream Guard is Enabled on the internal ports to allow this communication between the BladeServers. |
|---|---|

**____13.** Select File → Exit.

____14. Select Exit without Saving.



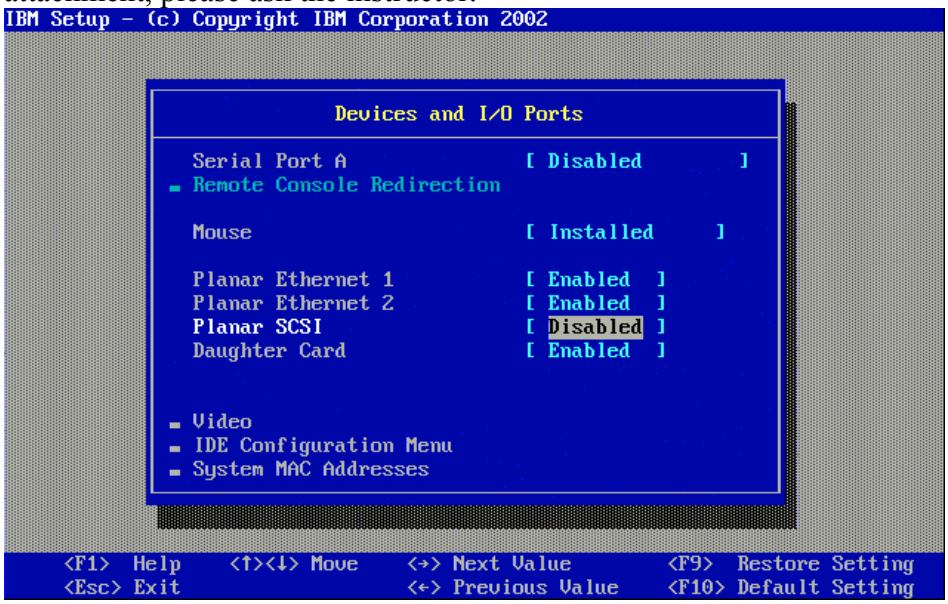

**This concludes this section.**

# Part IX. Configuring the HS20 Blade Server

____1. Access the Blade Server's BIOS by pressing `F1` during boot.


____2. Select `Devices and I/O Ports`.

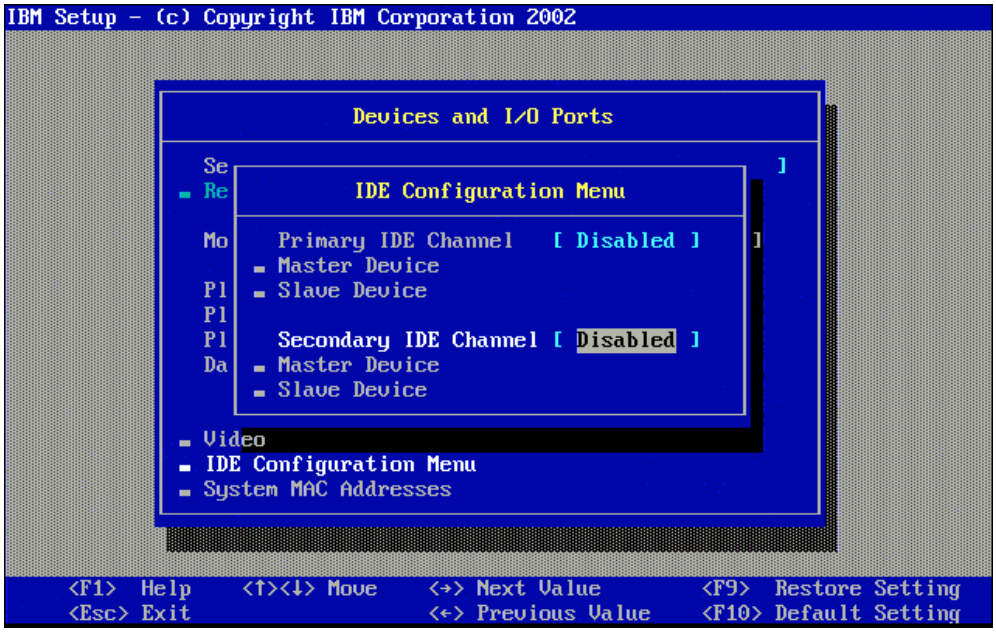
____3. If your HS20 has the optional SCSI attachment, change the `Plannar SCSI` to `Disabled`. If you are not sure if you have the optional SCSI attachment, please ask the instructor.



| Note: | Ensure that the Daughter Card is Enabled. |
|---|---|

____4. Select the IDE Configuration Menu.

____5. Disable the Primary IDE connection and Secondary IDE connection.



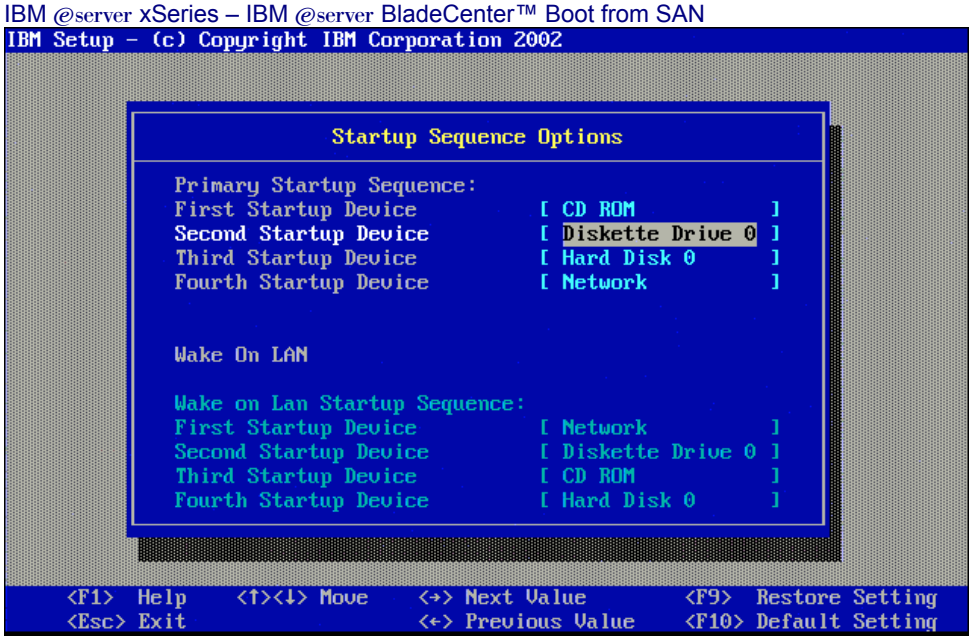

____6. Press Esc twice to return to the main menu.

____7. Select Start Options

____8. Select Startup Sequence.

____9. Ensure that these devices are listed in the following order:

| Device | Startup Order |
|---|---|
| CD-Rom | First Startup Device |
| Diskette Drive 0 | Second Startup Device |
| Hard Disk 0 | Third Startup Device |
| Network | Fourth Startup Device |




**____10.** Press `Esc` twice to return to the main menu

**____11.** Select `Save Settings` and then exit the BIOS configuration.

**This concludes this section.**

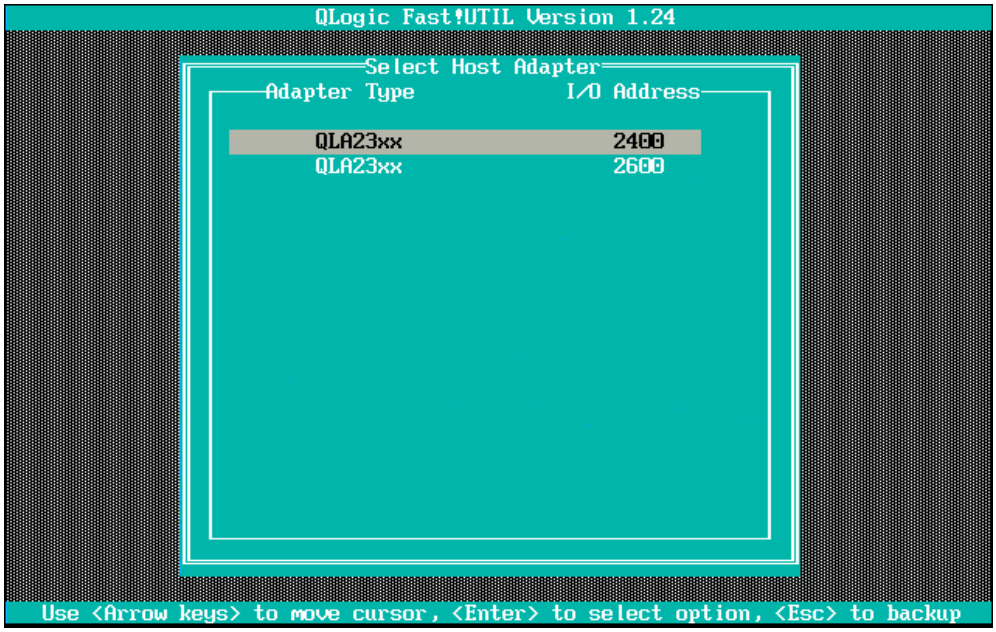
# Part X. Configuring the Fibre Channel Daughter Card

| | |
|---|---|
| **Note:** | At this stage only the top Fibre Switch Module has connectivity to the FAStT Storage Server (typically we use controller A, however for purposes of this lab, your Fibre Switch Module could be connected to controller A or B, but not both). |

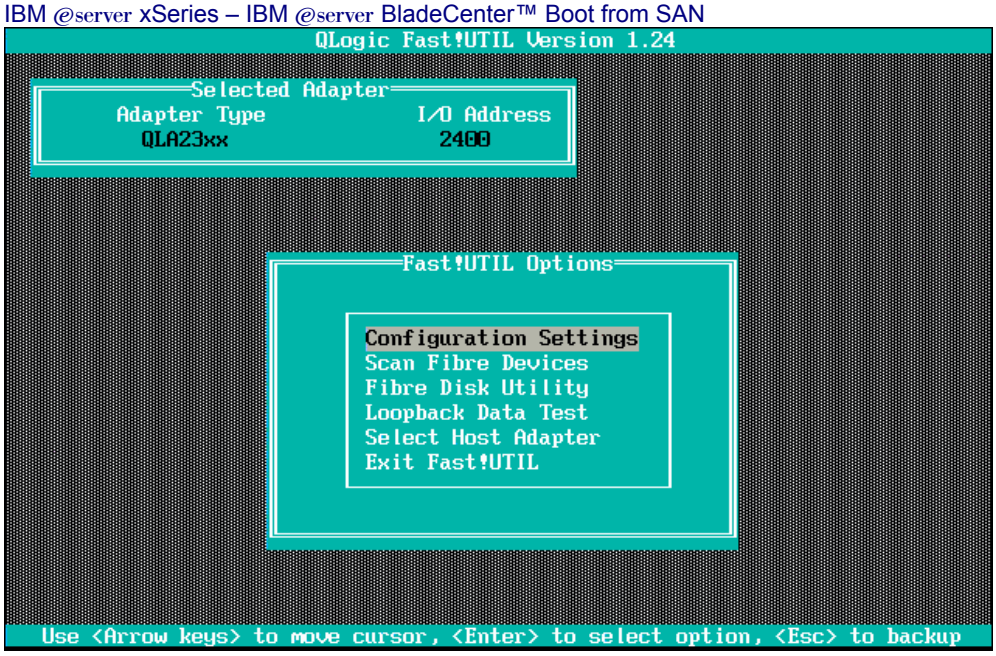
**____1.** Boot the desired Blade Server using the HS20 power button.

**____2.** During the boot process, press `Ctrl+Q` when prompted to enter the Fibre Channel Daughter Card BIOS configuration option.

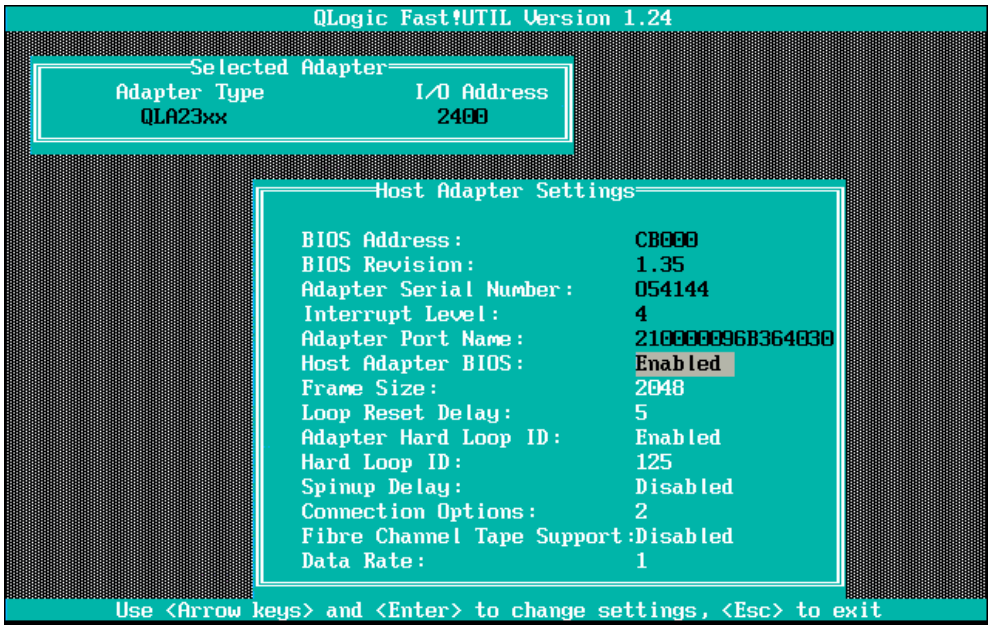
**____3.** Select the first Host Adapter listed in the BIOS, this card will correspond to the Switch in module bay 3.




**____4.** Select `Configuration Settings`.

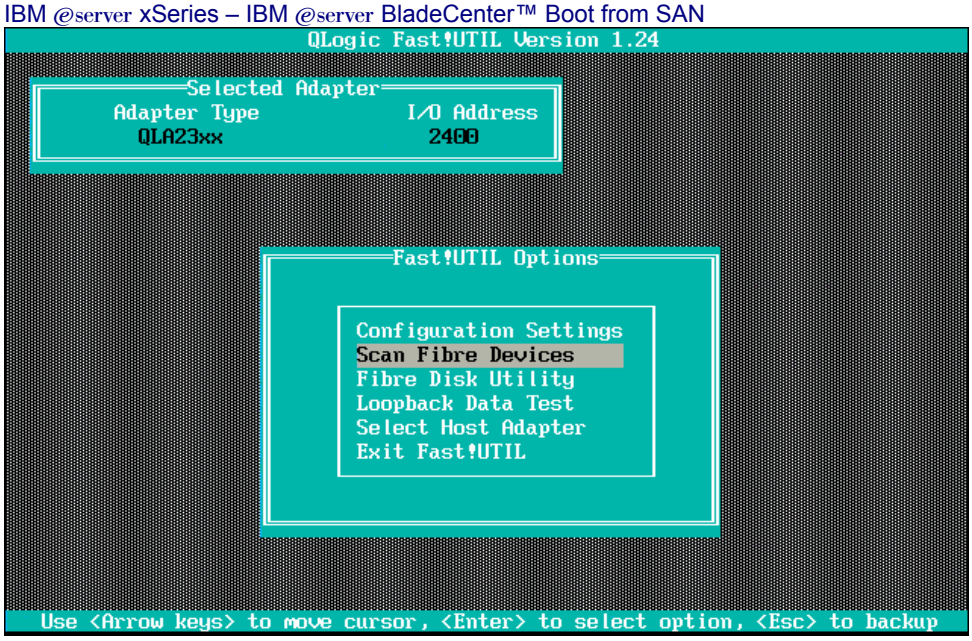



**____5.** Enable the Host Adapter BIOS.




**____6.** Press `Esc` twice and Save the changes to return to the main Menu.

**____7.** Select Scan Fibre Devices and then press `Enter`.

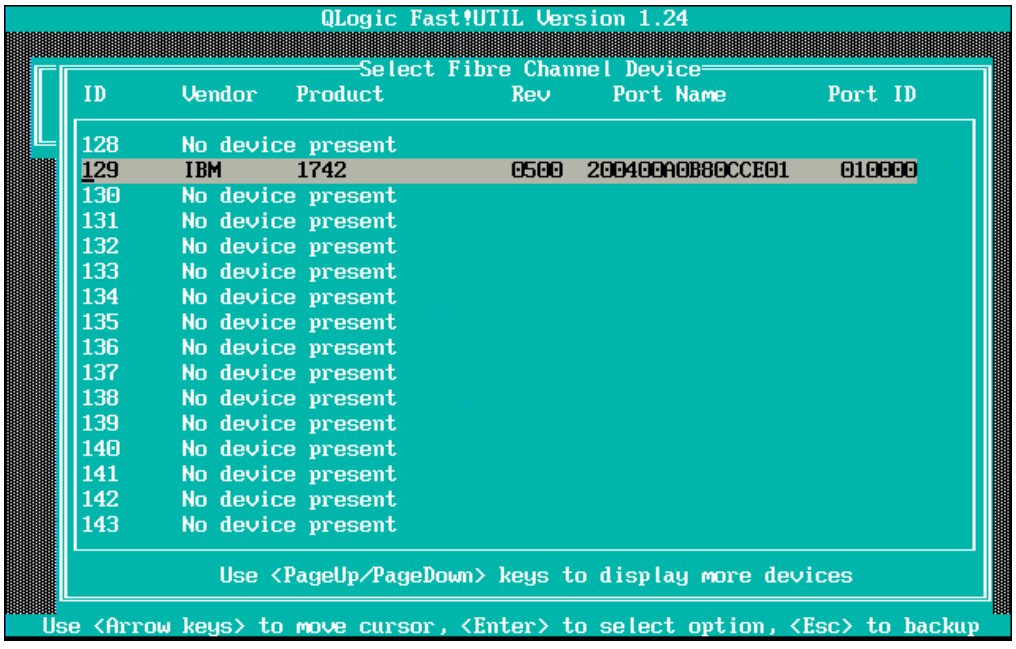



____**8.** What ID does the FAStT Storage Server have? _____

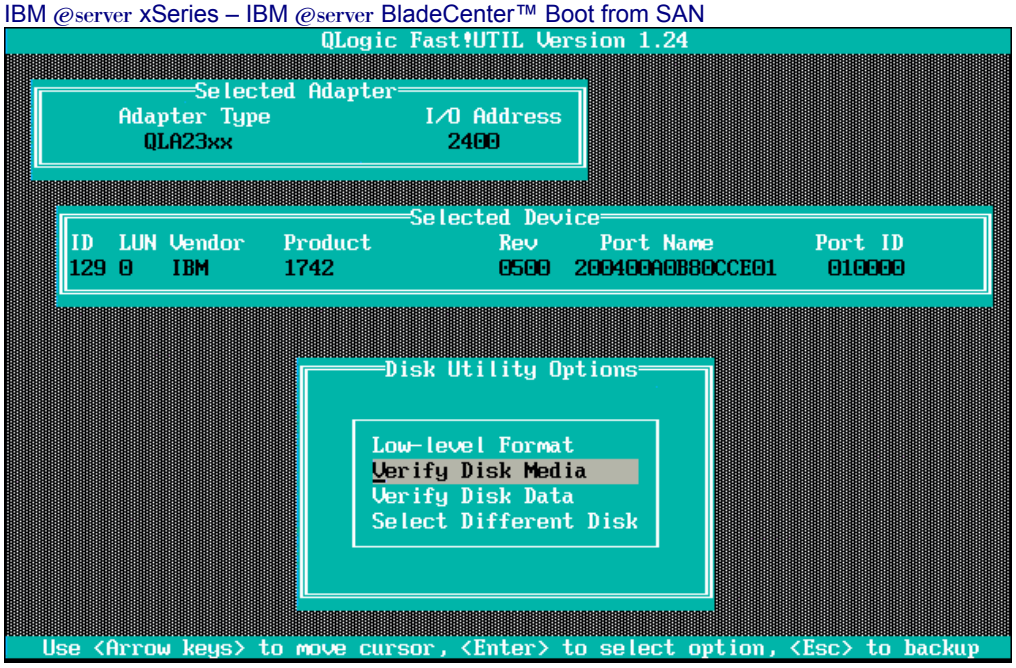
____**9.** Press `Esc`.

____**10.** Select `Fibre Disk Utility`.

____**11.** Select the `IBM 1742` (or the device that you have) and then press `Enter`.

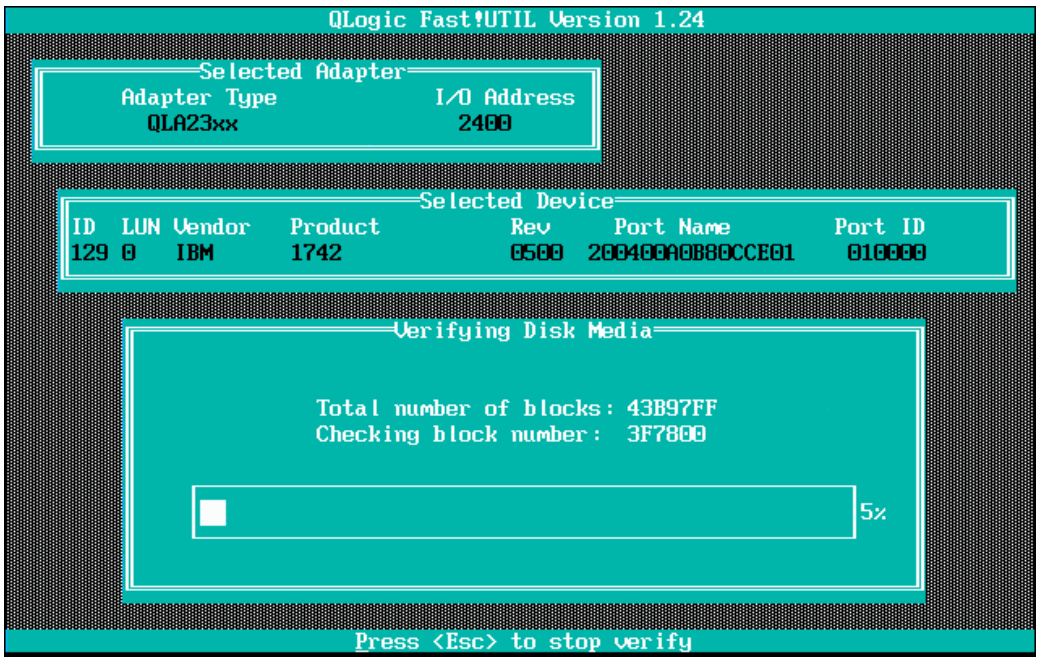



____**12.** Select `Verify Disk Media` and then press `Enter`.




**____13.** Select `Continue w/ Verify` and then press `Enter`.

**____14.** The Fast!UTIL begins verifying the disk.

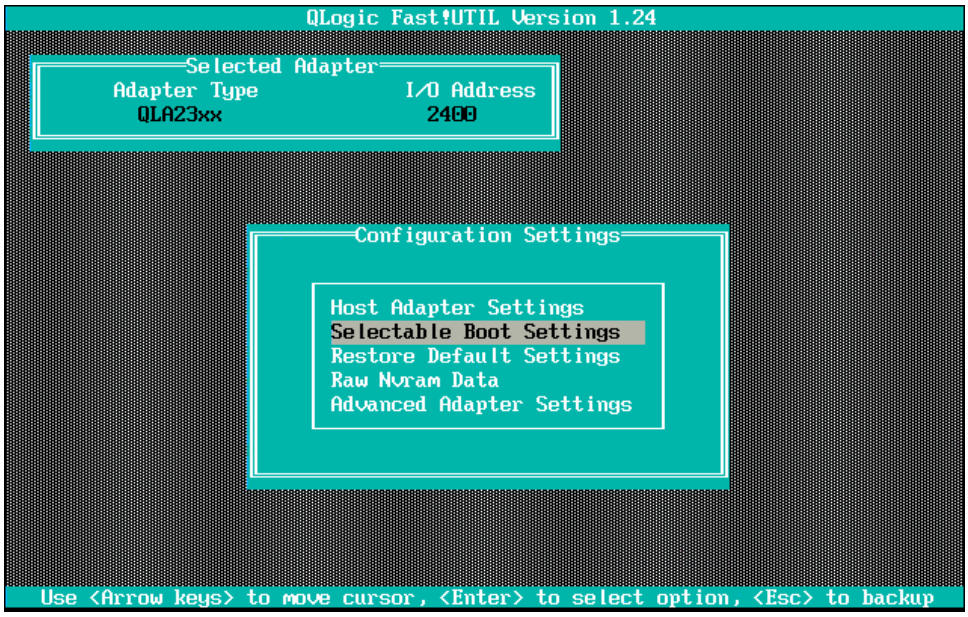


| | |
|---|---|
| **Important**: | Do not wait for the entire process to complete. We are just ensuring that there is a valid path from the Fibre Channel Daughter Card, through the Fibre Channel Switch Module, through the Storage Server and to the drive array.<br><br>Once the verification process begins without error, we can end this test. |

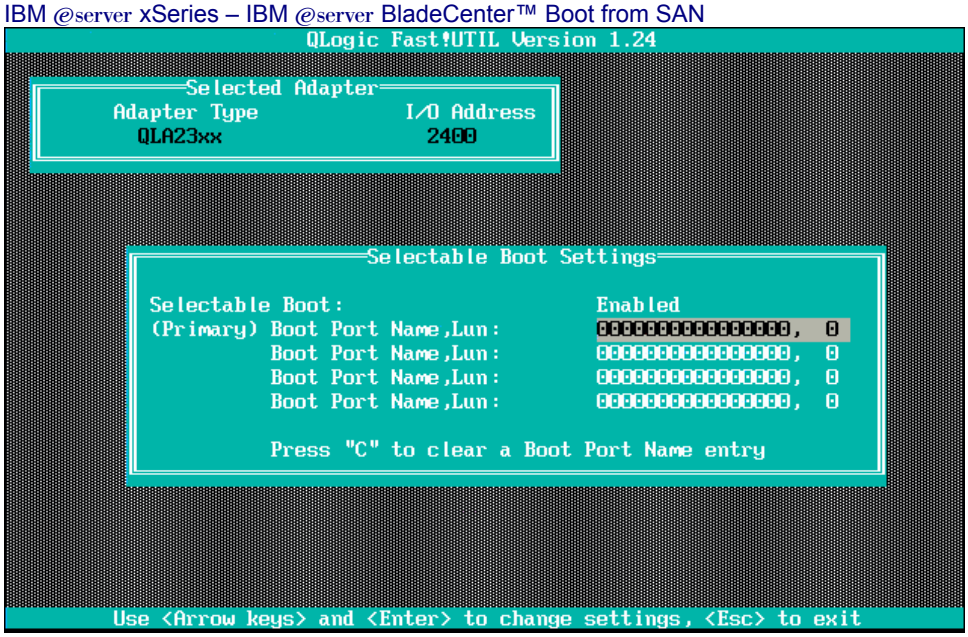
**____15.** Press `Esc` to stop the test.

**____16.** Press `Esc` to return to the Blade Server Qlogic Fast!UTIL menu and select Configuration Settings.

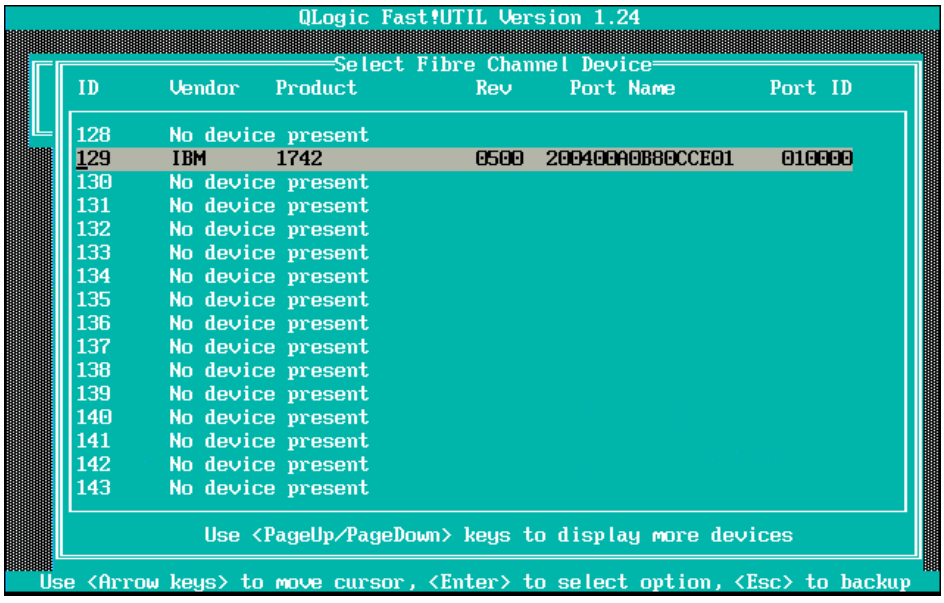
**____17.** Select Selectable Boot Settings and enable the Selectable Boot.



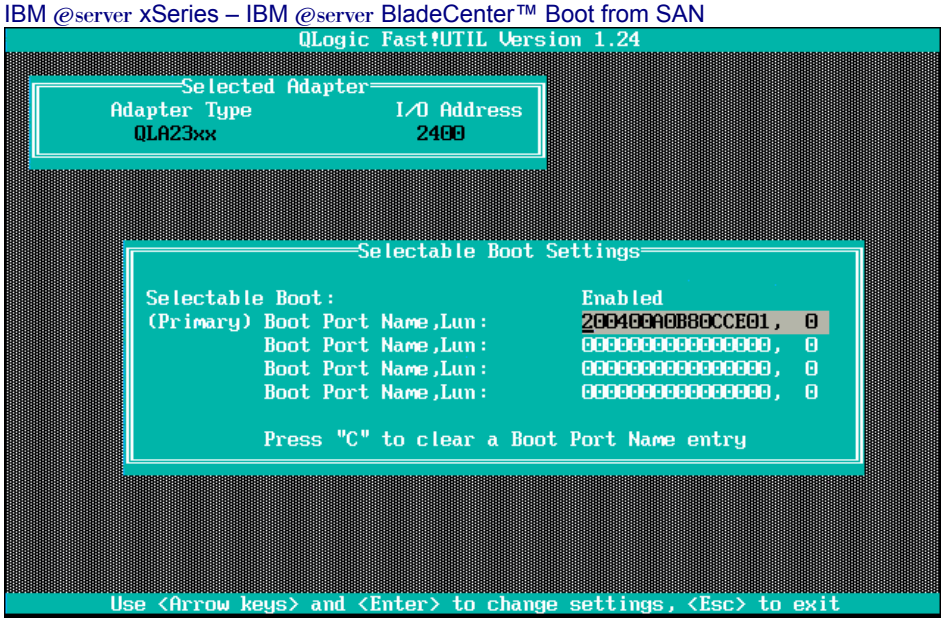

**____18.** Select the (Primary) Boot Port Name, LUN and press `Enter`. This will bring you to the Select Fibre Channel Device.




**____19.** Listed here you will find the Controller to which your HBA Adapter is connected on the FAStT Storage Server. Select it and press `Enter`.



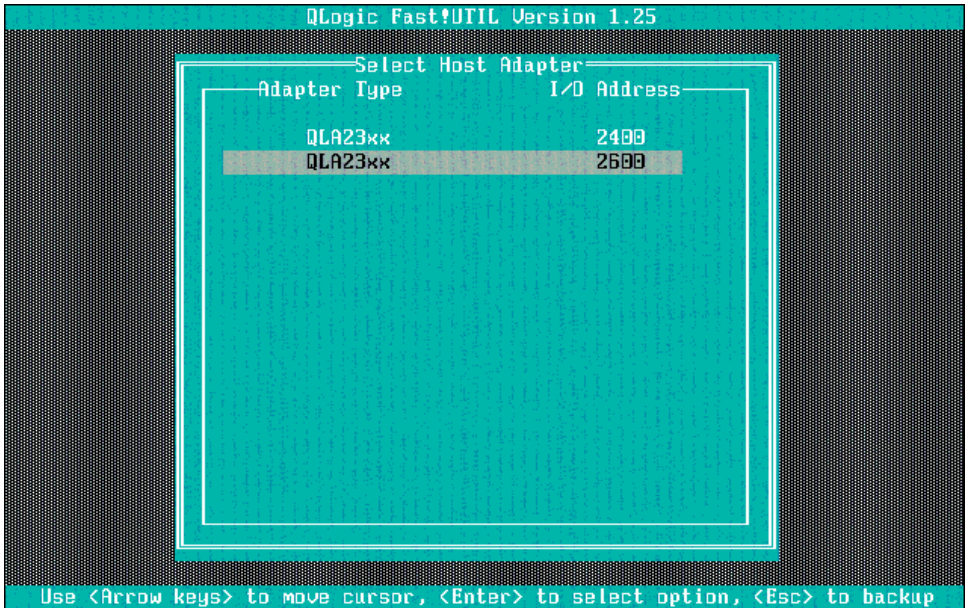

**____20.** Your Selectable Boot Settings should show now the Controller Port Name, as shown in the picture here below.



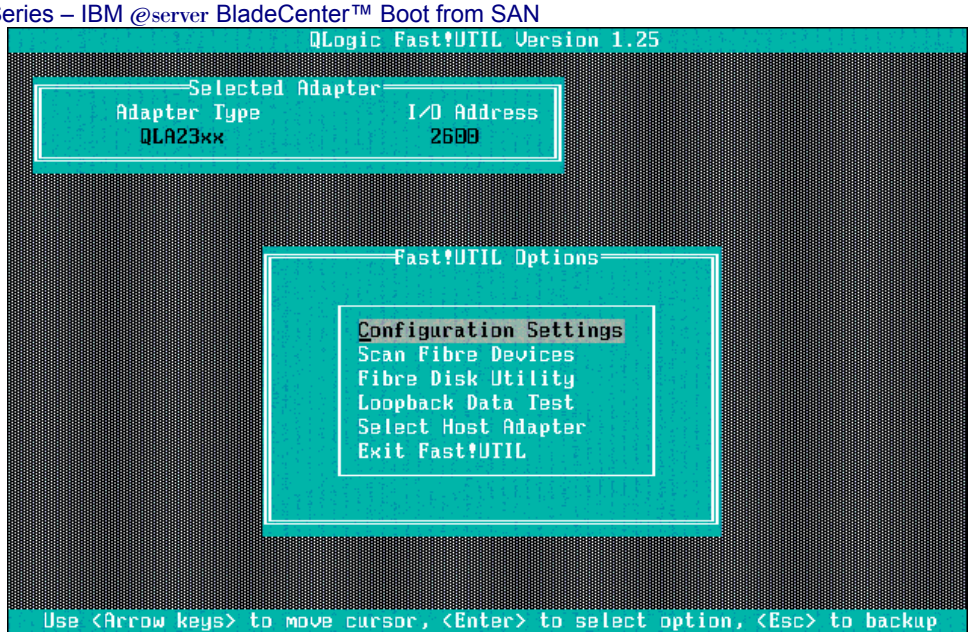

**____21.** Press `Esc` twice to exit the Selectable Boot Settings and to exit the Configuration Settings Menu.

**____22.** Select "Save Changes" and then press Enter.

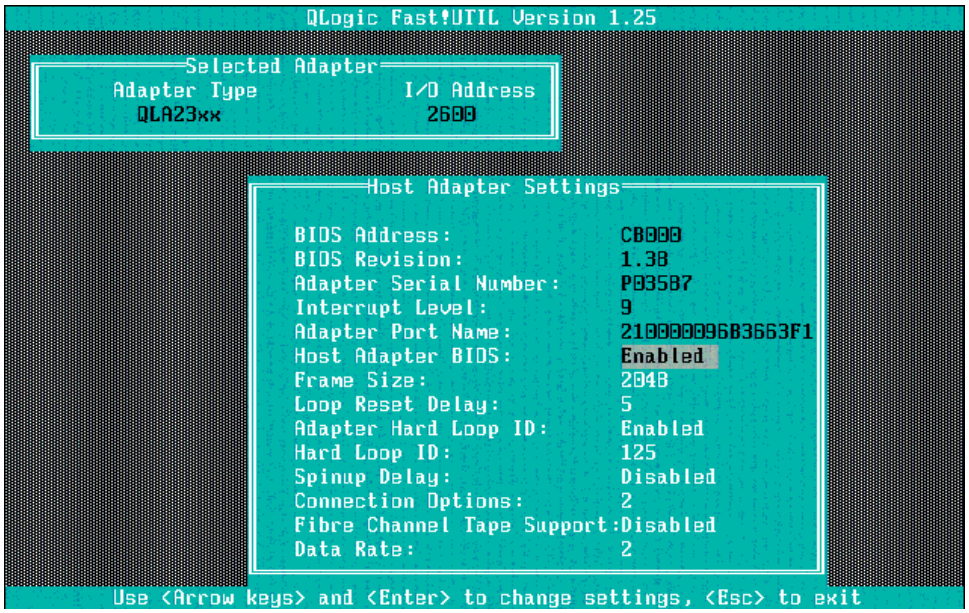
**____23.** Select the second host adapter listed in the BIOS, this card will correspond to the Switch in module bay 4.




**____24.** Select `Configuration Settings`.



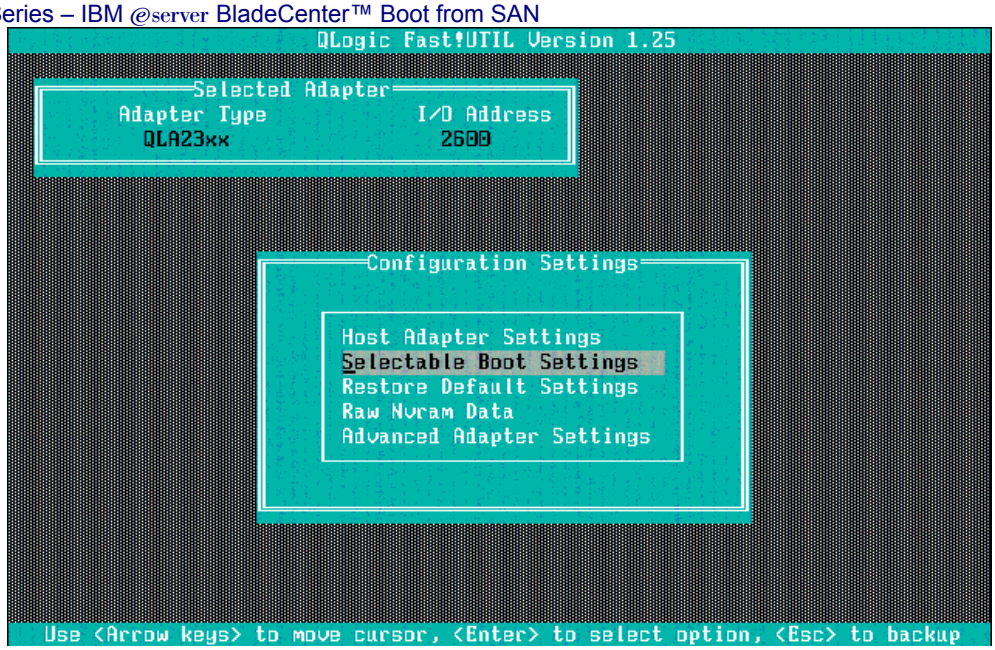

**____25.** Enable the Host Adapter BIOS.



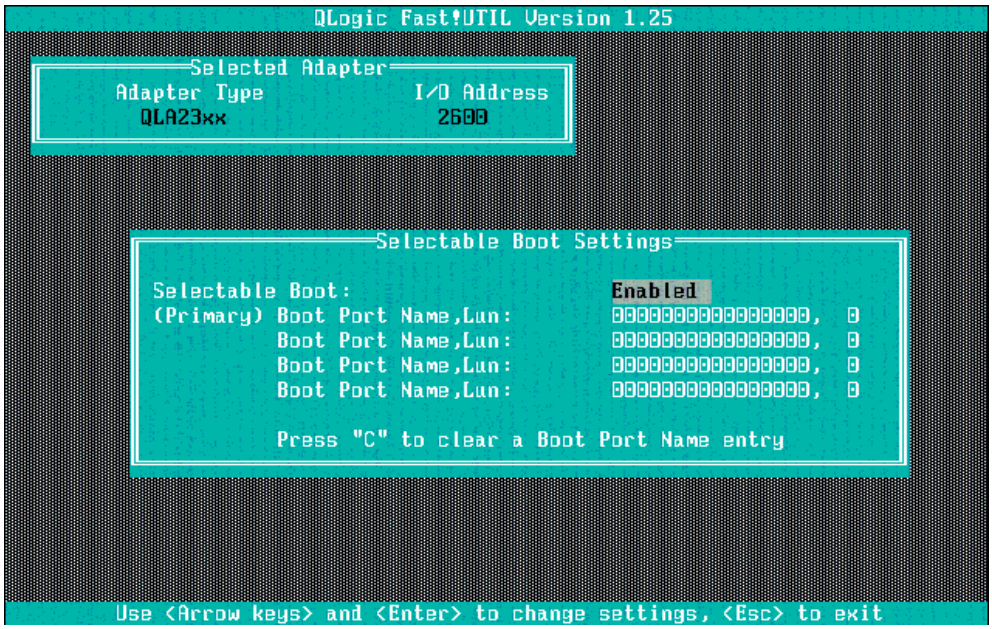

**____26.** Press `Esc` twice and Save the changes to return to the main Menu.

**____27.** Press `Esc` to return to the Blade Server Qlogic Fast!UTIL menu and select Configuration Settings.

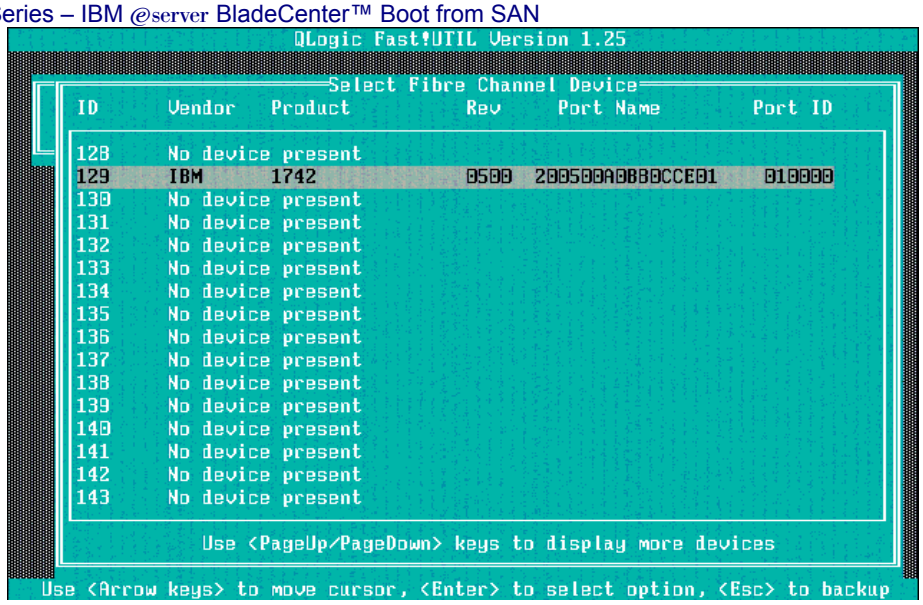
**____28.** Select Selectable Boot Settings and enable the Selectable Boot.



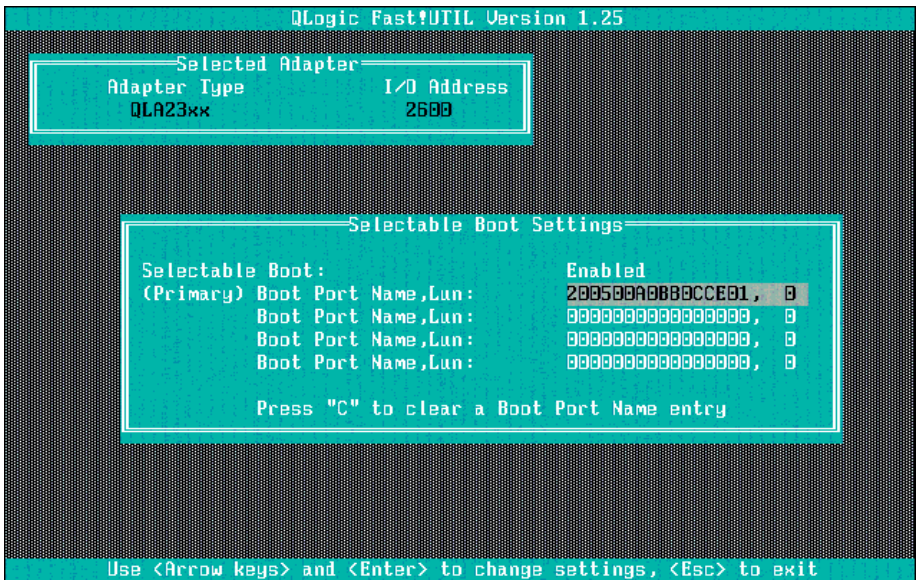

**____29.** Select the (Primary) Boot Port Name, LUN and press `Enter`. This will bring you to the Select Fibre Channel Device.




**____30.** Listed here you will find the Controller to which your HBA Adapter is connected on the FAStT Storage Server. Select it and press `Enter`.




**____31.** Your Selectable Boot Settings should show now the Controller Port Name, as shown in the picture here below.




**____32.** Press `Esc` twice to exit the Selectable Boot Settings and to exit the Configuration Settings Menu.

**____33.** Select “Save Changes” and then press Enter.

**____34.** Select Exit Fast!UTIL and then press Enter.

**____35.** Select “Reboot Server” and then press Enter.

**This concludes this section.**

# Part XI. Configuring a Single path to the Storage Server.

When initially configuring Remote boot, you should only have a single path of the Fibre Channel daughter-card configured to allow access to the Storage Server. Because a single Fibre Channel daughter-card found on the Blade Server has wired access to Switch Module slots 3 and 4, having the Storage Server cabled to both slots exposes multiple paths. To only offer a single path to the Storage Server prevents LUN access contention during the installation process. Otherwise, having multiple paths to the same LUN inhibits the Operating System's adequate detection of the proper storage boot device.

There are three ways to allow only a single path to the storage Server:

1. Remove the cable offering a second path to the Storage Server from the switch module in either Slot 3 or 4. (Note: This is discussed further in the Cabling recommendations section of this document). This is the simplest method, but it requires physical access to the BladeCenter Chassis or storage server. If Physical access to the equipment is not possible, other methods must be used.

2. Using the Storage Manager software, force the LUNs to either Controller A or Controller B of the storage Server. This will allow access to the LUN only from the intended controller. Using Controller A is preferable.

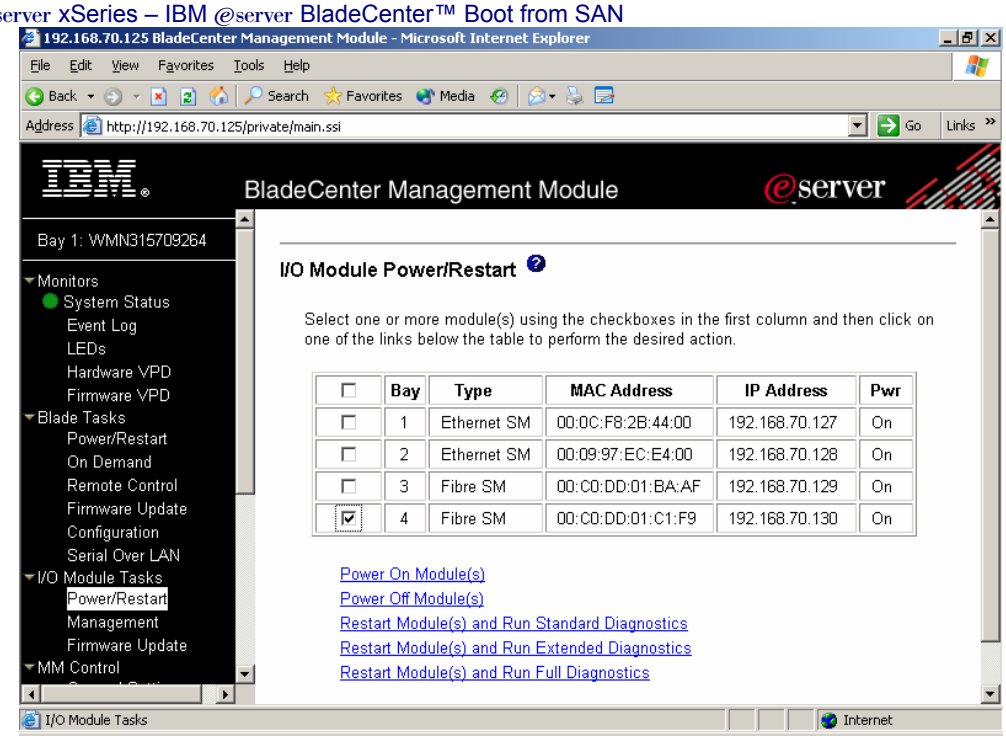
3. Disable the Fibre Channel switch module servicing access to Controller A or Controller B of the Storage Server. Using Controller A is preferable. This is the method that we discuss here.

In the steps below, we will use Option 3 to configure a single-path to the Fibre Channel Storage Server.

**____1.** Log in to the management module. See Appendix A. if you need explanation on connecting to the Management Module.

**____2.** Under I/O Module tasks, select <Power/Restart>.

**____3.** Place a checkbox in the next to the Bay 4 switch module.




**____4.** Click <Power Off Module(s)>.

**____5.** Click <OK> to the "Are you sure you want to perform this action on selected module."

**____6.** In the Menu Pane, the left pane, click <Log Off>.

**____7.** Click <Yes> to allow the web browser window to close.

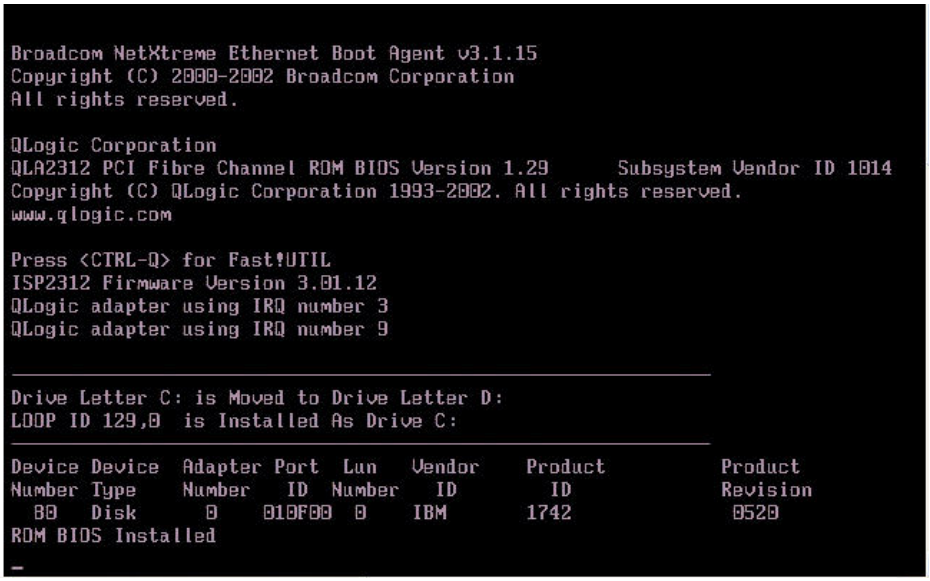
The 2nd Fibre Channel switch module is now off and there is only one path from the Blade Server to the Storage Server.

**This concludes this section.**

# Part XII. Installing Windows 2003 Server on the External Disks.

| | |
|---|---|
| **Note:** | You must have a floppy diskette with the BladeCenter Fibre Channel Expansion Card drivers. Your instructor will provide this. These files can be downloaded from the Technical Support Site. |

| | |
|---|---|
| **Note:** | During the POST sequence you will notice the following text<br>**Drive letter C: is moved to the Drive letter D:**<br>**Loop ID 129,0 is installed as Drive C:**.<br><br>This indicates that the Blade is now booting from the LUN 0 associated to the first HBA adapter |




____1. With the Media Tray assigned to the HS20 that we are using and the Windows 2003 Server CD in the CD Drive, the Windows 2003 installation process will begin.

____2. When prompted, press `F6` to add the IBM HS20 Fibre Channel Expansion Card as additional Mass storage Device.

____3. Follow the on-screen instructions

____4. The process will then proceed as a standard installation.

**This completes this lab.**

# Troubleshooting

### If the Automatic Discovery feature of Storage Manager 8.x does not find any devices:

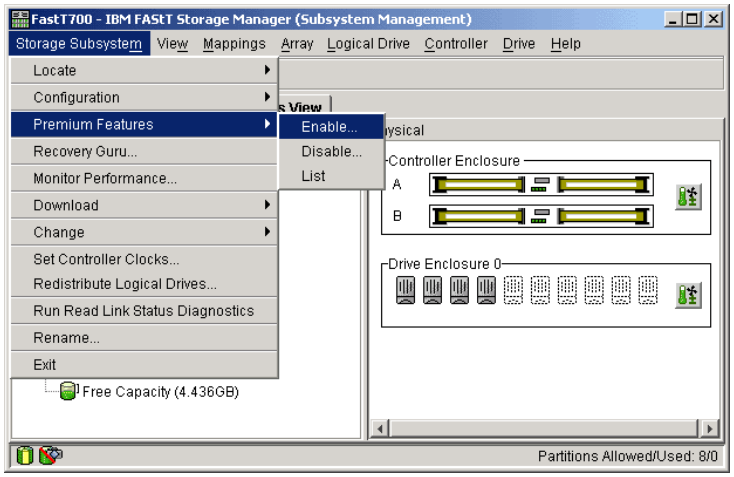
____1. From the Edit menu, choose <Add Device>.

____2. At the text insertion bar, enter the IP address of Controller A and click <Add>. Then enter the IP address of Controller B and click <Add>.

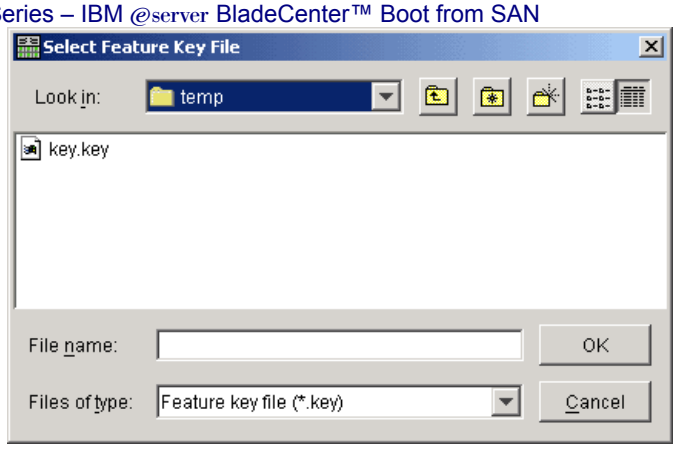
____3. Click on <Done>. Wait until the discovery process is terminated and identify your system connectivity.

### To add premium features:

____1. To enable Premium Features, click <Storage Subsystem → Premium Features → Enable>.




____2. Next, select your Feature Key File and click <OK>.




**____3.** Click <Yes> to accept the premium features.

**Note:** If you do not have access to a Feature Key File, contact your instructor for assistance.

**This concludes this section.**