HITACHI
Inspire the Next

Hitachi Dynamic Replicator - Scout ESX
Protecting ESX Server (RCLI)

Hitachi Data Systems

MK-99DF8226-00

Table of contents

Conventions

Keywords, command buttons and other such fields are enclosed in " " while being bold (for example, to denote 

"**Next**" is used).

Inputs for commands and Variables are shown in *Italics*
File names and paths are shown in **bold**
Commands are shown in **`Courier new font`**
Optional keywords and arguments are enclosed within [ ].

 **Notes:**

Contain suggestions or tips.

 **Caution:**

Contains critical information

1 Introduction to the Solution

This document describes steps involved in protecting and recovering the ESX server along with its windows/linux Guest machines to a remote ESX server. Post recovery, the target guest machines will be fully operational with the required IP address and host names.
A NIC conflict is avoided by disabling the NIC0 and enabling the NIC1 with appropriate settings.

This comprises of using VMware Remote CLI to discover the Virtual Machines on the Source ESX Server and then recreate the same Virtual Machines on the Target ESX Server using VMware Remote CLI. This means that there is no need to install the Hitachi Dynamic Replicator FX Agents on the Source and Target ESX Servers. This works for ESX ESXi and ESX 4i (VSphere) Servers.

2 How the Solution Works

Hitachi Dynamic Replicator - Scout's ESX solution is capable of protecting and recovering some or all of the virtual machines on the production ESX server. This solution is broadly divided into three phases.

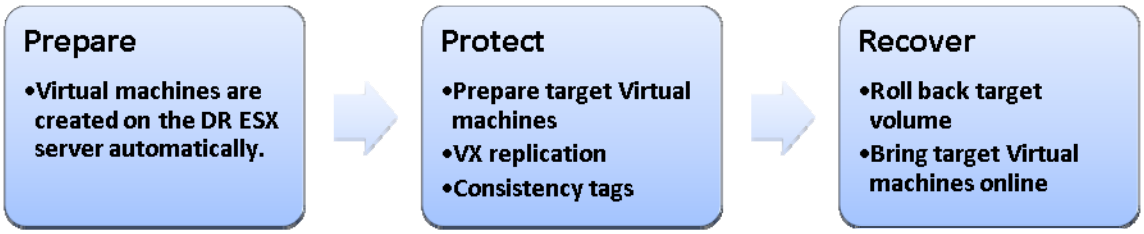


Figure 1:

Prepare

This requires introducing a windows/linux client machine between the production and DR ESX servers. The client machine, also called as the RCLI machine plays a vital role throughout the solution. This can reside either on the CX server, production ESX or the DR ESX server. In the prepare phase, the "**GetSourceInfo.pl**" script on the RCLI machine reads the virtual machine structure on the production ESX and the **"CreateGuestInfoOnTarget.pl"** script creates an identical guest structure on the DR ESX server.

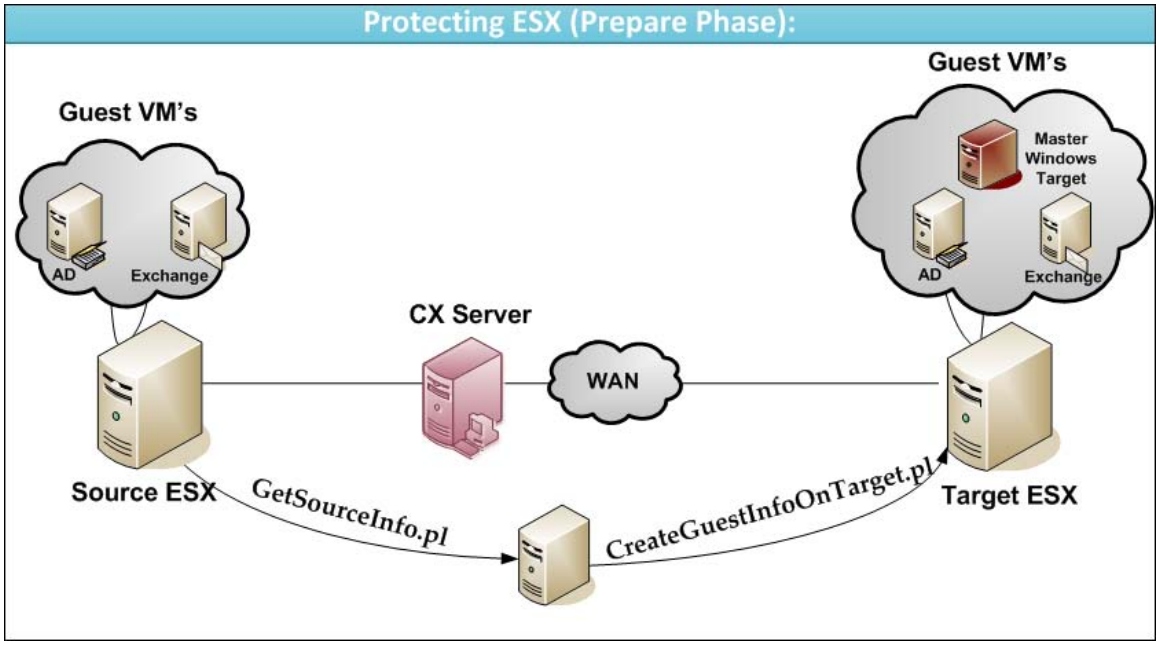


Figure 2

This phase of the solution checks if the protect step could be automated.

Protect

When fully automated solution is supported, the wizard calls the "**jobautomation.pl**" script which proceeds to prepare the target master target for VX replication, set VX replication pairs with CDP retention and also setup consistency jobs on each of the source virtual machine. The protect step automatically creates three job groups

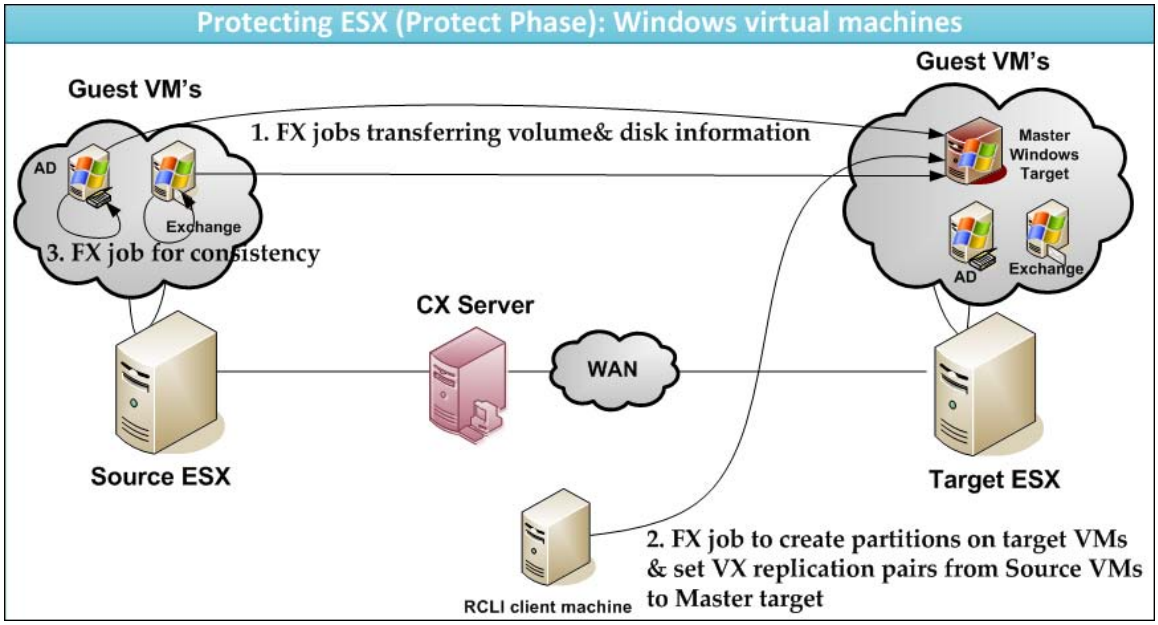


Figure 3: Windows virtual machines

- **"SrcVms ---- MasterTarget"**: This group contains FX jobs from the source virtual machine to the master target. Each of the source virtual machine transfers all the partition information to the master target

- **"RCLI-MasterTgt"**: This job group contains only one job set from the RCLI machine to the master target. This job creates partitions on the master target and set VX replication pairs with CDP retention.

- **"ConsistencyJob"**: This is the last of the jobs groups created in the protect phase of the solution where FX jobs are set on each source virtual machine and set to run on demand.

For Linux virtual machines, only one FX job is set from the RCLI client machine to the master target. You will need to configure a consistency job on each of the Linux virtual machine. To learn more refer to the section Consistency tags on page 23.

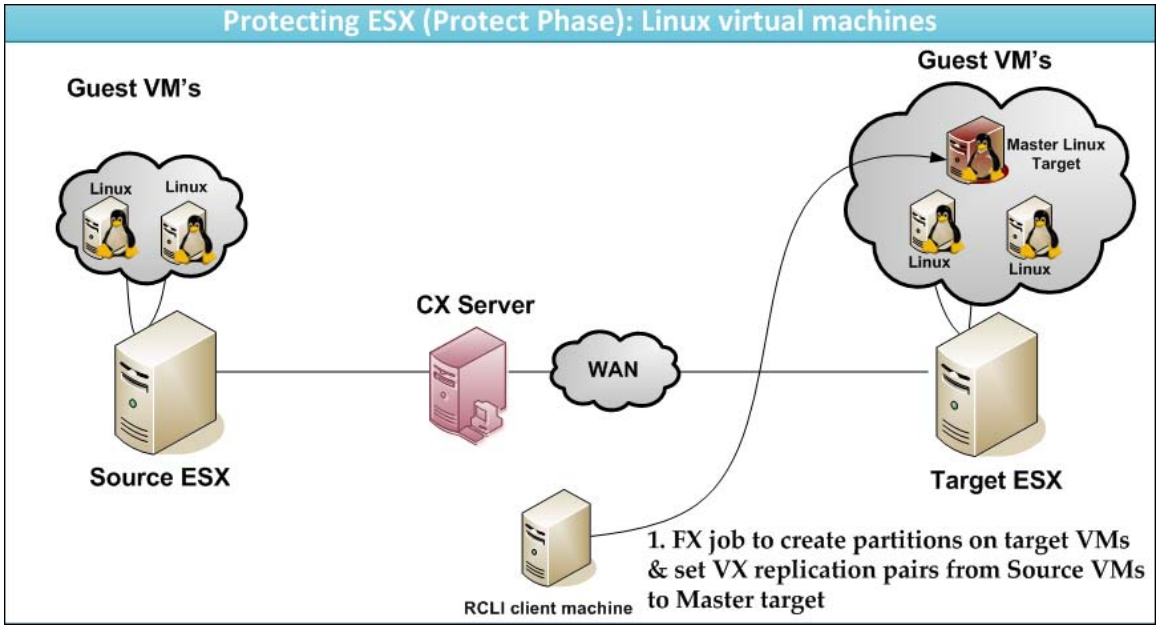


Figure 4

When an automated solution is not supported, you will need to manually create partitions on the target virtual machines, create VX replication pairs with CDP retention and set FX jobs for consistency. Refer to the Manual solution on page 19.

Recovery

Automated recovery is part of the automated solution. The "**jobautomation.pl**" script is executed on the RCLI client machine. This script recovers the desired virtual machines.

Automated recovery is not supported when the solution is deployed manually. Refer to the Recover section on page 24

3 Pre-requisites

- Ensure that firewall is not blocking any of the Hitachi Dynamic Replicator - Scout components
- Point all VX agents to the same CX server and assign appropriate licenses
- Install the FX agent on the RCLI client machine and point it to the same CX server.

3.1 Installing the Remote CLI package

When you install the Remote CLI package on Windows, the installation package includes all prerequisite software. The Remote CLI package is supported on Windows Vista SP 1 and Windows XP SP 2.

To install the Remote CLI Package on Windows

Step 1. Download the Remote CLI Windows installer from "**http://www.vmware.com/go/remotecli**".

Step 2. Start the installer.

Step 3. A warning message about the installer's digital signature might appear. Click on "**Yes**" to ignore the warning message and continue with the installation.

Step 4. If a VI Perl Toolkit or the Remote CLI package exists on the target Windows system, the installer offers to repair or uninstall the previous version.

Step 5. If prompted, accept or click "**Next**" on the Welcome page to continue.

Step 6. If you want to install the Remote CLI in another directory other than default, click "**Change**" and choose a different directory.

Step 7. The default location is "**C:\Program Files\VMware\VMware VI RemoteCLI\bin**".

Step 8. Click "**Next**" to continue, click "**Install**" to proceed with the installation, and the installation might take several minutes to complete.

To install the Remote CLI Package on Linux

3.2 Download scripts on the client machine

Step 1. Access the RCLI machine and login to the web based CX UI. Navigate to "**System-> Installers**" to download the scripts.

Step 2. You will need to download four scripts to the

- "**GetSourceInfo.pl**" to discover all the Virtual Machines on the Source ESX Server.
- "**CreateGuestInfoOnTarget.pl"** to recreate the Source ESX Server configuration on the Target ESX Server.
- "**JobAutomation.pl"** to set replication pairs and perform recovery. This script is called internally by the "**Inmage_ESX_Protection.pl**"
- "**Inmage_ESX_Protection.pl"** to automate the complete protection process.

Table 1

Name of the EXE/Script	Purpose	Used when	Path
ESXUtilWin.exe (for windows) ESXUtil (For Linux)	• setting replication pairs on LINUX • Recovery and Rollback of LINUX and WINDOWS	Used only in the automated solution for replication AND recovery.	VX install path
ESXUtilWin.exe/ LINUX	• Gathering WINDOWS source disk structure information. • Creating same disk structure (volumes) on WINDOWS master target • Setting replication pairs on WINDOWS.	Used only for automated solution on windows	VX install path
GetSourceInfo.pl	Discover guest structure on production ESX server	Used in both automated and manual solution	Where you untar the zip file
CreateGuestInfoOnTarget.pl	Recreate guest structure on the DR ESX server		
JobAutomation.pl	Used to set VX replication pairs automatically / Also used to perform automatic recovery	Used ONLY in automated solution. (Called internally not directly)	
Inmage_ESX_Protection.pl	Automated protection	Used for fully automated solution. (Called the above three scripts IF the source virtual machines don't fall under the limitations)	

4 Determining solution mode

The prepare and protect steps are automated through the "**Inmage_ESX_Protection.pl**" script. This script internally calls three scripts

- **GetSourceInfo.pl**: To discover the production ESX server's guest structure.
- **CreateGuestInfoOnTarget.pl**: To create guest structure on the DR ESX server.
- **JobAutomation.pl**: To initialize disks and create VX replication pairs.

Access the RCLI client machine and run the InMage_ESX_Solution.pl script to determine the solution mode (automated or manual). The syntax is given below

InMage_ESX_Solution.pl --ostype <*Windows or Linux*> --protection <*selective or all*> --source-server <*IP address of the production ESX*> --target-server <*IP address of the DR ESX*>

```
C:\AAA\ESXSolution>Inmage_ESX_solution.pl --ostype windows --protection
selective --source-server 10.0.2.30 --target-server 10.0.1.79

Welcome to the Inmage ESX Solution
-------------------------------------------------
Please answer the following questions to determine if the Windows source
virtual machines which are to be protected are compatible for complete
automation
-------------------------------------------------

1)Do any of the virtual machines have dynamic disks (y/n)? -> n

2)Do any of the virtual machines have clustered (shared) disks (y/n)? -> n

3)Do any of the virtual machines have RDM/RDMP disks (y/n)? -> n

Complete automation is supported for the selected source virtual machines


The Prepare (Recreating source virtual machine information on the target) and
Protect  (Setting replication pairs from source virtual machines to the
chosen master target) phases of the solution will be completely automated
```

Notes:

When any of the virtual machines have RDM/RDMP disks, you will be prompted to convert them to VMDK files for automated solution.

Type of operating system could be either Windows or Linux. The protection type could be "**all**" or "**selective**". This determines if all the virtual machines must be protected or if a selective few need to be protected. If you choose "**selective**" you are prompted to select from a list of virtual machines. The source server and the target server options are the IP address of source and target ESX server. You will be prompted for three inputs as given below

- Dynamic disks: There is no support for protecting dynamic disks
- Clustered disks: When there are clustered disks present, the script will progress further and create guest machines on the DR ESX server, however you will need to set the VX replication pairs and consistency job manually.
- Virtual machines with RDM/RDMP files: When there are RDM or RDMP files present on the production ESX, you will be prompted to convert them to VMDK files. To opt for automated solution, choose to convert the files to VMDK.

There are certain limitations for this automated approach as described in the Limitations of this solution on page 30.

5 Automated Solution

5.1 Prepare

5.1.1 Discover production ESX guest structure

When all the above conditions are satisfied, the script proceeds to the next phase called as the prepare phase. You will be prompted for the login credentials of the production ESX server. Using these credentials and the parameters given to the script, a list of guest machines are displayed (while suing the –selective switch). You can choose the desired guest machines separated by a comma as shown in the picture below

```
Please enter the Login information for the Source ESX Server

Enter username: root
Enter password:
Do you want to convert any RDM / RDMP disks which are present to VMDK
disks? [yes/no]
yes
Displaying all the Virtual Machines
------------------------------------------------------------
1)Win2k3-AD
2)Win2k3-Exchange
3)Win2k3-SQL
4)Win2k3-SH2k7

Please select the Virtual Machines which you want to protect  separated
by commas
2,3,4
```

This script creates a directory in the same path as the scripts. This directory is named as the GUID of the source ESX Server; for example, 44454c4c-5200-1031-8050-cac04f4b3153.

Inside this directory, various files are created, which contain information about the source virtual machines which were protected.

5.1.2 Create guest structure on DR ESX

Once the guest machines are selected, the script will prompt for a process server IP address. Each guest machine about to be protected will need a process server. You can use a single process server for all guest machines or use more than one process server for better scalability.

Enter the DR ESX server's login credentials, these credentials will be used to create the guest structure on the DR ESX server on a desired data store

```
------------------------------------------------------------------------
Enter the Process Server details for each Source Virtual Machine.
------------------------------------------------------------------------
Process server for the win2k3-exch :  10.0.79.30
Process server for the win2k3-shpt :  10.0.79.30
Process server for the win2k3-sql :  10.0.79.30

The Source side script completed successfully. Please run the Target
Side Script CreateGuestInfoOnTarget.pl to continue.

Please enter the Login information for the Target ESX Server

Enter username: root
Enter password:
Please Select the number of the Target DataStore
------------------------------------------------------------------------
(1)datastore1   1856.00G(Capacity)      1462.28G(Free Space)
1
The Total Size of all disks to be created in GB = 38.00
```

A list of qualified guest machines is displayed to act as a master target. Choose accordingly. When there are any stale entries in the master target, you will be prompted to delete them

```
Please select the Virtual Machine you want to use as the Master Target.
Provide a number from the list below.
1)w2k3-master1
2)Win2k3-64bit-MT
3)Win2k3-MT-CLS
1
MASTER TARGET IP ADDRESS = 10.0.79.130
win2k3-master.ESXDOMAIN.org
### The Host name of the Master Target = win2k3-master.ESXDOMAIN.org ##

Downloaded file w2k3-master1/w2k3-master1.vmx to
C:\AAA\ESXSolution\44454c4c-4b00-1058-8051-c4c04f583153//w2k3-
```

```
master1.vmx successfully.

Do you want to remove stale-entries in the Master VMX file? (yes/no)
Stale entries are the entries of type scsi0:1.present = "false"
yes
```

Notes:

Refrain from using a 64bit machine for a windows master target. If you still want to use a 64 bit machine for a windows master target, you will need to copy the "diskpart.exe" from the c:\windows\system32 folder to "c:\windows\wowsys64"

A recovery database file named "**recovery_database_**<*Target ESX Server IP Address*>**";** for example, recovery_database_10.0.1.11 will be created in the directory named after the GUID of the production ESX server. Recall that this directory was created in the scripts directory as part of the Discover production ESX guest structure step.

This recovery database file is created to aid in recovery of a source virtual machine. Do not edit/modify this file as its contents are critical during the recovery process.

5.2 Protect

In the protect phase the volumes on the master target are prepared, VX replication pairs are set and FX jobs for consistency are created and set to "**Run On Demand**". Just before setting the VX replication pairs from the source virtual machines to the target virtual machines, you will be prompted for a location to store the retention logs on the master target.

```
Vx Install : C:\Program Files\InMage Systems
Fx insatll : C:\Program Files\InMage Systems\
Please enter the path in master target where you want to store the
Retention Log's:  R:\retention

SrcIPAdd                ------> 10.0.30.231
Master_target_ip_address -----> 10.0.79.130
```

5.2.1 Behavior on Windows

FX jobs are set between the production VMs and the master target. The purpose of these FX jobs is to read the volume structure on the respective source VMs and transferring the details to the master target.

The second FX job is set between the RCLI client machine and the master target. This job will transfer disk related information of the source VM and re-create the volume structure on each of the disk.

5.2.2 Behavior on Linux

A single job is configured between the RCLI client machine and the master target. The objective of this FX job is to update the master target with the source VM disk information such as volumes, mountpoints etc.

5.2.3 Verifying from the CX UI

Access the CX UI and navigate to the File Protection screen. You will be able to see the FX job groups created automatically. The consistency jobs under the "**ConsistencyJob**" group are set to run on demand. You will need to schedule this to run at regular intervals.

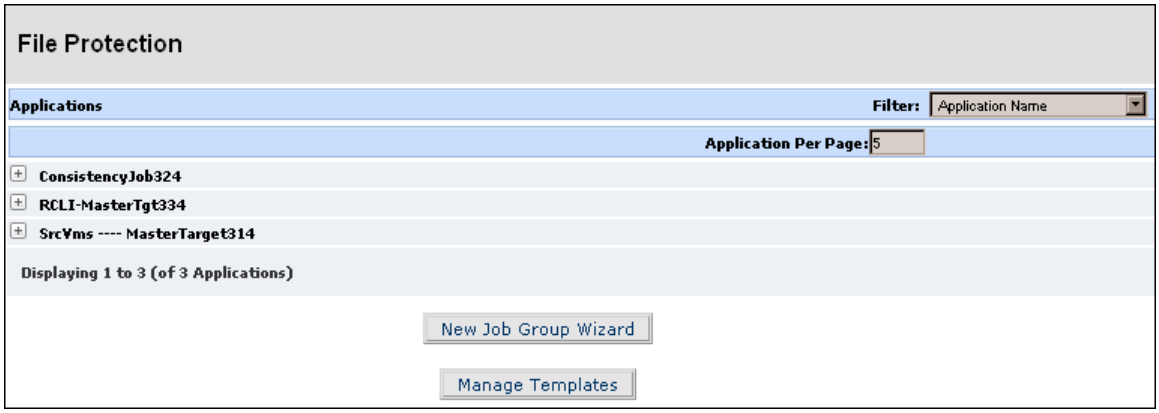
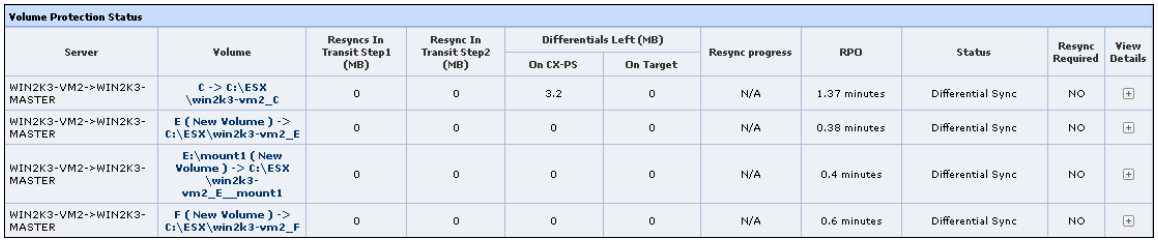


Figure 5

Similarly, the VX replications are set automatically. Each of the replication pair has the CDP retention option enabled. By default the retention space is set to 256MB. We recommend you increase this as desired.



Volume Protection Status

Server	Volume	Resyncs In Transit Step1 (MB)	Resync In Transit Step2 (MB)	Differentials Left (MB)		Resync progress	RPO	Status	Resync Required	View Details
				On CX-PS	On Target					
WIN2K3-VM2->WIN2K3-MASTER	C -> C:\ESX \win2k3-vm2_C	0	0	3.2	0	N/A	1.37 minutes	Differential Sync	NO	
WIN2K3-VM2->WIN2K3-MASTER	E (New Volume) -> C:\ESX\win2k3-vm2_E	0	0	0	0	N/A	0.38 minutes	Differential Sync	NO	
WIN2K3-VM2->WIN2K3-MASTER	E:\mount1 (New Volume) -> C:\ESX \win2k3-vm2_E__mount1	0	0	0	0	N/A	0.4 minutes	Differential Sync	NO	
WIN2K3-VM2->WIN2K3-MASTER	F (New Volume) -> C:\ESX\win2k3-vm2_F	0	0	0	0	N/A	0.6 minutes	Differential Sync	NO	

Figure 6

5.3 Automated Recovery

Automated recovery is supported when the guest machines were protected automatically. The recovery process consists of the following 3 steps.

- Rollback of volumes / disks on the master target based on the recovery tag information in the csv files.
- Detaching the rolled back disks from the master target.
- Powering on all the virtual machines which were recovered.

5.3.1 Create configuration file

Before starting the script create a configuration file containing

```
VI_USERNAME = username of the ESX server where the master target resides
VI_PASSWORD = password of the above user.
```

The automated failover script will prompt you for this input before completion.

5.3.2 Start automatic recovery

Step 1. To start the recovery process, run the following script:

JobAutomation.pl --recovery <Complete path of the directory which contains the recovery database file>

The recovery database files are already created in the same directory as the scripts. Give this path in the above script.

Step 2. Enter the IP Address of the ESX Server on which the virtual machines you want to recover are present. On specifying the ip address, a list of virtual machines which were protected on that ESX Server are displayed.

Step 3. Select those virtual machines which you want to recover from the list OR enter 'all' to recover all in the list.

Step 4. Script prompts for whether you want to recover all virtual machines based on default tag type (FS). Choose “yes” to recover all machines using tag type as FS. Choose “No” to selectively specify tag type for each virtual machine separately.

Step 5. Enter tag type for each virtual machine.

Step 6. Script prompts for whether you want to recover all virtual machines based on latest tag. Choose "yes" to recover all machines using latest tag. Choose "No" to selectively specify recovery tag for each virtual machine separately.

Step 7. Enter recovery tag for each virtual machine.

Step 8. Script prompts for whether you want to change the network configuration of the virtual machines which are being recovered. Choose "Yes" to change the network configuration.

Step 9. Script will prompt for new IP address of the virtual machine which are being recovered.

Step 10. Script will prompt for new subnet mask of the virtual machine which are being recovered

Step 11. Script will prompt for new default gateway IP address of the virtual machine which are being recovered

Step 12. Script will prompt for new DNS Server IP address of the virtual machine which are being recovered

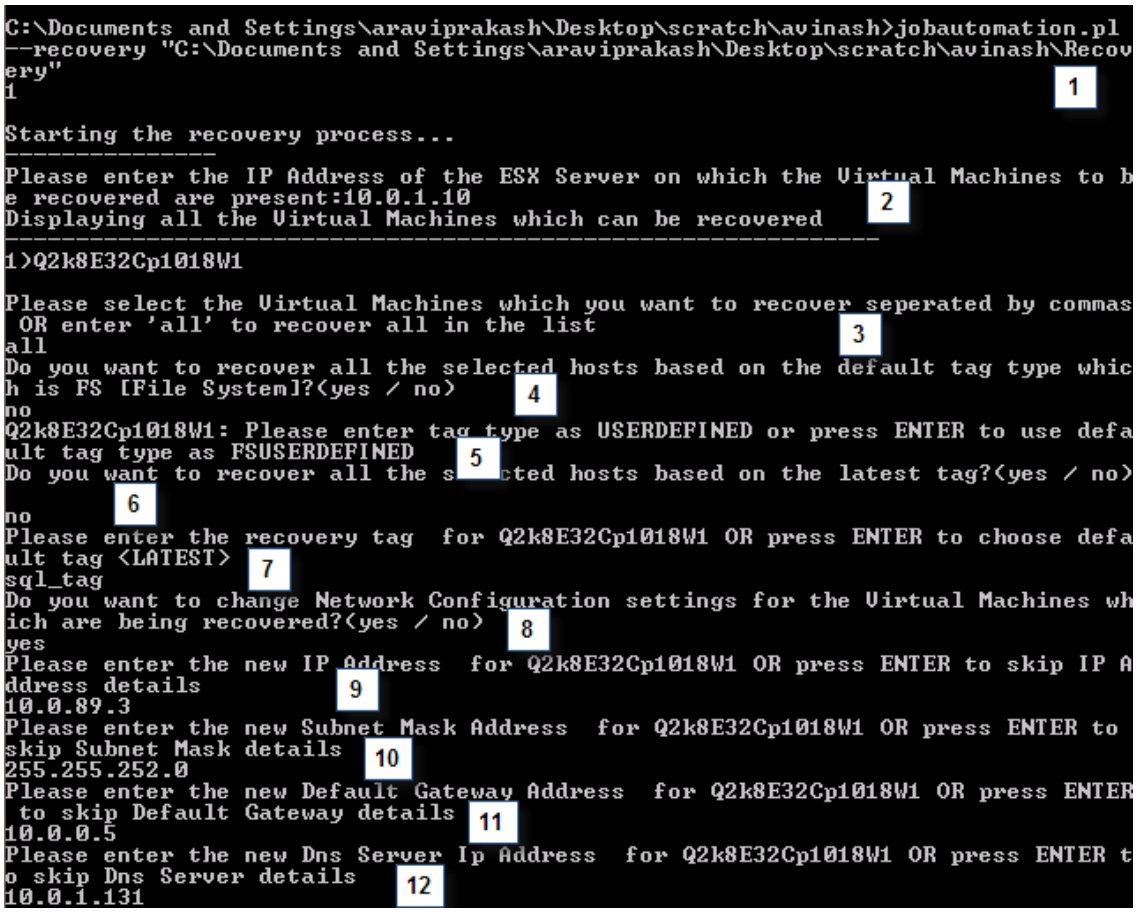


Figure 7

The script will now prompt for a configuration file. Recall that you have created this configuration file before executing the automatic recovery script. Enter the full path of the script. For example, "E:\scripts\config.txt"

After completion of these inputs one FX job group named "**RollBack_MasterTarget-RCLI"** will be set up with two jobs within it. The first job rolls back the volumes on the master target and the4 second job detaches the disks from the master target and powers on the guest machines on the target ESX server. At this time you will need to switch to the VSphere client to answer a dialogue box. Choose the option "**I copied it**" and the virtual machines will boot up normally.

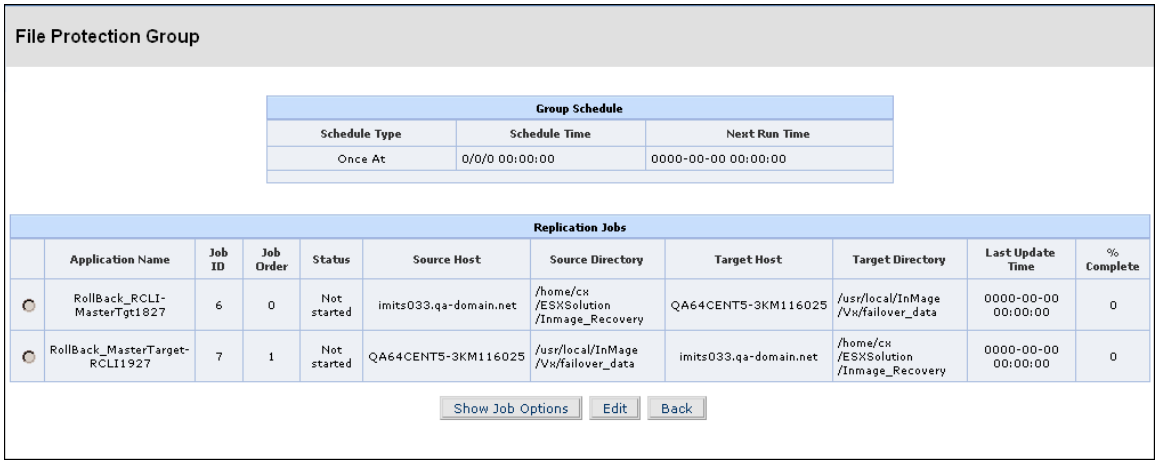


Figure 8

Notes:

When the RCLI client is on a Linux box, then the jobautomation.pl will prompt you to run an additional script called "Inmage_Rcli_Rollback.sh" to complete recovery. This additional script is responsible to detach the rolled back disks from the master target and to power on the recovered virtual machines.

6 Manual solution

6.1 Prepare

The prepare step reads the production ESX server's guest machines and creates an identical guest structure on the DR ESX server. The RCLI procedure requires a windows/linux client machine to be introduced in to the environment. The production ESX guest structure is read by the client machine and similarly it can also create the guest structure on the DR ESX through command line. Refer to the Determining solution mode section on page 11 to prepare the DR ESX server

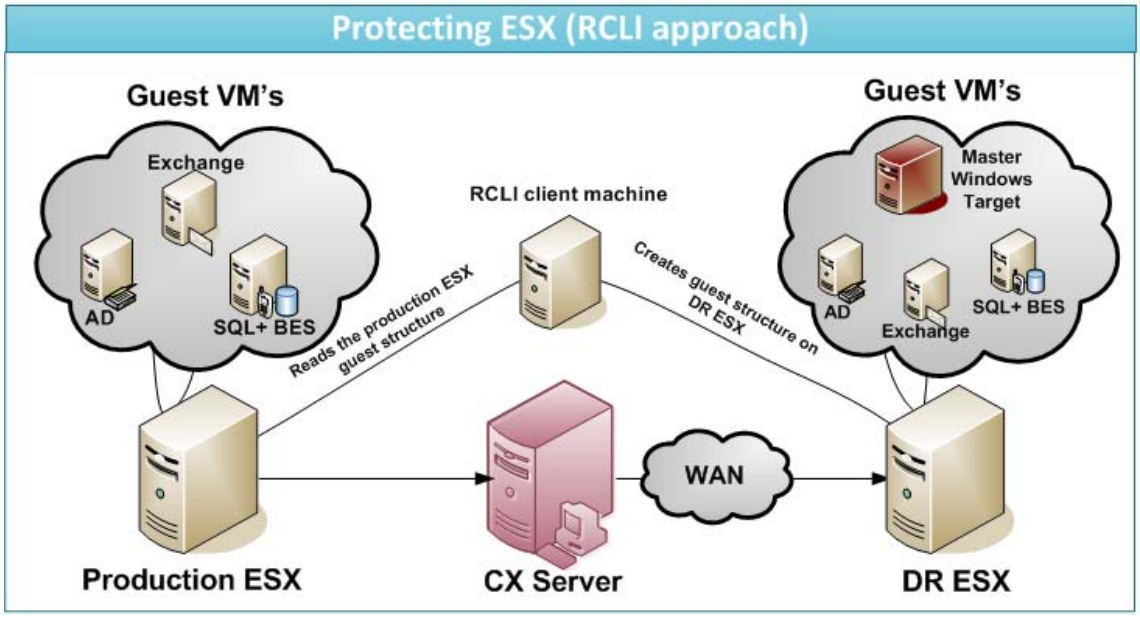


Figure 9

6.2 Protect

6.2.1 VX replication through CX UI

Step 1: Now replicate all the guest machines on the source ESX server to the master target on the target ESX server.

Step 2: Access the CX UI, click on "**Volume Protection",** expand the guest machine to select the source volume, and click on "**Start Replication"**

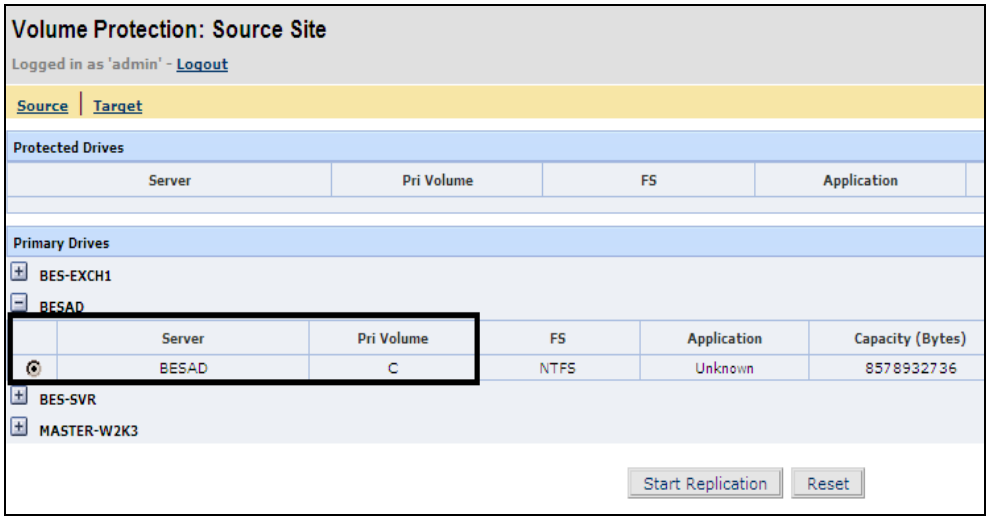


Figure 10

Step 3: The next screen opens up, expand the master target to select the appropriate volume, and scroll down to set the replication options.

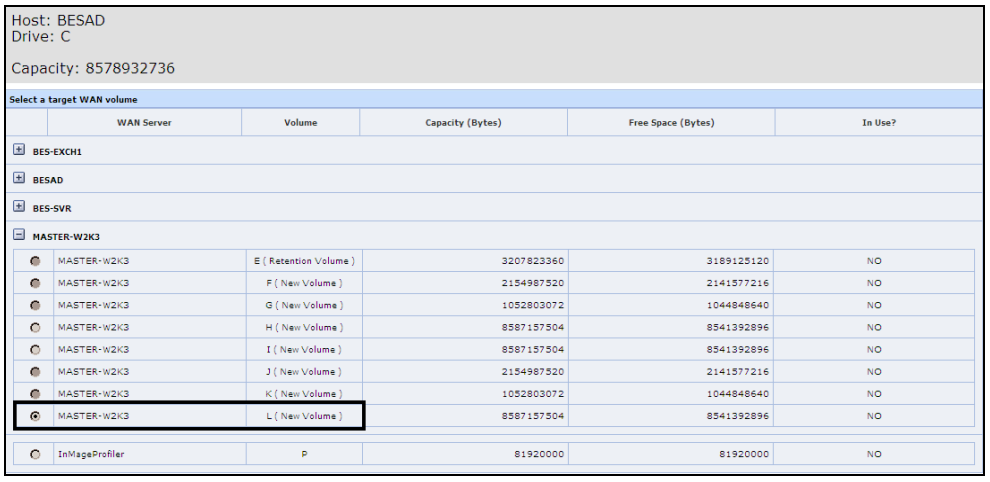


Figure 11

Step 4: All the process servers pointed to the CX server are listed here, you may choose a desired process server which will handle all the offload activities specific to this replication pairs. For better scalability you may point more process servers to the CX server. Select the process server and scroll down to set the "**Replication Options"**

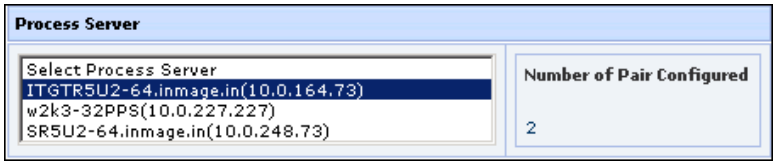


Figure 12

Step 5: Enable the "**CDP Retention"** option and click on "**Submit"**

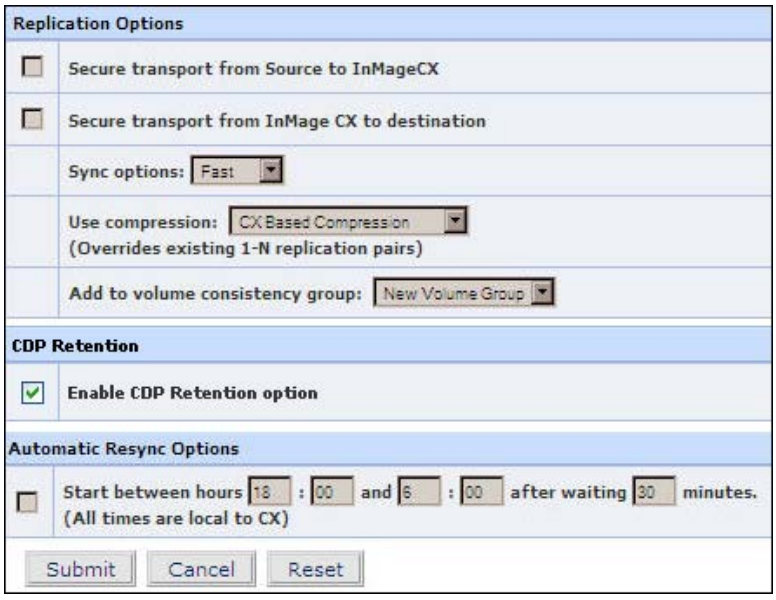


Figure 13

Step 6: Since CDP retention is selected an additional screen is displayed. Select the type of retention policy and click on "**Submit".**

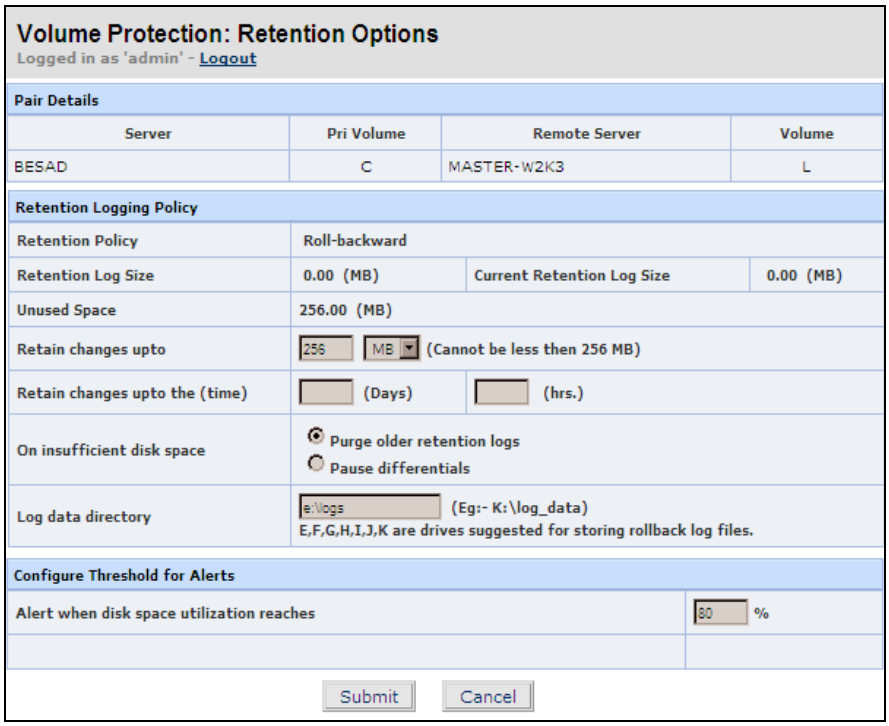
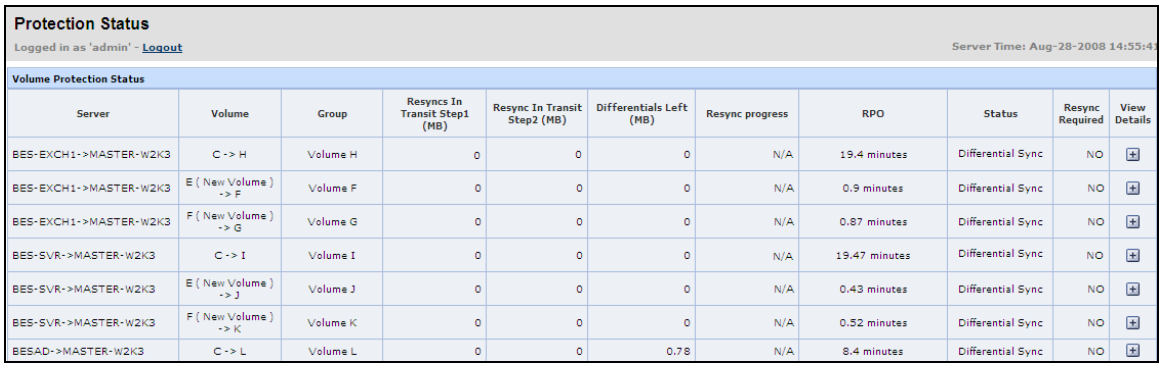


Figure 14

Step 7: Repeat the same process for all the volumes on the guest machines on the source ESX server. The progress can be seen when "**Protection Status"** is clicked**.** Once all the replication pairs reach "**Differential Sync"** and proceed to the next step.



Server	Volume	Group	Resyncs In Transit Step1 (MB)	Resync In Transit Step2 (MB)	Differentials Left (MB)	Resync progress	RPO	Status	Resync Required	View Details
BES-EXCH1->MASTER-W2K3	C -> H	Volume H	0	0	0	N/A	19.4 minutes	Differential Sync	NO	
BES-EXCH1->MASTER-W2K3	E (New Volume) -> F	Volume F	0	0	0	N/A	0.9 minutes	Differential Sync	NO	
BES-EXCH1->MASTER-W2K3	F (New Volume) -> G	Volume G	0	0	0	N/A	0.87 minutes	Differential Sync	NO	
BES-SVR->MASTER-W2K3	C -> I	Volume I	0	0	0	N/A	19.47 minutes	Differential Sync	NO	
BES-SVR->MASTER-W2K3	E (New Volume) -> J	Volume J	0	0	0	N/A	0.43 minutes	Differential Sync	NO	
BES-SVR->MASTER-W2K3	F (New Volume) -> K	Volume K	0	0	0	N/A	0.52 minutes	Differential Sync	NO	
BESAD->MASTER-W2K3	C -> L	Volume L	0	0	0.78	N/A	8.4 minutes	Differential Sync	NO	

Figure 15

6.2.2 Consistency tags

Once the pairs are in "**Differential Sync",** access the console of the guest machine, and navigate to the VX agent installation path. Then, use the following command to issue a consistency tag on the source volume.

```
Vacp -a all -v all
```

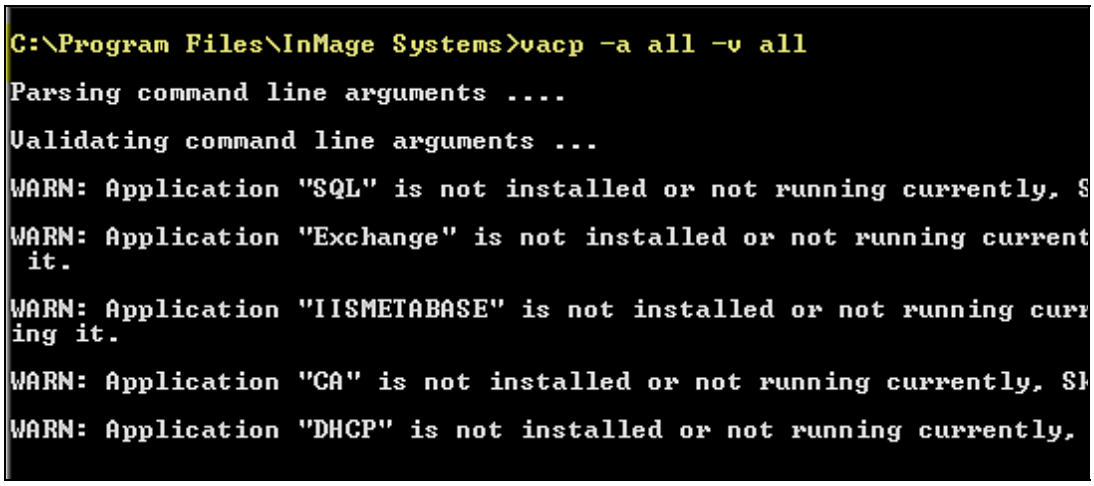


Figure 16

Repeat the same for all the guest machines and ensure that all volumes are tagged. This can be done through the FX job with the above command placed within the source prescript.

Notes:

While mount points are involved issue consistency tags individually on each mount point

6.3 Recover

ESX recovery is performed in two steps. The first step is to rollback all the target volumes on the master target and then to start the Guest machines on the target ESX server with the rolled back volumes.

6.3.1 Rollback volumes

A rollback can be performed through CX UI and through console as well. The example below describes a rollback through CX UI.

Step 1: Open the CX UI then click on "**Recovery".** Select the volume that is to be rolled back and click on "**Rollback".** A dialogue box appears confirming the rollback and click on "**Ok"** to proceed.

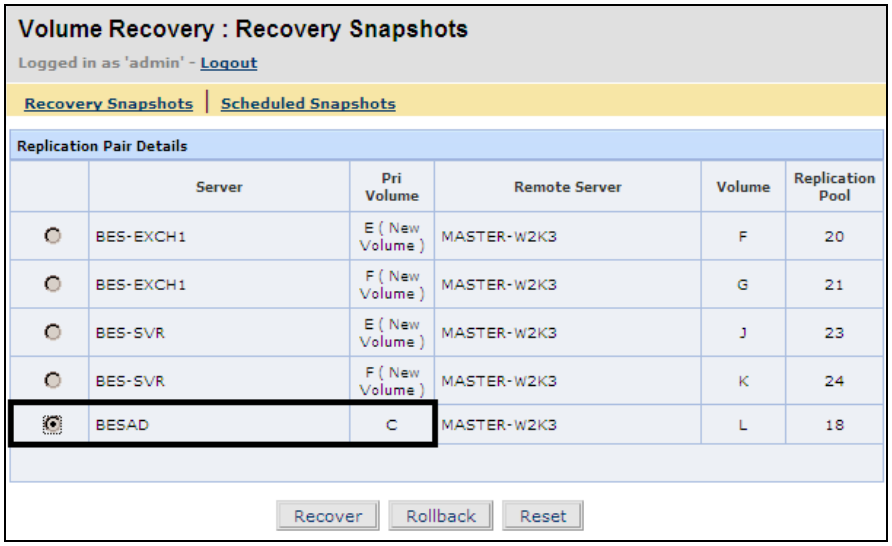


Figure 17

Step 2: The next screen opens up, click on "**Using Application consistency & Event based",** and the interface below changes.

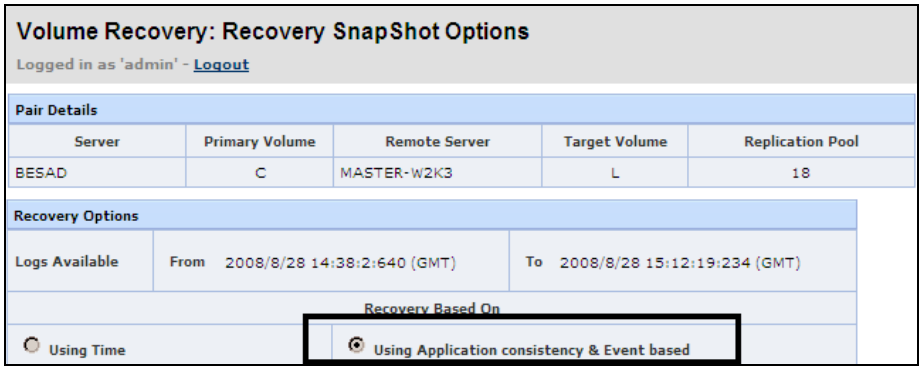


Figure 18

Step 3: Under the Search Results a list of consistency tags are displayed, select the desired consistency tag, and click on "**Save".**

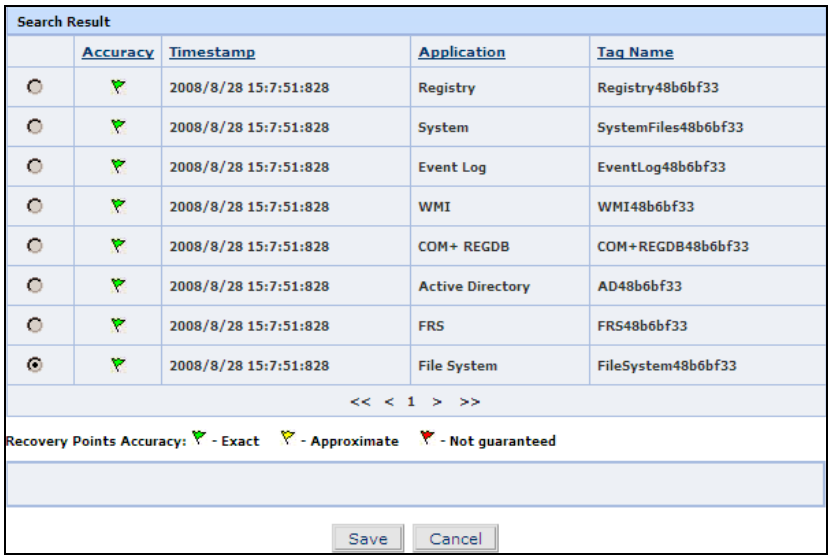


Figure 19

Step 4: The rollback completes. This can be seen under "**Recovery".** Similarly, rollback the rest of the volumes.

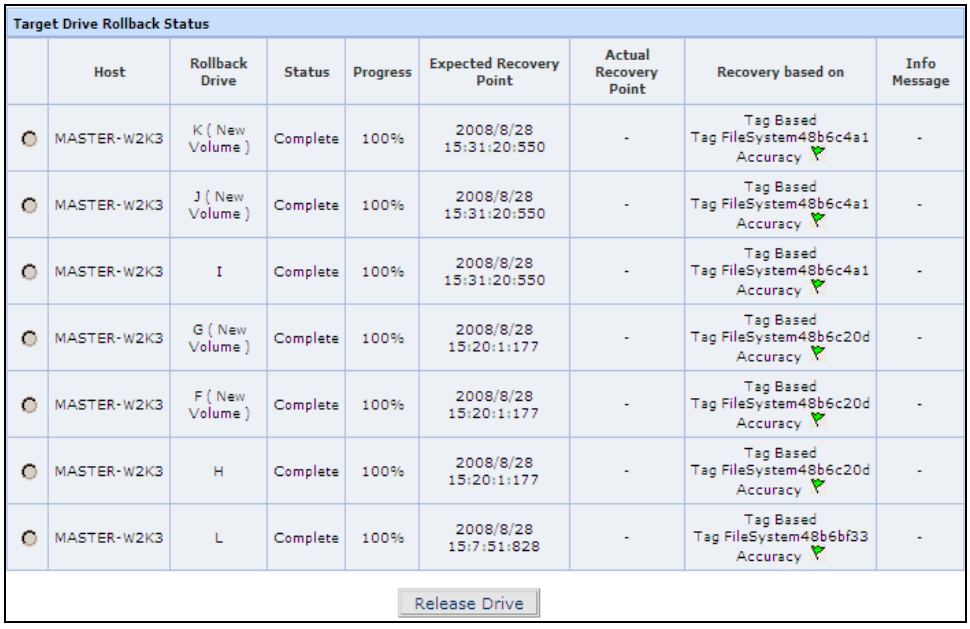


Figure 20

Step 5: Once the replication pairs are rolled back, access the master windows target's disk management, set all boot volumes belonging to target guest machines as active, and shutdown the master target machine.

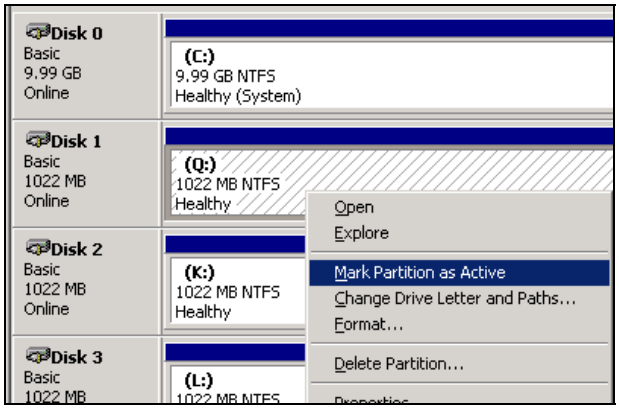


Figure 21

6.3.2 Start Guest machines on target ESX

Step 1. Start the guest machines which are created on the target ESX server as the result of the FX job described in the section Step 1: Recreating Guest structure on target ESX. The guest machines will come up with the rolled back target volumes.

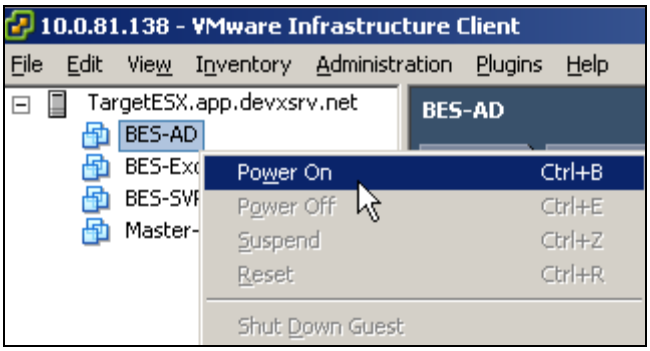


Figure 22

Step 2. First start the AD server followed by Exchange and BES servers.

Step 3. While booting up the target guest machines you will be prompted either to create or keep MAC addresses. Choose "**keep"** to retain the same MAC address. You will need to configure network again when you choose to "**create**".

Step 4. Restore drive letters on target guest machines

All target guest machines will come up with system volumes. The rest of the volumes are to be assigned drive letters are to be restored manually.
Switch to the command prompt of the guest machine then navigate to the VX agent installation path to issue the following command

```
Mapdriveletter -t
```

```
C:\Program Files\InMage Systems>MapDriveLetter.exe -t
 Successfully restored E:\
 Successfully restored F:\
```

Figure 23

Notes:

For windows XP guest machines, remove the drive mappings before issuing the "mapdriveletter –t" command

7 Troubleshooting

7.1.1 Possible issues while acquiring production Guest structure

Ensure that the VMware Remote CLI is installed before the scripts are executed.

You may come across the following error messages during this execution

Error message: No Resource Pool Found on the Server.
Solution: Please check the production ESX Server for available Resource Pools.

Error message: No chosen Virtual Machines are Powered On.
Solution: Please check if the selected Virtual Machines are powered on.

Error message: Error occurred while copying the files from the Source Server to the client machine.
Solution: Check if the files being copied exist on the production ESX and check if the destination directory on the client machine exists.

Error message: The Directories which the script needs to create already exist.
As the script cannot overwrite existing directories, it aborts with a message.
Solution: Delete, rename or move the directories which the script needs to create on the client machine.

Error message: A Virtual Machine which was selected for protection was ignored due to its IP Address not being set.
Solution: Please check if that Virtual Machine has VMware Tools installed. It is not possible to discover complete Guest Virtual Machine information when the VMware tools are not installed on the Guest.

7.1.2 Possible issues while creating guest structure on DR ESX server

Error message: No Data Stores on the Target ESX Server were found.

Solution: Please check the DR ESX Server for available data stores.

Error message: The directories which contain the production ESX Server configuration information are not present (These directories exist in the same folder as the scripts, and are named as the uuid of the Source ESX Server host.)

Solution: Please check if the directories created while gathering Source ESX Server configuration information are present in the same path as the perl scripts.

Error message: Error occurred while copying the files from the client machine to the Target ESX Server.

Solution: Please check if the directories created while gathering Source ESX Server configuration information are present and also check if the target directories (on the Target ESX Server) are present.

Error message: Error while creating disks on the Target ESX Server.

Solution: Please check if there is adequate space in the Data Store on the Target ESX Server. Also check if the target directories exist on the Target ESX Server.

Error message: Unregistering of the Master Target failed.

Solution: Please check if the master target has correct entries in its vmx file. Check if the Master Target's display name matches with the name displayed by the script when selecting the Master Target.

Error message: Registering of the Master Target failed.

Solution: Please check if the master target has correct entries in its vmx file. Also check if the master target's display name matches with the display name it its corresponding vmx file.

Error message: Registering of the Guest Operating Systems failed.

Solution: Please check if the guests have correct entries in their vmx files. Check if the guest's display name matches any existing guest's on the DR ESX Server. Two virtual machines cannot have the same display name on the same server.

Error message: All the disks are created but the master target displays only a few or all of these disks in its Inventory.

Solution: The script adds SCSI controllers and corresponding unit numbers based on the number of disks being added to the Master Target. Please check if the master target has enough SCSI Controllers and unit numbers available to attach all the disks being created. If not, delete all the disks and directories created and rerun the script, using another master target with adequate SCSI Controllers and Unit Numbers.

7.1.3 Log files generated

The log files are created under the same directory as of the scripts.

Table 2

Generated by	Log file	Solution Phase
GetSourceInfo.pl	Inmage_Source_ESX_log.txt	Prepare
CreateGuestInfo.pl	Inmage_Target_ESX_log.txt	Prepare
JobAutomation.pl and CreateGuestInfo.pl	Inmage_Recovery_ESX_log.txt	Automatic Recovery
EsxUtilWin.exe	ESXUtilWin.log	Protect

8 Limitations of this solution

8.1 Source Side Limitations

- If the user chooses not to convert rdm disks to vmdk disks, there is no support for automatic setting of replication pairs.
- If the user chooses not to convert rdm disks to vmdk disks, the rdm disks which were detected on the source ESX Server are not created on the target ESX Server.
- If the source virtual machines chosen for protection are a cluster, there is no support for automatic setting of replication pairs.
- There cannot be two or more virtual machines on the Source ESX Server with the same display names.
- Virtual machines cannot have their disks scattered across several datastores or several directories IF they are not a part of a cluster or group.
- If any of the virtual machines chosen for protection have dynamic disks then protection is not supported at all.

8.2 Target Side Limitations

- If any of the source virtual machines are Win2k8 the disks created on the Target ESX Server are of lesser size than the disks on the source.
- If there are no datastores with adequate size to create all the virtual disks, the script will fail.
- If any of the directories which are being created already exist on the target ESX server, the script will fail. (The user needs to rerun the script after either renaming or deleting the directories in question.)
- If the chosen master target has any uninitialized disk then protection is not supported at all.

Hitachi Data Systems

Corporate Headquarters
750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
www.hds.com
info@hds.com

Asia Pacific and Americas
750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
info@hds.com

Europe Headquarters
Sefton Park
Stoke Poges
Buckinghamshire SL2 4HD
United Kingdom
Phone: + 44 (0)1753 618000
info.eu@hds.com

Hitachi Data Systems

MK-99DF8226-00