

IPC2 Backup and Recovery using TeraByte™ Image for Linux

This document describes the hard disk backup and recovery procedure for a tester controller running Red Hat Enterprise Linux (RHEL) 7.1, specs and hp4070. The backup/recovery utility that is used is TeraByte™ Image for Linux (IFL). TeraByte™ Image stores the image on a NFS-mounted drive.

This backup and recovery method is useful if site security prevents the usage of USB mass storage devices in clean rooms. TeraByte™ image only requires that you take an IFL bootable CD-R into the clean room.

The TeraByte procedure consists of the following three items.

- Configure Network and Mount a NFS Storage
- Backup Hard Disk Image
- Recover Hard Disk Image

The following items are required:

- IFL bootable CD-R
- NFS server

To burn the IFL bootable CD-R, please refer to the “Backup and Recover with TeraByte™ Image for Linux” document.

Note that the IFL supports the following types of network storage servers:

- NFS (network file system), file server in Unix/Linux network
- SMB (server message block), file server in Windows and Unix/Linux network
- SSHFS (SSH¹ file system), file server in Linux network by using the SSH File Transfer Protocol (SFTP)

You can use any of the network file storage methods defined above. In this document, only the NFS storage method is described.

¹ SSH: Secure SHell is a cryptographic (encrypted) network protocol to allow remote login and other network services to operate securely over an unsecured network.

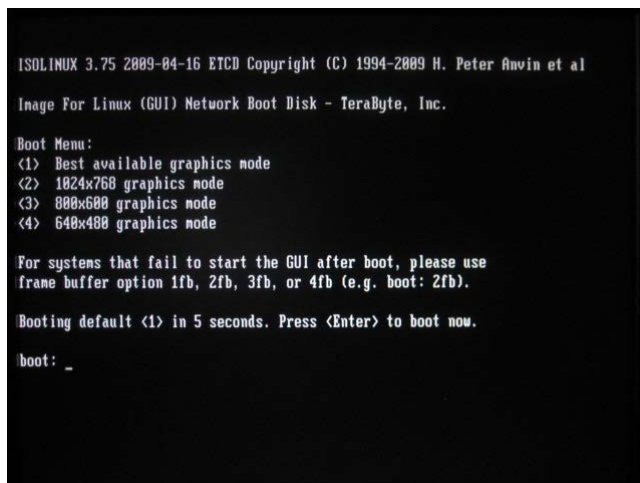
Configure Network and Mount a NFS Storage

This section describes the procedures for configuring the IFL networking environment. The procedures shown in this section use the following network settings:

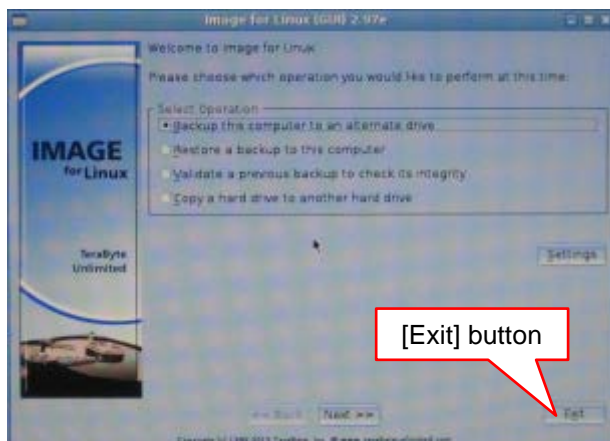
- IFL environment (hostname = hpyidmbi.hch.is.keysight.com)
 - Static IPv4
 - IP address = 146.208.60.58
 - Subnet mask = 255.255.248.0
 - Gateway = 146.208.56.1
 - DNS server = 146.208.97.195
- NFS server (hostname = hpyidmce.hch.is.keysight.com)
 - IP address = 146.208.60.171
 - Exported path = /home/datadisk/storage
 - /etc/exports:
 /home/datadisk/storage *.hch.is.keysight.com(rw,sync,anonuid=65534,anongid=65534)
 “anonuid=65534” and “anongid=65534” assign user and group ID “nfsnobody” for root user access, because the IFL process writes the backup image file on the NFS server as root user.

IFL Networking Procedures:

1. Turn the controller on by pressing the power switch.
2. Press the [f2] key to start the BIOS setup screen.
3. Press the eject button on the DVD drive and insert the IFL bootable CD-R.
4. Press the [Ctrl]-[Alt]-[Delete] key or reset button to restart the controller. The following IFL boot-up screen will be shown.

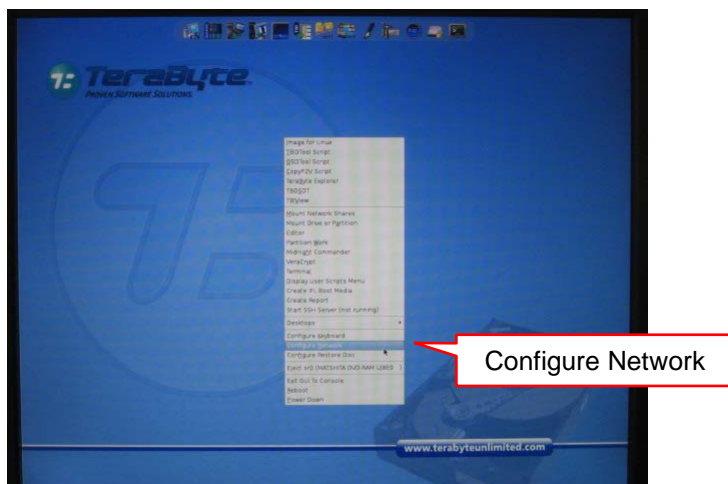


5. Press the [Enter] key to boot up the IFL environment. The Image for Linux (GUI) 2.97e window will be displayed on the IFL desktop.



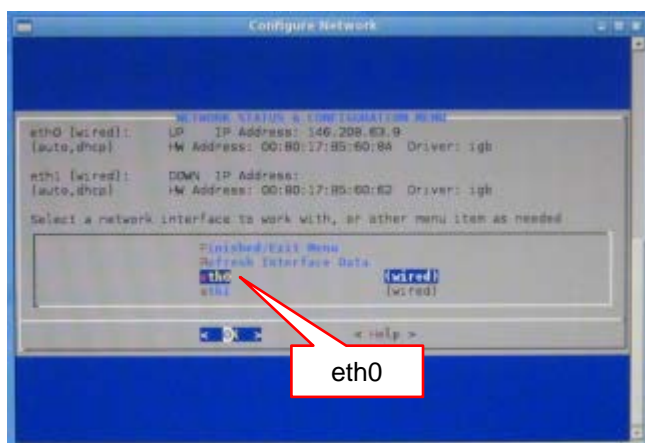
6. Click the [Exit] button to close the Image for Linux (GUI) 2.97e window display.

7. Move the mouse pointer to a blank area on the desktop, right-click to display the menu and select the Configure Network menu. The Configure Network window will be displayed.

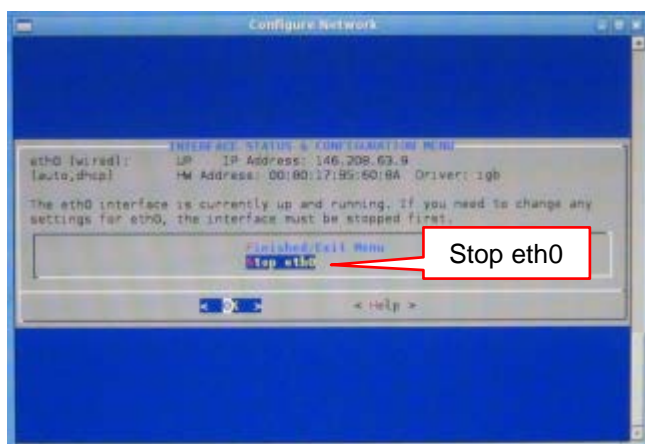


Note: As a default, the IFL environment uses DHCP to assign an IP address. If your controller uses DHCP, you can skip steps 7 to 22 in this section.

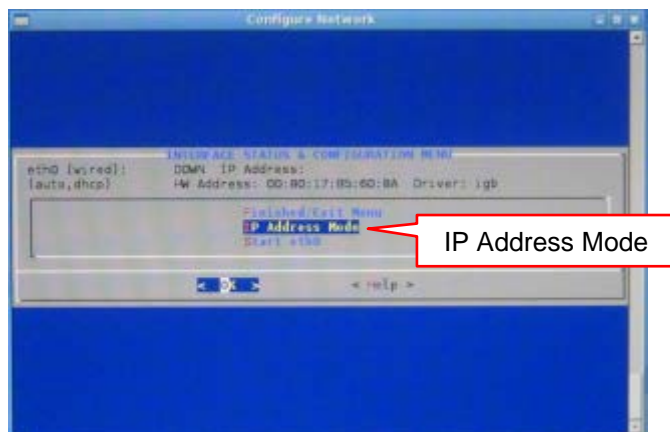
8. On the NETWORK STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “eth0” by using the up and down arrow keys. Press the [Enter] key.



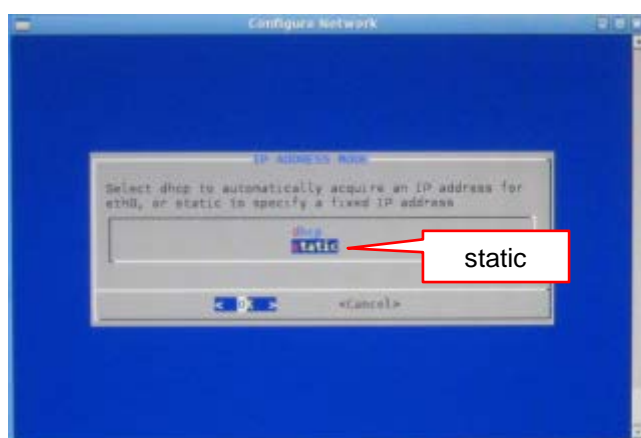
9. Move the highlighted field pointer to “Stop eth0” and press the [Enter] key. This step terminates the networking started by the DHCP server. The following steps show how to setup a static network configuration.



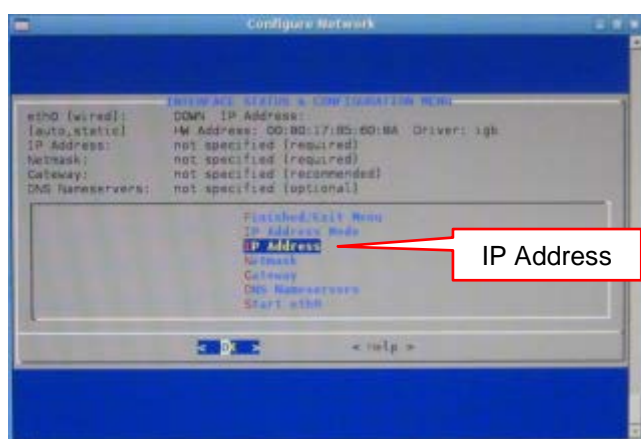
10. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “IP Address Mode” by using the up and down arrow keys. Press the [Enter] key.



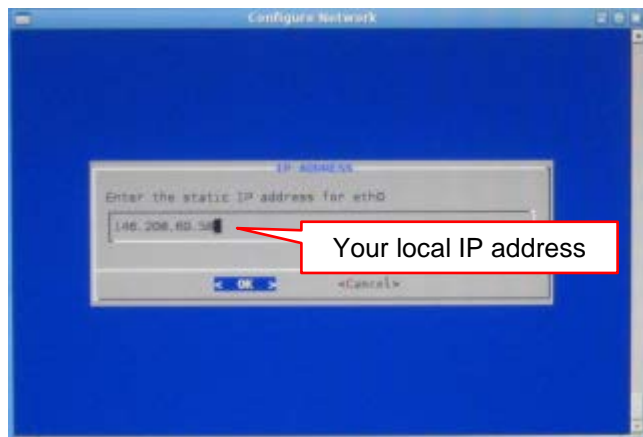
11. On the IP ADDRESS MODE page, move the highlighted field pointer to “static” by using the up and down arrow keys and press the [Enter] key.



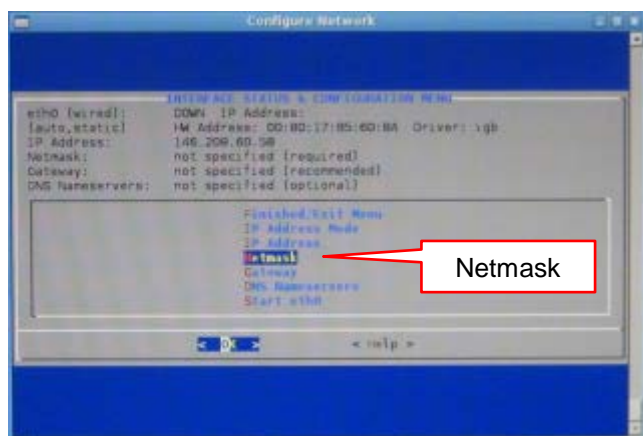
12. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “IP Address” by using the up and down arrow keys. Press the [Enter] key.



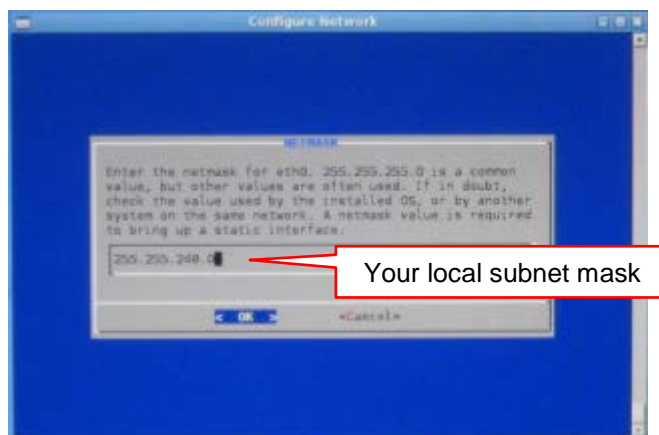
13. On the IP ADDRESS page, enter the IP address of the local host (e.g.: 146.208.60.58 and press the [Enter] key.



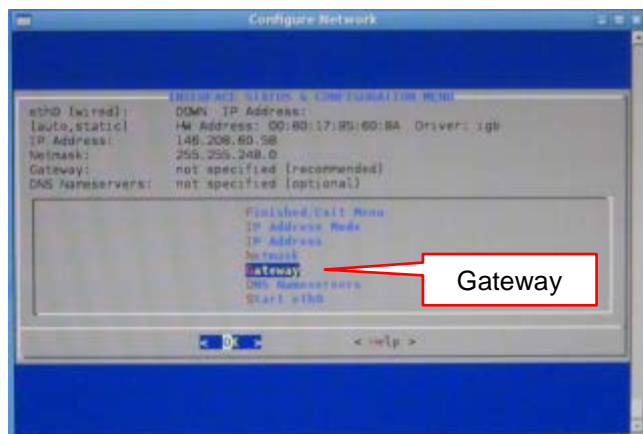
14. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to "Netmask" by using the up and down arrow keys. Press the [Enter] key.



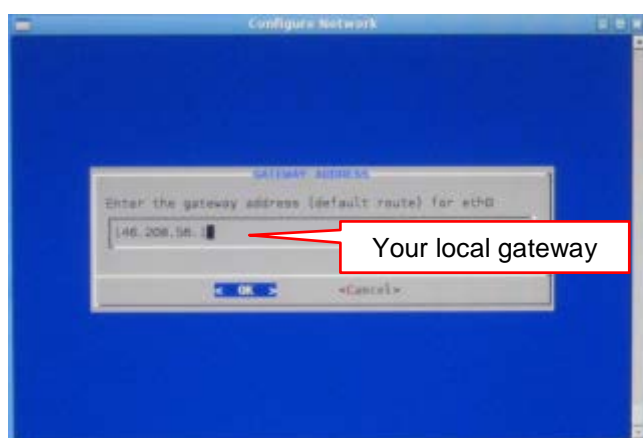
15. On the NETMASK page, modify the subnet mask to match your network (e.g.: 255.255.248.0) and press the [Enter] key.



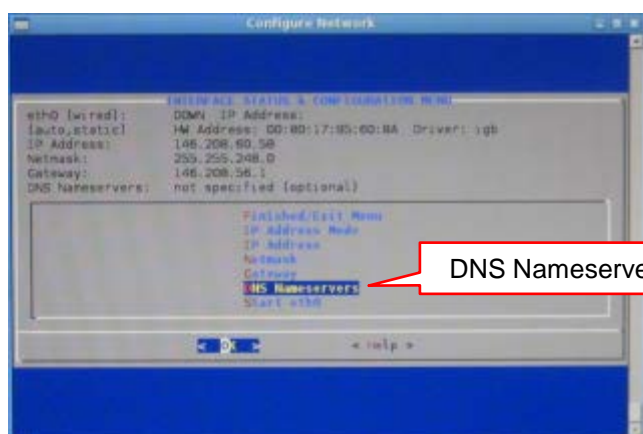
16. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “Gateway” by using the up and down arrow keys. Press the [Enter] key.



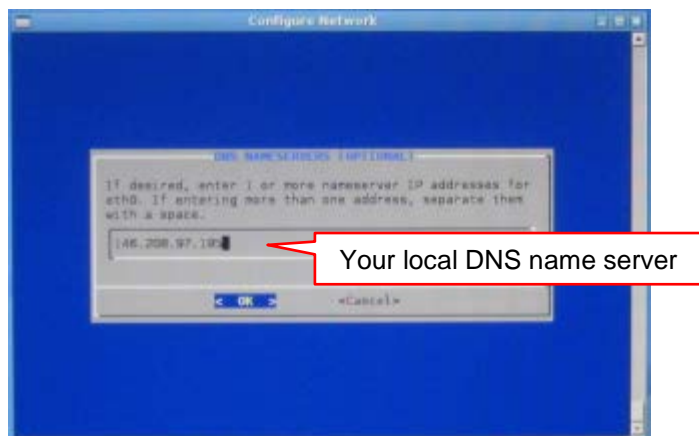
17. On the GATEWAY ADDRESS page, enter the gateway IP address to match your network (e.g.: 146.208.56.1) and press the [Enter] key.



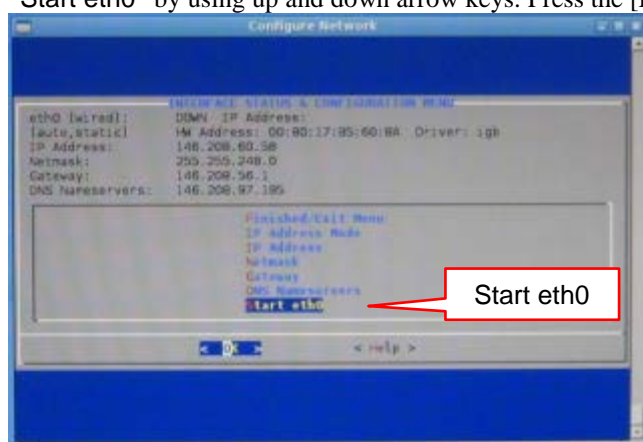
18. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “DNS Nameservers” by using the up and down arrow keys. Press the [Enter] key.



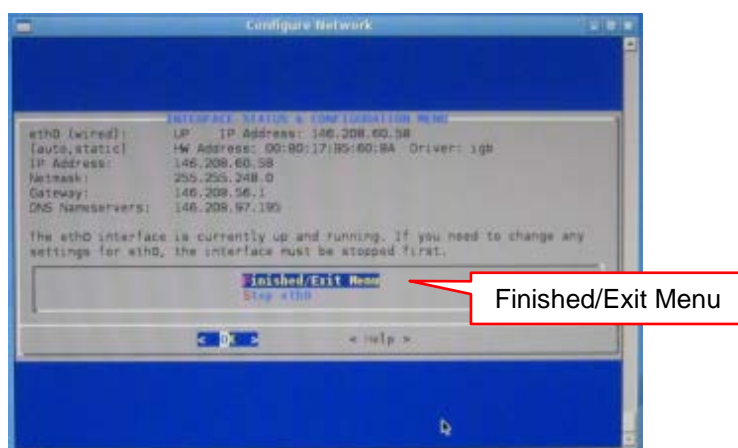
19. On the DNS NAMESERVER (OPTIONAL) page, enter the DNS name server address to match your network (e.g.: 146.208.97.195) and press the [Enter] key.



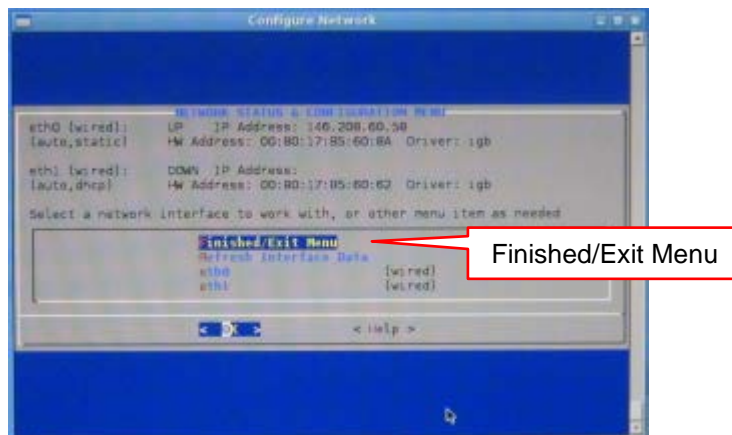
20. On the INTERFACE STATUS & CONFIGURATION MENU page, move the highlighted field pointer to “Start eth0” by using up and down arrow keys. Press the [Enter] key to start eth0 network.



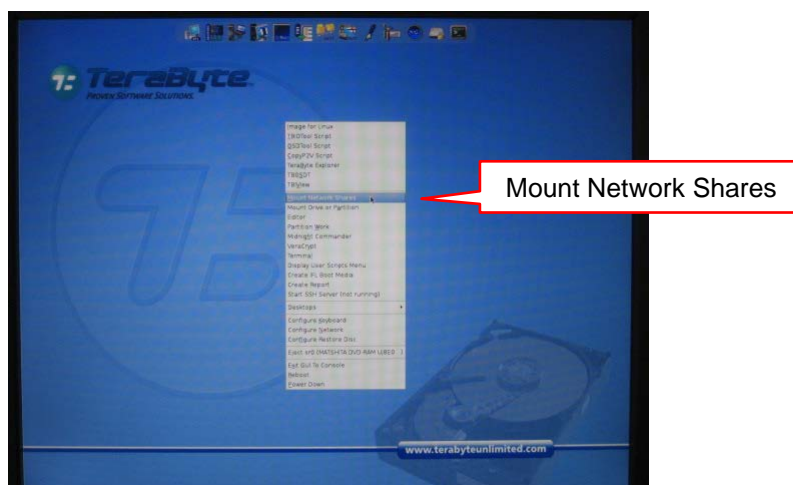
21. On the INTERFACE STATUS & CONFIGURATION MENU page, confirm the highlighted field pointer at “Finished/Exit Menu by pressing the [Enter] key.



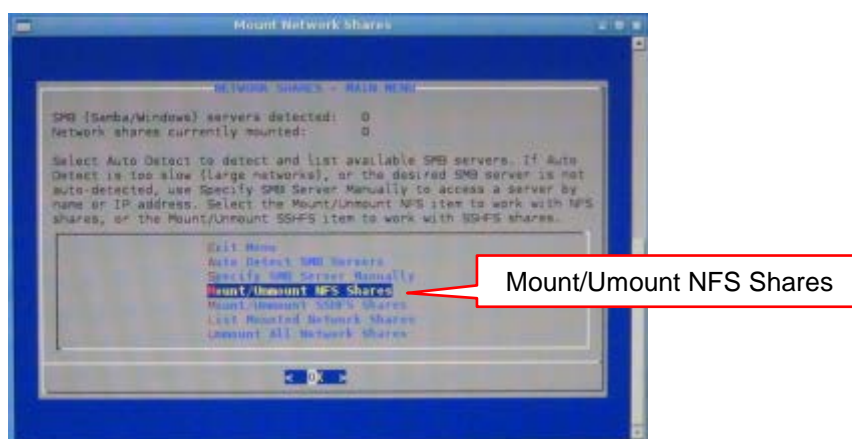
22. After pressing Enter/Ok the Configure Network window will close.



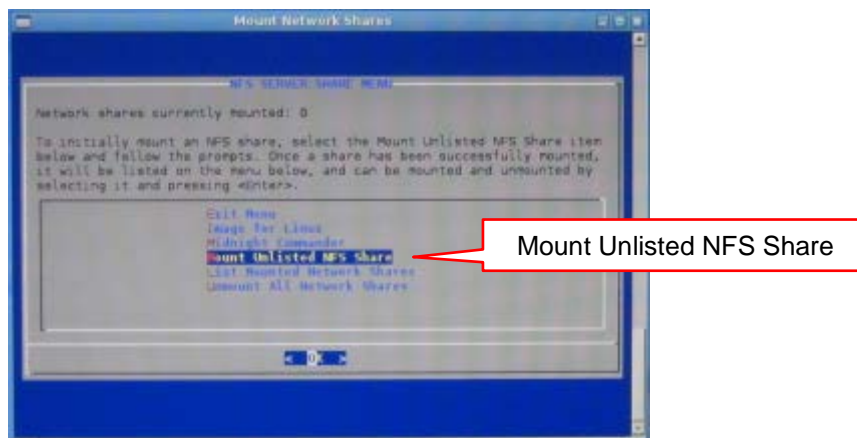
23. Move the mouse pointer to a blank area on the desktop and right-click to display the user menu. Select the Mount Network Shares option.



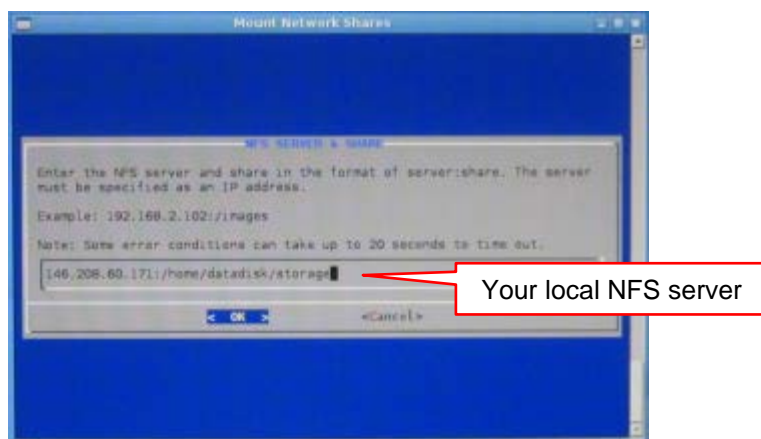
24. When the NETWORK SHARES - MAIN MENU page is displayed, move the highlighted field pointer to "Mount/Umount NFS Shares" option by using the up and down arrow keys. Press the [Enter] key.



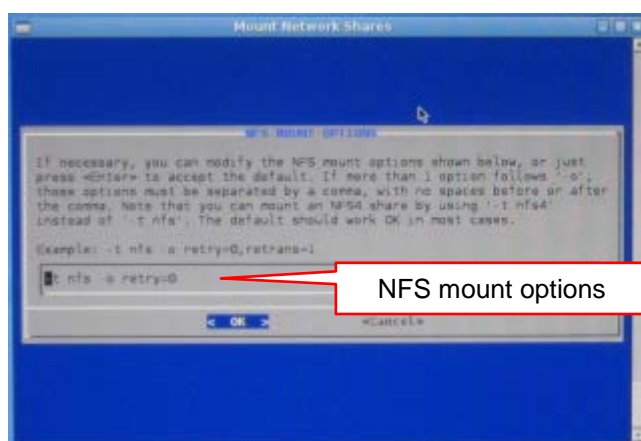
25. On the NFS SERVER:SHARE MENU page, move the highlighted field pointer to “Mount Unlisted NFS Shares” by using the up and down arrow keys. Press the [Enter] key.



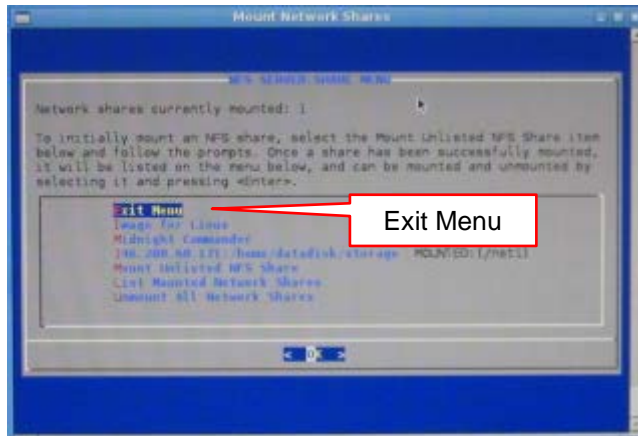
26. On the NFS SERVER & SHARE page, enter the IP address of the NFS server and exported path (e.g.: 146.208.60.171:/home/datadisk/storage). Press the [Enter] key.



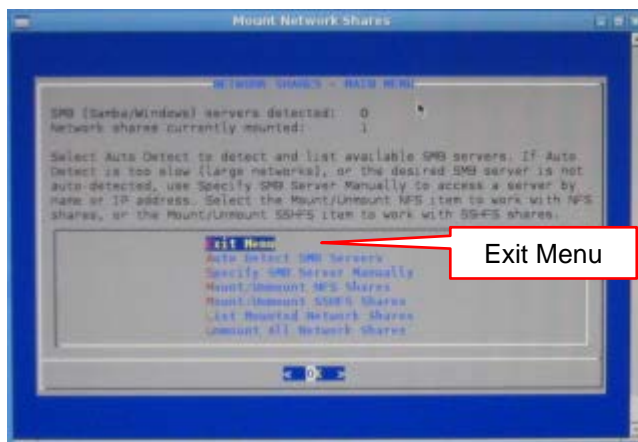
27. After confirming the default NFS mount options of “-t nfs -o retry=0” on the NFS MOUNT OPTIONS page, press the [Enter] key. This will mount the NFS server to the /tbu/net1 directory.



28. On the NFS SERVER & SHARE page, select “Exit Menu” and press the [Enter] key.



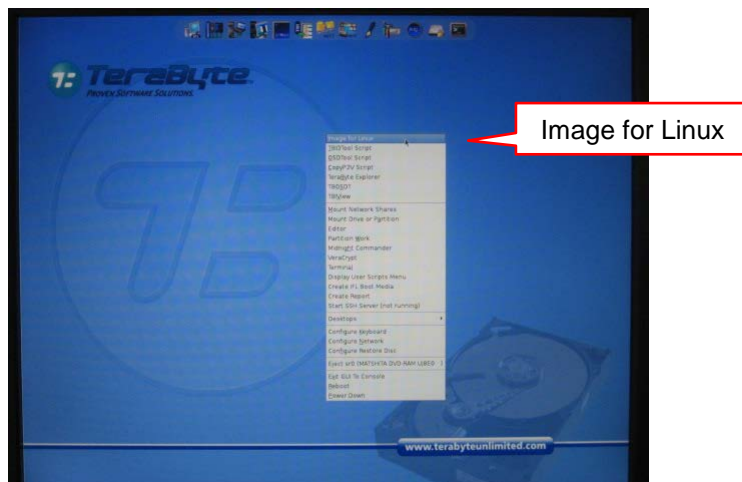
29. On the NETWORK SHARES - MAIN MENU page, select the “Exit Menu” and press the [Enter] key to close the Mount Network Shares window.



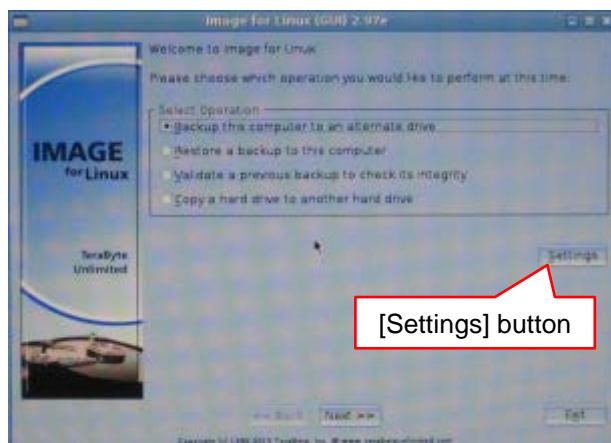
Backup Hard Disk Image

This section describes the procedures to back up the hard disk image to a network storage file system such as a NFS server by using IFL bootable CD-R.

1. If the Image for Linux (GUI) 2.97e window is displayed on the screen, skip to step 2. Otherwise, move the mouse pointer to a blank area on the desktop and right-click mouse to display the menu. Select the Image for Linux menu to display the Image for Linux (GUI) 2.97e window.

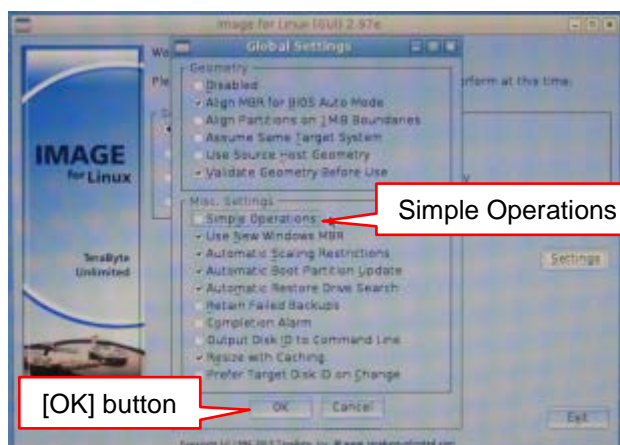


2. Click the [Settings] button.

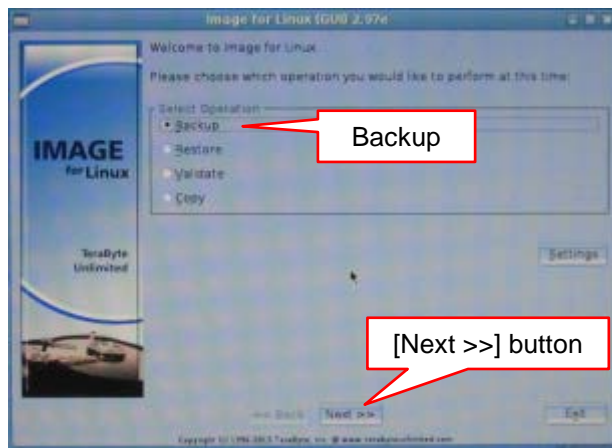


The Global Settings window pops up.

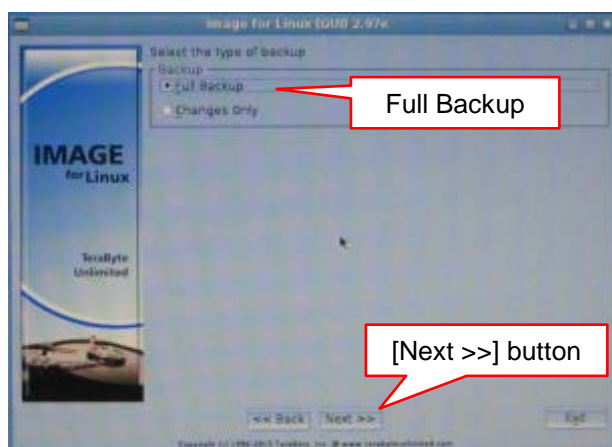
3. On the Misc. Settings area, uncheck the Simple Operation box and click [OK].



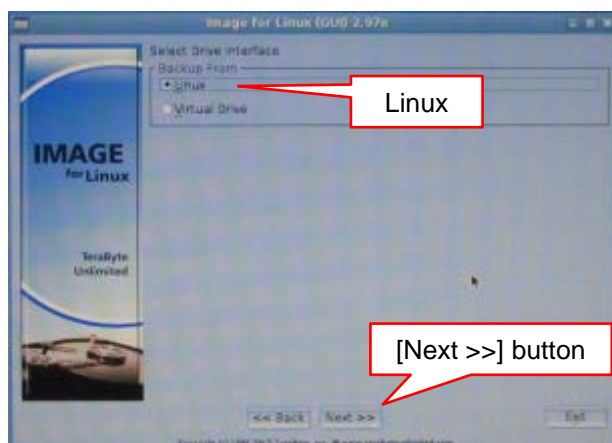
4. In Select Operation, select **Backup** and click the [Next >>] button.



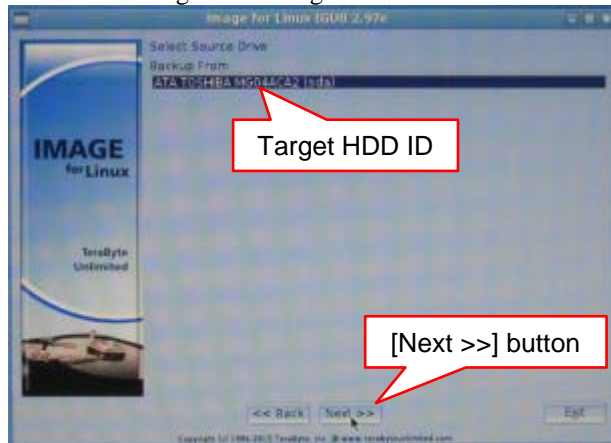
5. In the Backup area, select **Full Backup** and click the [Next >>] button.



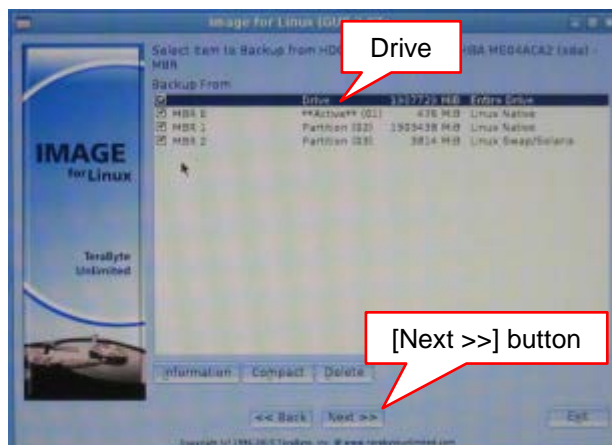
6. Confirm Linux selection in the Backup From area and click the [Next >>] button.



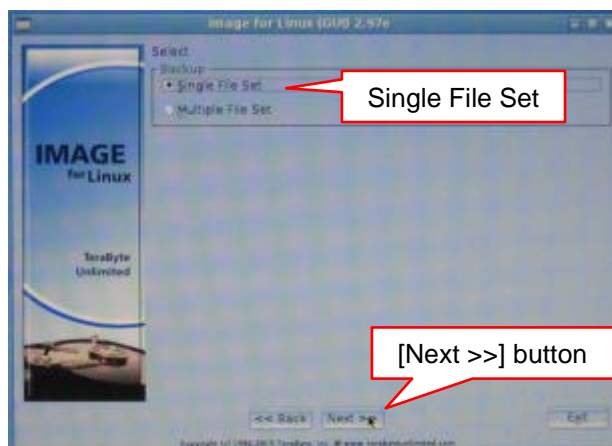
7. After confirming that the target HDD ID is shown in the Backup From area, click the [Next >>] button.



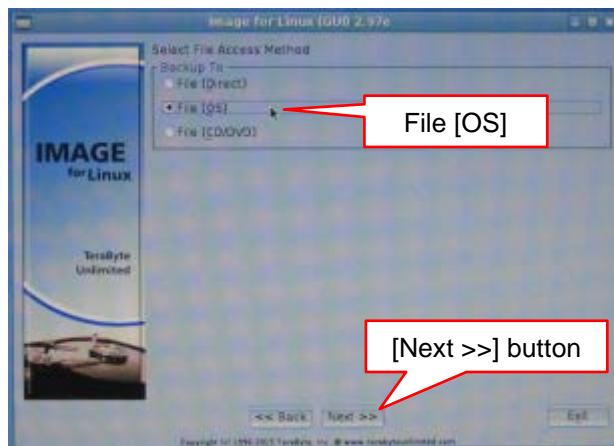
8. Enable check mark at the top row of the Drive and click the [Next >>] button.



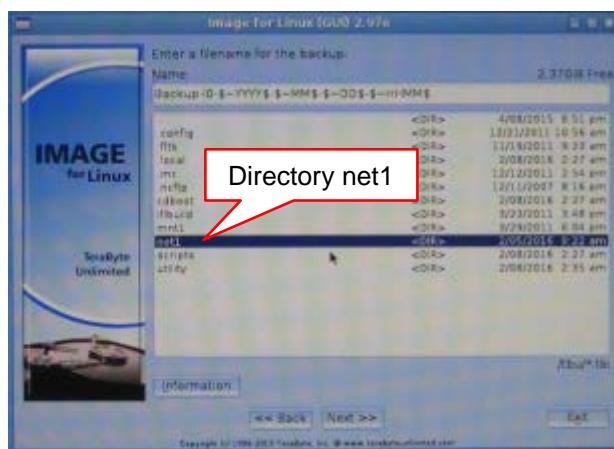
9. After confirming the Single File Set selection in the Backup area, click the [Next >>] button.



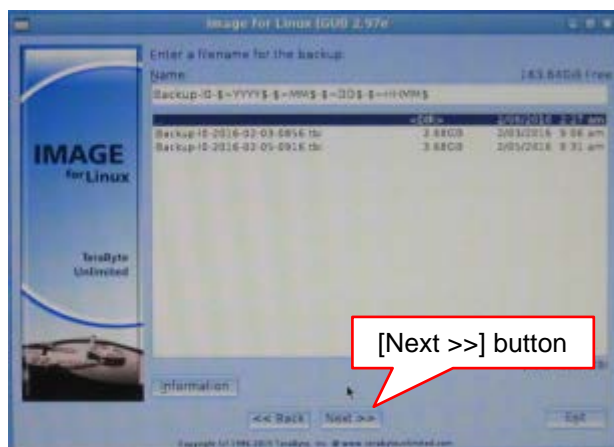
10. In the **Backup To** area, select the **File (OS)** and click the **[Next >>]** button.



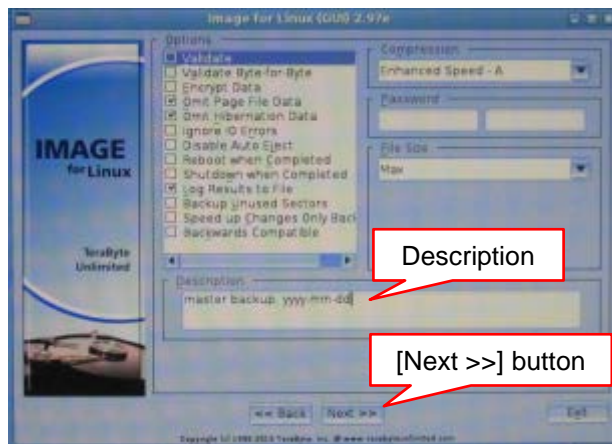
11. Select (highlight) the directory **“net1”** by clicking its row and pressing the **[Enter]** key.



12. Click the **[Next >>]** button as follows:

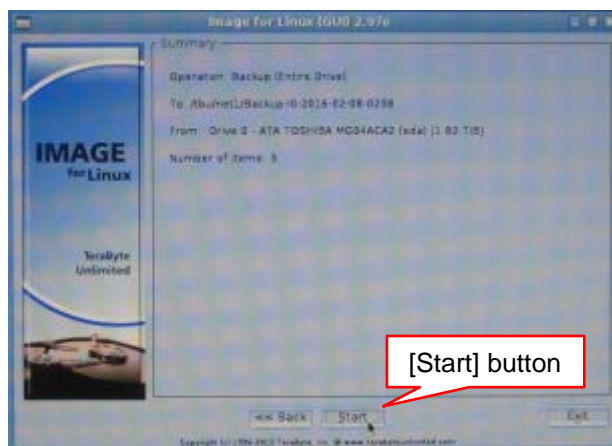


13. If necessary, enter your comments into the **Description** entry box and Click the **[Next >>]** button.



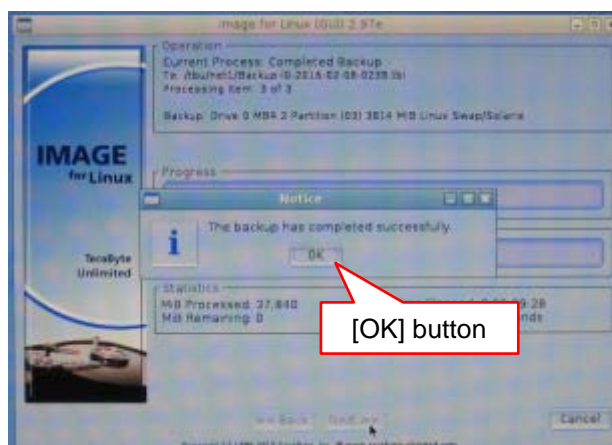
The Summary page is shown.

14. Click the **[Start]** button as shown below.

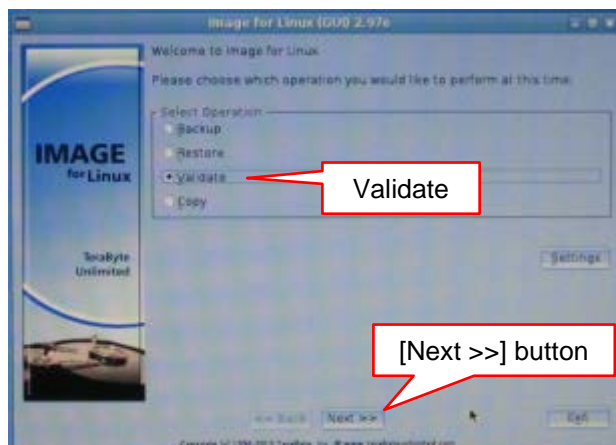


The backup process will start

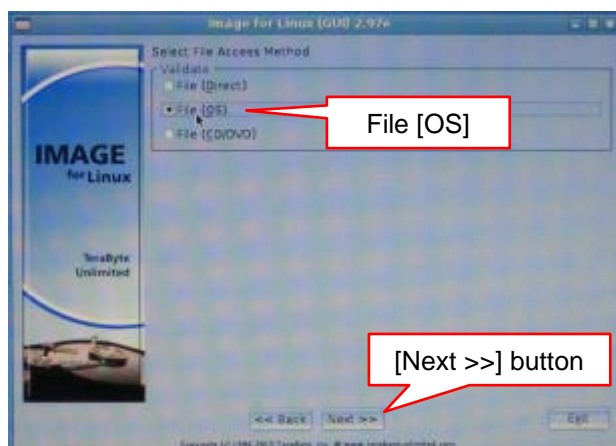
15. When the backup process finishes the **Notice** dialogue box will be displayed. Click the **[OK]** button to confirm completion.



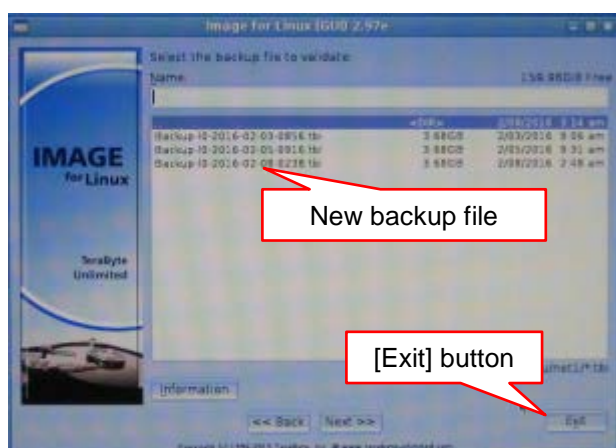
16. On the Welcome to Image for Linux page, select the Validate option in the Select Operation area and click the [Next >>] button.



17. Select the File (OS) in the Validate area and click the [Next >>] .

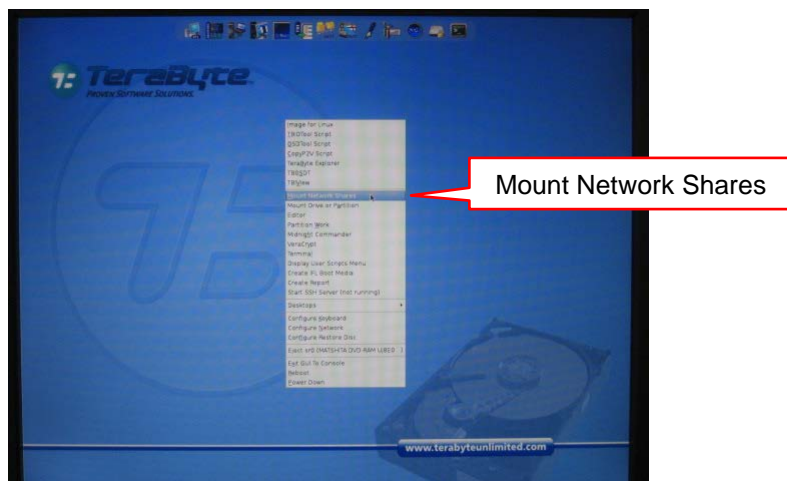


18. The Image for Linux (GUI) 2.97e page shows a list of backup images. Confirm that the new backup file has been created and click the [Exit] button.

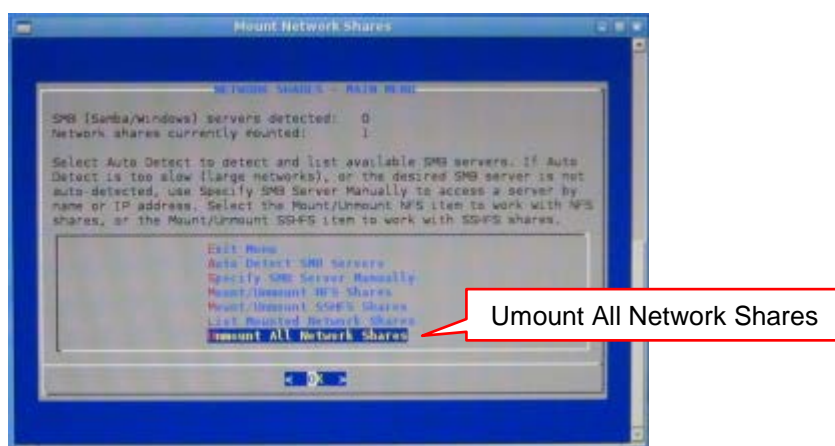


19. Press the eject button on the DVD drive, remove the IFL bootable CD-R to keep it in a safe place, and insert the empty DVD tray into the DVD drive.

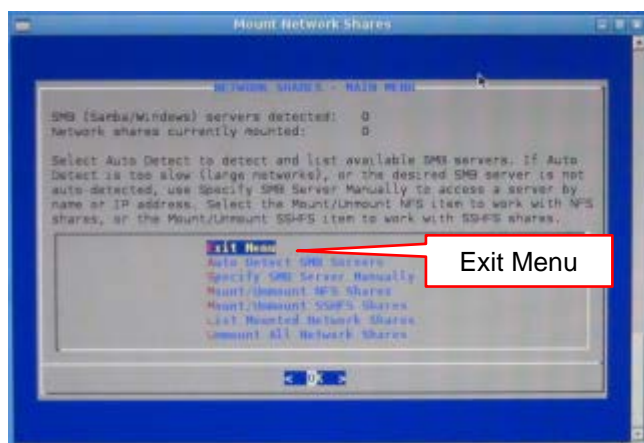
20. Move the mouse pointer to a blank area on the desktop. Right-click the mouse to display the user menu and select the Mount Network Share option.



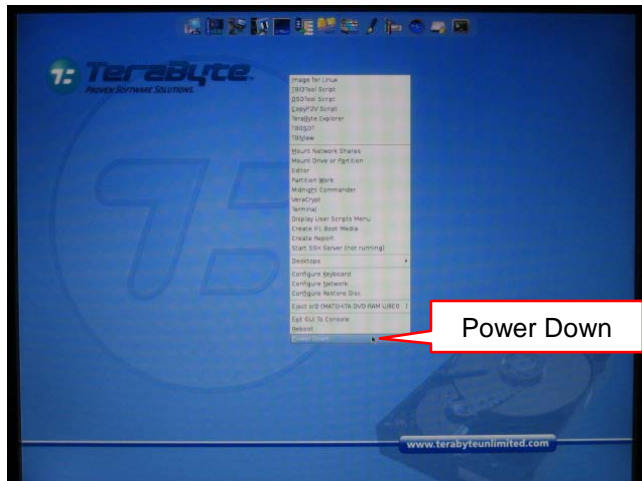
21. On the NETWORK SHARES - MAIN MENU page, move the highlighted field pointer to “Umount All Network Shares” by using the up and down arrow keys. Press the [Enter] key.



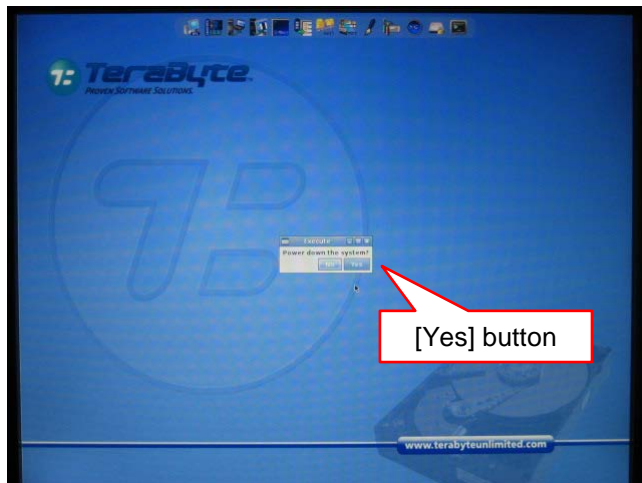
22. After confirming the “Exit Menu” option on the NETWORK SHARES - MAIN MENU page, press the [Enter] key. Then the Mount Network Shares window will close.



23. Click the right-button on the desktop and select the **Power Down** menu. The **Execute** display window will be shown.



24. Click the [Yes] button. The controller will shut down and turn off.

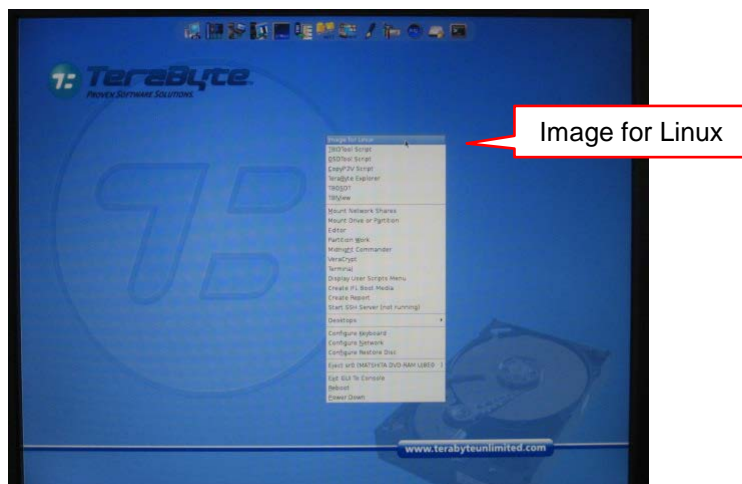


Recover Hard Disk Image

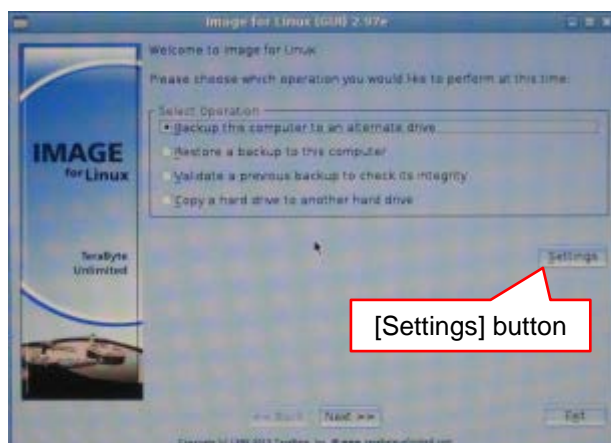
This section describes the procedures to recover the hard disk image from a backup file stored on a network storage system such as a NFS server by using IFL bootable CD-R.

Please ensure that the steps in the “Configure Network and Mount an NFS Storage” section are complete before recovering from an image.

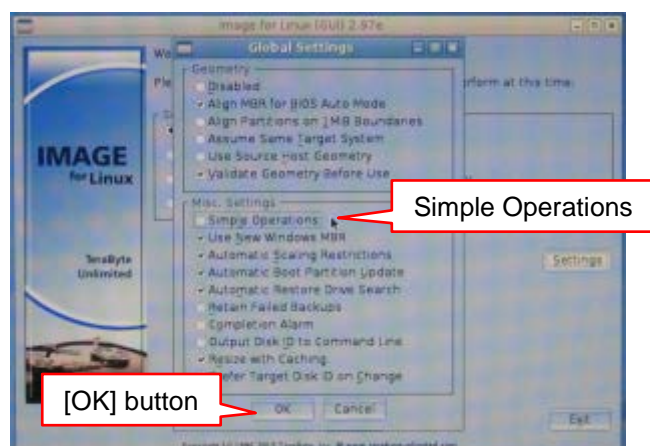
1. If the Image for Linux (GUI) 2.97e window is displayed on the screen, skip to step 2. Otherwise, move the mouse pointer to a blank area on the desktop and right-click mouse to display the menu. Select the Image for Linux menu to display the Image for Linux (GUI) 2.97e window.



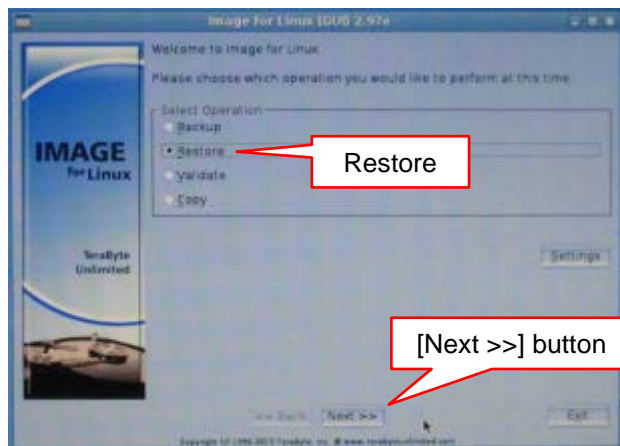
2. Click the [Settings] button.



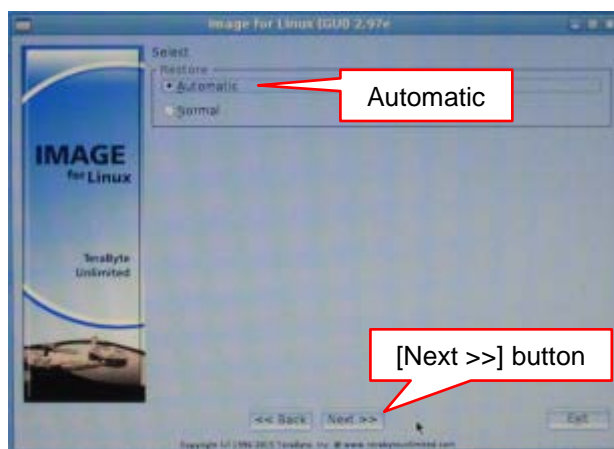
3. On the Global Settings window, uncheck the Simple Operations option on the Misc. Settings area. Click the [OK] button.



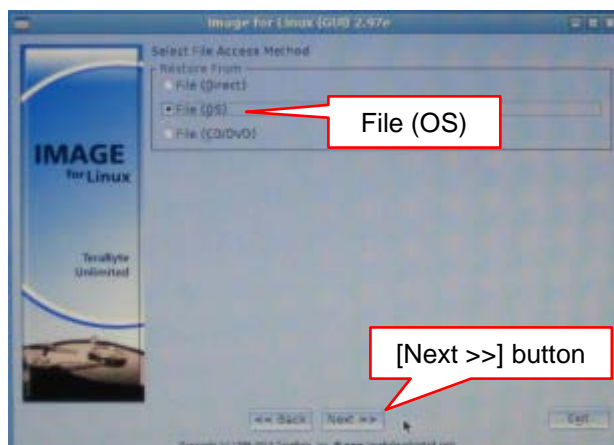
4. In the Select Operation page, select the Restore option and click the [Next >>] button.



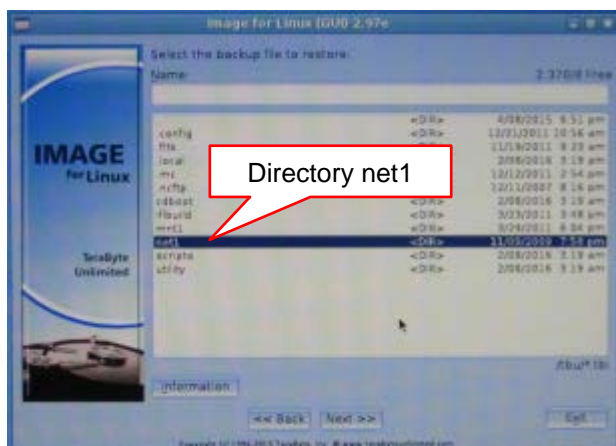
5. In the Restore area, select the Automatic option and click [Next >>].



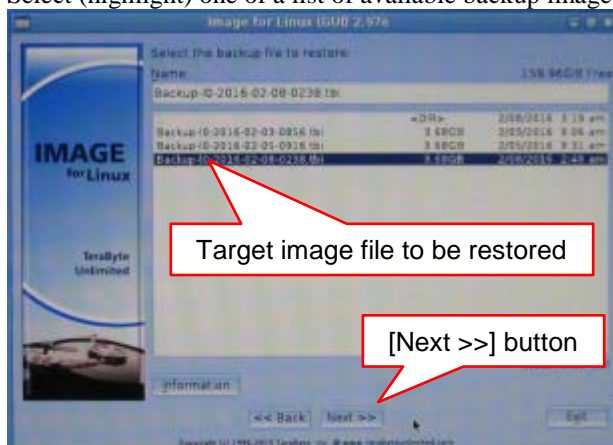
6. In the Restore From area, select File (OS) and click the [Next >>] button.



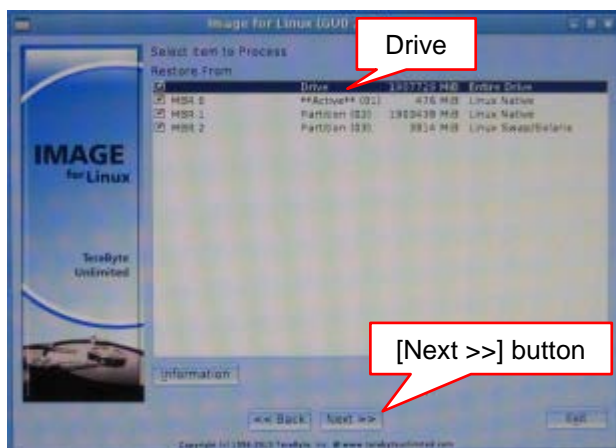
7. Select (highlight) the directory “net1” by clicking on its row and pressing the [Enter] key.



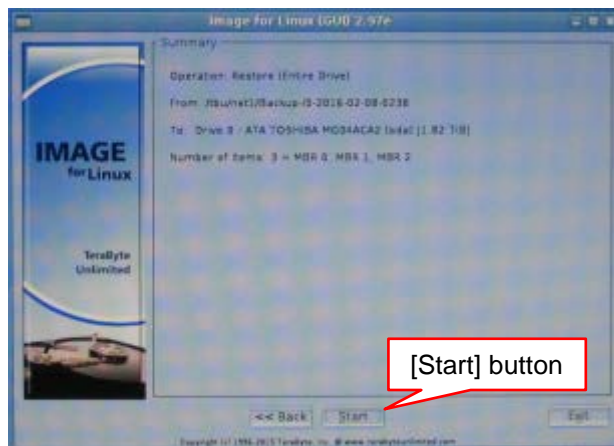
8. Select (highlight) one of a list of available backup images by clicking on its row. Click the [Next >>] button.



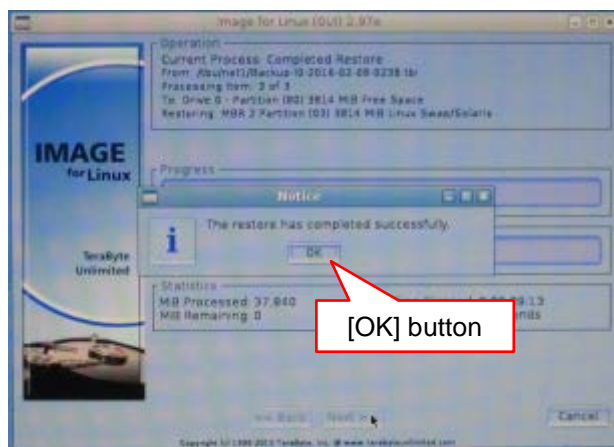
9. Select the check mark on the top row of the Drive and click the [Next >>] button.



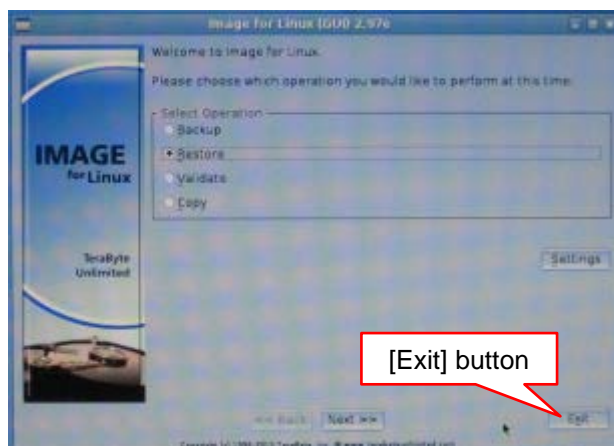
10. A Summary window will be shown prior to restoring. Click the [Start] button to start the restore process.



11. When the disk restore is complete, the Notice dialog box will be shown on the screen. Click the [OK] button to acknowledge completion.



12. Click the [Exit] button. The Image for Linux (GUI) 2.97e window will close.



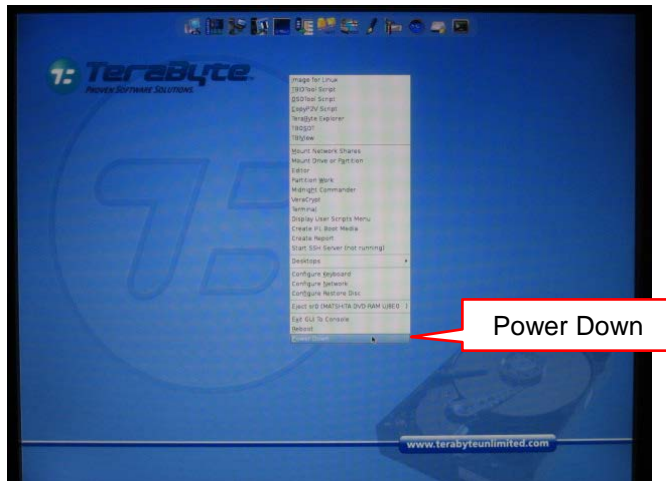
13. Press the eject button on the DVD drive and remove the IFL bootable CD-R. Store the IFL bootable CD-R in a safe place.

- [illegible]

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- Mount Network Shares - MAIN MENU
- SMB (Samba/Windows) servers detected: 0
 Network shares currently mounted: 1
- Select Auto Detect to detect and list available SMB servers. If Auto Detect is too slow (large networks), or the desired SMB server is not auto-detected, use Specify SMB Server Manually to access a server by name or IP address. Select the Mount/Unmount NFS item to work with NFS shares, or the Mount/Unmount Samba item to work with Samba shares.
- Exit Menu
 - Auto Detect SMB Servers
 - Specify SMB Server Manually
 - Mount/Unmount NFS Shares
 - Mount/Unmount Samba Shares
 - List Mounted Network Shares
 - Unmount All Network Shares
- Unmount All Network Shares

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- Mount Network Shares - MAIN MENU
- SMB (Samba/Windows) servers detected: 0
 Network shares currently mounted: 0
- Select Auto Detect to detect and list available SMB servers. If Auto Detect is too slow (large networks), or the desired SMB server is not auto-detected, use Specify SMB Server. Manually to access a server by name or IP address. Select the Mount/Unmount NFS item to work with NFS shares, or the Mount/Unmount SSHFS item to work with SSHFS shares.
- Exit Menu**
- Auto Detect SMB Servers
 - Specify SMB Server Manually
 - Mount/Unmount NFS Shares
 - Mount/Unmount SSHFS Shares
 - List Mounted Network Shares
 - Unmount All Network Shares
- Exit Menu

17. Click the right-button on the desktop and select the **Power Down** menu. The **Execute** pop-up window will be shown.



18. Click the [Yes] button to shut down and power off the controller.

