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| **Recovering DataStor from Vaulted Tapes** |  |

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| DataStor Backup System Overview | | | |
| *DataStor is a backup and recovery software that allows the backup of physical and virtual machines.*  *DataStor uses data de-duplication and is very efficient in terms of backup storage and backup speed.*  *The DataStor backup process can be configured to backup Flat files, SQL databases, Exchange or complete servers* | | |
| *The DataStor recovery process allows administrators to restore files or databases through the DataStor GUI interface.*  *DataStor allows administrators to restore complete servers through a Bare Metal Restore process by using a DataStor System Recovery Environment bootable media (DVD / CD, USB Key, or ISO file).* | | |
| Vaulting to Tape with DataStor | | | |
| *A Store is the location on disk where the backups made with DataStor are kept.*  *DataStor is capable as well to make copies (archives) of the on-disk Stores to tape, if a tape drive or tape library is attached to the server that has DataStor installed, and if DataStor has the Vaulting license.*  *The reason of making copies of the on-disk Stores to tapes is to send these tapes containing the Stores off-site, in order to words to keep a copy of the Stores at an off-site protected facility in case of a major disaster that destroys the whole DataStor Backup environment.*  ***Note****: A DataStor license key is necessary for the server dedicated to vaulting* | | |
| Restoring the DataStor Environment form the Vaulted tapes | | | |
| *The DataStor Backup environment consists of the following components:*   * *DataStor Server* * *DataStor Vaulting Server* * *Tape Library* * *Disk Storage Library containing the DataStor Stores* | | |
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| *In case of a major disaster, if the whole DataStor Backup environment (DataStor Server, DataStor Vaulting Server, Disk Storage Library containing the DataStor Stores) is lost, we should be able to restore the whole backup environment using the following essential components:*   * *The Vaulting tapes located of the offsite storage location* * *The exported DataStor Configuration of the DataStor servers* | | |
| *Prior to start this the following physical components must be repaired and or replaced:*   * *DataStor Server* * *DataStor Vaulting Server and the locally connected Tape Library* * *Disk Storage Library with same disk capacity as the previous library* | | |
| *The purpose of this document is to explain how restore the whole DataStor environment using that vaulted tapes* | | |
| Server Requirements | | | |
| *The DataStor Vaulting Server require an additional, large capacity dedicated drive for the DataStor Cache* | | |
| Disk Space | C: Drive – at least 64GB  E: Drive (DataStor Cache Drive) – at least 4TB | | |
| Install and Configure the Server | | | |
| Server Name | |  | |
| IP Address | |  | |
| OS | | Windows 2012 R2 Standard Server (Evaluation) | |
| Add / Remove Windows Features | | Make sure .NET Framework 3.5 Features are installed  Make sure .NET Framework 4 Features are installed | |
| Install Windows updates | |  | |
| Configuring the Server Attached Hardware | | | | |
| ***Note****: The DataStor server has following Tape Library attached: Dell PowerVault 124T Media Changer*  *The Dell PowerVault 124T Autoloader contains one Quantum Ultrium 5 SCSI drive (LTO5)* | | | | |
| ***Note****: The Dell Media Changer is physically connected to the following Storage Controller: Dell 6Gbps SAS HBA* | | | | |
| Download and install the drivers for the Dell 6Gbps SAS HBA | | From Dell | | |
| Download and install the drivers for the Dell Media Changer | | From Dell | | |
| Open Device Manager | |  | | |
| For the Quantum Ultrium 5 SCSI Drive make sure you install the Microsoft Drivers not the Dell Drivers | |  | | |

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| Installing DataStor | |
| Download and run the latest executable from DataStor:  <https://support.datastor.com/support/solutions/5000075725>  DATASTOR\_Shield\_EnterpriseProtectionServer\_9\_0\_1109.exe  Follow the installation instructions in the Setup Wizard  Before starting the installation, other requirements will be installed by the setup |  |
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| DataStor License Overview | |
| ***Note****: To be functional the DATASTOR Enterprise Protection Server requires valid license keys that have been successfully activated or temporary license keys (if the permanent ones could not be activated immediately)* | |
| ***Important****: In case of a DR, if you are rebuilding the DataStor server and try to use the same license keys that you activated in the past, you must re-activate them immediately after the installation, in order to use the DataStor software.*  *But if try to activate these licenses again on any server hardware (the same physical server or on a different server), you must call DataStor to be able to re-activate the licenses, because the online activation will not work.*  *Unfortunately, the “by telephone” activation service is not a 24/7 service, but a 9 to 5 (Mountain Time) service* | |
| *Instead you can use temporary license keys, and install / activate the permanent keys later*  *To obtain temporary license keys go to:* [*https://support.datastor.com/support/solutions/5000075725*](https://support.datastor.com/support/solutions/5000075725) | |
| *At the moment of this test, all temporary keys had an expiration date of December 31, 2018* | |
| Installing DataStor Licenses | |
| After the installation, the DataStor **Archive Manager** starts and asks first to accept the Agreement, then for Adding a License Key  Click **Add a License Key**  This will open the License Keys window |  |
| Click **Add…** to add a new license key |  |
| The licenses are located on our file server in K:\IT\Infrastructure\04. Infrastructure Systems\Backup System | |
| This server requires 2 licenses | DATASTOR Shield™ Enterprise Protection Server Manager |
|  | DATASTOR Shield™ EPS Tape Automation Module |
| Select  🞊 Internet, and click **Activate Now** |  |
| If the license haven’t been activated, the activation succeeds but if it has been already activated in the past, you can’t reactivate it a second time through the Internet, and you’ll get the following message. Activate the licenses by phone |  |
| Proceed similarly with the other licenses | The Status should say **Activated** |
| Click **Close** |  |

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| Configuring the Vaulting Properties | | | |
| ***Note****: This step allows to specify the disk cache location, the encryption passphrase used to encrypt the vault, and owner id.*  ***Important****: If encrypted, the data cannot be restored without the exact passphrase used at encryption* | | | |
| In DataStor Enterprise Protection Server / **Archive Manager**  Right click **Storage** / select **Configure Vaulting…** | |  | |
| In **Configure Vaulting Properties** window click  Select Cache Disk… | |  | |
| Select the **Drive E:** which was prepared for this purpose  Click **Next** | |  | |
| On the **Encryption** page | | Type the encryption **Passphrase** and Click **Initialize** | |
|  | |  | |
| On the **Owner ID** page | | Type the **Owner ID** and Click **Initialize** | |
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| Click **Next**  Click **Finish** to complete the wizard | |  | |
| DataStor Configuration Settings Overview | | |
| ***Important****: All DataStor Servers must be configured do perform a daily export of the Datastor Configuration Settings.*  *This action is very important because in case of a total disaster the DataStor server has to be rebuild first, and the Datastor Configuration Settings export file will accelerate this process.* | | |
| *We configured the Task Scheduler to export daily the Datastor Configuration Settings to C:\Datastor\_Settings\_Backup, and*  *keep there the last 3 days. A robocopy script C:\Backup\_Script\datastor\_settings\_backup.bat which is run by the Task Scheduler copies the 3 export files to the file server* | | |
| Importing the DataStor Configuration Settings from the Export File | | |
| ***Note****: If you try to import the DataStor settings before configurig the Vaulting Properties the following message will appear.* |  | |
| Import the archived DataStor settings from file (example) | DSVAULT.20170219.0.180001.813.export.zip | |
| Right click the Archive Manager / select **Import Settings…**    Browse to the settings file  Click **Next** |  | |
|  | Type the credentials for one of the following acounts:  admin | |
| ***Note****: The following instructions are a workaround in case the Configuration Settings import through the GUI does not work* | | |
| *The import archive procedure through the GUI might not work due to a bug related to long file names.*  *In this case it is necessary to run a manual import of the zip file as follows:* | | |
| Make a temporary directory in the root of C: and call it Temp | | |
| C:\>mkdir Temp  C:\>cd "Program Files\DATASTOR\DATASTOR Shield Enterprise Protection Server\Server"  C:\Program Files\DATASTOR\DATASTOR Shield Enterprise Protection Server\Server>aiqutil /import /importfile:c:\DSVAULT.20170219.0.180001.813.export.zip /nobackup /tempdir:C:\Temp /account:jssresearch\svc\_datastor | | |
| Type the svc\_datastor credentials. When the import is finished you can delete the temporary directory | | |

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| Verify the Restauration of the Vaults | | |
| ***Important****: Verify whether restoring the Configuration Settings allows you to see the previously created Vaults.*  *Expand Archive Manager / Tape Storage /* ***All Tape Vaults****. You should find all three Vaults, one for eache store* | |
| *The following Vaults should appear* |  |

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| Fixing the DefaultDatasetDevice Problem | |
| ***Note****: After restoring the Configuration Settings on a new server, most probably the value of the DefaultDatasetDevice registry key which was initially configured when Configuring Vaulting Properties, was overwritten by the restore.*  *There are 2 ways to fix this:*   1. *Run again Configuring Vaulting Properties in order to select again the Cache Disk…* |
| 1. *Open a command prompt and run* ***mountvol****, then copy the VolumeName of the E:\ Volume (below in blue)* |
| *C:\Windows\system32>mountvol*  *Creates, deletes, or lists a volume mount point.*  *MOUNTVOL [drive:]path VolumeName*  *MOUNTVOL [drive:]path /D*  *MOUNTVOL [drive:]path /L*  *MOUNTVOL [drive:]path /P*  *MOUNTVOL /R*  *MOUNTVOL /N*  *MOUNTVOL /E*  *path Specifies the existing NTFS directory where the mount*  *point will reside.*  *VolumeName Specifies the volume name that is the target of the mount*  *point.*  */D Removes the volume mount point from the specified directory.*  */L Lists the mounted volume name for the specified directory.*  */P Removes the volume mount point from the specified directory,*  *dismounts the volume, and makes the volume not mountable.*  *You can make the volume mountable again by creating a volume*  *mount point.*  */R Removes volume mount point directories and registry settings*  *for volumes that are no longer in the system.*  */N Disables automatic mounting of new volumes.*  */E Re-enables automatic mounting of new volumes.*  *Possible values for VolumeName along with current mount points are:*  *\\?\Volume{c2adcacf-a6b7-11e6-80b4-806e6f6e6963}\*  *\*\*\* NO MOUNT POINTS \*\*\**  ***\\?\Volume{b0ced005-f75c-483e-9109-e0e7fcdf6967}\***  *E:\*  *\\?\Volume{c2adcad0-a6b7-11e6-80b4-806e6f6e6963}\*  *C:\*  *\\?\Volume{c2adcad7-a6b7-11e6-80b4-806e6f6e6963}\*  *D:\* |
| *Run regedit.exe and replace the value of the string HKLM\SOFTWARE\DATASTOR\ArchiveIQ\DefaultDatasetDevice with the VolumeName copied in the previous step* |

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| Configuring the Tape Devices in Archive Manager | | | |
| In DataStor Enterprise Protection Server / **Archive Manager**  Right click **Tape Storage** / **Configure Tape Devices…** | |  | |
| In **Tape Device Scan**  Click **Next** | |  | |
| Click **Configure Tape Devices**  This will scan and configure the media changer and the drive to be used with DataStor | |  | |
| Restoring Vault Information | | | |
| In DataStor Enterprise Protection Server / **Archive Manager**  Right click **Tape Storage** / **Configure Tape Devices…** | |  | |
| *During normal operation, the Restore Point catalog information is stored in a specially configured Objectstore folder.*  *There are also indexes of the tape content located in <install\_directory\VLM\Dataset folder>*  *This information is also stored on the tapes themselves during the vaulting process.*  *This is part of the information that is restored back to disk when you run the Restore Vault Information... wizard.* | | | |
| Select 🞊 Recover all the vault information  Click **Next>** | |  | |
| Click **Finish** | |  | |
| The tapes will be loaded into the tape drive and read. Metadata will be restored to the defined cache drive. | |  | |
| *At the end of the above operation which can last several minutes, the Archives should become expandable displaying all existing Server Restore Points.*  ***Important****: After Restoring Vault Information, it may be happen that no Restore Point appear under the Archives*  *In this case do a Refresh from the Action menu, or restart the DataStor Enterprise Protection Server application* | |  | |
| Preparing for Data Restore | | | |
| ***Important****: Before being able to restore any data, it is necessary to perform a Prepare operation in order to write the Restore Point Data from tape to the Cache Disk. Only then you can proceed with restoring the data* | | |
| Expand **All Tape Vaults,** locate the desired **Archive**, select the desired Server **Restore Point**, in the **Calendar** select a Restore Point **Date**, then click the **Prepare** button | |  | |
|  | | The Required Volumes window will show up  Click **OK** | |
| Click **Prepare** | |  | |
| The preparation process starts.  The Restore Point data of the selected server will be read from tape and written to the Cache Disk.  **Note**: Please be patient because this process might take a very long time, several hours or even a whole day.  When the preparation process finishes, you will be able to use the Explore or Restore buttons to start a data restore | |  | |
| Restoring Data using the Restore and Explore Buttons | | | |
| If you want to selectively restore a few file of folder, click the **Explore** button.  This will open a Point-in-Time Explorer window, that allows you to select what to restore.  Right click the file or folder that you want to restore and select **Restore…** from thedrop down menu |  | | |
| This will open the Point-in-Time Restore window  Configure the preferencies and click **Restore** |  | | |
| If you want to restore the whole content of the Protection Plan (for example the whole F: Drive) click the **Restore** button |  | | |
| This will open the Point-in-Time Restore window  Configure the preferencies and click **Restore** |  | | |