**Windows 2008 Restore Process**

This document caters to a virtual setting and assumes you are restoring SAPS01 (s01) on Vhost01 (x01). This process may be used to restore a physical box, as well. However, adjustments must be made in the areas of ISO mounting, etc. that don’t make sense for physical server restores.

Please change the hostname of the vhost and guest where applicable.

1. From the NAS, use Putty to ‘secure copy’ two files to the vhost (can be done simultaneously using two separate windows). Run:

C:\Progra~1\Putty\pscp.exe N:\IsoArchive\win\_dr\tbars\_win\_dr.iso root@x01:/srv/ftp/iso

C:\Progra~1\Putty\pscp.exe N:\IsoArchive\win\_dr\2008r1PE.iso root@x01:/srv/ftp/iso

Proceed to the next steps, while these files are transferring. If you’re paranoid about successful data transfers this size, feel free to compare md5sums.

1. Prepare the NAS for the restore process.
   1. Run: C:\Progra~1\OmniBack\bin\ENA\_DISableSched.pl dis s01
   2. Run: copy N:\s01\s01\_0 N:\s01\s01

You may proceed to the next step while this runs.

**WARNING!** *If you do a move here, rather than a copy, because there is not enough disk space or to save time and you miss step 2a (disable scheduler), or if you fail to move it back after the restore completes,* ***this backup will be destroyed****!!!*

* 1. Run: copy N:\s01\s01\_0.mbr N:\IsoArchive\win\_dr\2008\_r1\_dp60\s01.mbr
  2. Check NFS permissions for the client you are restoring on the NAS, as follows:
     1. Using Windows Explorer on the NAS, right click on N:\IsoArchive and click ‘Properties’.
     2. Click ‘NFS Sharing’.
     3. Click ‘Permissions’.
     4. If the client is listed, ensure it has ‘Read-Only’ access and that ‘Allow root access’ is checked. If your client is not listed, please perform the following steps to add it:
        1. Click ‘Add’.
        2. If the Windows server you are trying to grant rights to is not listed under the ‘**Names:**’ field, enter the client short name in the ‘**Add Names:**’ field, change ‘**Type of Access:**’ to “Read-Only”, click “**Allow root access**” and click OK. Otherwise, choose the client name from the ‘Names:’ list and change ‘Type of Access:’ to “Read-Only”, click “Allow root access” and click ‘OK’.
     5. Click ‘OK’.
     6. Click ‘OK’.

1. Run MobaXterm on the NAS and open the ‘x01 priv’ connection. If the NAS does not have MobaXterm installed you may obtain it from hprebars:/hptools/tbars/fix/pre2012-002 and configure it, as follows:
   1. <data needed>
   2. . . .
2. Login as root.
3. Create the DR Xen configuration file
   1. Run: cd /etc/xen/vm
   2. Run: cp saps01 saps01DR
   3. Edit saps01DR and change three settings
      1. name=”saps01DR”
      2. boot=”d”
      3. disk=[ ‘phy:/dev/disk/by-name/saps01,had,w’, ‘file:/srv/ftp/iso/tbars\_win\_dr.iso,hdc:cdrom,r’, ]
4. Ensure the rawspace is set up on the Vhost for SAPS01. Above we see that the physical disk (phy) for SAPS01 is /dev/disk/by-name/saps01. Also, check the destination of the disk link, as follows:
   1. Run: cd /dev/disk/by-name
   2. Run: ls –l saps01

root@vhst01.s09078.us:/dev/disk/by-name $ ls -l saps01

lrwxrwxrwx 1 root root 17 Oct 17 10:54 saps01 -> ../../drbd\_saps01

* 1. Run: ls –l ../../drbd\_saps01

root@vhst01.s09078.us:/dev/disk/by-name $ ls -l ../../drbd\_saps01

brw-rw---- 1 root disk 147, 3 Oct 18 15:01 ../../drbd\_saps01

If you do not see the block device in step ‘c’, above, then the raw space is not available and Wal-mart will have to be involved before you can proceed.

1. Create (and start) the virtual machine, run the following command sequence:

xm create saps01DR && virt-viewer saps01DR

virt-viewer will open a secondary window named saps01DR.

1. Click on the saps01DR window, which should have booted into Clonezilla. Then perform the following steps:
   1. Hit ENTER to boot ‘Clonezilla live (Default settings, VGA 800x600)’.
   2. Hit ENTER on the ‘Choose language’ page for “en\_US.UTF-8 English”.
   3. Hit ENTER on the ‘Configuring console-data’ page for “Don’t touch keymap”.
   4. Up Arrow to “Start\_Clonezilla” and hit ENTER on the ‘Start Clonezilla’ page.
   5. Hit ENTER on the ‘Clonezilla’ page for “device-image”.
   6. Down Arrow to “nfs\_server” and hit ENTER on the ‘Mount Clonezilla image directory’ page.
   7. Choose ‘eth1’ for the network device you want to configure and hit ENTER. This may vary.
   8. Arrow Down to “static” and hit ENTER on the ‘Network Config’ page.
   9. Change the IP address to the client’s normal backup IP address, i.e. 192.168.58.66.
   10. Hit ENTER for the ‘Network Mask’ (should be 255.255.255.0).
   11. Hit ENTER for ‘Default Gateway’.
   12. Hit ENTER for ‘Nameserver(s)’.
   13. Hit ENTER on the ‘NFS version’ page for “nfs NFS v2, v3”.
   14. Set the IP address of the server to 192.168.58.6 on the ‘Mount NFS server’ page and hit ENTER.
   15. Set the mount directory to “/IsoArchive/win\_dr” on the next ‘Mount NFS server’ page and hit ENTER. If this step fails, then it’s possible that the wrong network adapter was chosen (i.e. ‘eth1’) in step 8g and you will have to start over. To do this:
       1. Close the saps01DR window.
       2. Click on your original MobaXterm session.
       3. Run: xm destroy saps01DR
       4. Go back to step 7.
   16. Hit ENTER when the ‘file system disk space usage’ screen displays.
   17. Hit ENTER on the ‘Clonezilla’ page for ‘Beginner mode’.
   18. Create the partition table (MBR):
       1. Click the saps01DR window ‘Send key’ dropdown button.
       2. Click ‘Ctrl+Alt+F2’
       3. Run: cd /home/partimag/2008\_r1\_dp60
       4. The hard drive shouls be ‘sda’, but this should be confirmed:
          1. Run: sudo fdisk -l
          2. You should see ‘Disk /dev/sda’, or something similar. This is the case here, so future commands will use the /dev/sda device path.
       5. Run: dd if=s01.mbr of=/dev/sda
       6. Run: sync
       7. Click the saps01DR window ‘Send key’ dropdown button.
       8. Click ‘Ctrl+Alt+F1’ (takes you back to the Clonezilla process)
   19. Image the guest server with Clonezilla:
       1. Down Arrow to “restoreparts” and hit ENTER on the ‘Clonezilla: Select mode’ page.
       2. Ensure the correct OS image file is selected and hit ENTER on the ‘Clonezilla – Opensource Clone System (OCS)’ page.
       3. Select the ‘sda1’ boot image to restore the C: drive and hit ENTER.
       4. Hit ENTER .
       5. Type ‘y’ and hit ENTER.
       6. Type ‘y’ and hit ENTER.
       7. Hit ENTER to continue when the imaging process completes.
       8. Type ‘0’ to power off and hit ENTER.
       9. Hit ENTER when prompted to remove the disk. The window will close.
2. Update the DR Xen configuration file
   1. Run: cd /etc/xen/vm
   2. Edit saps01DR and change one setting

disk=[ ‘phy:/dev/disk/by-name/saps01,had,w’, ‘file:/srv/ftp/iso/2008r1PE.iso,hdc:cdrom,r’, ]

1. Allow the guest to boot off the hard drive so we can perform the Data Protector Restore process. The box will reboot a couple of times in preparation. Look for the saps02DR window if it does not pop up. Run:

L\_DR\_GUEST=saps01DR; xm create ${L\_DR\_GUEST}; \

sleep 5; virt-viewer ${L\_DR\_GUEST}; \

sleep 5; virt-viewer ${L\_DR\_GUEST}; \

sleep 5; virt-viewer ${L\_DR\_GUEST}

1. Configure the GUEST for the restore process:
   1. Run: notepad C:\WINDOWS\System32\drivers\etc\hosts
   2. Change “nas1450” to “nasXXXX”, where XXXX is the real site ID.
   3. Save and quit notepad.
   4. Run: regedit
   5. In the **Registry Editor**, navigate to **Computer** -> **HKEY\_LOCAL\_MACHINE** -> **SOFTWARE** -> **Hewlett-Packard** -> **OpenView** -> **OmniBackII** -> **Site**
   6. Change **CellServer** from “nas1450” to “nasXXXX”, where XXXX is the real site ID.
   7. Exit the Registry Editor.
   8. Configure the BACKUP network device. Use the client’s normal backup IPv4 address. If the Ethernet device was **eth1** in Clonezilla, then it will likely be “**Local Area Connection 2**”, here. One way to access the network adapters is via **Start** -> **Control Panel** -> **Network and Sharing Center** -> **Manage network connections** (on the left pane).
   9. Ping the NAS to ensure you have connectivity.
2. On the NAS:
   1. Ensure the media copy (step 2b) completed successfully.
   2. Run: omnimm -export s01
   3. Run: omnimm -import s01 -import\_as\_original
   4. Manually restore the GUEST using Data Protector. Follow standard procedure using the Data Protector GUI to restore CONFIGURATION:, C: and all other backed up drives. **NOTE:** All trees being restored should have “Overwrite” selected under **Destination** -> **File Conflict Handling** and “Move busy files” checked under **Options** -> **Restore options**. All trees may be restored in parallel and **Report level** should be set to “Major”.
3. Reboot the guest machine when the restore completes. Run:

shutdown –f -r -t 0 -c “disaster recovery” -d p:0:0

1. On the Vhost:
   1. Run: L\_DR\_GUEST=saps01DR

xm create ${L\_DR\_GUEST} && virt-viewer ${L\_DR\_GUEST}

* 1. The client should fail to boot. Close the saps01DR window.
  2. Run: xm destroy saps01DR
  3. The above steps must be run or the following step will not work as described. Additionally, this is the most efficient method.
  4. This step requires special attention and has special instructions. Each time virt-viewer opens the window **you must quickly click in the guest window** (i.e. the saps01DR window) **and press ENTER** when it asks you if you want to boot from the CDROM. Earlier, we booted the virtual machine with the same settings, but used ‘sleep’ in between calls because we did not want to boot off the CDROM.

The CDROM loads Windows PE and each time it boots we need enter “recovery” mode. It takes three (3) attempts to “repair” the system. Following the last recovery phase the box will be ready for its final boot (step 14b). Each time Windows PE boots you will have to click “Next” on the language and preferences screen, then click “Repair your computer”.

The **first time** it runs it will auto-detect that there is something wrong and will prompt you to “Repair and restart”. Click the “Repair and restart” button.

The **second time** it runs it will search for problems and will not find any. Click “Next” and then click “Startup Repair”. This step will take a long time to complete while it does further repairs. Click “Finish” and then click “**Restart**”.

The **third time** it runs it will search for problems and will not find any. Click “Next” and then click “Startup Repair”. This step will end quickly and state that “Startup Repair could not detect a problem”. Click “Finish” and then click “**Shutdown**”.

**Note:** If you miss the chance to hit ENTER during the CDROM boot request, you will have to run ‘virt-viewer’ one more time for the guest to make up for it.

To initiate the process, run:

L\_DR\_GUEST=saps01DR

xm create ${L\_DR\_GUEST} && \

virt-viewer ${L\_DR\_GUEST} && \

virt-viewer ${L\_DR\_GUEST} && \

virt-viewer ${L\_DR\_GUEST}

* 1. Run: /opt/wmxenadm/start\_xen\_guest.pl saps01

1. **Cleanup** (unless files are needed for another disaster recovery):
   1. NAS Side:
      1. If s01 is a ‘copy’ of s01\_0, run: del N:\s01\s01

Otherwise, run: move N:\s01\s01 N:\s01\s01\_0

* + 1. Run: C:\Progra~1\OmniBack\bin\ENA\_DISableSched.pl ena s01
  1. Vhost Side:
     1. Run: rm /srv/ftp/iso/2008r1PE.iso
     2. Run: rm /srv/ftp/iso/tbars\_win\_dr.iso
     3. Run: rm /etc/xen/vm/saps01DR