

Topic
VNX with MCx Miscellaneous Procedures
Selections
VNX with MCx Miscellaneous Procedures: Reimage/Backrev array (DESTRUCTIVE DATA-LOSS)

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VNX with MCx: Reimage to Factory Fresh and/or Backrev the Block OE (Destructive Reimage Procedure)

WARNING: This document contains destructive procedures and will delete all data from the array!

The tasks in this procedure should only be used by experienced Support personnel. Use this procedure if you need to reset the array back to “Factory Fresh” so it can be re-initialized, backrev the array to a previous Block OE, or re-image to a specific Block OE version.

→ This procedure will delete all data from the array. ←

This procedure currently applies to VNX with MCx only.

Obtain Required Cables

For your service laptop or management station connection, obtain the cable best suited to your needs:

For Serial Port Connections- Connect your laptop or Management Station directly to the array’s serial port using a Micro DB-9 serial cable, P/N **038-003-084**. Attach the female DB-9 connector end to the laptop serial port and the Micro DB-9 connector end to the array serial port.

For USB Port Connections- If your laptop does not have a serial port, use a USB to DB9 serial adapter cable or similar along with P/N **038-003-084**. Refer to CablesToGO (model 26886) for a description of this USB adapter cable

http://www.cablestogo.com/product.asp?cat_id=101&sku=26886

Task 1: Setup HyperTerminal to break into the UtilityPartition

Note: If you use PuTTY, please see the How To doc in the VNX PG for setting up and using PuTTY titled: “Connect CLARiiON VNX Storage processors using a serial cable and PuTTY.”

1. [] Connect a serial cable from a service laptop or management station COM port to the maintenance serial port on Storage Processor A (SPA) or Storage Processor B (SPB).
2. [] Open HyperTerminal. Create and name your new connection.
3. [] Select a COM port (Check Device Manager as noted below to find the available COM ports).
Click Ok

Note: When using a USB to Serial cable, check that the port is correctly recognized and note down the COM port number. This can be done via **Computer Management > Device Manager** (Figure 1). (Please, be aware that the USB to Serial cable may get a different COM port number assignment each time it is used.)

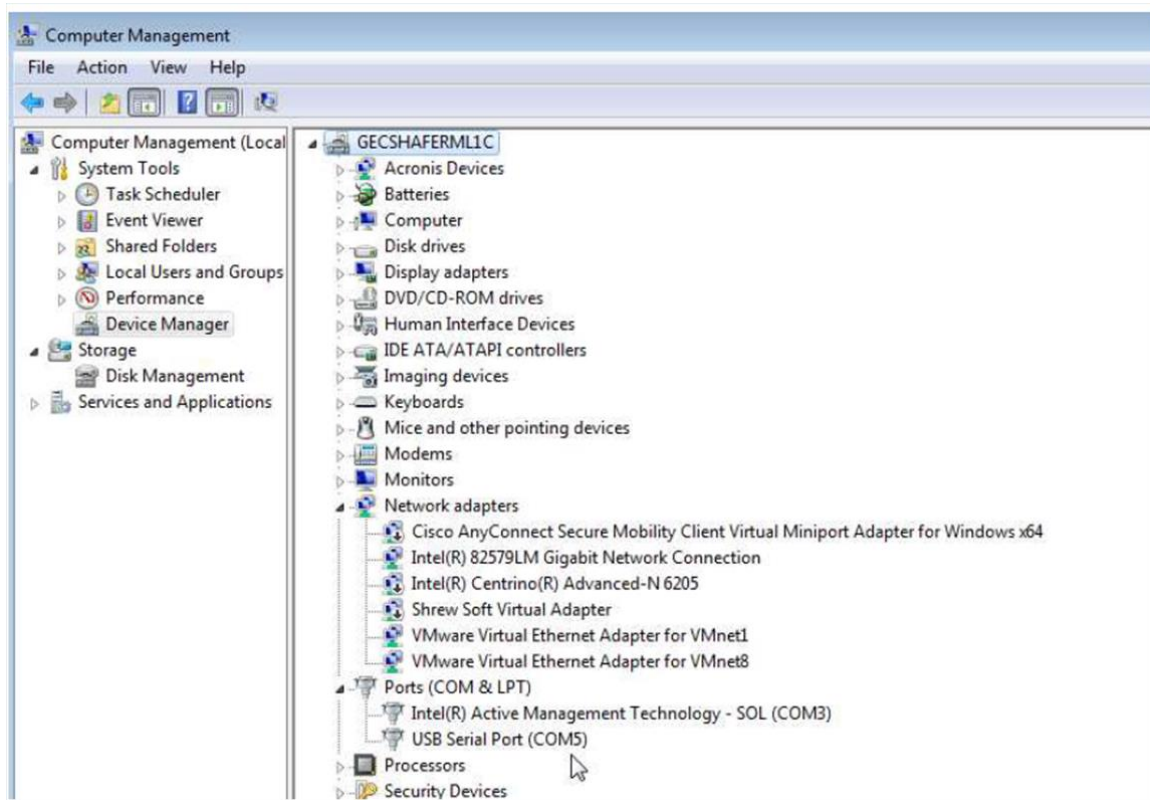


Figure 1 Computer Management>Device Manager

4. [] Enter the HyperTerminal COM Port properties listed below in Figure 2 and click OK.

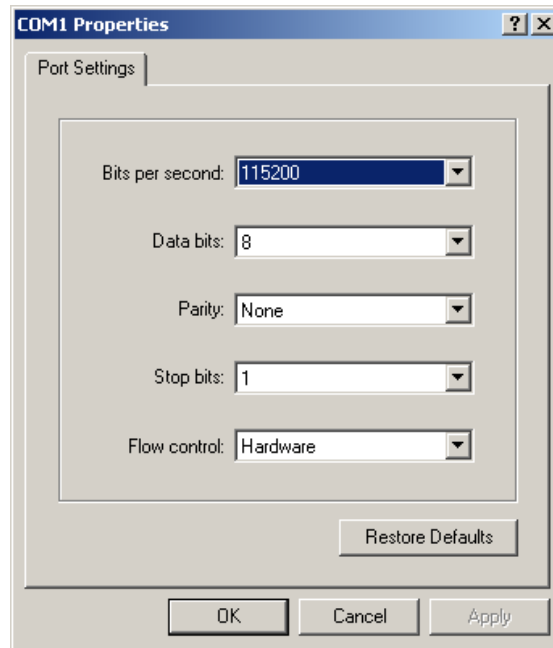


Figure 2 COM Port properties settings

Note: The Bits per Second (BPS) has changed for VNX5200-8000 series with MCx. The Example shown above is for a VNX with MCx array.

VNX with MCx uses a BPS of 115200

All FLARE based arrays use a BPS of 9600

5. [] To set the Settings properties below, select and open the New Connection you made. (It should be open by default) Go to File and choose Properties. Click on the Settings tab.
6. [] Select the properties settings as shown in Figure 3:

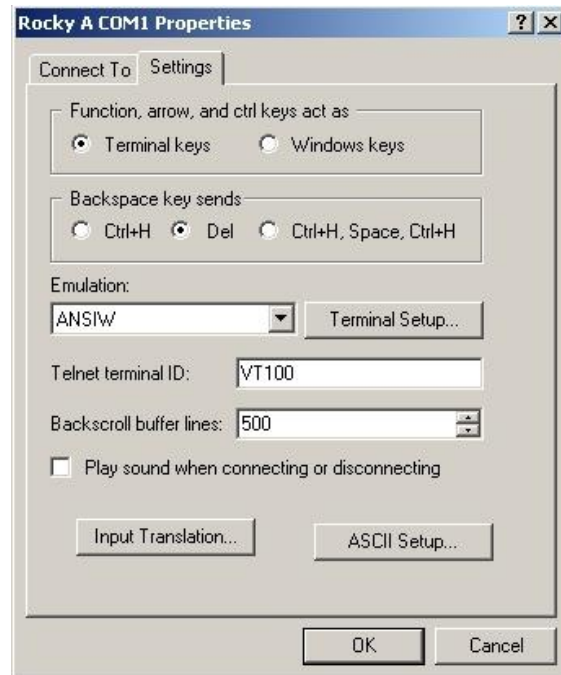


Figure 3 HyperTerminal Settings

7. [] Capture the boot process by turning on HyperTerminal logging.
8. [] Select **Transfer** and **Capture Text** in the HyperTerminal dropdown menu (Figure 4)
9. [] To stop the text capture, select Capture again and choose either Stop or Pause.

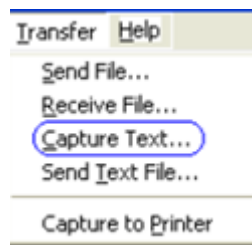


Figure 4 HyperTerminal Text Capture

This log will be required for Triage if an issue occurs that requires escalation.

Task 2: Serial cable and network connections to perform the reimage

Cable the laptop or management station as shown in Figure 5. You will need to have both SPs connected from the Management LAN ports to the Customer LAN, your Laptop or Management Station connected to the Customers LAN and a serial cable going to an SP.

Note: If you do not have 2 COM ports to go to each Storage Processor's Serial ports, you will need to swap cables after the initial SP has been reimaged.

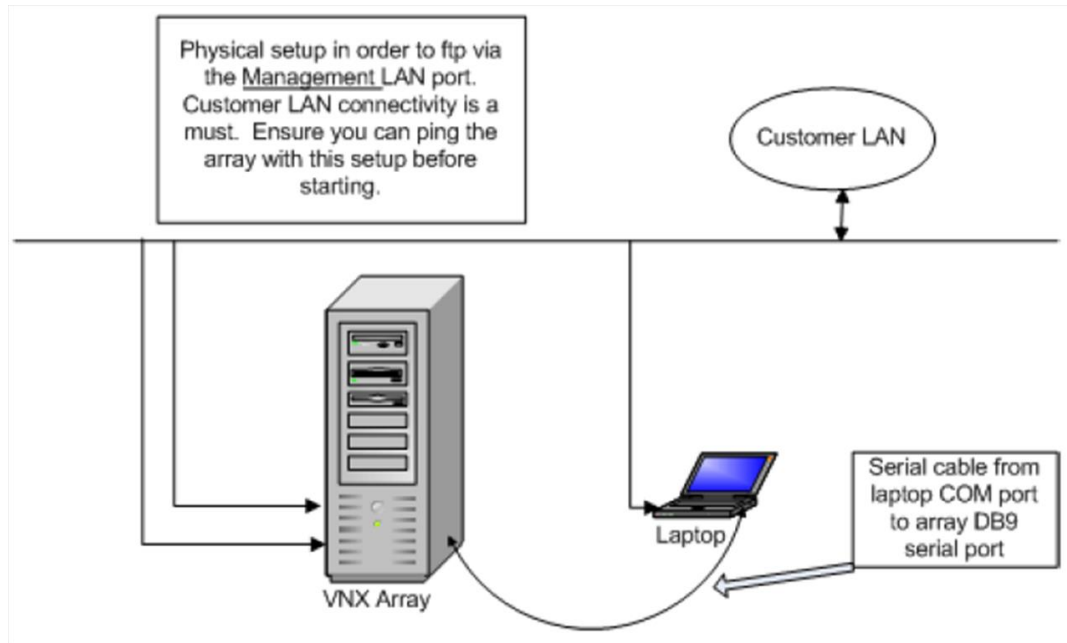


Figure 5 Physical cabling to connect to the array

Task 3: Disrupt the normal Boot Process to launch the Utility Partition

1. [] Begin with a powered up and fault free array. BOTH Storage Processors are installed in the array.
2. [] When all of your cabling is setup and your HyperTerminal or terminal emulator is ready, reseal or reboot one of the Storage Processors.
3. [] If the SP is currently installed, use Unisphere Manager and right-click on the icon of the SP that needs to be re-imaged and select **Reboot**, or simply reseal the SP.
4. [] The SP will begin a reboot.

Note: Do not use ESC to interrupt POST because this terminates POST before the self-tests are run, and some of these self-tests are critical for a successful boot.

5. [] Monitor the boot sequence (BIOS and POST tests) and when the string of alpha characters (EX: ABCDabcEabc) appear, enter the: **Ctrl/C** key sequence.
6. [] POST prints "**<< Stopping after POST >>**" when the interrupt key sequence is accepted, and then will complete all self tests before stopping.

Note: Any errors reported from POST must be resolved prior to continuing the conversion process.

Sample Reboot Screen capture

Initial Boot #1 - break into POST and Launch Utility Partition

```
Copyright (c) EMC Corporation , 2013
Disk Array Subsystem Controller
Model: Jetfire: Clariion
DiagName: Extended POST
```

```

DiagRev: Rev 40.41
Build Date: Wed Jun 12 04:30:38 2013
BiosRev: 06.60
UEFIWVolRev: Rev 04.51
BMCMainAppRev: 10.09
BMCSSPRev: 03.60
BMCEMCBBRev: 01.40
StartTime: 09/03/2013 13:16:34
SaSerialNo: CF2V4125200xxx

```

```

ABCdabcEabcdeFabcdeFGabcdeHIabJKab << Stopping after POST >>
cdLabMabcdNOabPabcdQabcRabSTUVWXYZAABBCCDDEEFFGGHHIIJJKKLLMMabNNOOPPQQRRSSTTUUabVVa
bWwAbXXabYYabZZAAABBBCCcabDDDEEEFFGGGgabHHHIIJJJKKKabLLLMMNNNOOPPQQRRRabSSSTTT
UUUVVWWWabXXYYZZZAAAABBBBCCCCDDDEEEFFFGGGHHHHIIJJJKKKK

```

```

*****
*                               Extended POST Messages
*****

```

```

INFORMATION: POST Start
*****
EndTime: 09/03/2013 13:17:46

```

.... Storage System Failure - Contact your Service Representative ...

7. [] Following the returned output Contact your Service Representative, type:

```
recover
```

8. [] Then hit **Enter**.

9. [] The Utility Partition will begin to install itself and you will see the following output:

```

Launching Utility Partition from POST

Resetting Storage Processor (EfiResetCold)...

```

Task 4: The Utility Partition Boot

1. [] The Utility Partition (UP) images for VNX are distributed in a generic form usable by any VNX platform and are unique to each major code release. R31 requires an R31 Utility Partition, R32 requires an R32 UP, R33 requires an R33 UP etc. When the Utility Partition is booted into for the first time on an SP, the generic image is customized to the particular Storage Processor /Array Model in what is called a MiniSetup process. Basically it is an executable that is installed at that time. The result is a customized Utility Partition for that particular SP/Array model.

Note: If you are ever in doubt as to what version Utility Partition you are on, especially if the array was upgraded to a new major release, you should always install the latest Utility Partition.

This initial launch to install the Utility Partition requires **3 extra** reboots for a total of 4 reboots. **This procedure assumes the Utility Partition is being launched for the first time.**

If the Utility Partition had been run before for a previous service event then it will not need to be installed again. After entering <Ctrl/C> and typing in **recover**, the Utility Partition will appear after a single reboot.

2. [] If the Utility Partition image needs this first-time processing, it will stop after the POST testing is done to prepare for MiniSetup. **Do not manually interrupt POST with Ctrl/C again.** Just let it run.

Note: The `recover` CLI command can be used any time after stopping in POST to request a direct Utility Partition boot. It bypasses the Diagnostic Menu and the DDBS Service Sub-Menu to go directly to a Utility Partition boot.

3. [] A second boot to the Utility Partition will be initiated at this time. The boot process will look normal but please be patient and allow the install to run. The array will reboot after approximately 5 minutes.

Sample Reboot Screen capture:

Boot #2

```
Copyright (c) EMC Corporation , 2013
Disk Array Subsystem Controller
Model: Jetfire: Clariion
DiagName: Extended POST
DiagRev: Rev 40.41
Build Date: Wed Jun 12 04:30:38 2013
BiosRev: 06.60
UEFIFWVolRev: Rev 04.51
BMCMaInAppRev: 10.09
BMCSsPRev: 03.60
BMCEmCBbRev: 01.40
StartTime: 09/03/2013 13:21:16
SaSerialNo: CF2V4125200xxx
```

```
ABCDabcEabcdefFabcdefGabcdefHIabJKabcdLabMabcdNOabPabcdQabcRabSTUVWXYZAABBCCDDEEFFG
GHHIIJJKKLLMMabNNOOPPQQRRSSTTUUabVVabWWabXXabYYabZZAAABBBCCCabDDDEEEFFFGGGabHHHIIIJ
JJKKkabLLLMMNNNOOPPQQRRRabSSSTTUUVVVVWWabXXXYYYZZZAAAABBBBCCCCDDDEEEFFFGGG
GHHHHIIIIJJJKKKK
```

```
*****
*                               Extended POST Messages
*****
```

```
INFORMATION: POST Start
*****
```

```
EMC Extended POST End: 09/03/2013 13:23:34
*****
```

4. [] A third reboot will occur if the Utility partition has not been broken into before. Allow this reboot to finish as well. Be patient as this may also take several minutes.

Boot #3

```
Copyright (c) EMC Corporation , 2013
Disk Array Subsystem Controller
Model: Jetfire: Clariion
DiagName: Extended POST
DiagRev: Rev 40.41
Build Date: Wed Jun 12 04:30:38 2013
BiosRev: 06.60
UEFIFWVolRev: Rev 04.51
BMCMaInAppRev: 10.09
BMCSsPRev: 03.60
BMCEmCBbRev: 01.40
StartTime: 09/03/2013 13:25:22
```

SaSerialNo: CF2V4125200xxx

ABCDAbcEabcdeFabcdeFGabcdeFHIabJKabcdLabMabcdNOabPabcdQabcRabSTUVWXYZAABBCCDDEEFFG
GHIIJJKKLLMMNNOOPPQRRSSTTUUVVWVWabXXYYZZAAABBBabCCDDDEEEFFFGGGHHIIIIJJKKLLMMMN
NNOO

* Extended POST Messages

Note: You may or may not see these I/O card messages as they scroll by fast. Do not be alarmed as this is normal.

```
INFORMATION: POST Start
INFORMATION: I/O Card 0 held in RESET
INFORMATION: I/O Card 0 Power Up disabled
INFORMATION: I/O Card 1 held in RESET
INFORMATION: I/O Card 1 Power Up disabled
INFORMATION: I/O Card 2 held in RESET
INFORMATION: I/O Card 2 Power Up disabled
INFORMATION: I/O Card 3 held in RESET
INFORMATION: I/O Card 3 Power Up disabled
INFORMATION: I/O Card 4 held in RESET
INFORMATION: I/O Card 4 Power Up disabled
*****
```

5. [] It will now boot a fourth time (Boot info not shown) and then you will see the following:

Note: Do not enter any keystrokes during this process. Do not hit **Enter** or touch the keyboard. Doing so may by default say no to a question concerning loading older code revisions.

```
Sample Screen capture
(c) EMC Corporation 2001-2004 All Rights Reserved
DiagName: ICA::UtilityFrontEnd
StartTime: 09/03/13 13:35:40

OS Type.....Win2k8
SPID.....Running
ASIDC.....Running
ASIRAMDisk.....Running
ICA.....Running
FileZilla Server.....Running
Connecting to ICA.....Success
SP Type.....VNX5600
SP ID.....A
SP Signature.....0x08291955
Revision.....05.33.000.5.002
Press any key in the next 5 seconds to enter safe mode.
Checking Image Repository.....
    ICA::IRFS Checking Volume for consistency
Sizing Image Repository.....10240 MB
Sizing RAM Disk.....4079 MB
Management Port Discovery.....Found
Waiting for Netconf.....Done
Discovering Management LAN Port...ManagementPort0
Checking LAN Port State.....Configured
Checking LAN Port Config.....No Configuration File Found
Existing LAN Port Configuration...Not Valid
Creating Parameter class.....Success
```

```
Creating CT Server class.....Success
Loading Plugins.....Done
```

6. [] The first thing that occurs is a check against the Image Repository. If the Utility Partition finds images older than what it is currently running, it will present you with a WARNING: These files will get deleted after answering Yes to the question below:

Sample Screen capture:

```
!!! WARNING !!!
=====
Installing a Recovery Image or Conversion Image from a release older than Release
33 or a Recovery Image with a hardware type other than 000 on this array may result
in permanent, unrecoverable loss of configuration information and customer data.

Please also be advised that a platform conversion cannot be accomplished by only
installing a Conversion Image; please utilize the CLARiiON Procedure Generator for
complete instructions regarding performing platform conversions.

The following images have been automatically removed from this array's Image
Repository to prevent accidental installation:
  VNX_Multi-Core_RAID-05.33.000.3.709.mif (VNX Multi-Core RAID 05.33.000.3.709)
  VNX2-MCR-05.33.000.3.593.mif (VNX Multi-Core RAID 05.33.000.3.593)
  890B070D-0510-4F7E-A3C1-18FB50878F44-0.iis
  " " " "
  890B070D-0510-4F7E-A3C1-18FB50878F44-9.iis

Have you read and understood the warning above? y/n [n] y
```

7. [] Select **y** and press **Enter**

You will upload the proper file later in this procedure. As you can see – older versions of code are identified and removed. (INFORMATION: The above images deleted were engineering (.3) pre-GA code revisions.)

Task 5: Check for and/or Select Recovery Images to install

Check to see if the Utility Partition has a recovery image for your current Block OE.

1. [] The CLARiiON Utility Toolkit Main Menu is displayed:

```
CLARiiON Utility Toolkit Main Menu
=====
1) About the Utility Toolkit
2) About this Array
3) Reset Storage Processor
4) Image Repository Sub-Menu
5) Plugin Sub-Menu
6) NVRAM Sub-Menu
7) SPECL Sub-Menu
8) View LAN Service Port Settings
9) Network Diagnostic Tools
10) Enable Engineering Mode
11) Install Images to Recover OS
12) Save Logs

Enter Option: 11
```

2. [] Select **Install Images to Recover OS**, option 11 and press **Enter**.

3. [] The **Select Images to Install** screen will appear.

Sample output:

```
Select Images to Install
=====
1) ICA_UTILITY_PARTITION_REGION 05.33.000.5.015
2) VNX Multi-Core RAID 05.33.000.5.015
3) Back to the Main Menu
```

4. [] If the Block OE image you require is listed, STOP HERE and go to Task 8: Enable Engineering mode.
5. [] If the **No Images to Install** (Figure 6) screen appears or you do not have the correct version of Block OE to reimage with, you will need to ftp the image to the array. Press **Enter** to continue on.

```
=====
Select Images to Install
=====

There are no Images available for Installation

Press the Enter key to continue
```

Figure 6 No Images to Install

6. [] Select the Main Menu in the Partition Utility and continue to the next task to ftp the recovery image.

Task 6: Set up the Management LAN port to ftp a recovery image .mif file

In order to transfer a file to the SP via ftp, you must first setup the Management LAN port.

7. [] If this is the first time the Utility Partition has been used then you will need to set the IP address of the Management Port and you will see: Enable LAN Service Port in the utility main menu list for item 8:

```
CLARiiON Utility Toolkit Main Menu
=====
1) About the Utility Toolkit
2) About this Array
3) Reset Storage Processor
4) Image Repository Sub-Menu
5) Plugin Sub-Menu
6) NVRAM Sub-Menu
7) SPECT Sub-Menu
8) Enable LAN Service Port
9) Enable Engineering Mode
10) Install Images to Recover OS
11) Save Logs

Enter Option: 8
```

IMPORTANT: When the Utility Partition menu shows: Enable LAN Service Port for item 8) in the menu list, this is incorrect. The **Management LAN port** is what actually gets enabled. Therefore you need connectivity to the Customer LAN. Verify that the Windows laptop or Management Station has an active connection to the Customer's public LAN and the Array.

However, if the UP has been run before and an IP address is already set, you instead will see in the item list for 8:

8) View Service Lan Port Settings

For this case, skip to step 13. [] below.

8. [] To enable the LAN service port, select: **8** Enable LAN Service Port Settings option and press **Enter**.
9. [] When prompted, type in the appropriate LAN Service Port settings for the SP.

Note: These settings can and should use the current IP address properties already set for that SP. Using the current SP IP address settings will prevent any conflicts with an already used IP address.

10. [] Enter the IP address info, Subnet and Gateway information. Type **y** and press **Enter** to confirm your choices.

Sample Screen capture

```

=====
Confirm Network Settings
=====
IP Address 10.14.18.10
Subnet Mask 255.255.255.0
Default Gateway 10.14.18.1
Host Name: VNX5600_SPA      ← [ Enter anything in here but you cannot leave it blank ]
Domain Name: SVTDomain     ← [ Enter anything in here but you cannot leave it blank ]

Enable LAN Service Port with these settings? y/n [y]

The LAN Service Port has been enabled
Press the Enter key to continue...

```

11. [] Answer **y** when prompted to save the LAN Port settings for future use if you know it will remain the same. Answer **n** when prompted if you do not wish to keep these settings
- The CLARiiON Utility Toolkit Main Menu is displayed.
12. [] You have now setup your Management LAN port to ftp the file to the array. Notice that the Main Menu now shows 8) View LAN Service Port Settings. You should be able to ping the SP at this point.
13. [] If, when you broke into the Utility Partition you saw: 8) View LAN Service Port Settings in the menu list, then your SP IP address is already set. Select **8** and press **Enter**.
14. [] The View LAN Service Port Settings screen displays the existing settings for the LAN service port, as shown below. Note that this is really the **Customer's Management LAN port**. You should be able to ping the SP at this point.

Sample Screen capture:

```

LAN Service Port Settings
IP Address 10.14.18.10
Subnet Mask 255.255.255.0
Default Gateway 10.14.18.1

Press the Enter key to continue

```

15. [] Write down the IP address for the SP that you will be ftp'ing the image to. You will need this information in order to FTP the recovery image file to the array. You now have all the information you need to FTP the recovery image file onto the array.
16. [] Press **Enter** to continue.
17. [] Continue to the next Task to upload the Recovery Image.

Task 7: Uploading the Image to the Storage System

Note that this procedure example is back-revving a VNX5600 at GA code 33.000.5.015 to an engineering build of 33.000.3.644 for presentation purposes.

18. [] Place the Block OE .mif file you are installing in a directory on the server/desktop/laptop that has LAN connectivity to the SP you are reimaging.
19. [] The easiest method to move the file is via ftp. On the server/desktop/laptop, open a command prompt and navigate to the directory where the .mif recovery image resides, then create an FTP connection to the SP, using **clariion1992** as the username and password:

```
c:>ftp 10.14.18.10
clariion1992
clariion1992
>bin
>hash
>put VNX Multi-Core RAID 05.33.000.3.644
```

You can also move the file using a Windows Explorer FTP client on the same server/desktop/laptop and connect to the LAN Port of the SP, using the Management LAN Port IP Address in the Path or URL line. You may need to select the **Page** menu in Internet Explorer and select **Open FTP site in Windows Explorer**.

Example: ftp:// 10.14.18.10

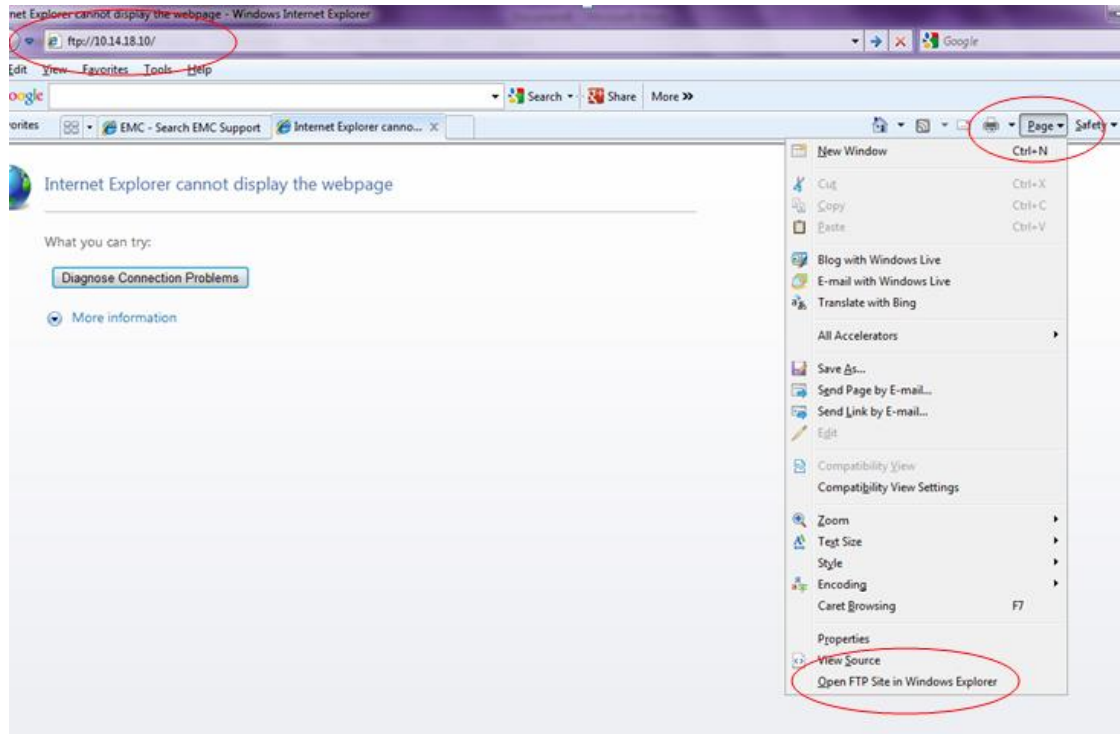


Figure 7 Uploading the file using FTP in a browser

20. [] When the FTP connection is established, a login window appears. Enter the username `clariion` and the password `clariion!` and click **Login**. If the above login fails, enter the username `clariion1992` and the password `clariion1992` and click **Login**.

Note: If you encounter an “access denied” error when logging on to the SP FTP server, remove Passive FTP from the Internet Explorer “Browsing” Options under Tools/Internet Options. For full information on this follow the Salesforce article [000035085](https://www.salesforce.com/help/000035085).

21. [] Drag/drop the `.mif` image to the ftp window previously opened.

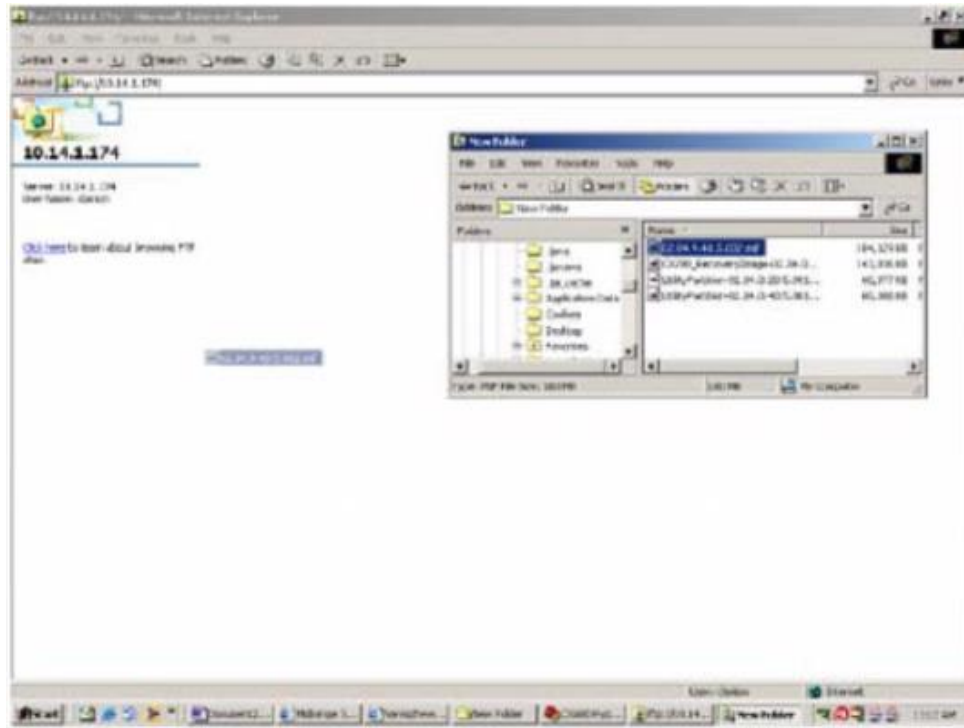


Figure 8 Browser FTP window

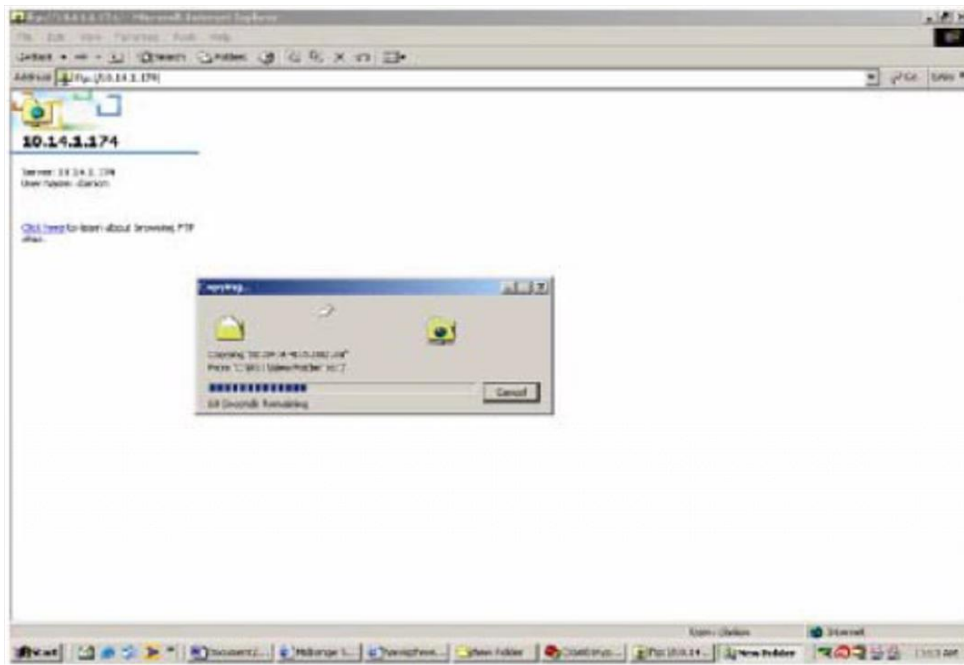


Figure 9 Browser file transfer display

22. [] The file is being transferred as shown in Figure 9 above.

23. [] The file has now been copied to the Image repository and will be seen in the List of Images.

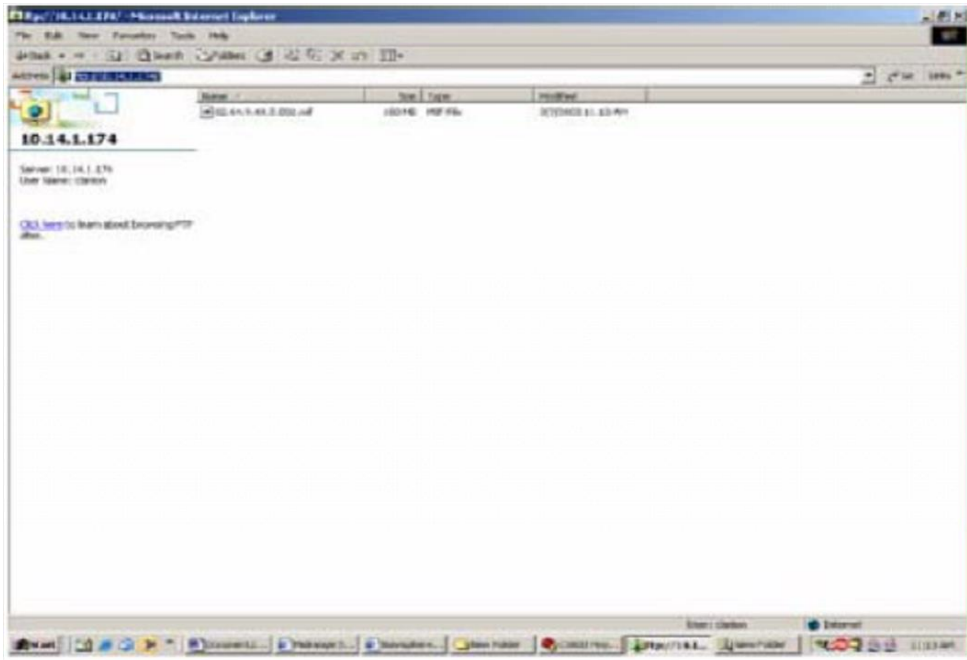


Figure 10 Browser RAM Disk display

24. [] FTPing the image file is now complete. Continue with the Backrev/Reimage process. Leave the above FTP browser window open in case of a file transfer issue. Return to the HyperTerminal or PuTTY window with the **CLARiiON Utility Toolkit Main Menu**.

25. [] After the file has been uploaded, press the **Enter** key to continue, then the following options to copy the .mif image file from the RAM Disk to the Image Repository:

```
=====
CLARiiON Utility Toolkit Main Menu
=====
4) Image Repository Sub-Menu

=====
CLARiiON Utility Toolkit Image Repository Menu
=====
Copy Files from the RAM Disk to the Image Repository
```

Note: In our testing, it was found that if you skip this step the "Install Images to Restore Factory Configuration" option will copy the file to the Image Repository automatically.

```
=====
Select files to copy to the Image Repository
=====
```

VNX Multi-Core RAID 05.33.000.3.644

Copying VNX Multi-Core RAID 05.33.000.3.644 to the Image Repository... Success
Press the Enter key to continue...

Task 8: Enable Engineering mode and install the Block OE image

26. [] From Utility Main Menu, select item **10**, Enable Engineering Mode:

```

=====
CLARiiON Utility Toolkit Main Menu
=====
1) About the Utility Toolkit
2) About this Array
3) Reset Storage Processor
4) Image Repository Sub-Menu
5) Plugin Sub-Menu
6) NVRAM Sub-Menu
7) SPECL Sub-Menu
8) View LAN Service Port Settings
9) Network Diagnostic Tools
10) Enable Engineering Mode
11) Install Images to Recover OS
12) Save Logs

Enter Option: 10

=====
Enable Engineering Mode
=====

This is an "Early Access" or General Availability build.
The static Engineering Mode password is required.

Enter the Engineering Mode Password:  *****

The password is: wombat

Engineering Mode has been enabled

```

27. [] You will now be presented with additional options on the Main Menu: Select option 14) Install Images to Restore Factory Configuration. This option is the preferred re-imaging method, and will perform an Invalidate Data Directory as part of its re-image process, (Invalidate Data Directory has been removed from the Utility Partition Menu Options)

IMPORTANT: Do not remove either Storage Processor. Leave both Storage Processors in. This procedure will place the peer SP in a post and hold. After the first SP boot following the reimage, the peer SP will then boot on its own.

```

=====
CLARiiON Utility Toolkit Main Menu
=====
1) About the Utility Toolkit
2) About this Array
3) Reset Storage Processor
4) Image Repository Sub-Menu
5) Plugin Sub-Menu
6) NVRAM Sub-Menu
7) SPECL Sub-Menu
8) View LAN Service Port Settings
9) Network Diagnostic Tools
10) Enable LAN Service Port
11) Enable Web Console
12) Disable Engineering Mode

```

- 13) Install Images to Recover OS
- 14) Install Images to Restore Factory Configuration
- 15) Save Logs

Enter Option: **14**

```
=====
Install Images with AutoConfig
=====
```

!!! W A R N I N G !!!

When installing images using AutoConfig functionality, all existing array configuration and user data will be PERMANENTLY DESTROYED!

Enter Option: **14**

```
=====
Install Images with AutoConfig
=====
```

!!! W A R N I N G !!!

When installing images using AutoConfig functionality, all existing array configuration and user data will be PERMANENTLY DESTROYED!

Do you wish to continue? y/n [n] **y** ← [Answer Yes]

```
=====
Select Images to Install
=====
```

- 1) VNX Multi-Core RAID 05.33.000.3.644
- 2) Back to the Main Menu

Enter comma separated list of options: **1** ← [05.33.000.3.644 for example]

```
=====
Select NDU Packages to Install
=====
```

There are no NDU Packages available for installation ← [Do not be confused by this. You selected a .mif file in the previous screen.]

You may transfer ndu packages to the ramdisk by opening an FTP Session
ftp://clariion1992:clariion1992@10.14.18.10/

Do you wish to continue? y/n [y] **y** ← [Answer Yes]

```
=====
Configure Network Settings for SP A
=====
```

Note: Though you can set the SP IP addresses in the following section of the reimage procedure, I have chosen not to show this info as our goal is to reset the array to "Factory Fresh" in this example.

```
=====
Configure Network Settings for SP A
=====
```

Do you wish to configure the network settings for SP A? y/n [y] **n** ← Answer No

```
=====
Configure Network Settings for SP B
=====
```

```
=====  
=====  
Configure Network Settings for SP B  
=====  
Do you wish to configure the network settings for SP B? y/n [y] n ← Answer No  
=====  
Local SP (SP B) Automatic Reboot Settings  
=====  
Would you like 'SP B' to automatically reboot after imaging completes? y/n [n] y  
← Answer Yes  
=====  
Peer SP (SP A) Automatic Reboot Settings  
=====  
Would you like 'SP A' to automatically reboot after imaging completes? y/n [y] y  
← Answer Yes  
=====  
Confirm Selections  
=====  
  
Images to be installed:  
  VNX Multi-Core RAID 05.33.000.3.644  
Packages to be installed:  
The peer SP will be Reset and held in POST during the imaging operation  
This SP will automatically reboot when imaging completes  
The peer SP will automatically reboot when imaging completes  
Is this information correct? y/n [n] y ← Answer Yes  
  
Rebooting and holding peer SP in POST.  
=====  
Checking disk status...  
=====  
Disk 0 Present  
Disk 1 Present  
Disk 2 Present  
Disk 3 Present  
Disk 4 Present  
Disk 5 Present  
Disk 6 Present  
Disk 7 Present  
Disk 8 Present  
Disk 9 Present  
Disk 10 Present  
Disk 11 Present  
Disk 12 Not Present  
Disk 13 Not Present  
Disk 14 Not Present  
Disk 15 Not Present  
  
Installing VNX Multi-Core RAID 05.33.000.3.644 for transformers_family (Part 1  
of 10)  
0%..10%..20%..30%..40%..50%..60%..70%..80%..90%..100%  
|----|----|----|----|----|----|----|----|----|----|  
*****  
The COPY operation has completed successfully.  
  
Installing VNX Multi-Core RAID 05.33.000.3.644 for transformers_family (Part 2  
of 10)  
0%..10%..20%..30%..40%..50%..60%..70%..80%..90%..100%  
|----|----|----|----|----|----|----|----|----|----|  
*****  
The COPY operation has completed successfully.
```

28. [] Depending on the Block OE version, there are multiple images to copy and install. In this case there are 10 parts. At the end of the initial install you will also see firmware, Bios, post and other SW updates.

Sample Screen Capture:

```
Installing Megatron GPS 05.33 for transformers_family
0%..10%..20%..30%..40%..50%..60%..70%..80%..90%..100%
|----|----|----|----|----|----|----|----|----|----|
*****
The COPY operation has completed successfully.
```

```
Checking disks for DDMI.....
Checking Disk 0_0_0.....Present
Checking Disk 0_0_1.....Present
Checking Disk 0_0_2.....Present
Checking Disk 0_0_3.....Present
Zeroing DDMI.....Done
```

```
Checking disks for FRU Signatures..
Checking Disk 0_0_0.....Present
Checking Disk 0_0_1.....Present
Checking Disk 0_0_2.....Present
Checking Disk 0_0_3.....Present
Zeroing FRU Signatures.....Done
```

```
Rebooting peer SP.
Requesting System Reset
```

29. [] If you selected: Would you like 'SP A' to automatically reboot after imaging completes? y/n [y] **y** The array will automatically reboot. The peer SP will begin its process.
30. [] If you did not select this, you will need to go back to the Main Menu and reboot the SP by selecting the Reset Storage Processor option:

```
=====
CLARiion Utility Toolkit Main Menu
=====
```

```
3) Reset Storage Processor
```

SP A will reboot a number of times, (our **test-lab array booted 7 times**) and after about 90 minutes, should come up with a normal power LED to indicate normal operation.

31. [] After all reboots are completed, you should see a line similar to the following on the Serial Console of the SPs:

```
"      "      "      "      "      "
SASPMC 0 (SAS0) UEFI block reads performed 2304
SASPMC 0 (SAS0) UEFI block reads performed 2432
SASPMC 0 (SAS0) UEFI block reads performed 2560
SASPMC 0 (SAS0) UEFI block reads performed 2688 ← This number will always change
depending on the array and code revision..
```

Post Reimaging Tasks

The array is now in a condition that is similar to the way it ships from EMC manufacturing. It has the full bundle loaded, the IP addresses have been reset and it has no Block enabler or enablers for SnapView, MirrorView, or SAN Copy loaded. These must be loaded after the array is fully initialized.

32. [] For obvious reasons the arrays SPs will no longer be pingable. You will now need to reinitialize the array. That procedure is not covered here. Please use the Unisphere Initialization Wizard to reinitialize the array. Follow any health check procedures which are part of the array installation process.

33. [] You MUST now update the array to the latest VNX with MCx Block OE bundle available for the release you have just installed. DO NOT leave the array at the revision of the back-rev. The latest bundle.ndu packages can be found on the GS Website or the EMC Services Web via PowerLink.

SPECIAL CASES: The customer may be code locked and the array may need to be left at a lower code revision than what is currently available for the release of code you rolled back to.

34. [] Ensure compatibility where all Host Agents are compatible with the array software you just installed. A Host Agent cannot run a higher version of VNX with MCx Block OE than the SP Agent in the array to which the host is connected. The Host Agent can run a VNX with MCx Block OE version equal to or one version lower than the VNX with MCx Block OE version that the SP Agent is running.

Ensure that all host applications, such as `admsnap` and `admhost`, are running the same revision. All host applications must be running the same revision in order to be compatible with one another.