



***Vess A2000 Series***  
***NVR Storage Appliance***  
***Windows Recovery Instructions***  
***Version 1.0***

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# INTRODUCTION

This document provides step-by-step instructions creating a recovery disk used for restoring the Windows operating system and programs in the event of a Windows OS failure. The storage device used for the recovery disk can be a DVD drive (read-write), network storage or internal RAID on the Vess A2000. This recovery disk is then used to restore the system drive to a state identical to what it had been when it was last backed up.

Following the recovery disk creation instructions, and instructions for restoring the Windows operating system from the previously created recovery disk. Once the operating system has been restored, the data stored on the RAID volume of the Vess A2000 can again be accessed.



## **Important**

A recovery disk must be created while the Windows OS is functioning. It is recommended that the system disk (the mSATA C drive) be backed up on a regular schedule. The Vess A2000 can be scheduled for regular system drive backups to the RAID volume. Then, using one of the system recovery methods (see below), the Windows OS and PROMISE RAID are reinstalled so that the previously saved system data, including device drivers and VMS software, can be retrieved from the RAID volume.

## Different ways to backup the system disk

There are three options for backing up the system disk, backup to the RAID, to DVD or to a drive connected via SAN or NAS. Also, it is possible to setup the Vess A2000 to make scheduled backups to either the RAID or to a network drive.

The recovery procedure installs a minimal operating system and the PROMISE RAID engine. With these installed, the system disk can be restored to the same state as it existed when saved to the internal RAID volume, network drive or DVD.

To backup to the RAID volume, it is first necessary to create a Virtual Hard Disk. See “Virtual hard disk” on page 4 for details.

## Before you start

Make sure that you have the items listed below before beginning with the recovery process. Contact Promise FAE Support for the recovery image file and image writer utility.

### ***Hardware needed***

- Monitor, mouse and keyboard. Please refer to the user manual for instructions on connecting hardware to the Vess A2000.
- Storage device (HDD, DVD, or network location) containing the system recovery data
- USB Flash memory device with at least 4GB available space

### ***Software needed***

- Windows native software backup and restore
- VessAppImageWriter.exe
- Recovery Environment (RE) Image

This is available from Promise website, FAE Support or Sales Engineers.

# VIRTUAL HARD DISK

To backup the system disk to the RAID volume on the Vess A2000, it is necessary to create a special volume used only for this purpose call the Virtual Hard Drive (VHD). Follow the procedure here to first create the VHD, then you can backup the Windows disk to the VHD.



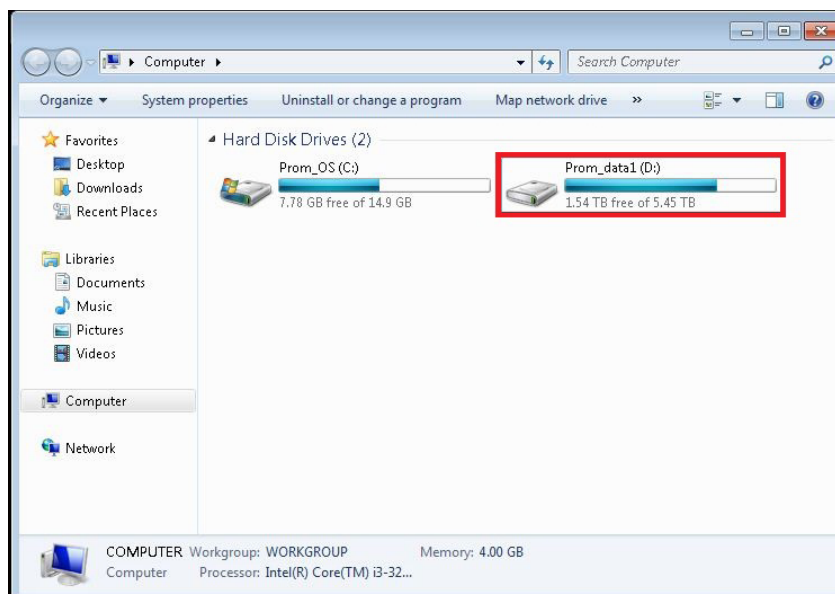
## Important

**Before creating the VHD, make sure the drive used for the VHD is labeled "Prom\_data1"**

## Check available space

First check to make sure there is enough disk space for the recovery process.

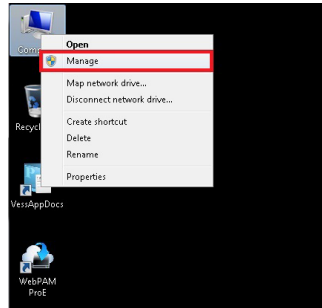
1. Click on the **Computer** desktop icon to check the drive **Prom\_data1 (D:)**.
2. Make sure the name of the RAID volume used for the VHD is **Prom\_data1**, change the name if necessary.
2. Check to see that **Prom\_data1 (D:)** has a minimum of 150GB free space. If necessary, delete old data to free up enough space (150GB). *For systems running Milestone surveillance software, operate milestone parameters configurations to overwrite or retention tie time for this purpose.*



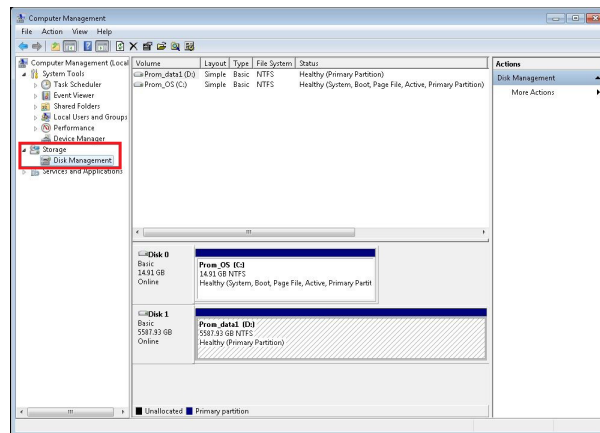
# Create the virtual hard disk for system backup

After verifying there is enough space to accommodate the VHD, follow these steps to create it.

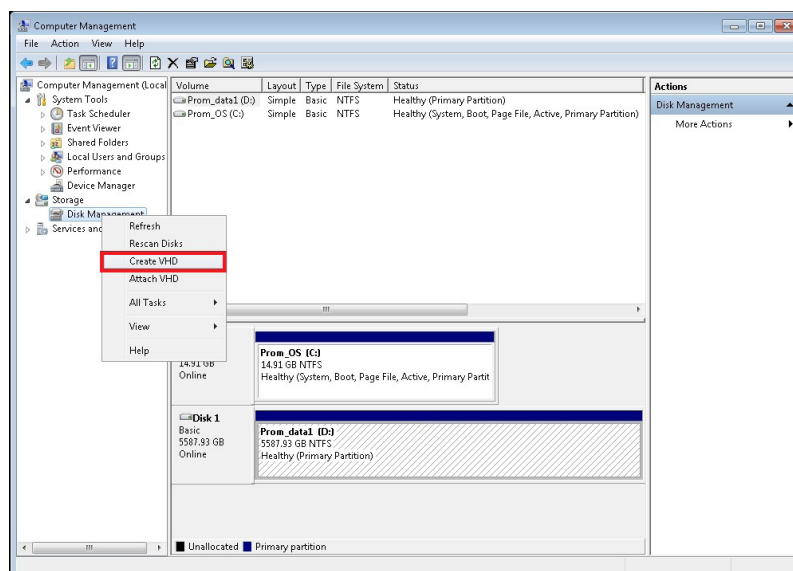
1. Right-click on the **Computer** icon on the desktop and select the **Manage** option.



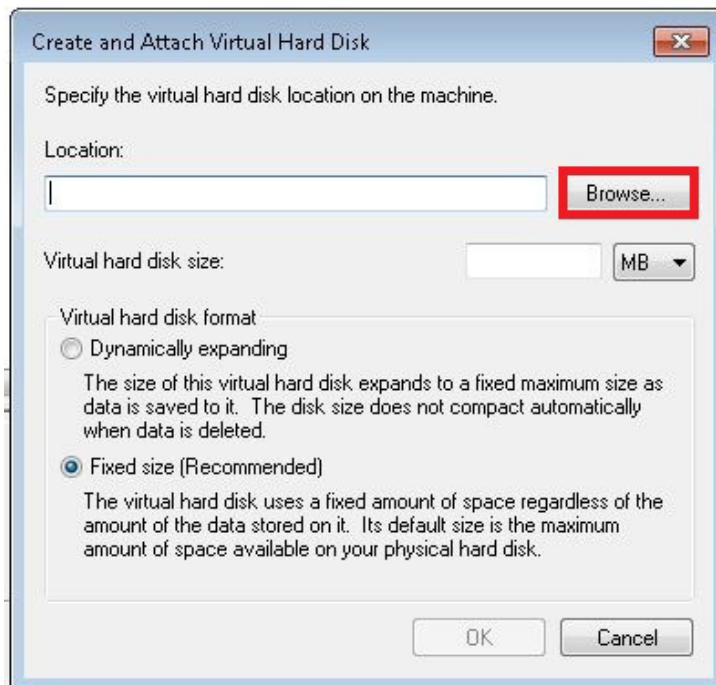
2. The **Computer Management** menu appears.



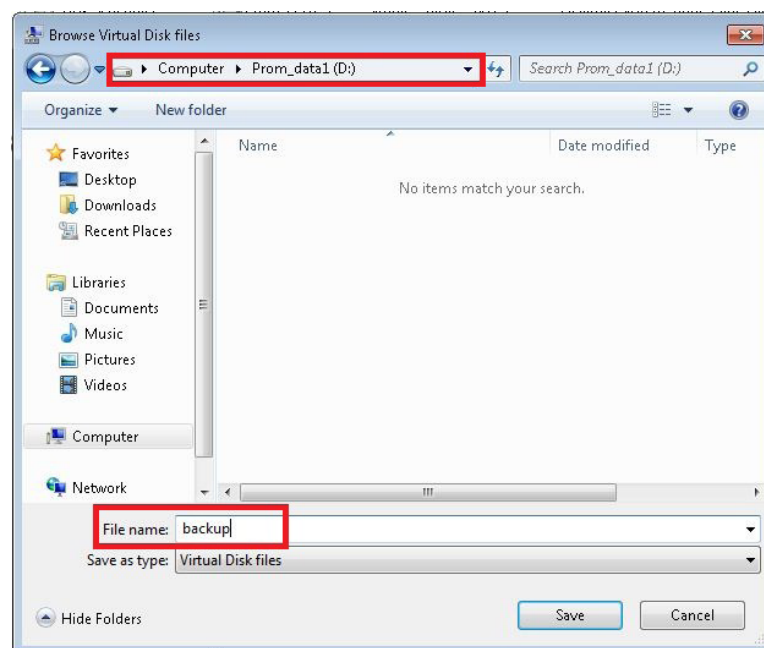
3. Right-click on **Disk Management** and choose the **Create VHD** option.



4. In the new menu, leave the *Fixed size* option selected and click the **Browse** button.



5. Choose the path **Computer > Prom\_data1(D:)** and type **backup** in the **File name** field.



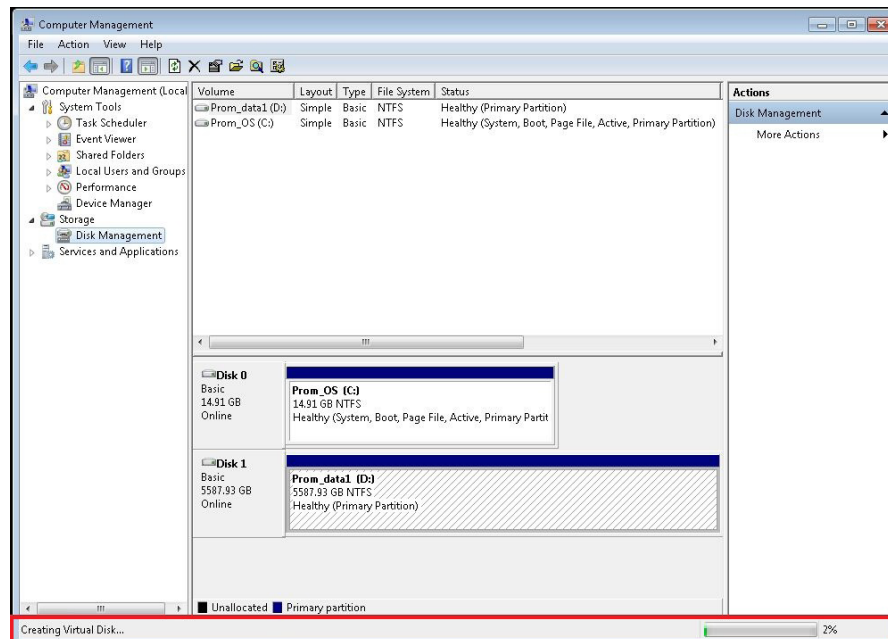
### Important

The file name must be "backup".

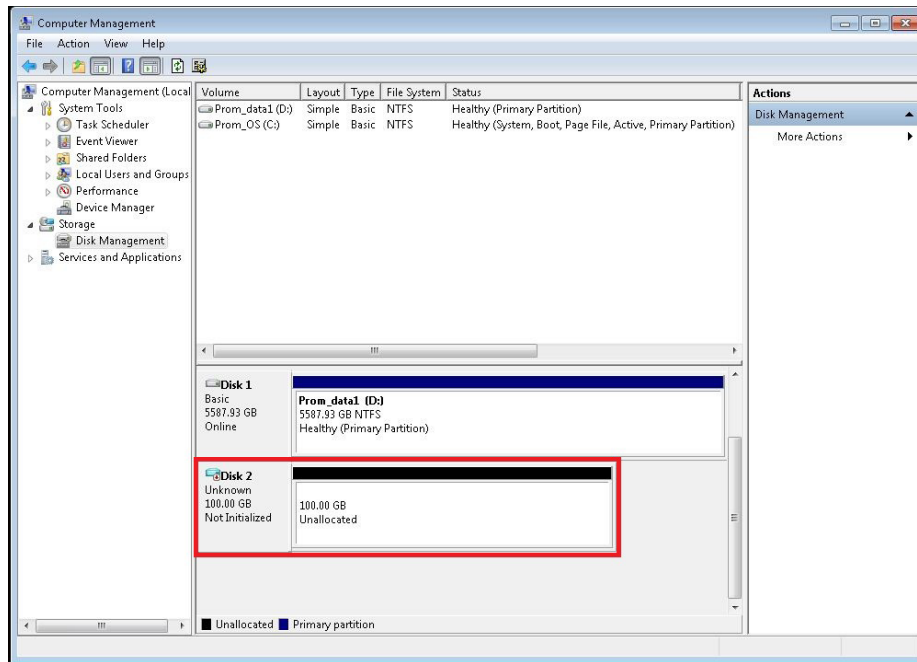
6. In the new menu, type **100** and select **GB** as the *Virtual hard disk size*. Click **OK**.



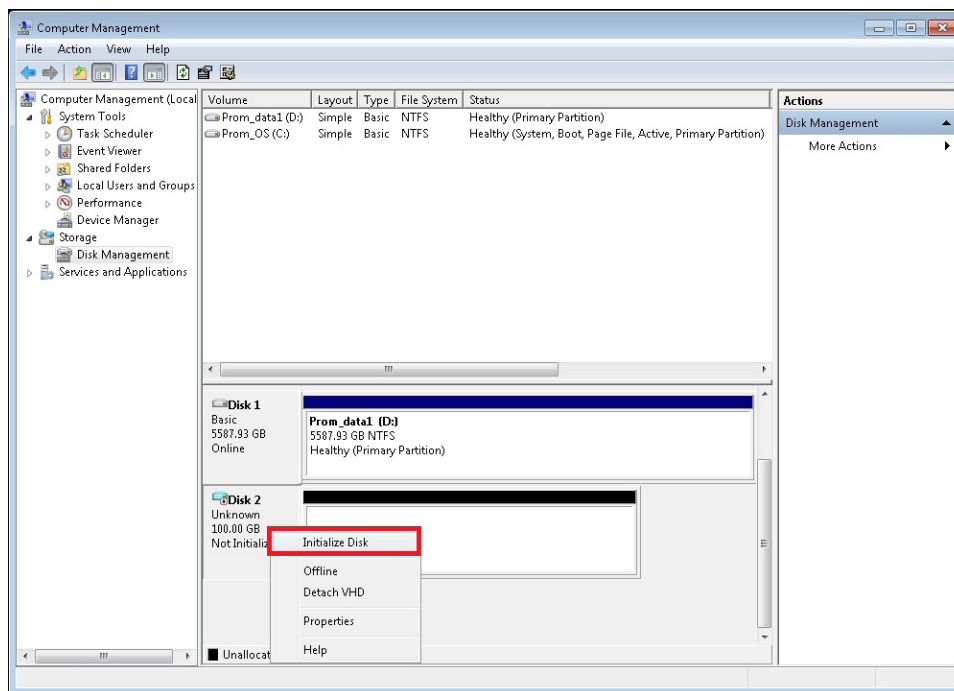
7. The VHD creation process begins. The progress of the process displays in the status bar at the bottom of the menu.



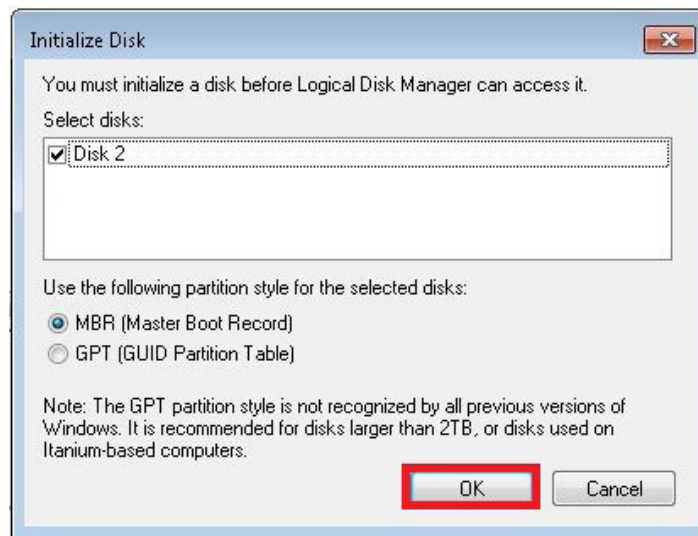
8. When the VHD is created, a new disk, *Disk 2* appears. This disk is not yet initialized.



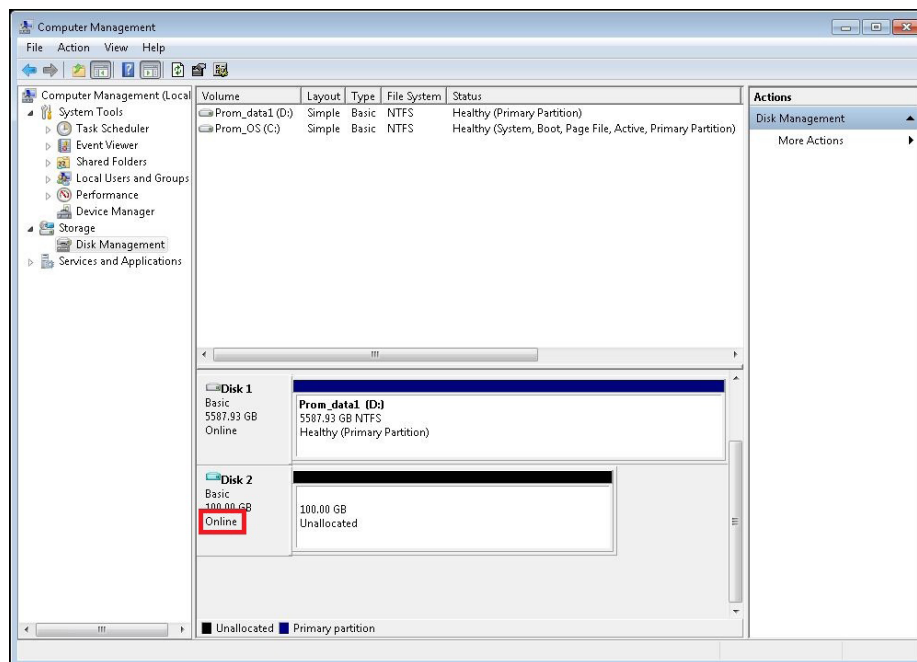
9. Right-click on Disk 2 and choose **Initialize Disk** to begin the initialization procedure.



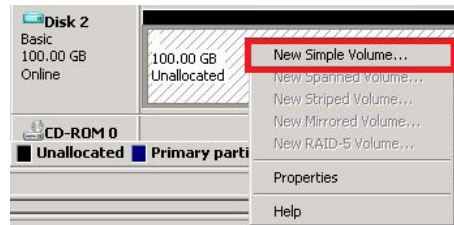
10. *Disk 2* and the option *MBR* are already selected. Click **OK**.



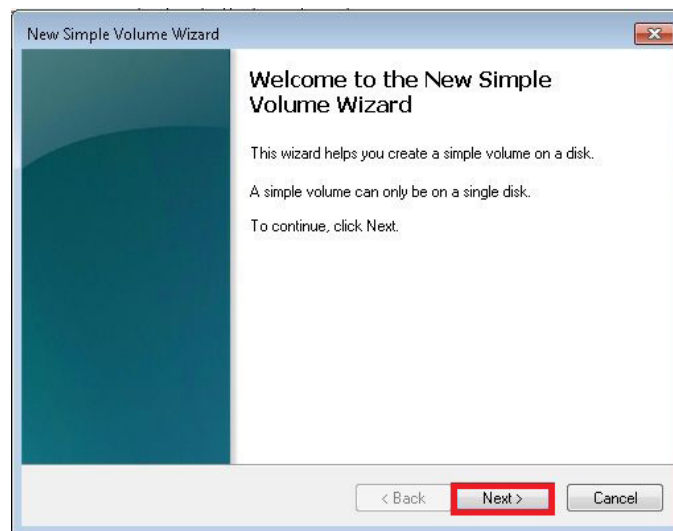
11. When the initialization is finished, *Disk 2* is *Online*.



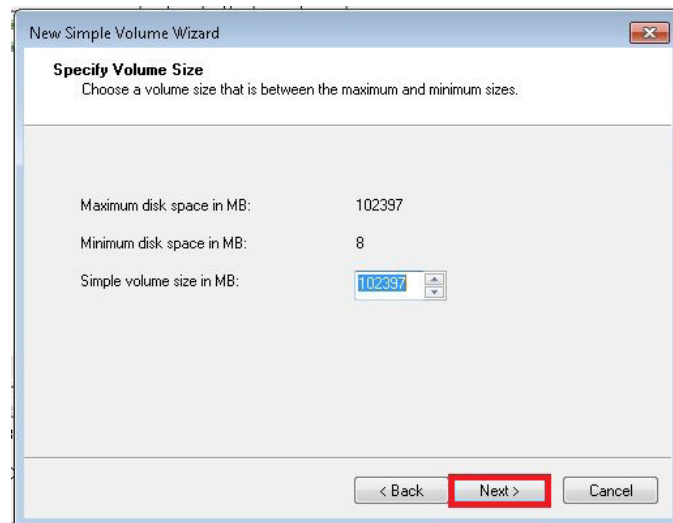
12. Right-click on Disk 2 and choose *New Simple Volume*.



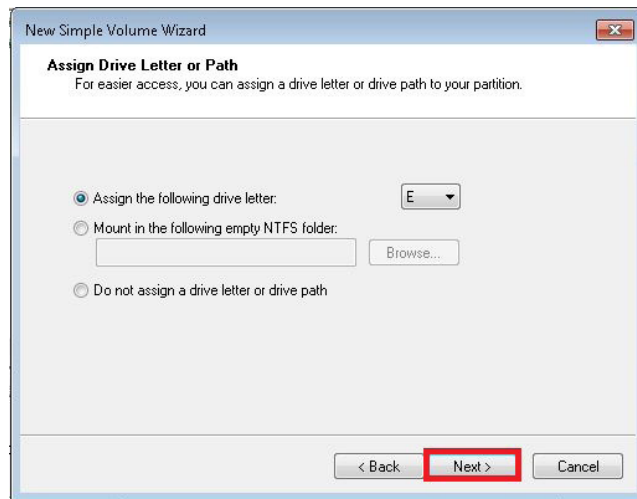
13. Accept all the default values in the menus that follow. Click **Next**.



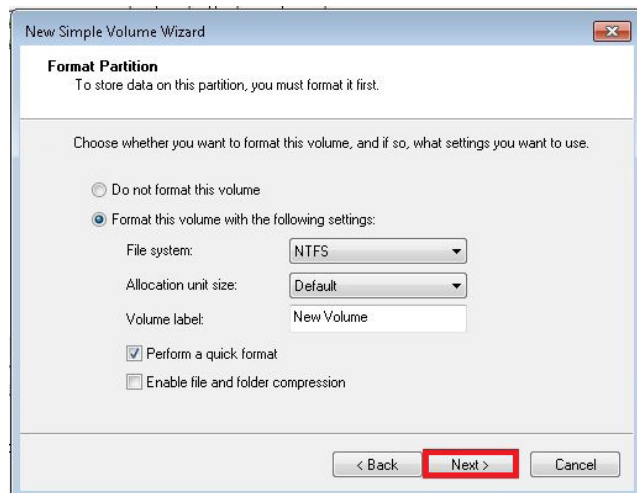
14. Click **Next**.



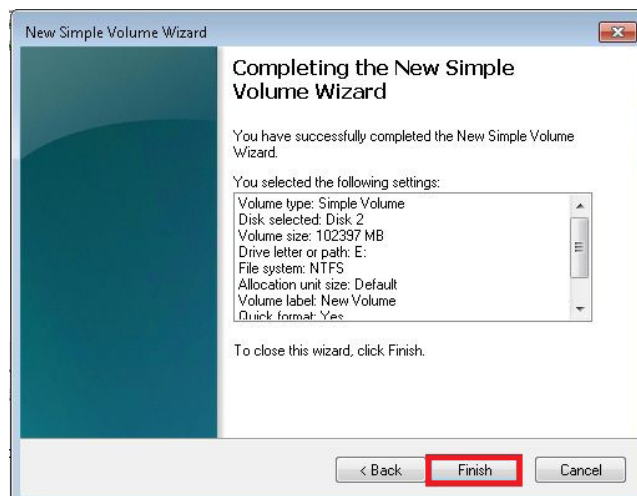
15. The drive letter is E. Click **Next**.



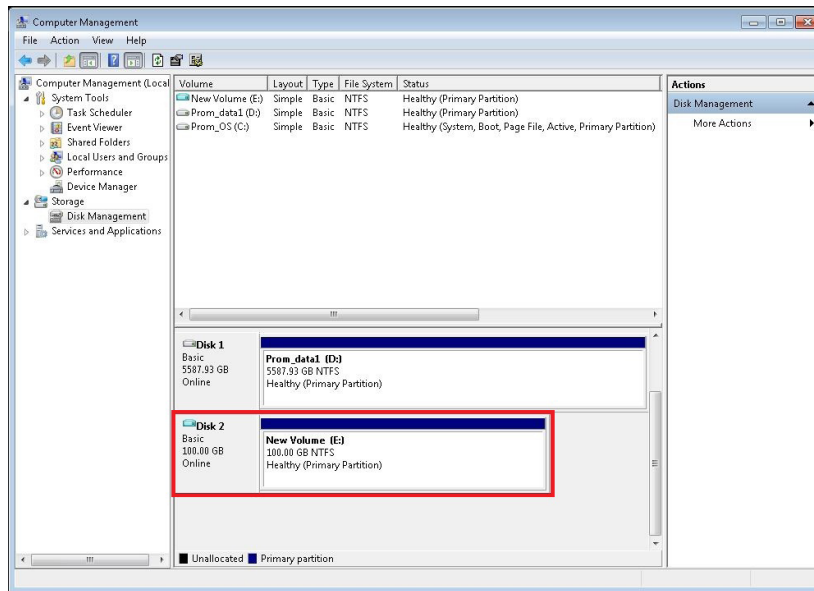
16. Click **Next**.



17. Click **Finish**.



18. After the New Volume is created, close the Computer Management menu and reboot the system.



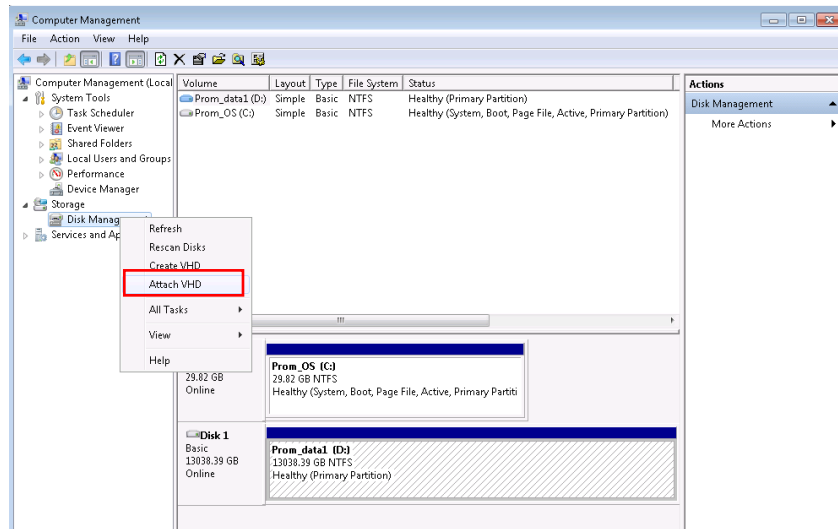
### Important

The new VHD must be attached after system reboot.

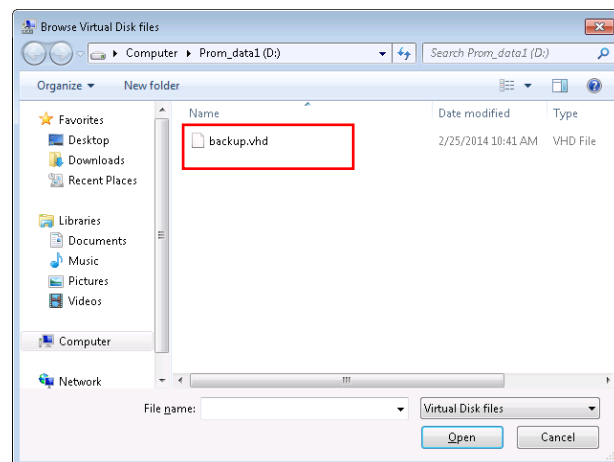
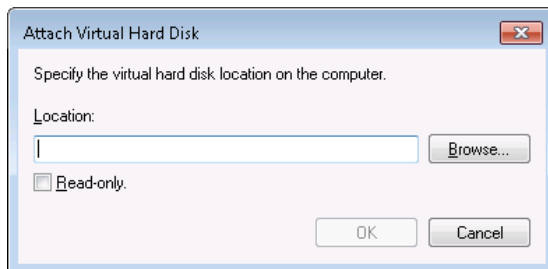
Follow the procedure below to *Attach VHD*.

## Attach the VHD

1. After restarting the Vess A2000, go to the Computer Management menu again. Right-click on **Disk Management** under **Storage** and choose **Attach VHD**.



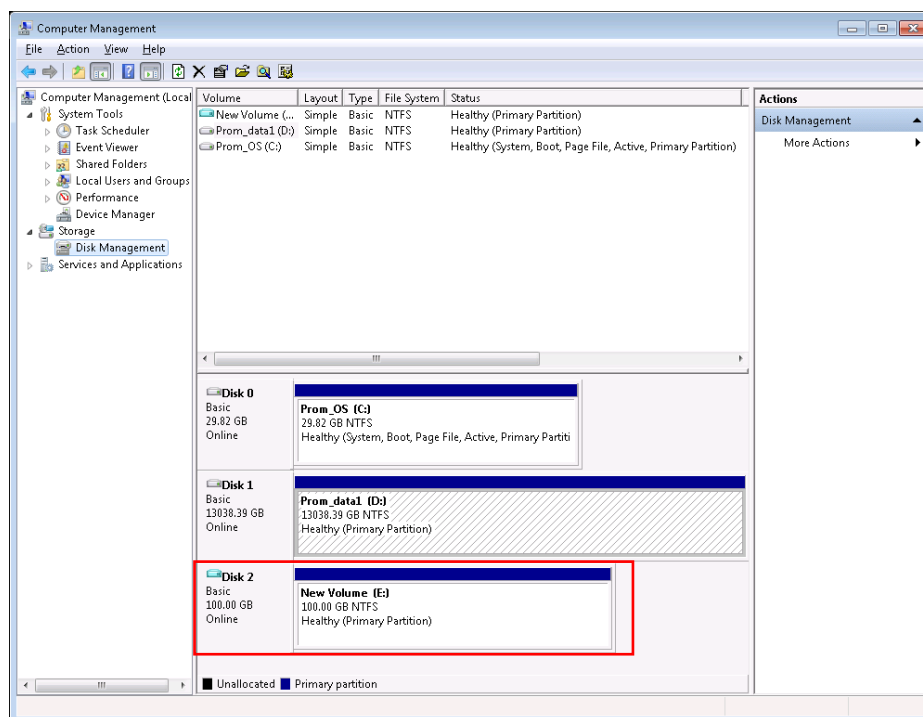
2. In the new menu, **Browse** to locate **backup.vhd** on the **Prom\_data1(D:)**.



- Click OK



- The new volume appears in the Computer Management menu. The VHD is now ready.



# Simple Windows system backup

Two methods for system backup are described in this guide. The first is a simple Stand Operating Procedure system disk backup for Windows on the RAID volume, on a DVD, or on a remote drive connected via the network (NAT or SAN).

The other method described in a later section is for regular scheduled backups. Scheduled backups can be done on the RAID volume or on a remote drive via SAN or NAT.

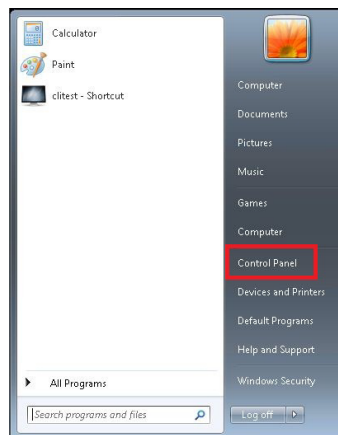
## ***Backup system on RAID disk-Windows 7***

Follow these steps to perform a simple Windows system backup to the RAID volume.

1. Click the **Windows Start** icon



2. Click on **Control Panel**



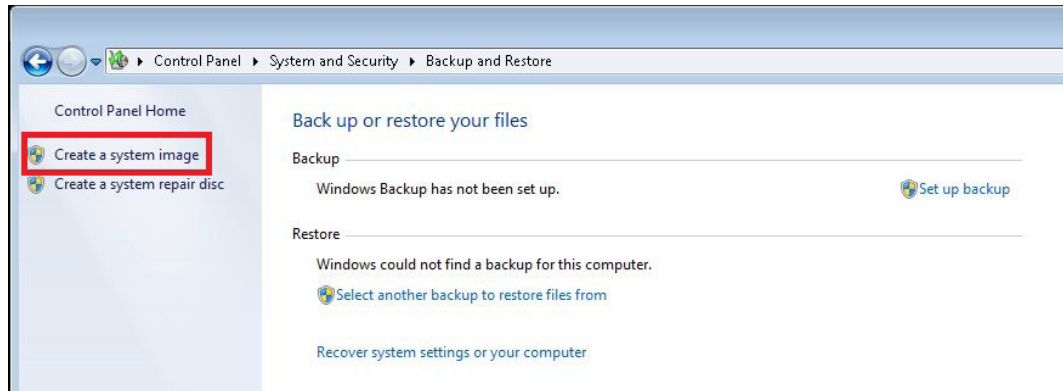
3. Click on **System and Security**



- Click on **Backup and Restore**



- Click the **Create a system image** option to backup system once

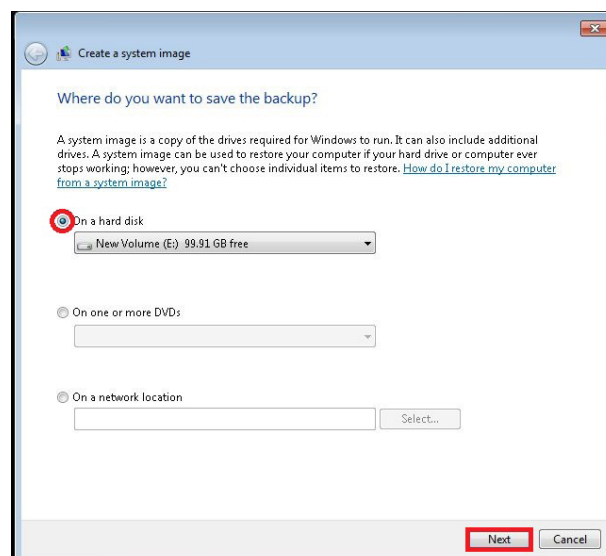


### Note

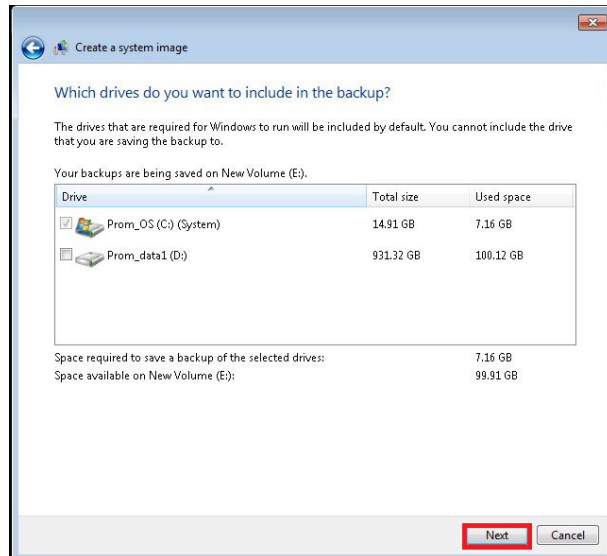
If you want to backup system on schedule, see "Schedule system backup to RAID - Windows 7" on page 42.

- Tick the **On a hard Disk** option, choose the **New Volume (E:) 99.91GB free** and click **Next**.

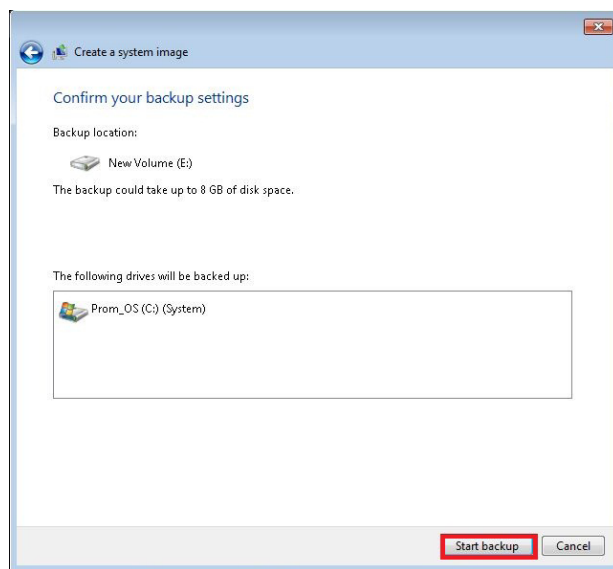
This **New Volume (E:)** is the VHD created previously.



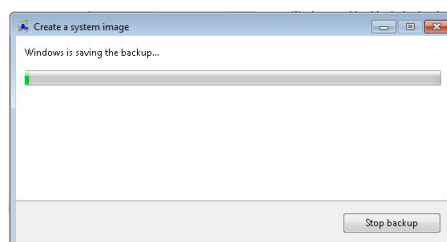
7. Select the drive **Prom\_OS(C:) (System)** and click button **Next**. *Make sure to select only the C Drive.*



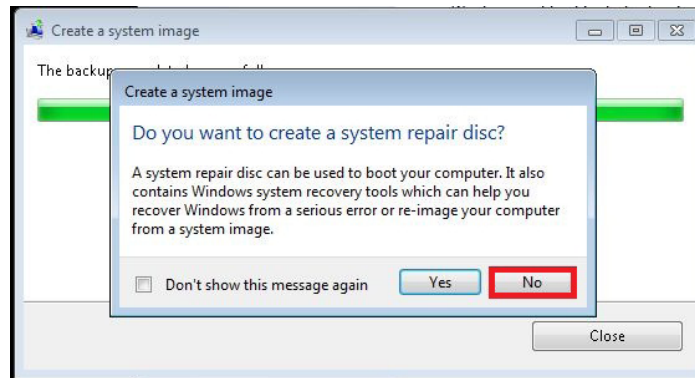
8. Click on the **Start Backup** button.



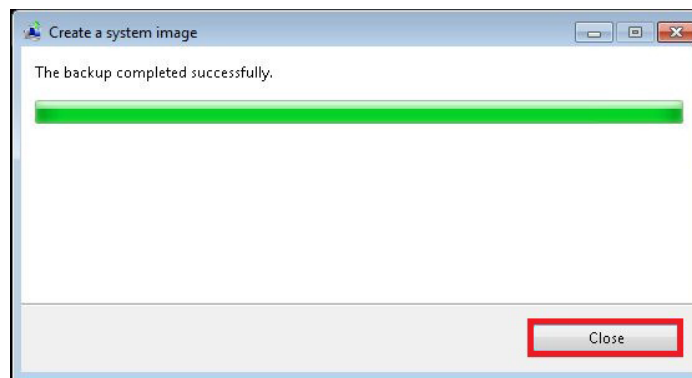
The backup begins.



9. When the backup program has finished, click the **No** button in the menu that appears.



10. Click the **Close** button. The backup is finished.



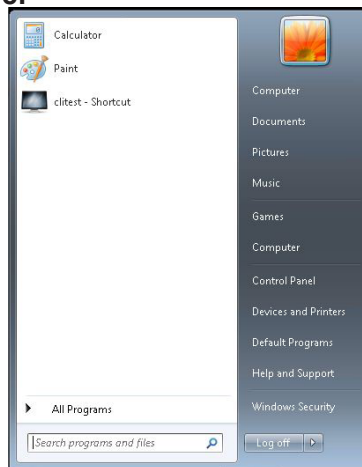
## ***Backup system on DVD - Window 7***

Follow these instructions to perform a simple system backup to DVD.

1. Click the **Windows Start** icon



2. Click on **Control Panel**



3. Click on **System and Security**



4. Click on **Backup and Restore**

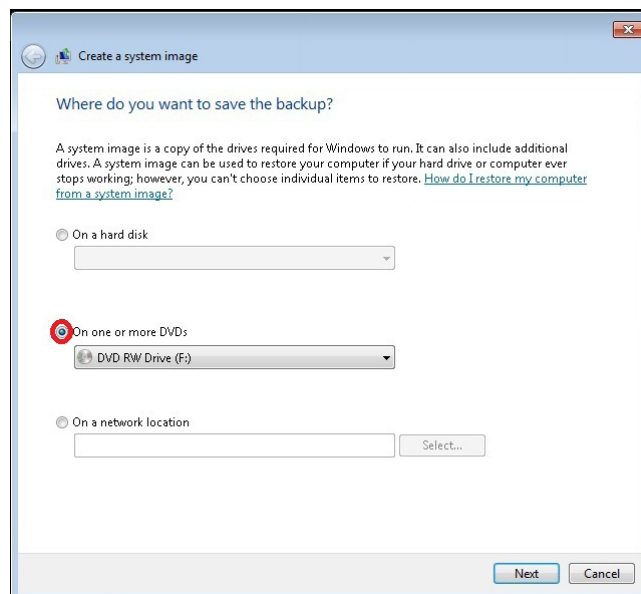


- Click on the **Create a system image** option.

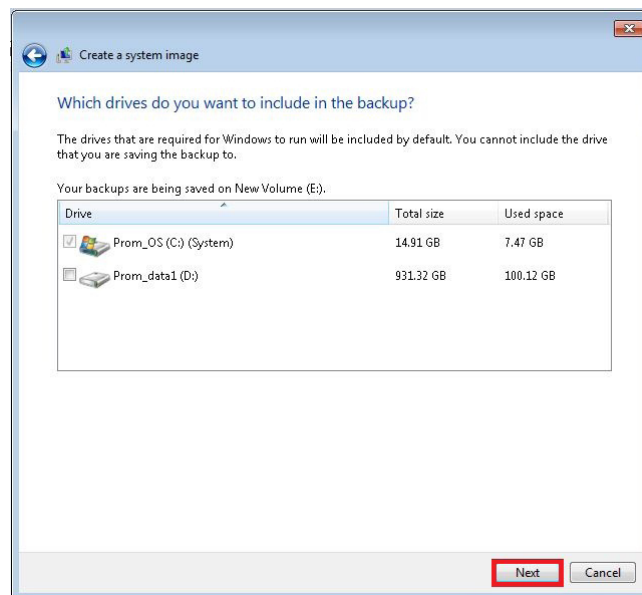


- Connect an external DVD-RW device loaded with a blank DVD to a USB port on the Vess A2000.

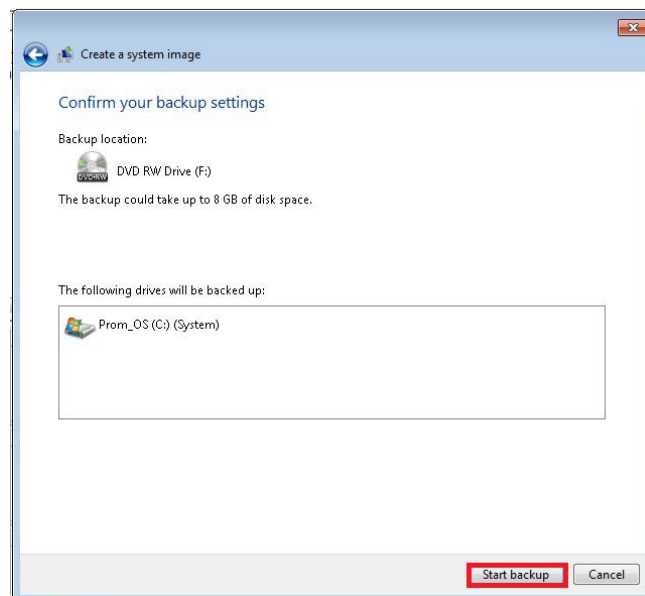
- Select **On one or more DVDs** and click the **Next** button.



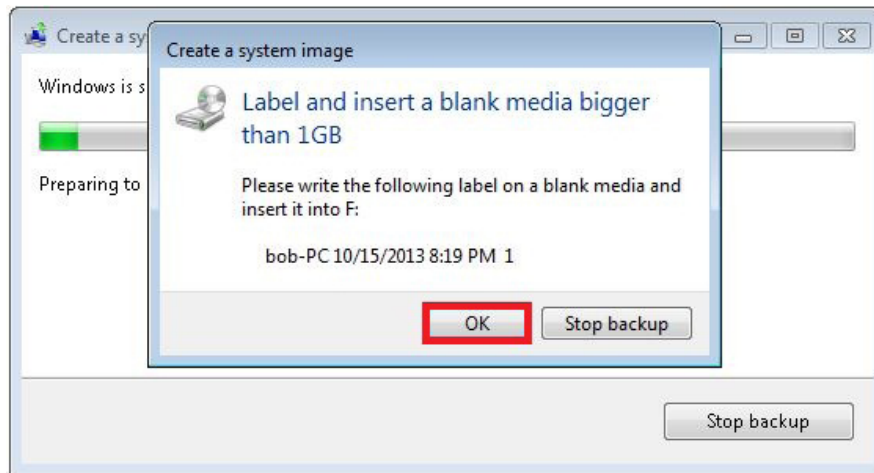
8. Click **Next**. *The drive is already selected.*



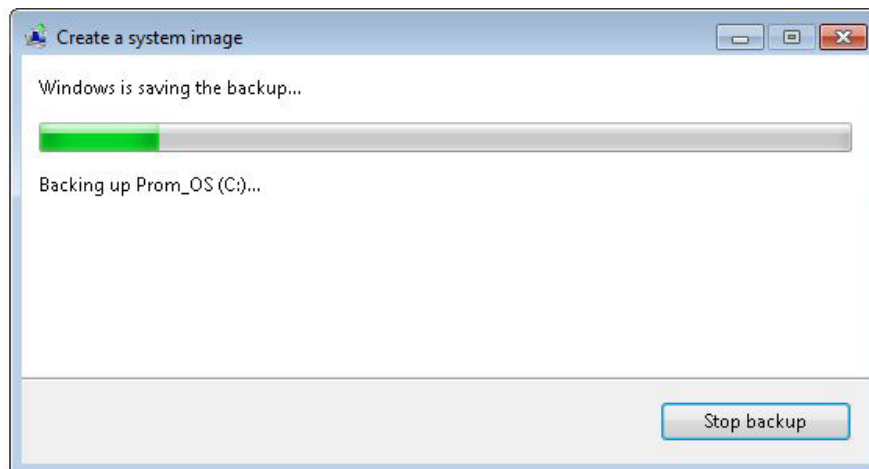
9. Click the **Start Backup** button.



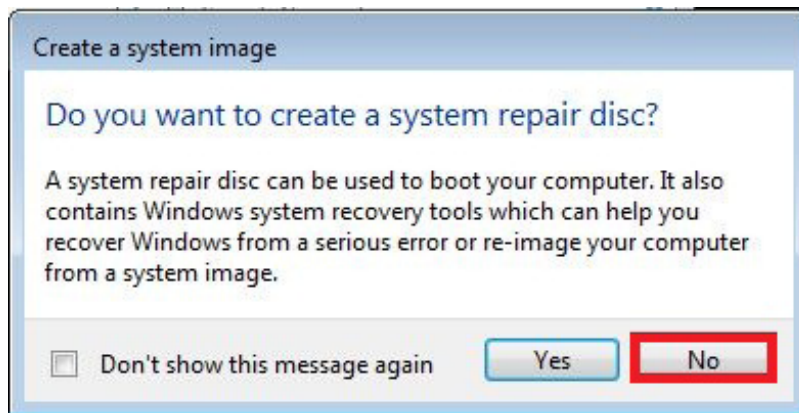
10. When the system disk is backed up, a new menu appears. Click the **OK** button.



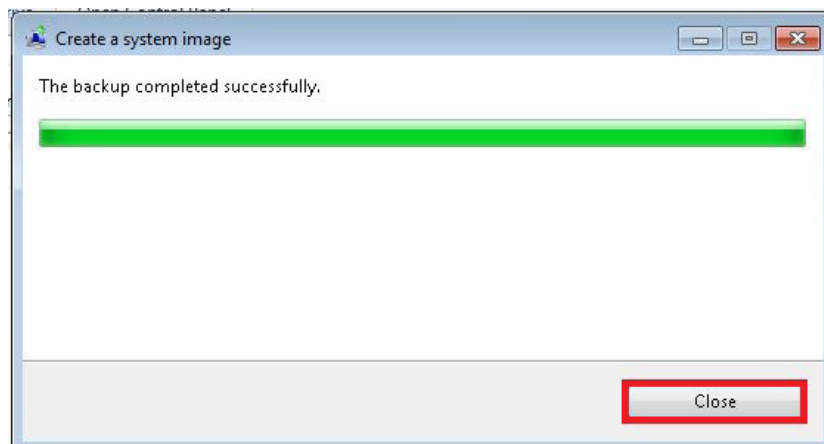
The backup begins. The progress is displayed in a new menu.



11. A new menu appears when the data is written. Click the **No** Button



14. Click the **Close** button



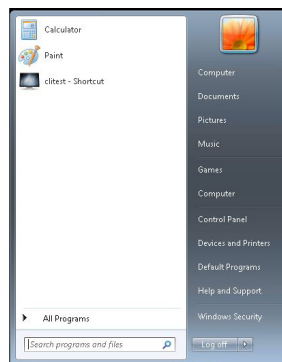
## Backup on Network Location- Windows 7

Use the procedure described below to backup the Windows 7 system disk to a network volume on a SAN or NAS.

1. Click the **Windows Start** icon.



2. Click on **Control Panel**.



3. Click on **System and Security**.



4. Click on **Backup and Restore**.



5. Click on the **Create a system image** option.

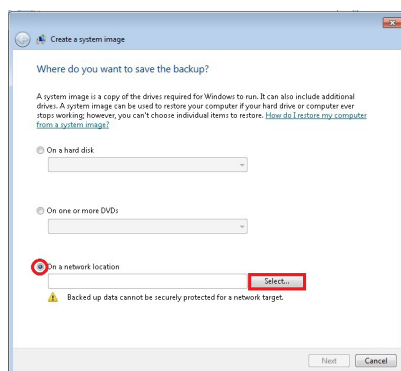


### Note

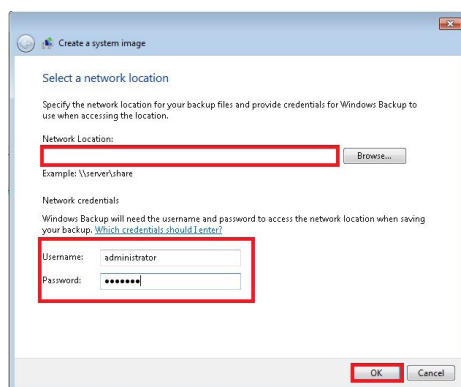
If you want to backup system on schedule, see "Schedule system backup to network - Windows 7" on page 45.

6. Select **On a network location** and enter the IP address of the network drive, click **Next**.

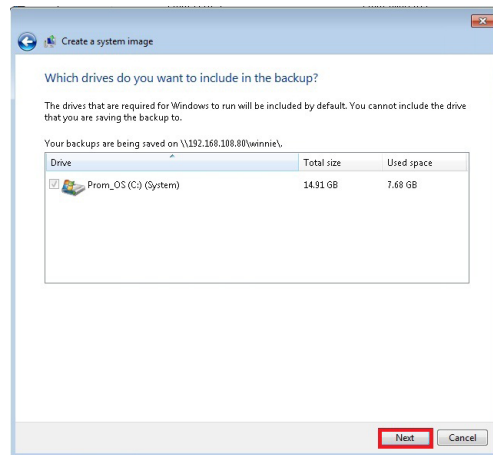
*Note that Windows 7 Home series does not support backups to a network location.*



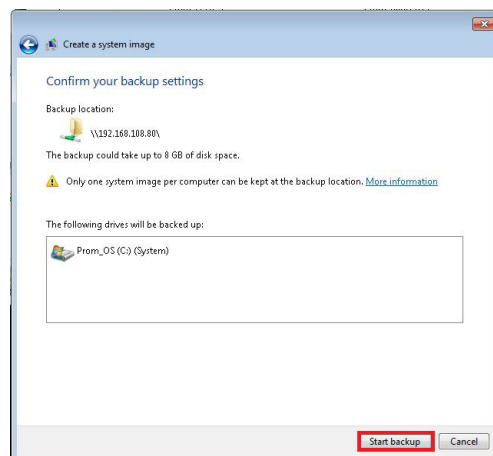
7. Enter the path for the **Network Location** and the **Username** and **Password** needed. Click **OK**.



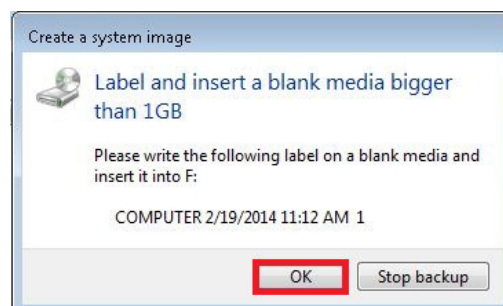
8. Click the **Next** button.



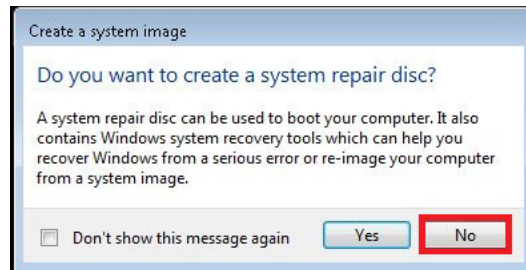
9. Click the **Start Backup** button.



10. Click the **OK** button.

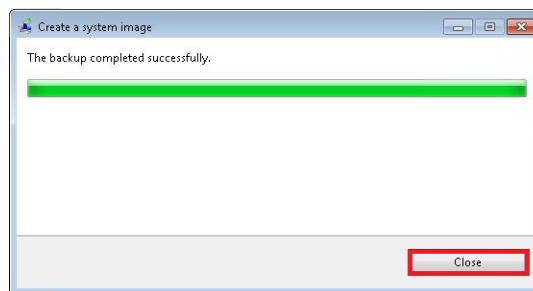


11. Click the **No** button.



*The backup process runs. The progress displays in a new menu.*

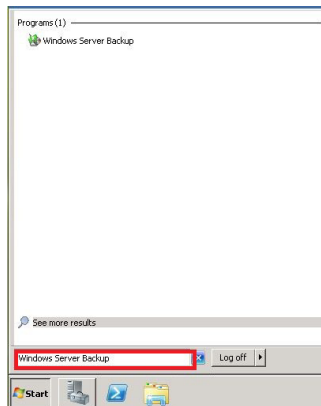
12. When the backup is completed, click the **Close** Button



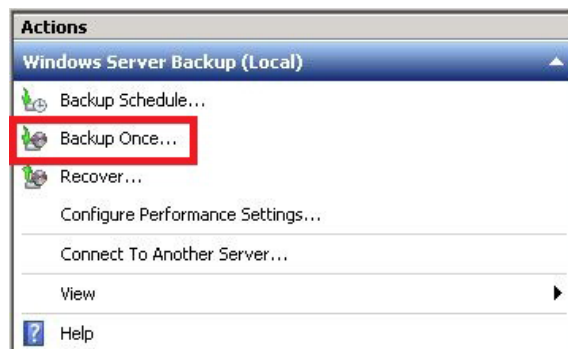
## Backup system on RAID disk-Windows 2008 Server

Follow these steps to backup the Windows system disk to the RAID volume on the Vess A2000.

1. Open the **Windows Server Backup** program.



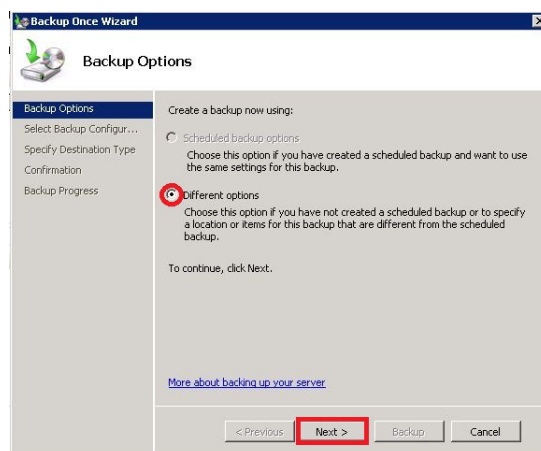
2. Select the **Backup Once** action.



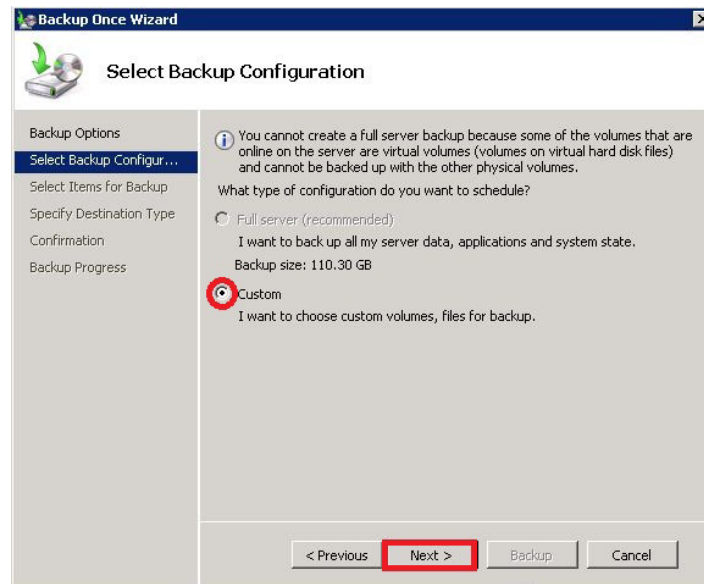
### Note

If you want to backup system on schedule, see "Schedule system backup to RAID - Windows 2008 Server" on page 49.

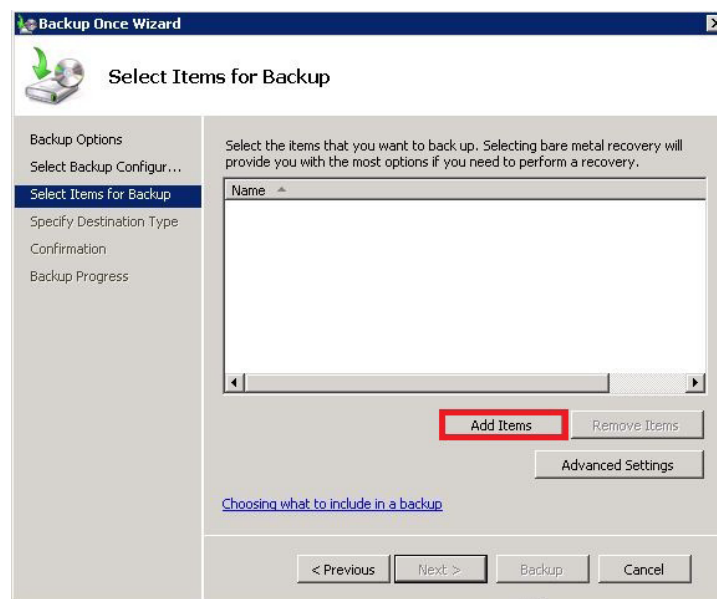
3. Select **Different options** and press the **Next>** button



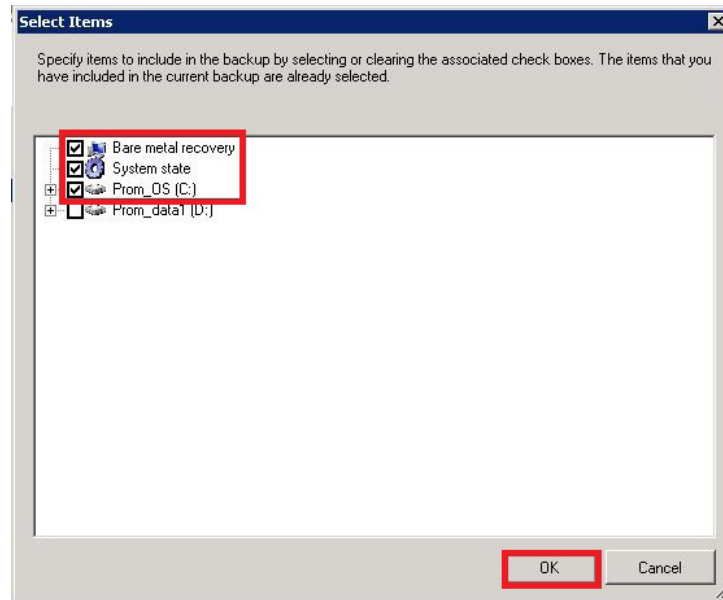
4. Select **Custom** and click the **Next>** button.



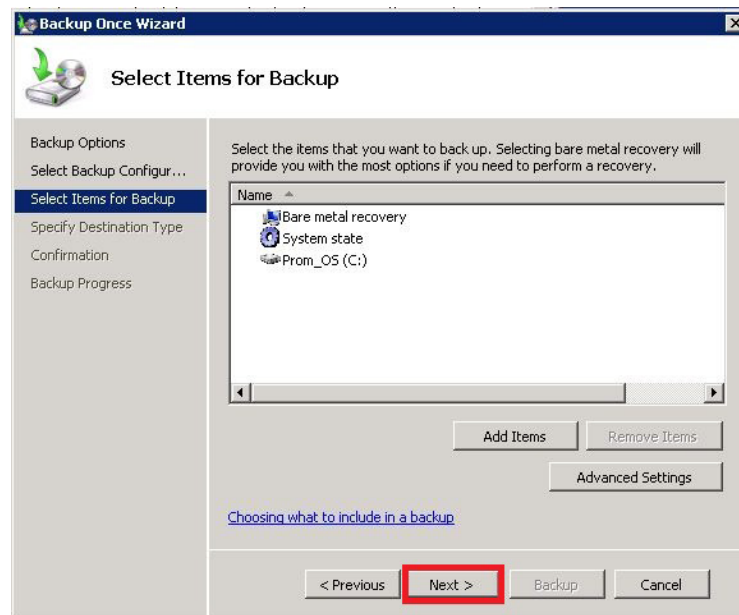
5. Click the **Add Items** button.



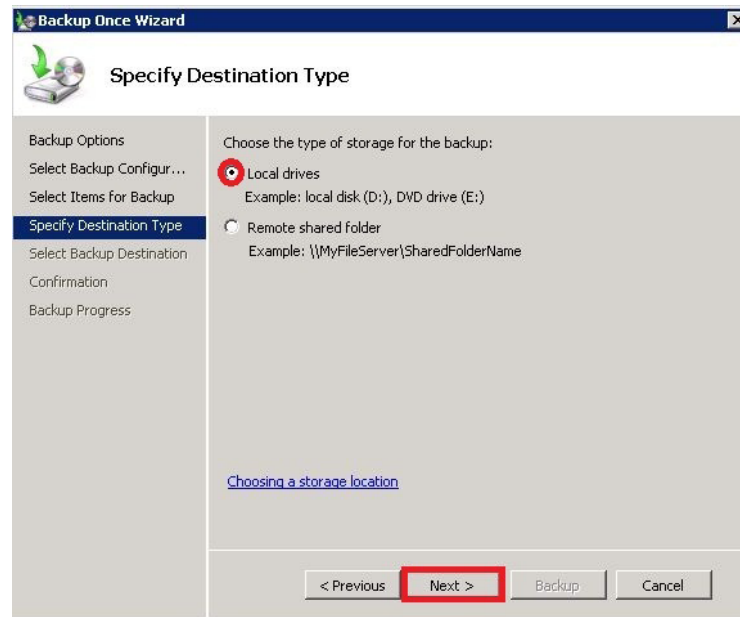
6. Check to enable “**Bare metal recovery**, **System state** and **Prom\_OS(C:)**, and click **OK**.



7. Click the **Next>** button

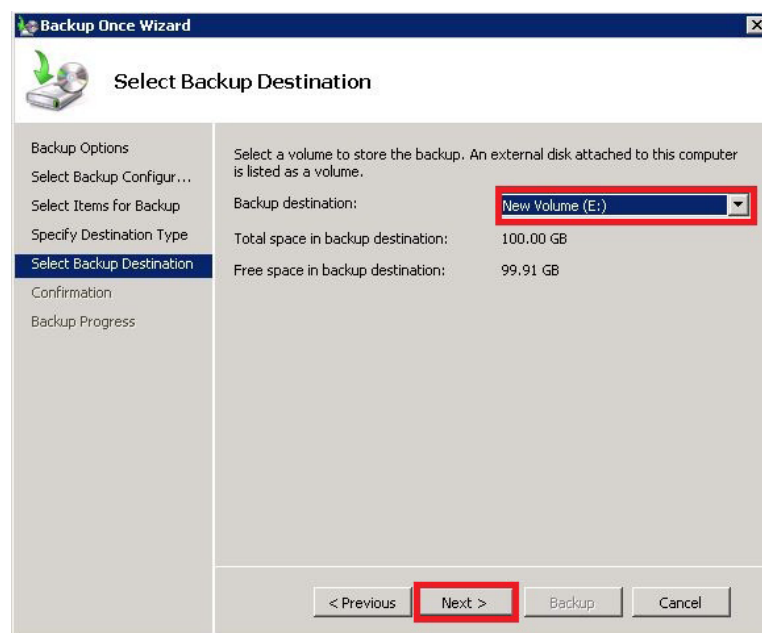


8. Select **Local drives** and click **Next>**.

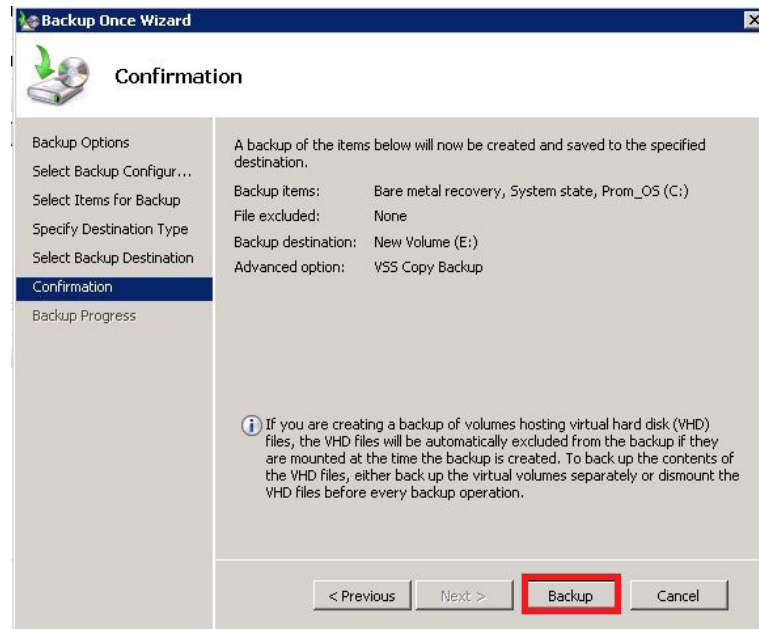


9. Select the **Backup destination: New Volume (E:)** and click **Next**.

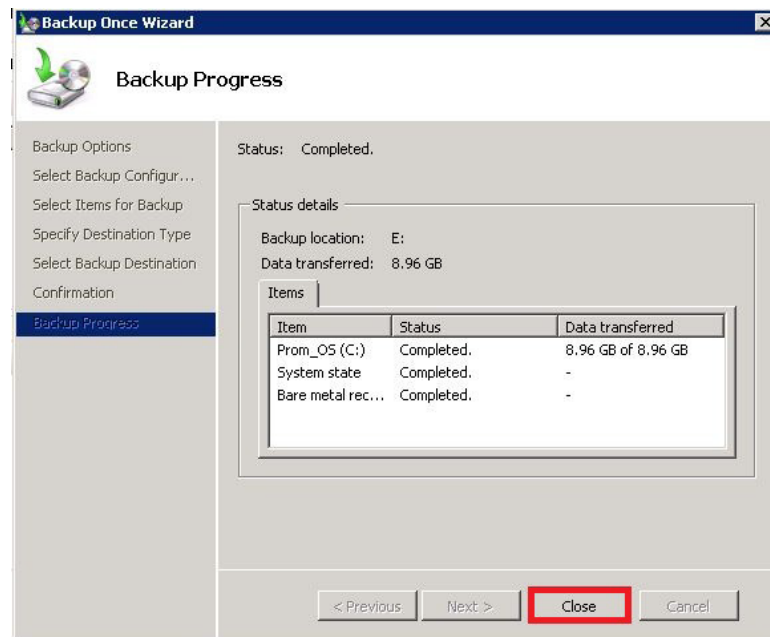
*Note that the New Volume (E:) is the VHD created previously.*



10. Press the **Backup** button.



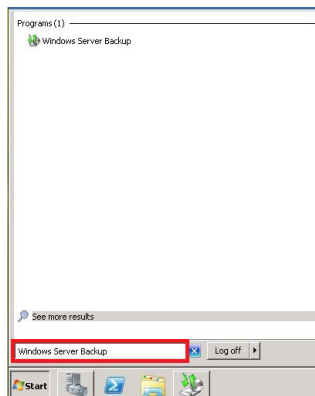
11. Wait a few minutes for the backup process to be completed successfully. When the *Status* indicates it is *Completed* click the **Close** button.



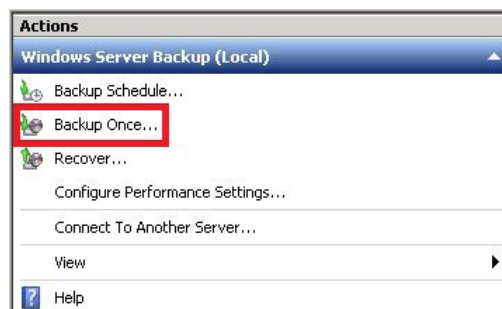
## Backup system on DVD - Windows 2008 Server

Use this procedure to backup a Windows 2008 Server system on a DVD.

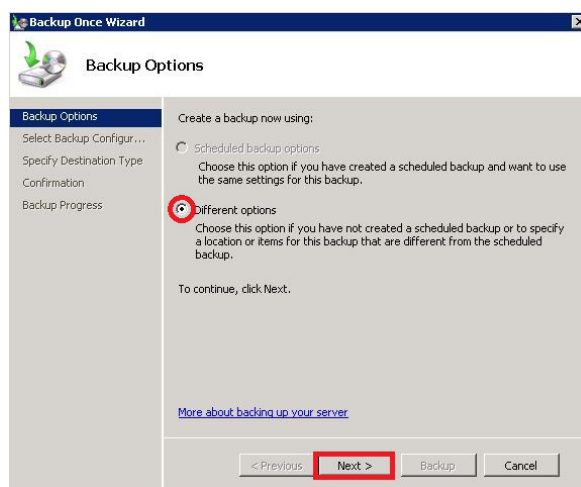
1. Open the **Windows Server Backup** program.



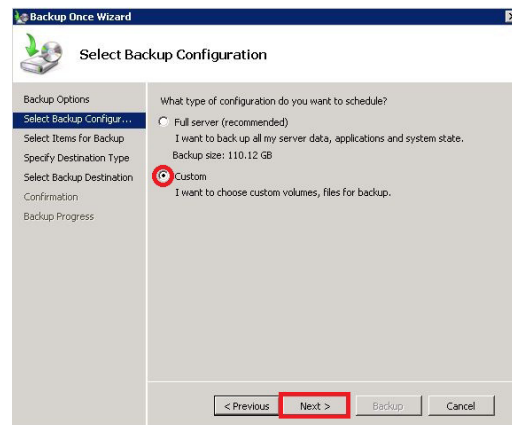
2. Select the **Backup Once** action.



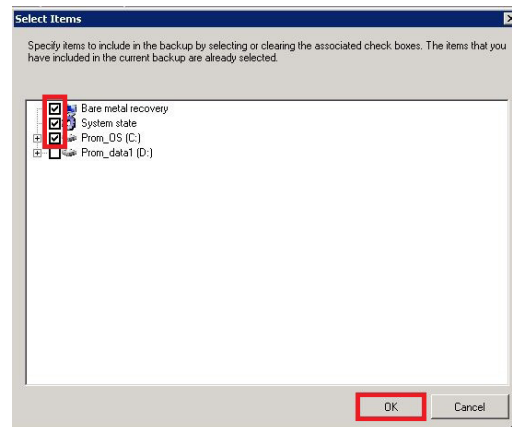
3. Select **Different option** and press the **Next>** button.



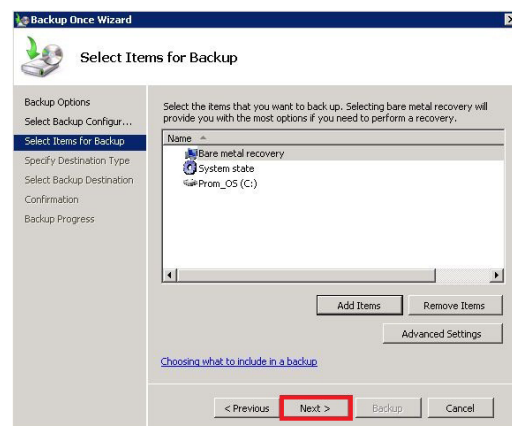
4. Select **Custom** and press the **Next>** button.



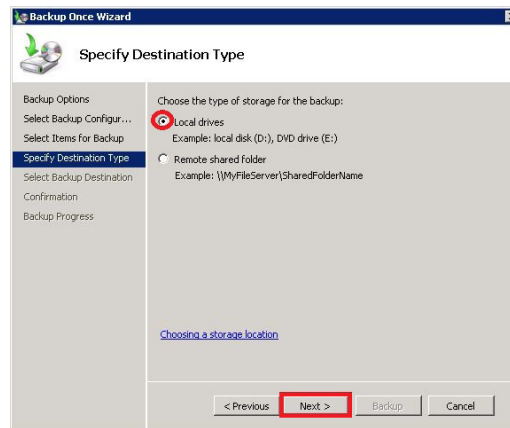
5. Check to enable "**Bare metal recovery**, **System state** and **Prom\_OS(C:)**, and click **OK**.



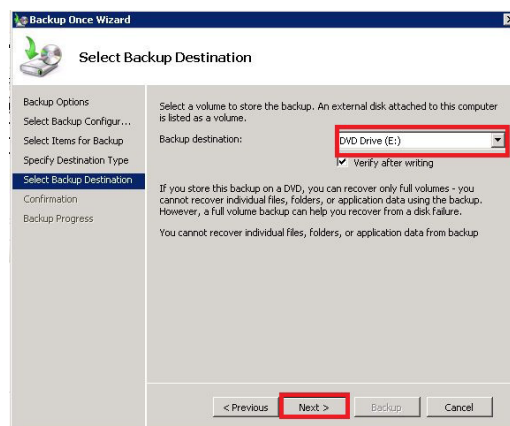
6. Click **Next>**.



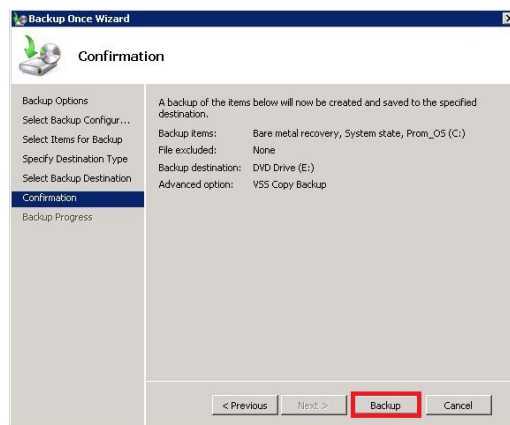
7. Select **Local drives** and click the **Next>** button.



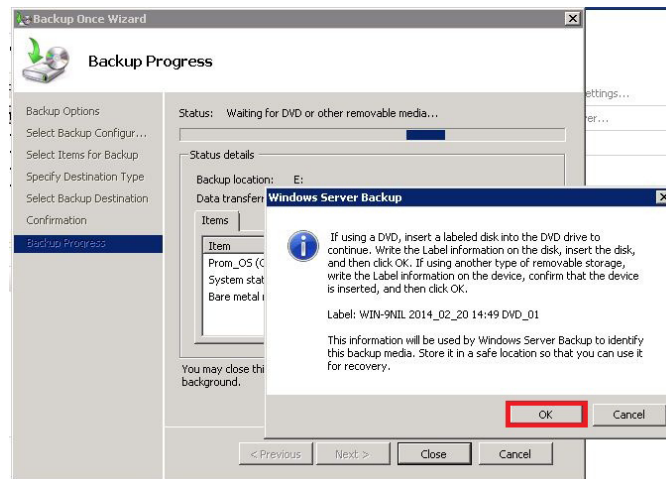
8. Select the **Backup destination DVD Drive** make sure the *Verify after writing* option is selected. Press the **Next>** button.



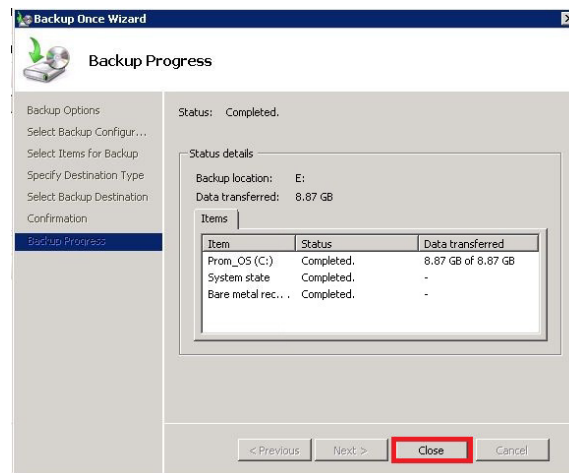
9. Make sure there is a blank writable DVD in the drive and press the **Backup** button.



10. Click **OK**.



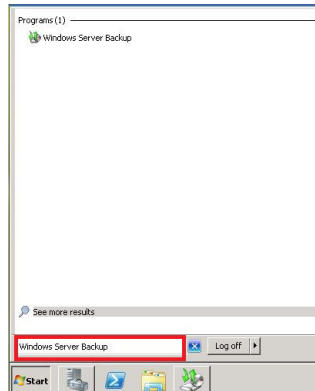
11. Wait a few minutes for the backup process to be completed. Click the **Close** button to close this window.



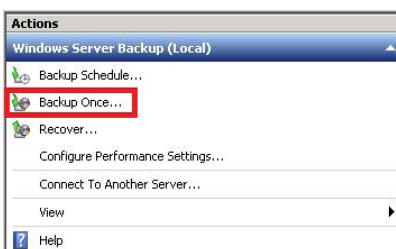
## Backup on Network Location - Windows 2008 Server

Follow these steps to backup the Windows 2008 system drive to a network volume on a NAS or SAN.

1. Open the **Windows Server Backup** program.



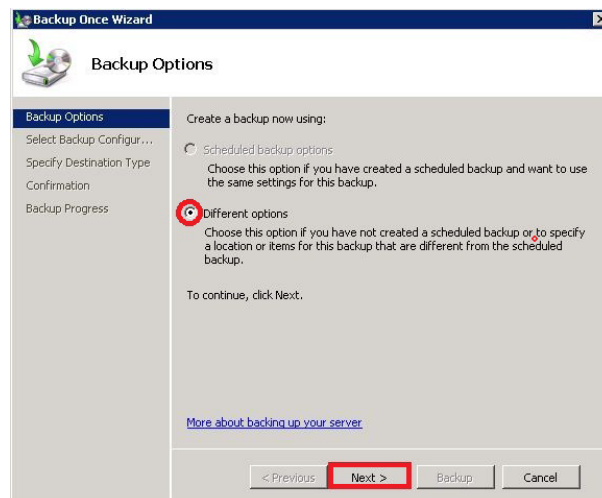
2. Select the **Backup Once** action.



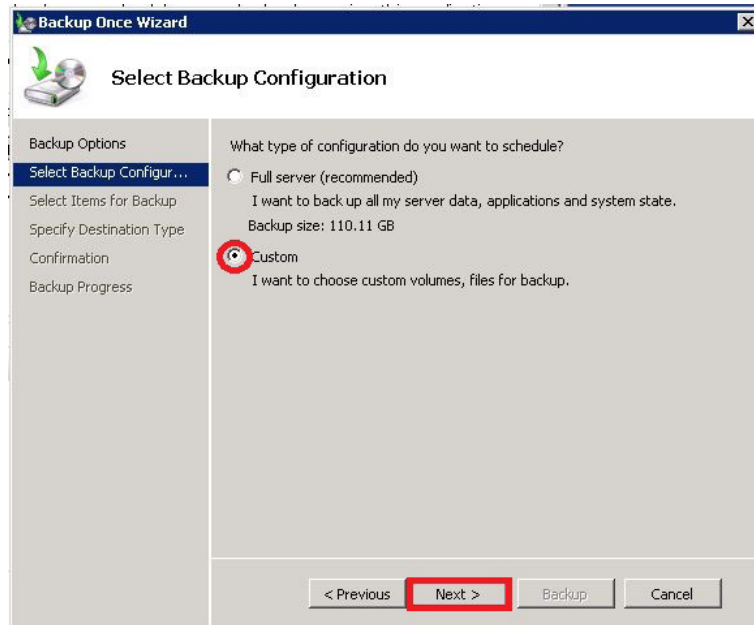
### Note

If you want to backup system on schedule, see "Schedule system backup to network - Windows 2008 Server" on page 54.

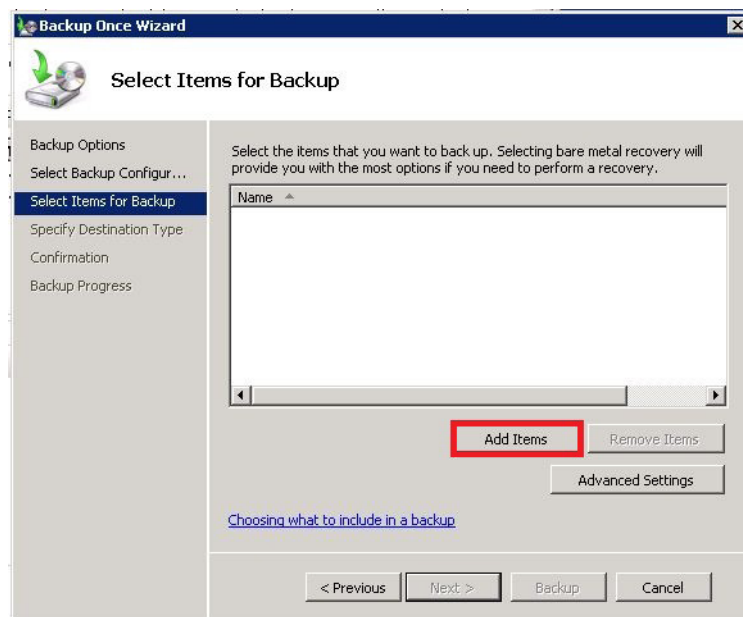
3. Select **Different option** and click **Next>**.



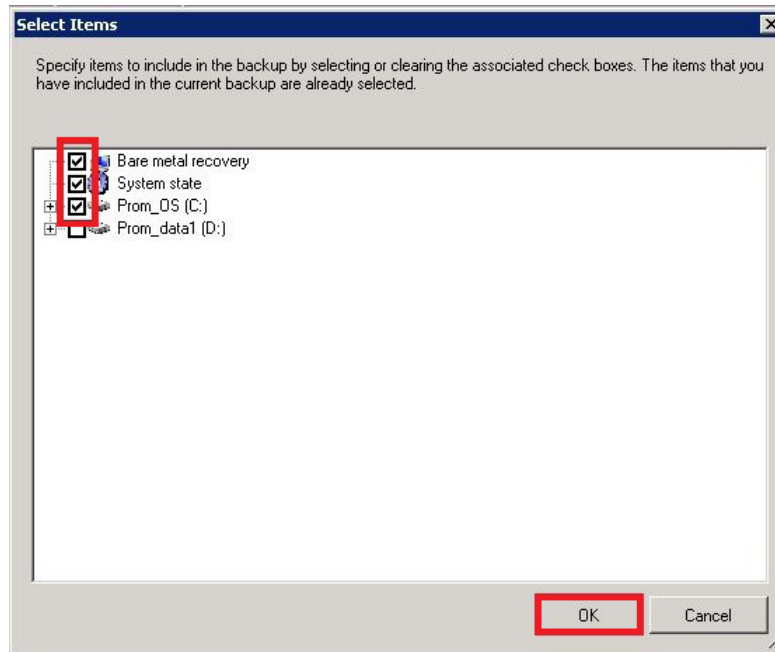
4. Select **Custom** and click **Next>**.



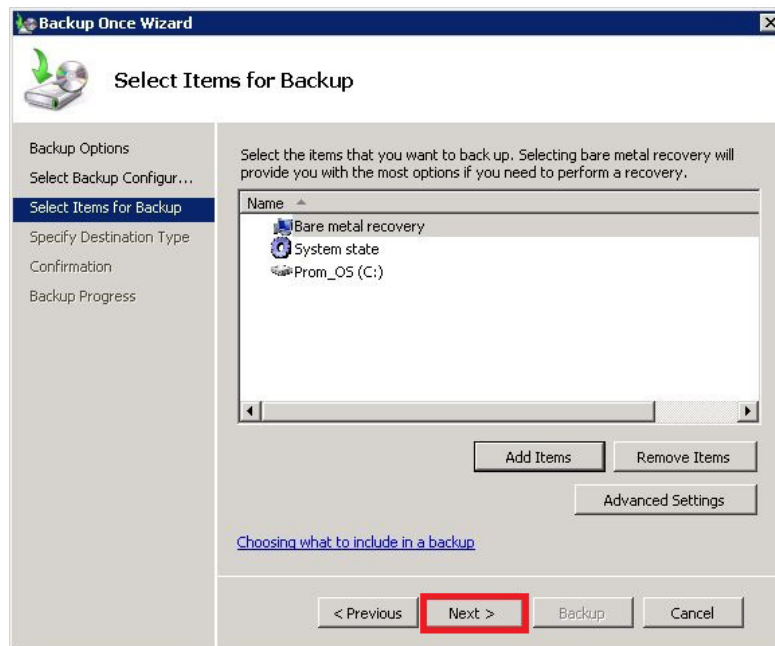
5. Click the **Add Items** button.



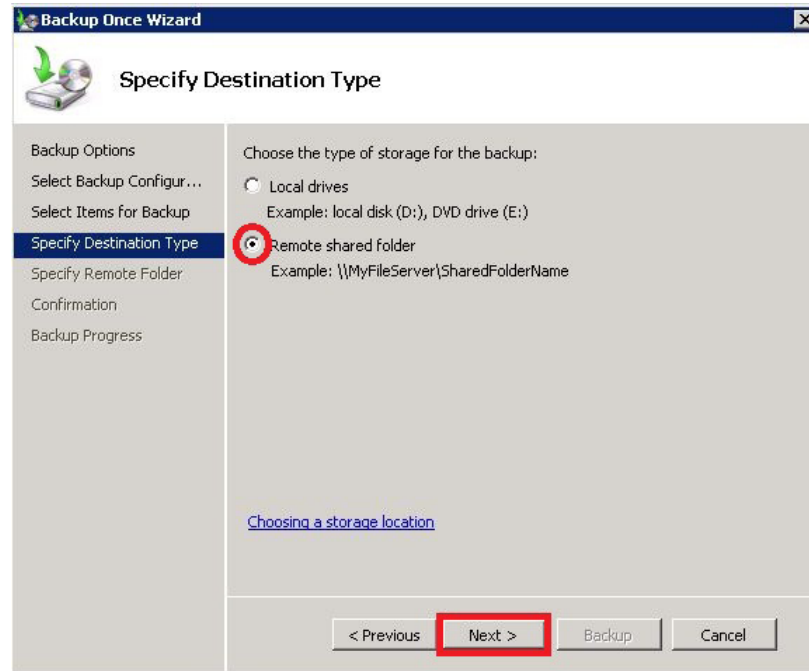
6. Check to enable ***Bare metal recovery***, ***System state*** and ***Prom\_OS(C:)***, and click **OK**.



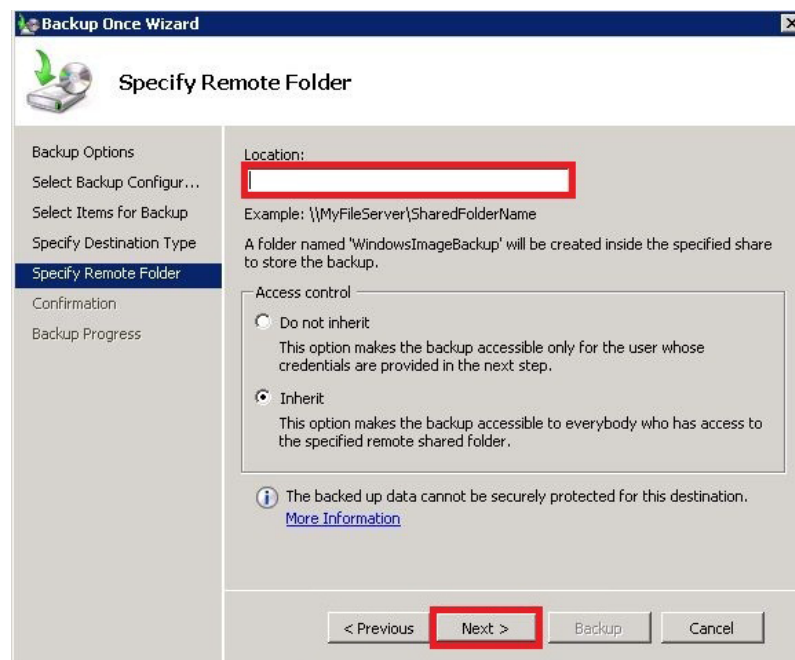
7. Click the **Next>** button.



8. Select **Remote shared folder** and click **Next>**.



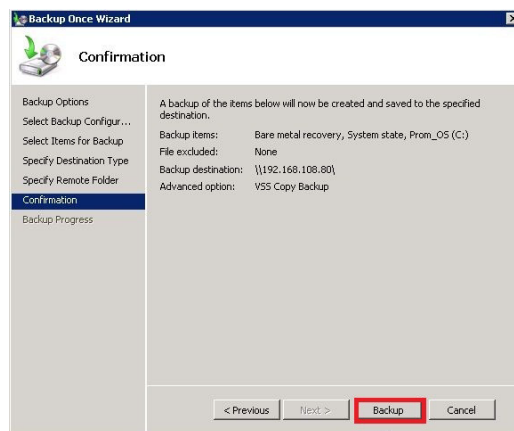
9. Enter the path for the **Network Location**, *don't change the Access control settings*. Click **Next**.



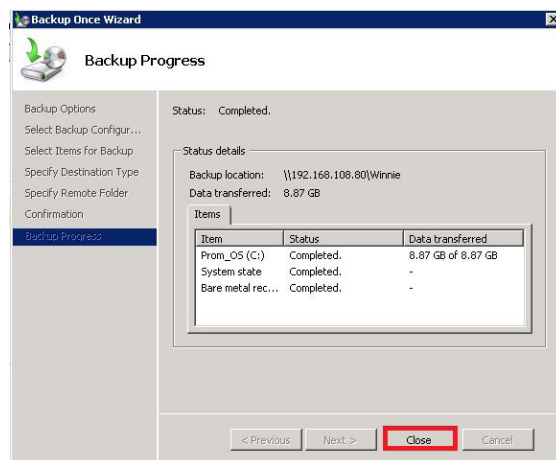
10. Enter the **User name** and **Password** for login.



11. Click the **Backup** button.



12. Wait a few minutes until the *Status* indicates the backup is *Completed*, click the **Close** button.



# SCHEDULED WINDOWS BACKUP

Follow the instructions to schedule regular backups for Windows 7 or Server 2008 to the local RAID volume or to a network drive on a SAN or NAS.

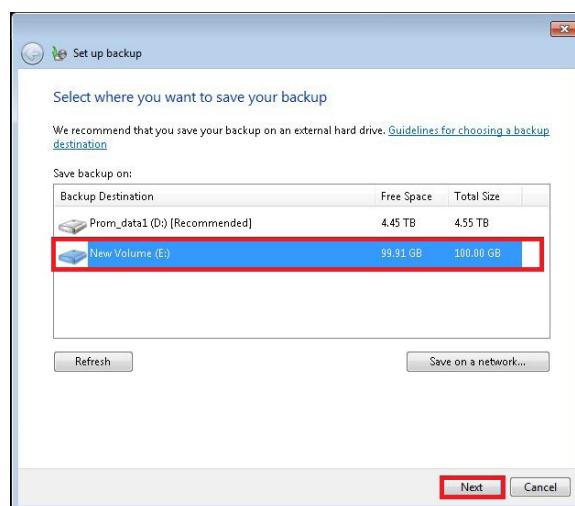
## Schedule system backup to RAID - Windows 7

To setup a schedule for backing up the Windows 7 system disk to the RAID volume:

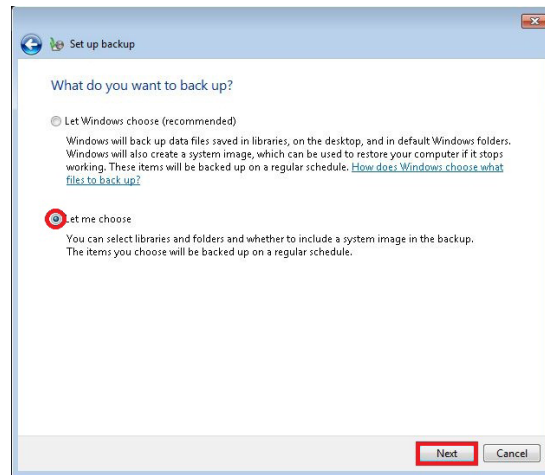
1. Go to **Control Panel > Backup and Restore**, select **Set up backup**.



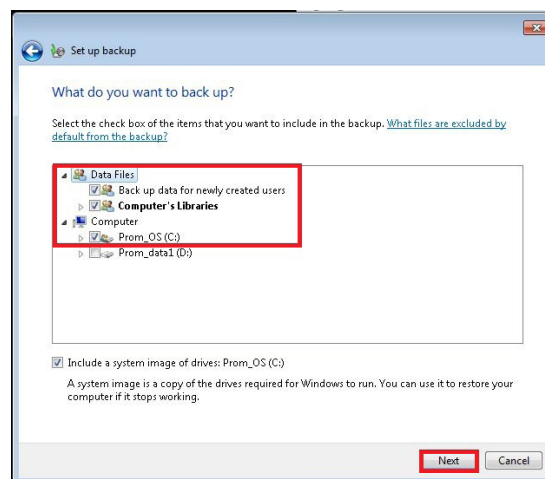
2. Select **New Volume(E:)**, this is the VHD volume created previously. Click the **Next** button



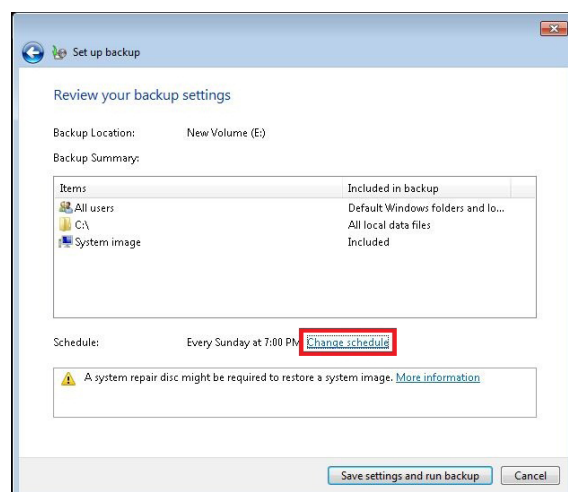
3. Select **Let me choose** and click the **Next** button.



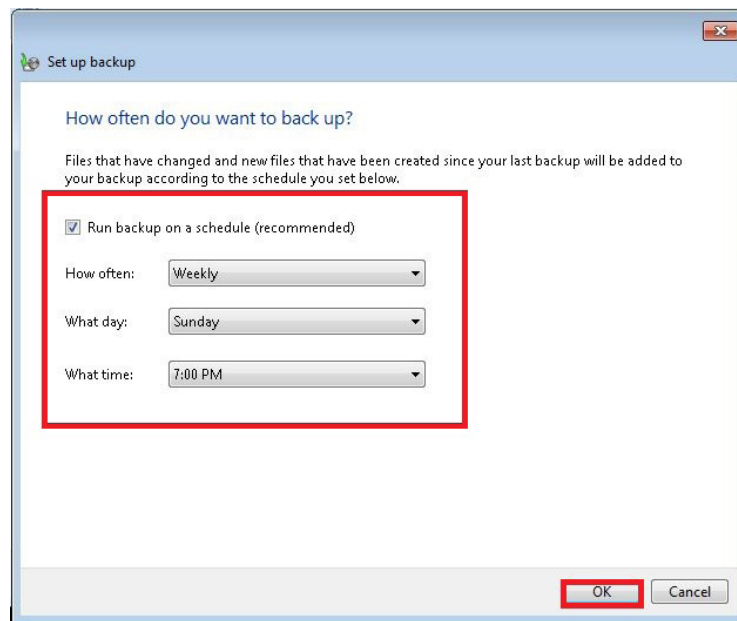
4. Click to enable **Back up data for newly created users**, **Computer's Libraries** and **Prom\_OS**, click the **Next** button



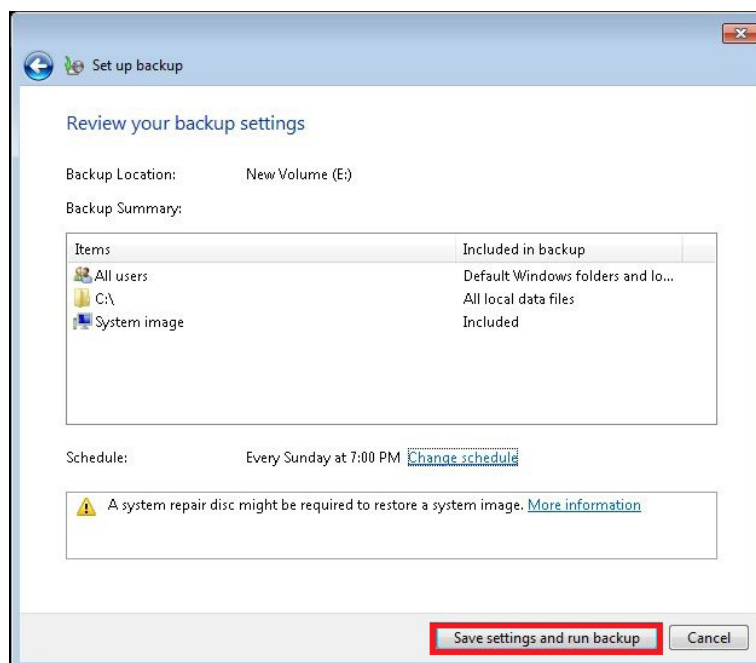
5. Select **Change schedule**.



- Set the backup schedule and click the **OK** button



- Click the **Save setting and run backup** to start backup. The backup will run on schedule.



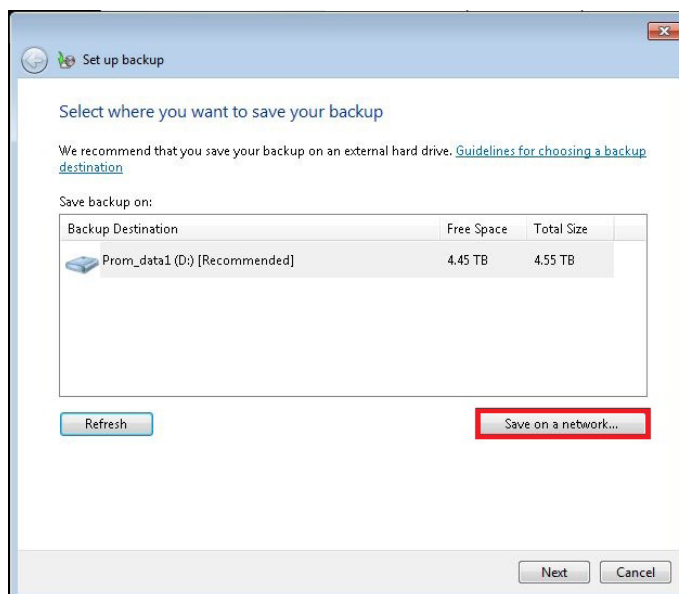
# Schedule system backup to network - Windows 7

To setup a schedule for regular system backups to a network volume:

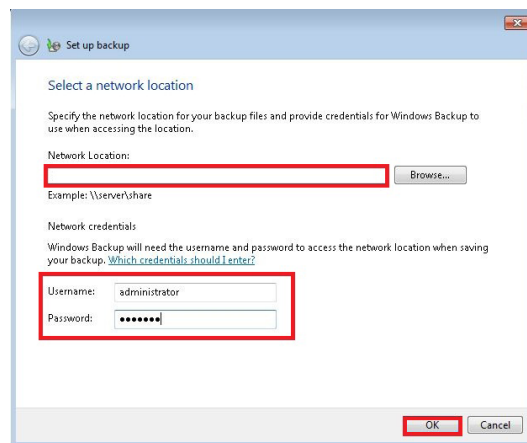
1. Go to **Control Panel > Backup and Restore**. Select the **Set up backup**.



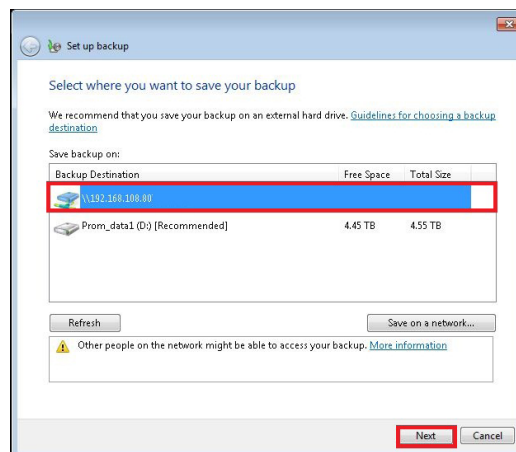
2. Click the **Save on a network...** button



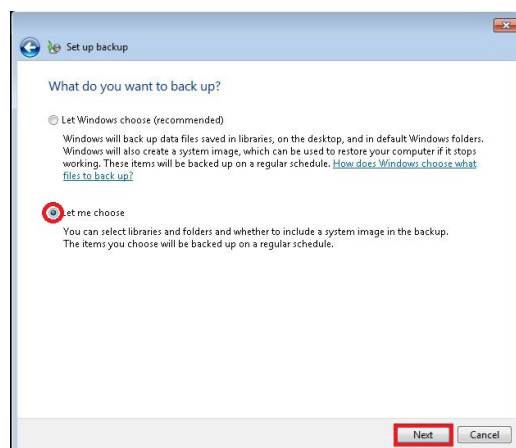
3. Enter the network path for the drive or **Browse** to locate it, the **Username** and **Password** used for access. Click the **OK** button.



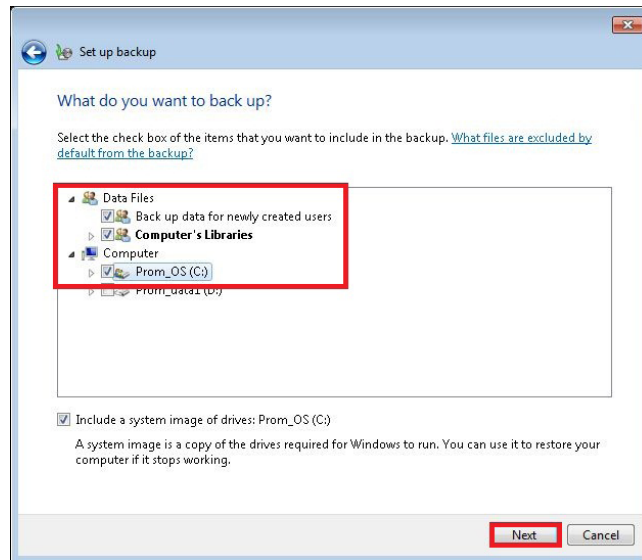
4. Select the network location for the backup destination and click the **Next** button



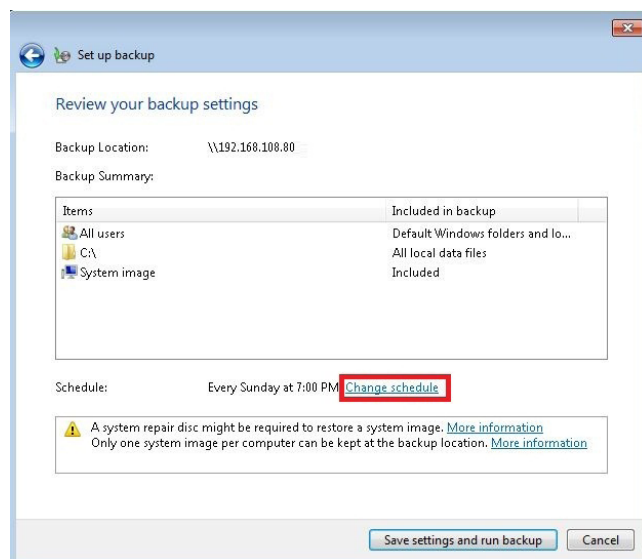
5. Select the **Let me choose** and click the **Next** button.



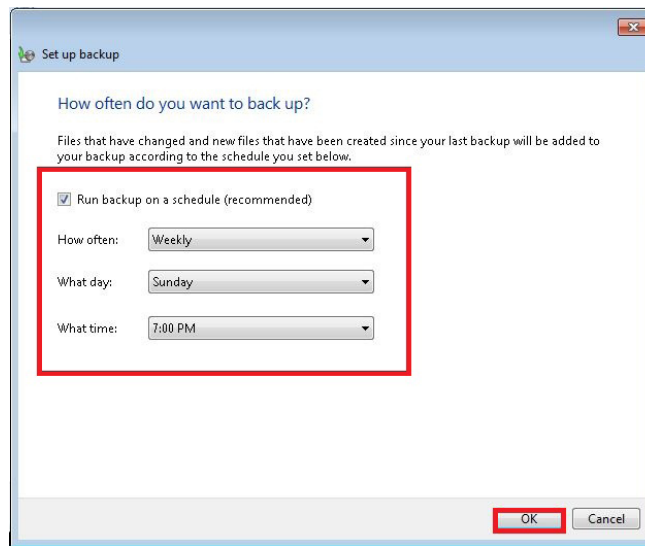
6. Select to enable **Back up data for newly created users**, **Computer's Libraries**, and **Prom\_OS (C:)**, click the **Next** button



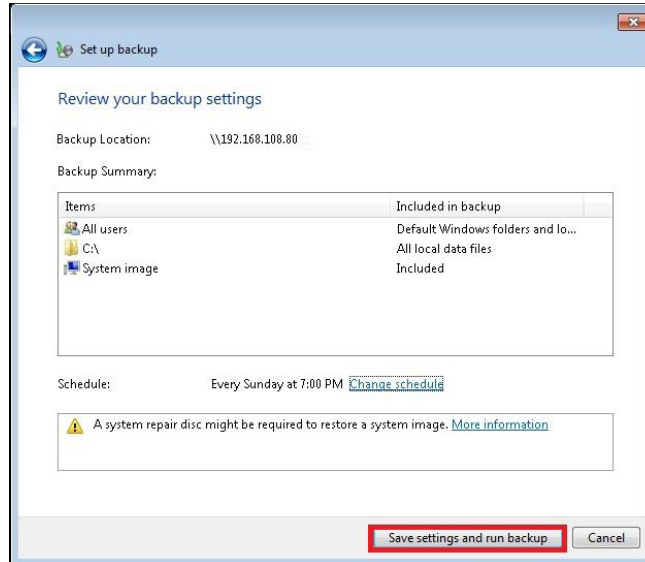
7. Click on **Change schedule**.



- Set the schedule and click the **OK** button.



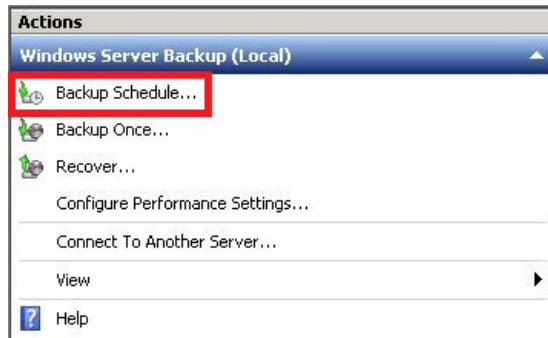
- Click the **Save setting and run backup** button. The backup schedule is set.



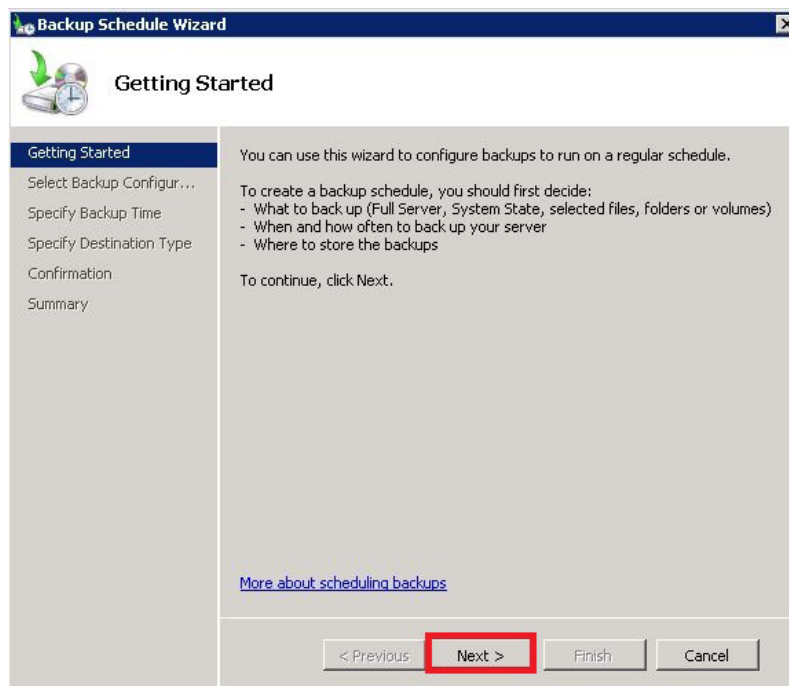
# Schedule system backup to RAID - Windows 2008 Server

Follow these steps to create a schedule for backing up the Windows 2008 Server system disk to the local RAID volume.

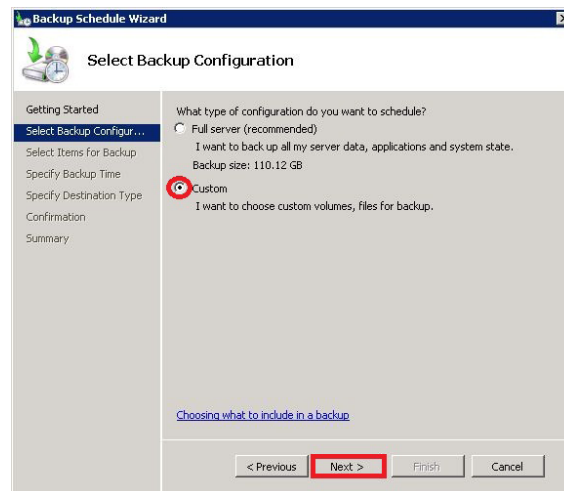
1. Go to **Control Panel > Backup and Restore**. Select the **Backup Schedule**.



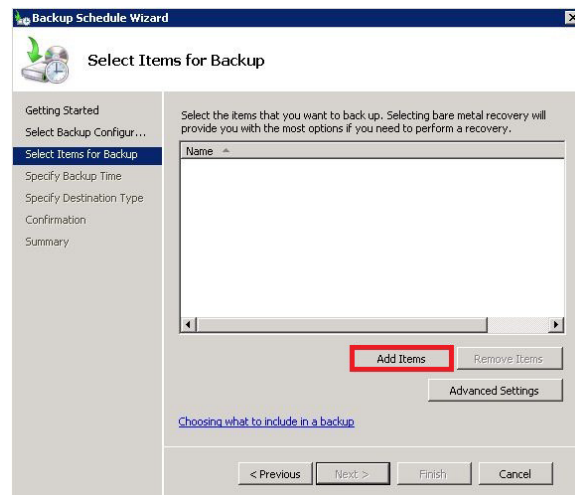
2. Click the **Next** button.



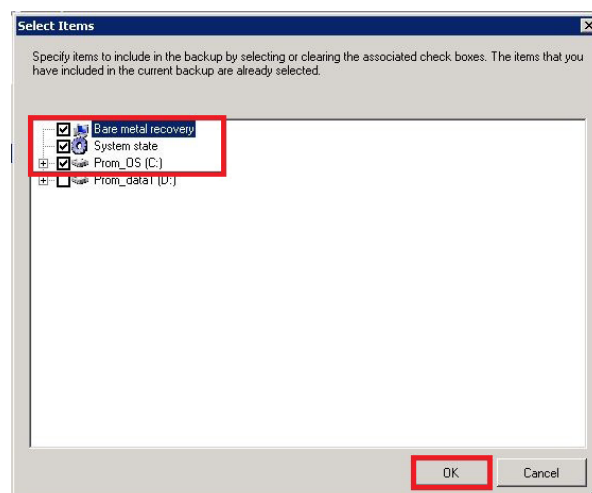
3. Select the **Custom** and click the **Next>** button.



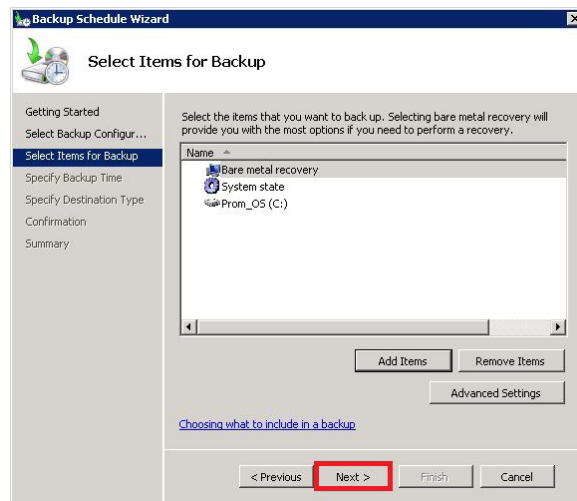
4. Click the **Add Items** button.



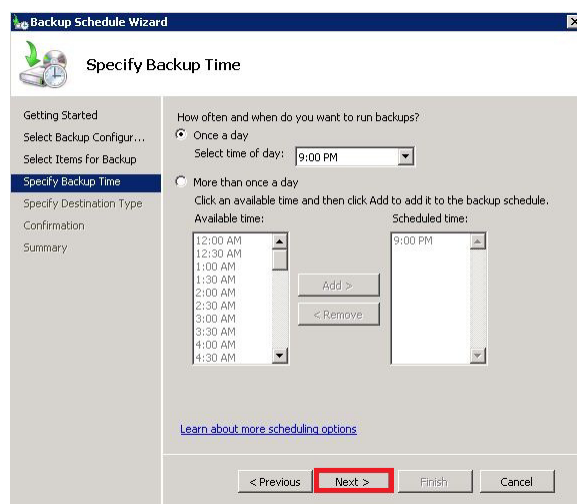
5. Select to enable **Bare metal recovery**, **System state** and **Prom\_OS(C:)**, click the **OK** button.



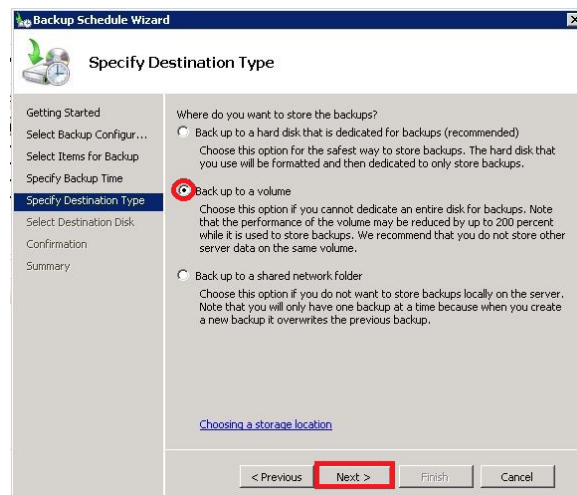
6. Click the **Next>** button.



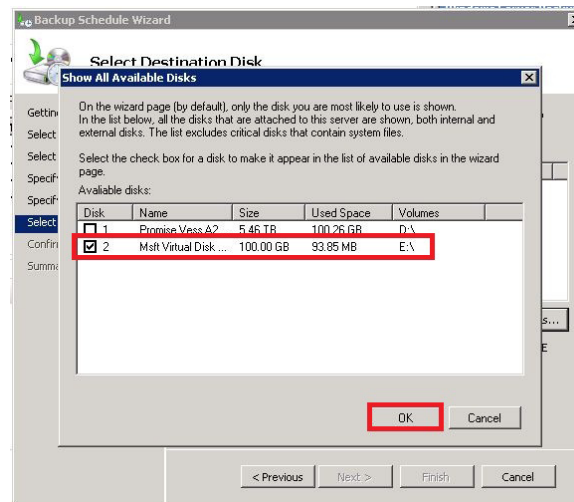
7. Set the schedule and click the **Next** button.



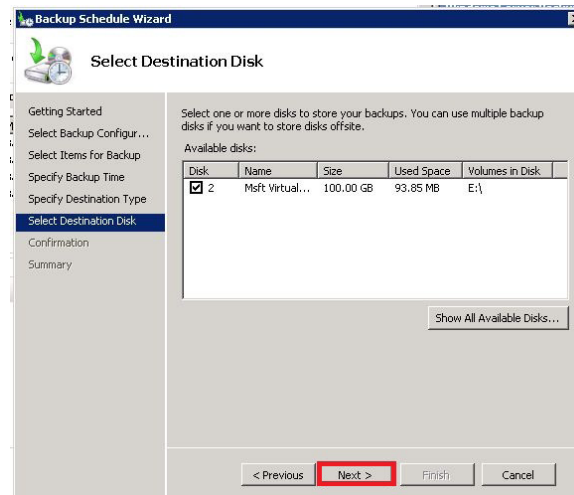
8. Select **Back up to a volume** and click the **Next>** button.



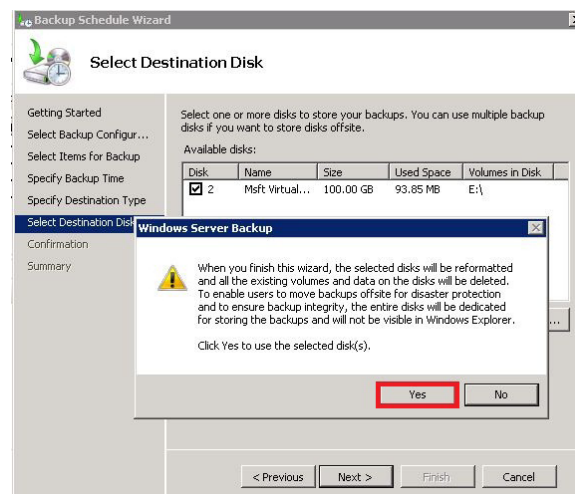
9. Select to enable the VHD created previously click the **OK** button.



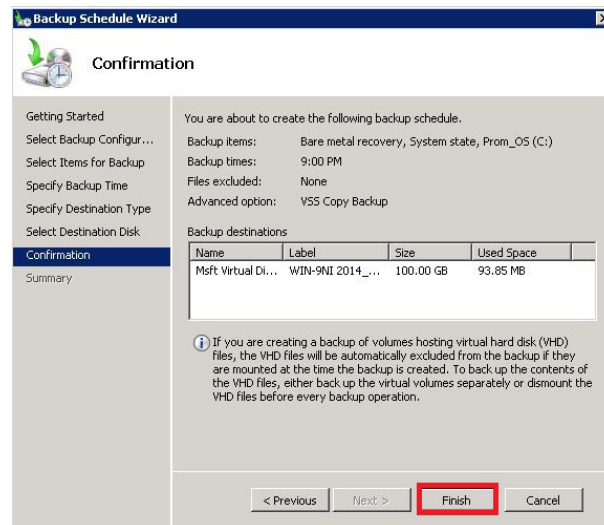
10. Click the **Next>** button.



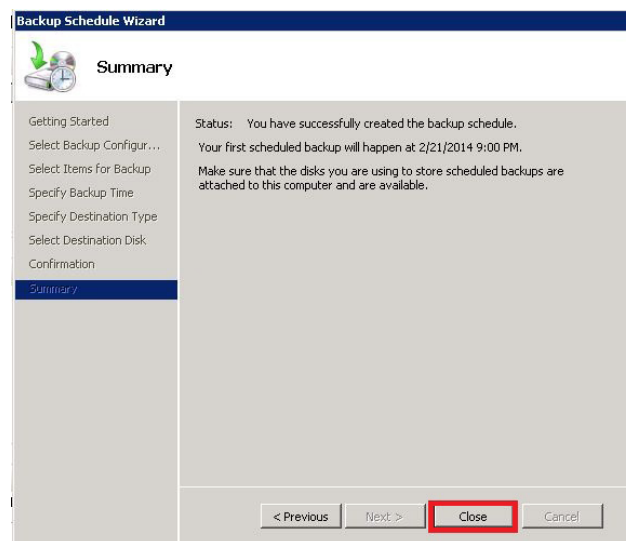
11. Click the **Yes** button.



12. Click the **Finish** button.



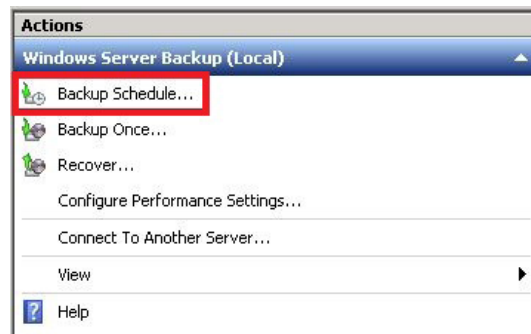
13. Click the **Close** button.



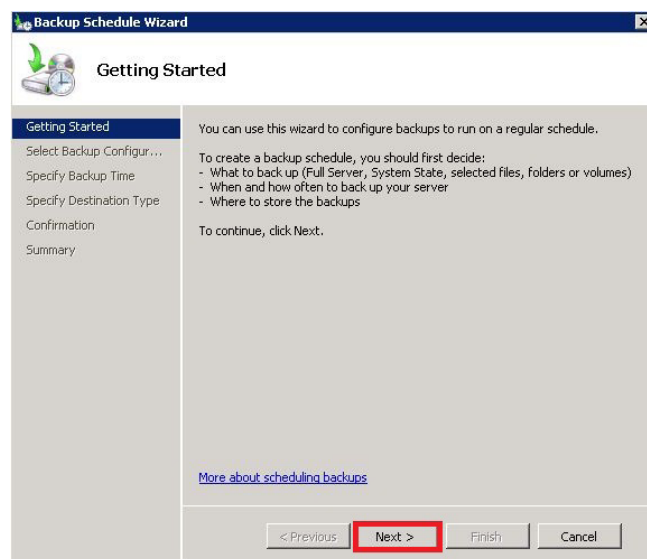
# Schedule system backup to network - Windows 2008 Server

Follow these steps to setup a schedule for backing up the system Windows 2008 Server disk to a network volume on a SAN or NAS.

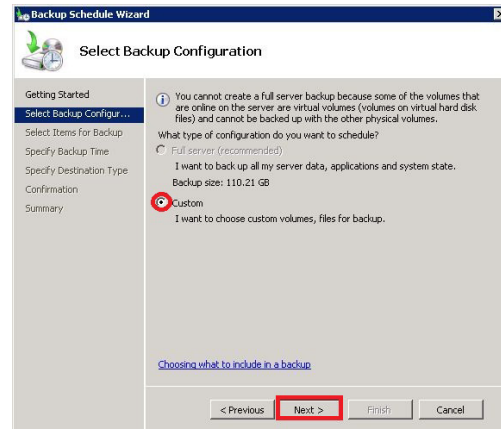
1. Select the **Backup schedule**.



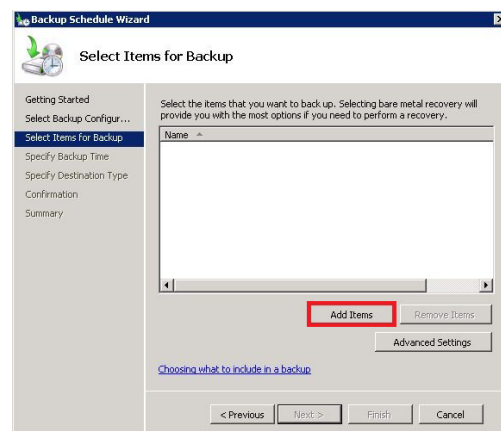
2. Click the **Next>** button.



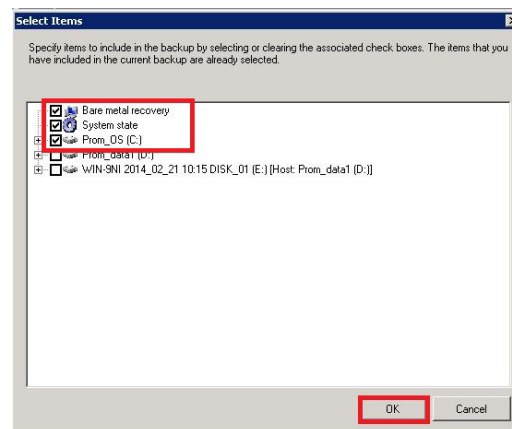
3. Select the **Custom** and click the **Next>** button.



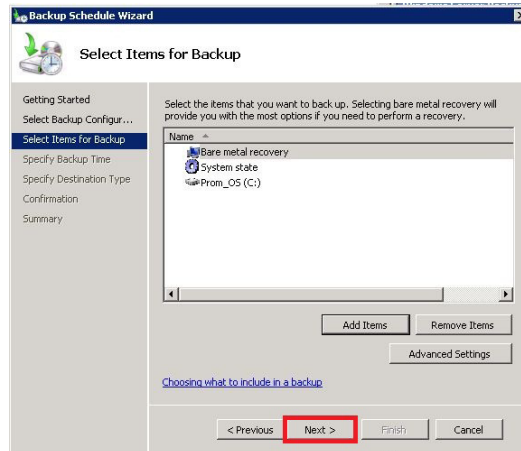
4. Click on **Add Items**.



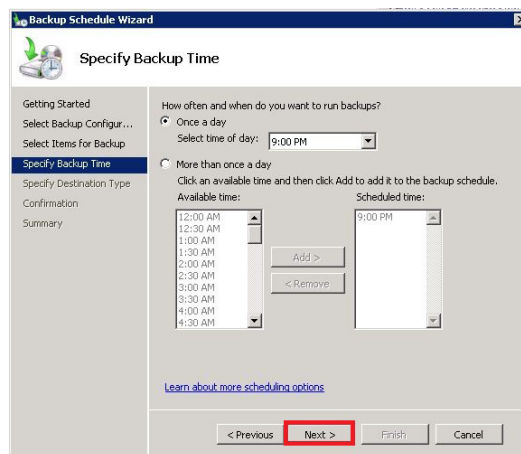
5. Select to enable **Bare metal recovery**, **System state** and **Prom\_OS(C:)**, click the **OK** button.



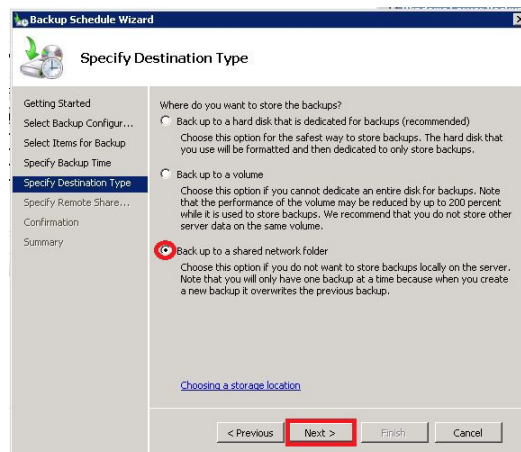
- Click the **Next>** button.



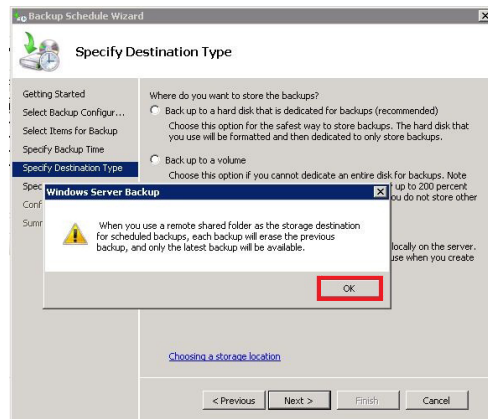
- Set the backup schedule and click the **Next>** button.



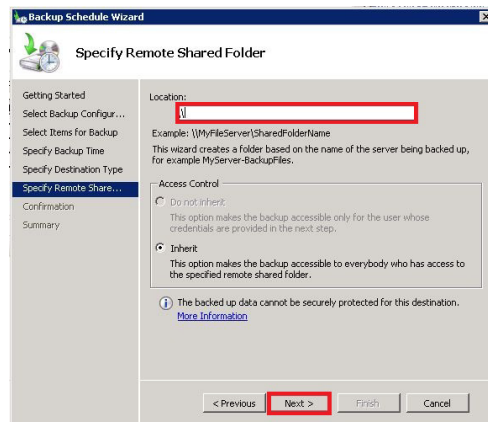
- Select the **Back up to a shared network folder** and click the **Next>** button.



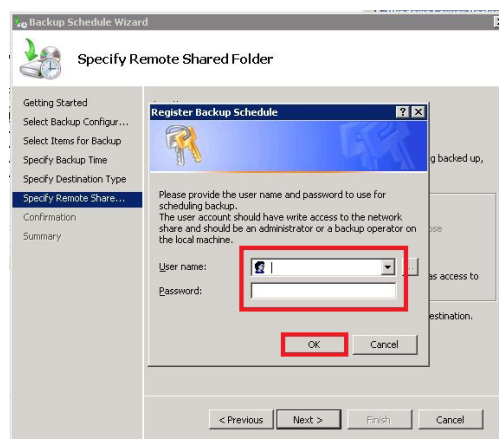
9. Click the **OK** button.



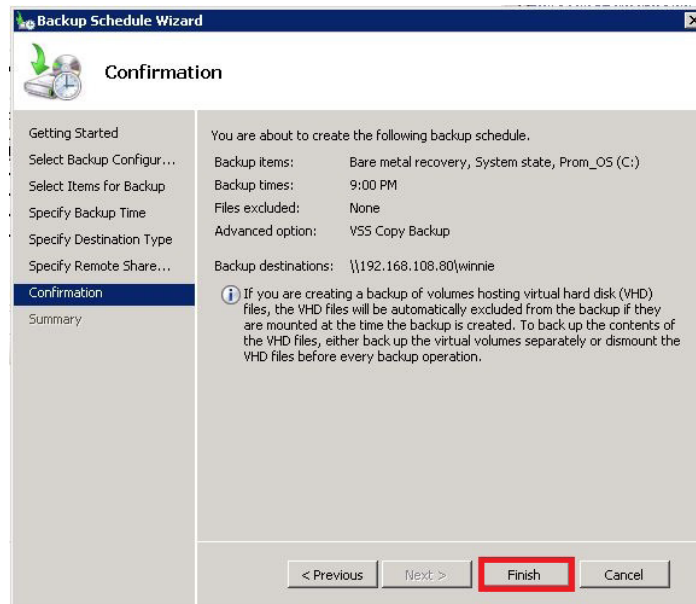
10. Enter the network path to the backup destination and click the **Next>** button. *Leave the Access Control settings to the default values.*



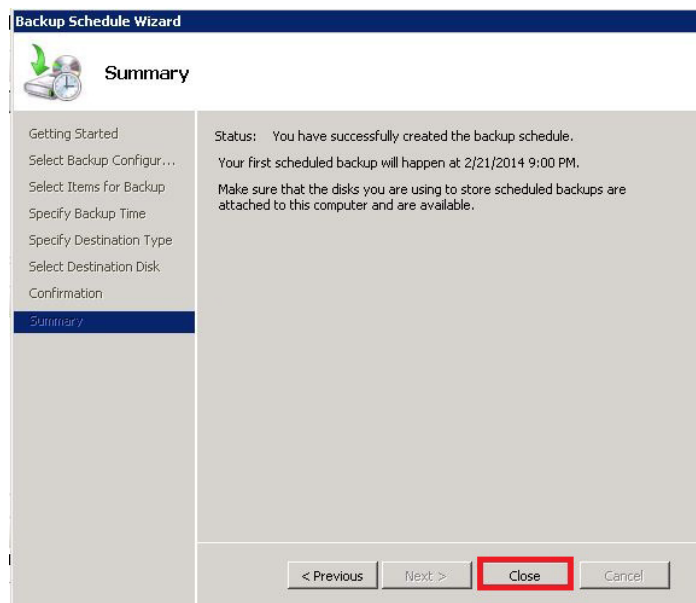
11. Enter the **User name** and **Password** to access the drive and click the **OK** button.



12. Click the **Finish** button



13. Click the **Close** button. The schedule is now setup.



# SYSTEM RECOVERY

The system recovery process requires that a minimal operating system called the and RAID engine first be installed on the C drive. The files loaded to the C drive are called the Recovery Environment (RE). Once the RE is installed the remaining elements of the system disk can be restored from the local RAID volume, DVD or a network drive connected via SAN or NAS.

Follow the instructions in “Create the recovery environment” on page 60, then proceed to recover the system disk according to the method by which it was backed up.

See the following sections for the final recovery stage:

- **“Restore from RAID” on page 61**
- **“Restore from DVD” on page 65**
- **“Restore from network drive” on page 68**

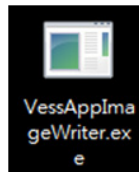
## Create the recovery environment

The procedure described here is used to load a Recovery Environment onto the system drive (mSATA C drive) of the Vess A2000. The procedure is the same for Windows 7 and Windows 2008 Server operating systems.

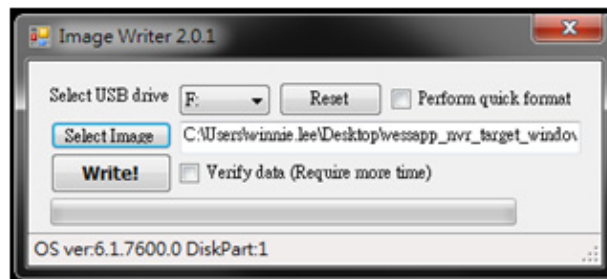
1. Download **VessAppImage.exe** and the **Recovery Environment (RE) Image**.

The recovery image and image write utility are available for download from PROMISE. Please ask FAE Supporting Engineers, Sales, and Sales Engineering staff help downloading the files needed.

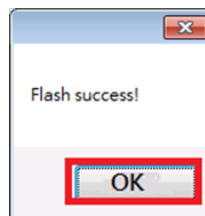
2. Launch **VessAppImageWriter.exe**.



3. Select the **USB drive** and **Select Image**, browse to locate the downloaded RE Image and click on **Write**.



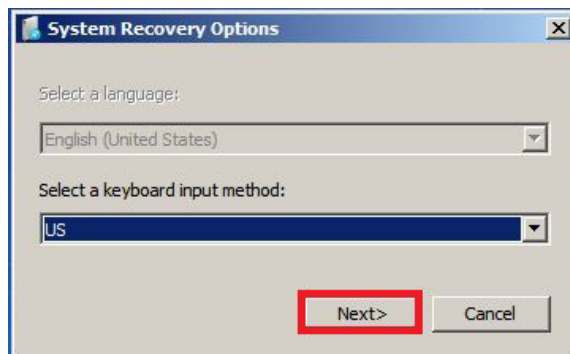
4. When the process is completed the message *Flash success* appears. Click **OK**.



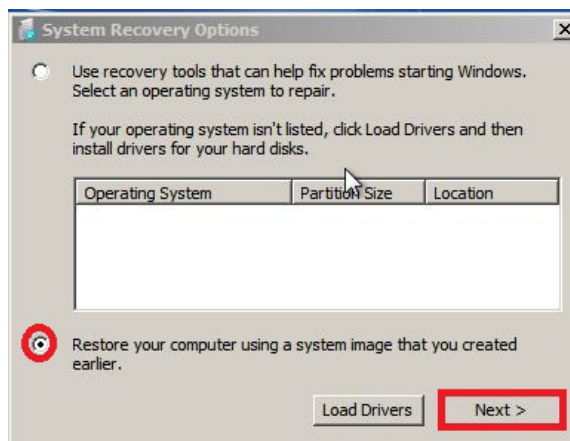
## Restore from RAID

Follow these steps to restore the system disk from a saved version on the local RAID volume.

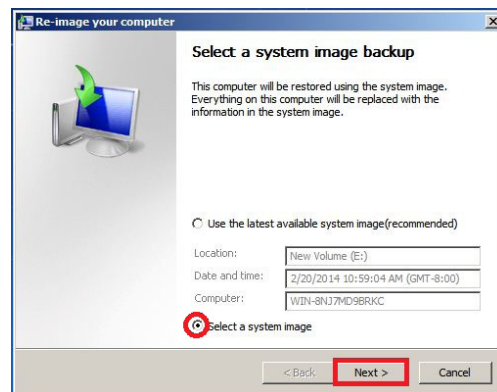
1. Create the Recovery Environment if you have not yet done so. See “Create the recovery environment” on page 60.
2. Connect a keyboard, mouse and monitor and insert the USB flash drive containing the RE Image into and a USB port on the Vess A2000.
3. Power on the Vess A2000. The system will boot from the USB drive.
4. Click the **Next>** button in the first menu that appears.



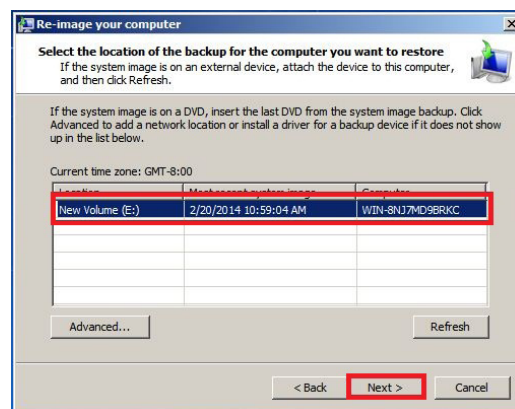
5. Select **Restore your computer using a system image that you created earlier** and click the **Next>** button.



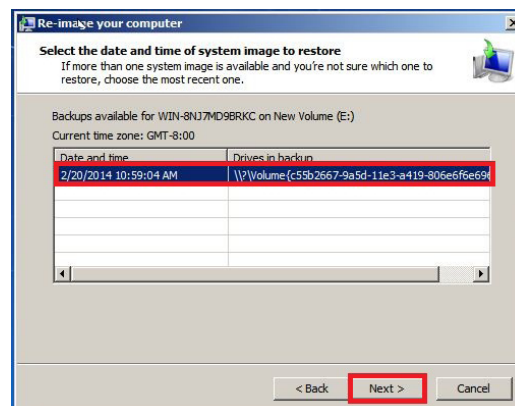
6. The **Select a system image** should be chosen already with the location and other information appearing in the menu. Click the **Next>** button.



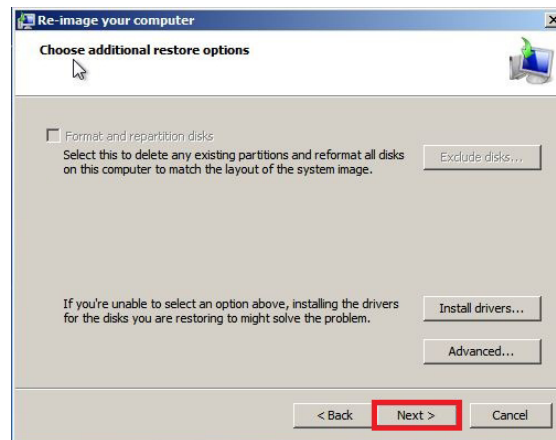
7. Choose the location and click the **Next>** button.



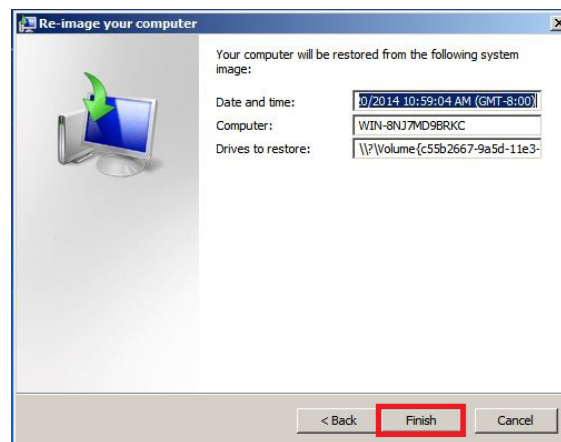
8. Select the date and time and click the **Next>** button.



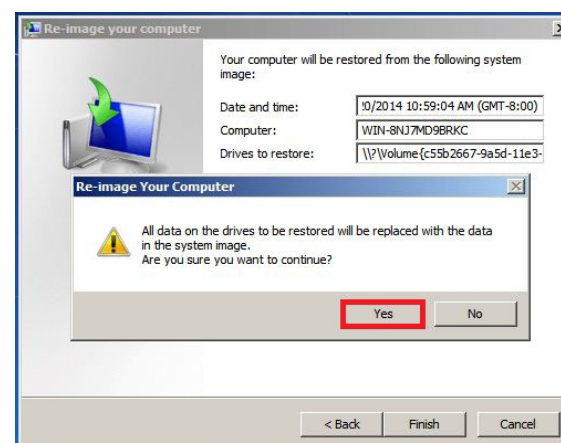
9. Click the **Next>** button.



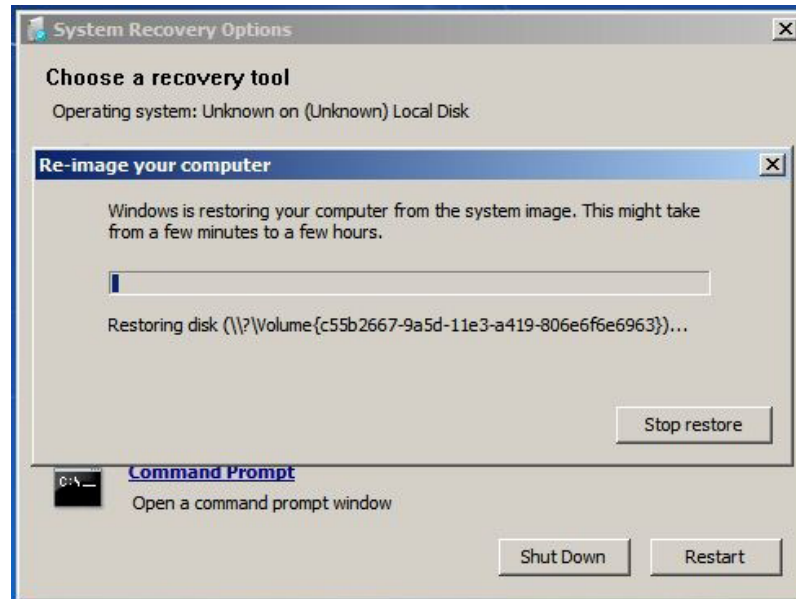
10. Click the **Finish** button.



11. Click the **Yes** button.



12. Windows begins restoring the system disk to the state at which it was previously saved. When the re-image process is done, you will be prompted to restart. After rebooting the system image and recovery procedure is completed.



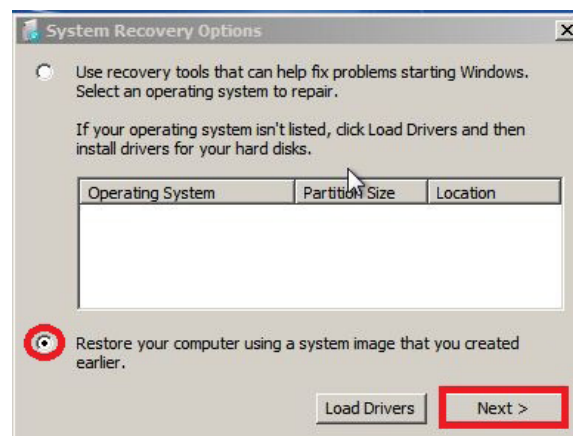
## Restore from DVD

Follow these steps to restore the system disk from a saved version on a DVD drive.

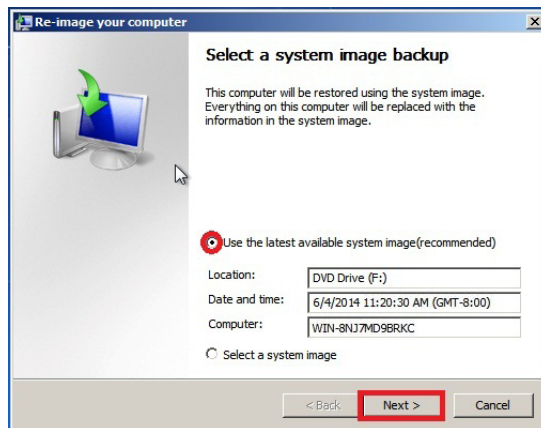
1. Create the Recovery Environment if you have not yet done so. See “Create the recovery environment” on page 60.
2. Connect the DVD drive with the saved system disk inserted, a keyboard, mouse and monitor and insert the USB flash drive containing the RE Image into and a USB port on the Vess A2000.
3. Power on the Vess A2000. The system will boot from the USB drive.
4. Click the **Next>** button in the first menu that appears.



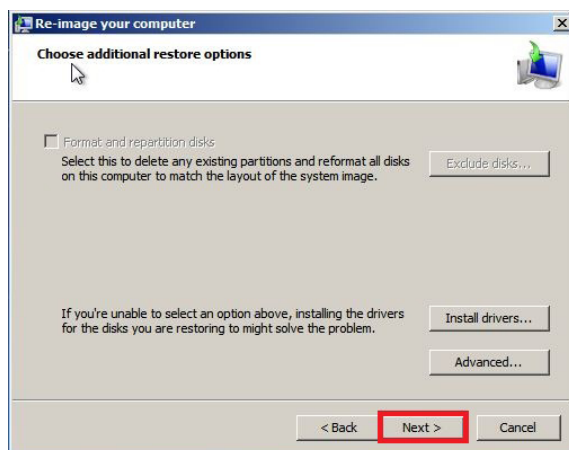
5. Select **Restore your computer using a system image that you created earlier** and click the **Next>** button.



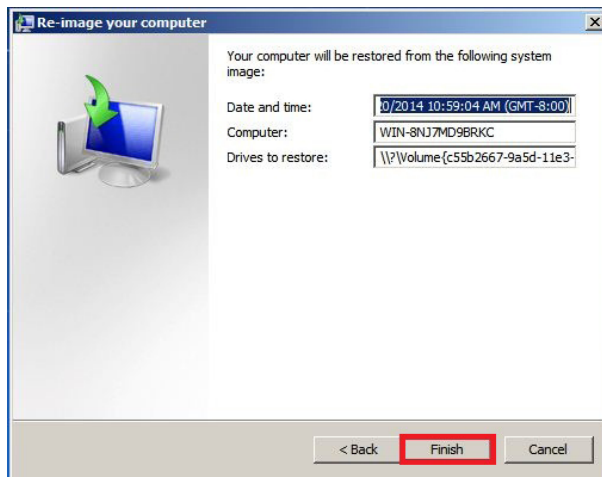
- The **Use the latest available system image** should be chosen already with the location and other information appearing in the menu. Click the **Next>** button.



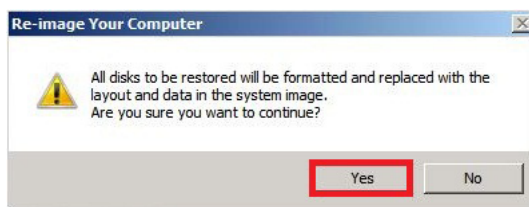
- Click the **Next>** button.



Click the **Finish** button.



8. Click the **Yes** button.



9. Windows begins restoring the system disk to the state at which it was previously saved. When the re-image process is done, you will be prompted to restart. After rebooting the system image and recovery procedure is completed.

## Restore from network drive

Follow these steps to restore the system disk from a saved version on the local RAID volume.

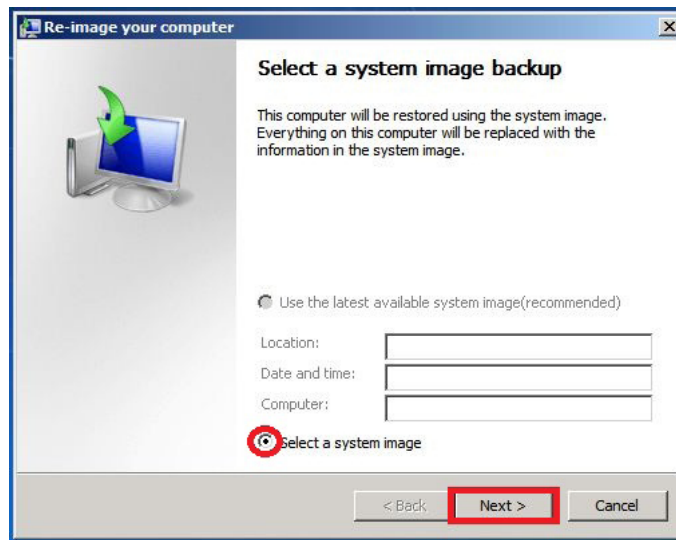
1. Create the Recovery Environment if you have not yet done so. See “Create the recovery environment” on page 60.
2. Connect a keyboard, mouse and monitor and insert the USB flash drive containing the RE Image into and a USB port on the Vess A2000.
3. Power on the Vess A2000. The system will boot from the USB drive.
4. Click the **Next>** button in the first menu that appears.



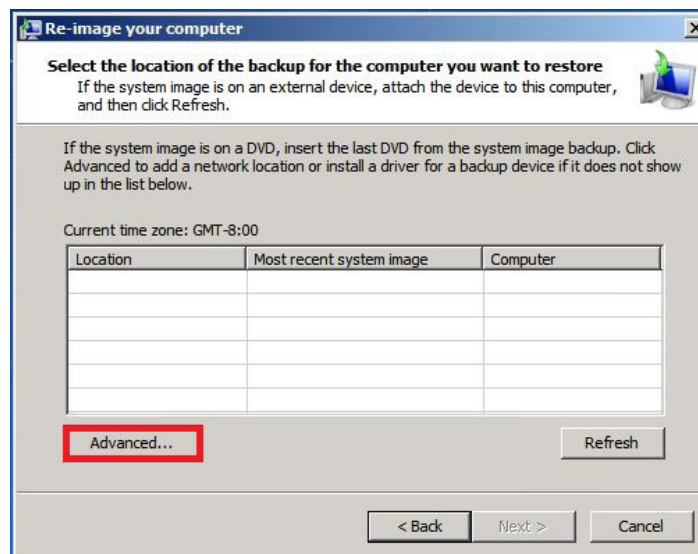
5. Select **Restore your computer using a system image that you created earlier** and click the **Next>** button.



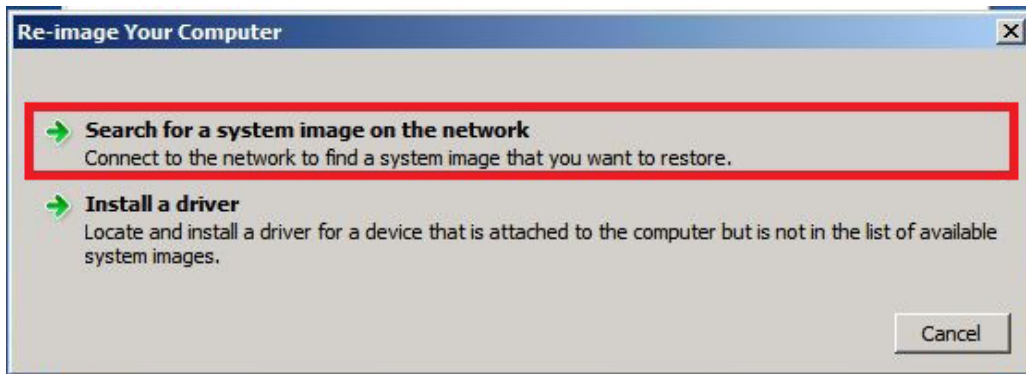
6. Choose the **Select a system image** option and click the **Next>** button.



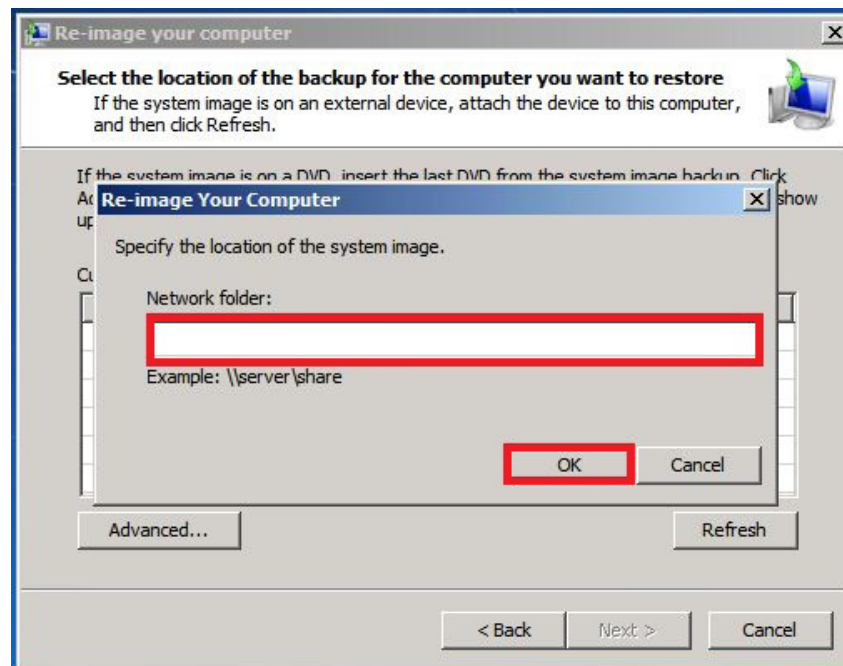
7. Click the **Advanced** button.



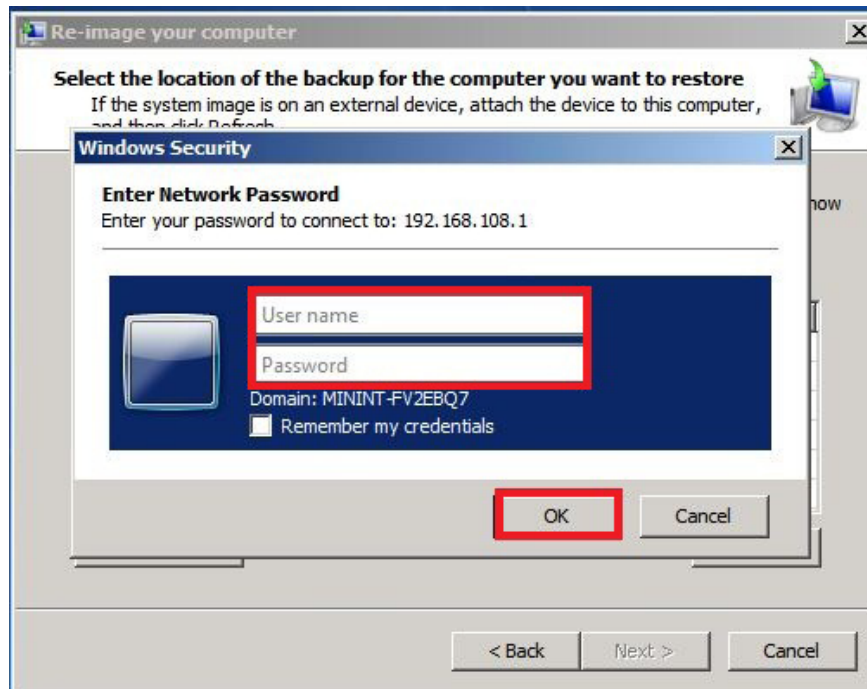
- Click on the **Search for a system image on the network** option.



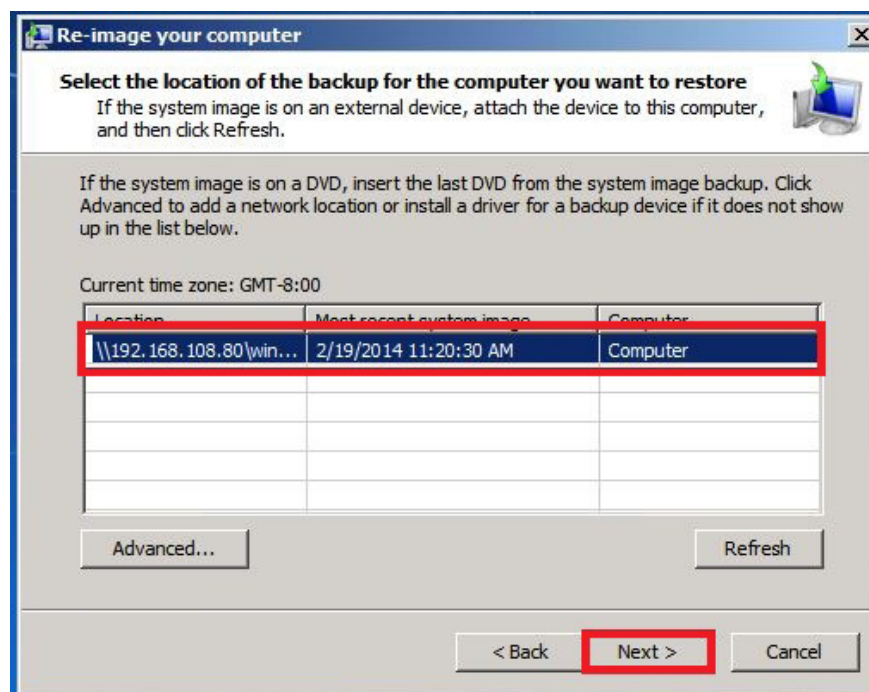
- Specify the location of the system image and click **OK**.



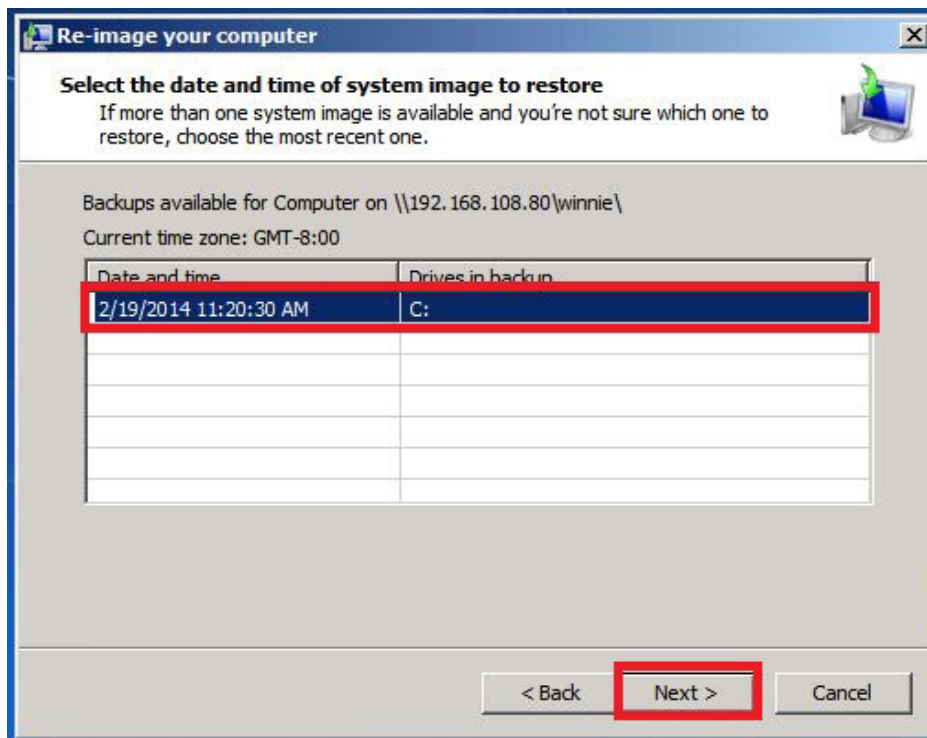
10. Enter the **Username** and **Password** to connect to network drive and click **OK**.



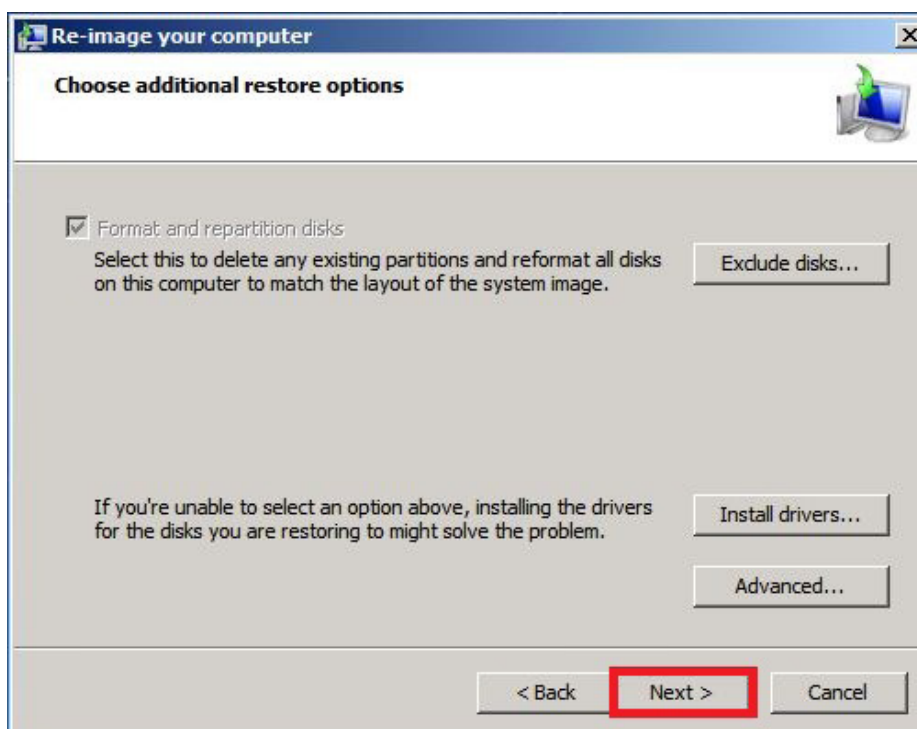
11. Select the **Location** and click **Next>**.



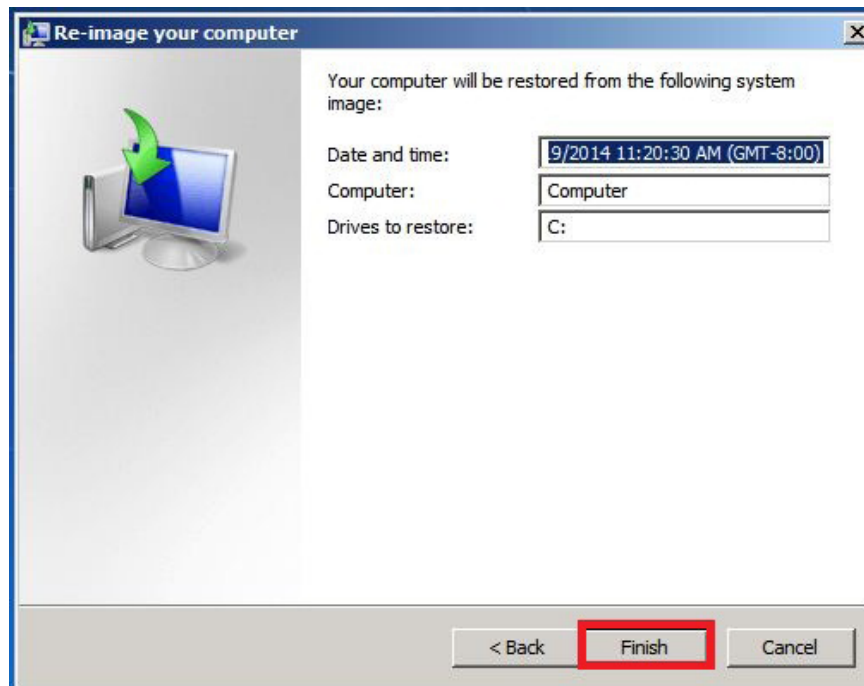
12. Select the date and time of system image to use for the system restore and click **Next>**.



13. Click **Next**.



14. Click **Finish**.



15. Click **Yes**. Windows begins restoring the system disk to the state at which it was previously saved. When the re-image process is done, you will be prompted to restart. After rebooting the system image and recovery procedure is completed.

