



Hitachi Dynamic Replicator - Scout Solution for SharePoint 2007

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1 Introduction to the Solution

A typical SharePoint server farm consists of SQL database servers, one or more web servers, and one or more application servers running office SharePoint server 2007 services. All the servers in a SharePoint server farm can be protected using Hitachi Dynamic Replicator - Scout with an easy to use configuration wizard that will automatically detect the server configuration and sets up all the necessary file and Volume replication jobs.

Before proceeding to running the configuration wizard ensure that

- DR server farm has identical number servers as that of production server farm.
- VX and FX agents are installed on all SQL db server machines
- Only FX agent is installed on all web and application servers

Ensure that you refer to the [pre-requisite section](#) on page number 4 before you proceed to run with configuration wizard. A check list section is also added to help you note down the system information for future reference.

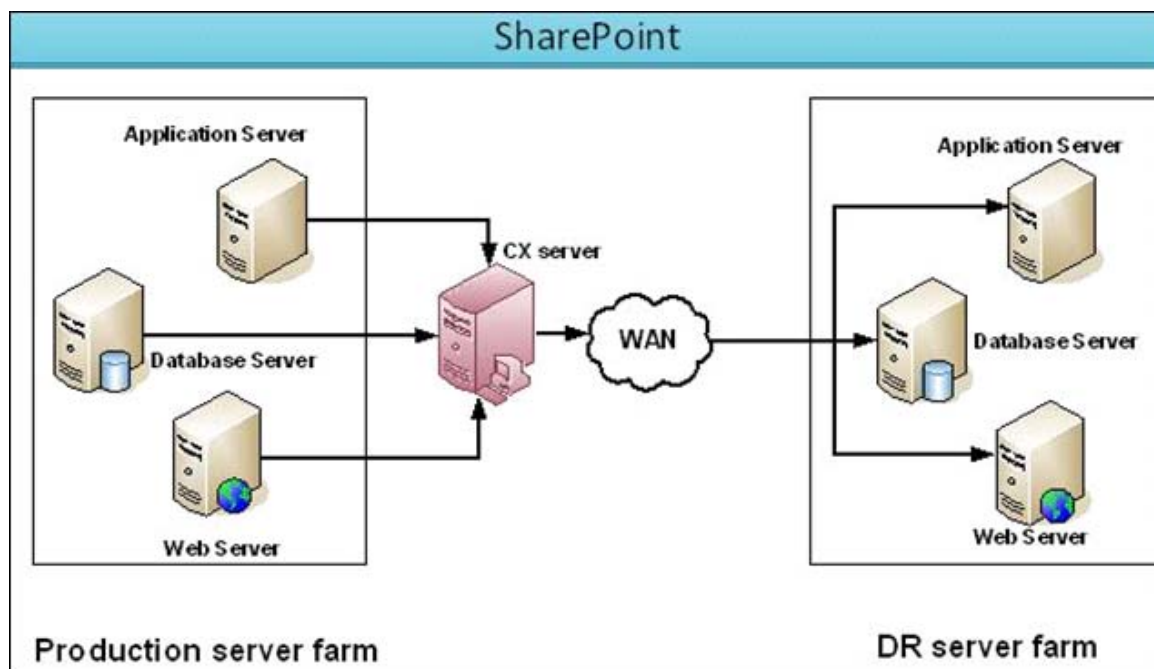


Figure 1

2 Prerequisites

Following are the prerequisites for protecting and recovering SharePoint 2007. SharePoint should be installed on both production and DR sites.

- 1 Number of servers at the production and DR SharePoint farm should be same and should be under same domain.
- 2 SQL server should be installed on production and DR servers on the same location.
- 3 FX and Vx should be installed on database server.
- 4 It is sufficient to install FX on Application server and web server. No need to install VX on these servers. VX is needed only on the database server.
- 5 FX should be running with username which has domain administrator privileges.
- 6 SQL server database files installed on non-operating system partition.
- 7 Only Linux CX to be used such as SuSE or RHEL.
- 8 Only SQL 2005 default instance is supported.
- 9 Uncheck "**Register this connection's addresses in DNS**" check box for all NICS or add the "**DisableDynamicUpdate**" of type DWORD to the Registry key `"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters"` with value set to 1.

This has to be done on all the app, web, and DB servers. This key disables DNS update registration for all adaptors on that computer.

- 10 For cluster nodes, enter the node's IP in the private NAT IP field in the host agent configuration window.



Notes:

Default database instance is supported. Named and multiple instances of database are not supported

3 How this solution works

This chapter involves three sections protect, recover, and failback. Details of each section are explained below.

Protect

The process involves discover, protect, recover, and failback. As described in detail starting in Section 2 below, the first step is to discover the current production environment. A “**discovery wizard**” is used to identify all production SharePoint servers and required replications. All SharePoint protection operations and procedures will be configured automatically by the wizard as shown in the figure below.

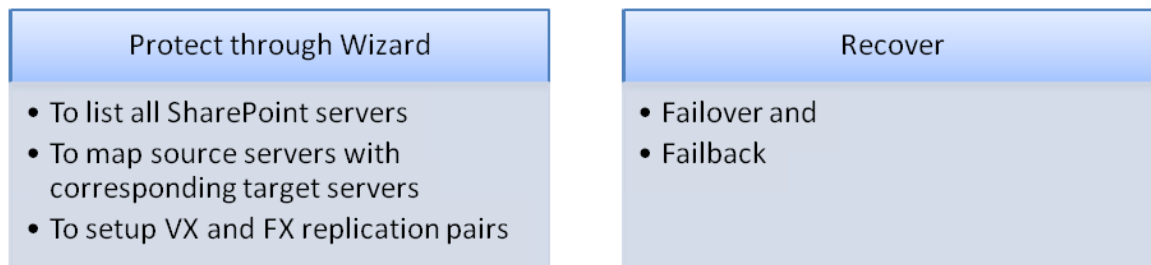


Figure 2



Notes:

Refer to the [Install and configure document](#) for detailed steps

Recover:

Recovery involves Failover. The detailed recovery section below explains failover for SharePoint. In a failover, a command is run on the production application server to set the file and volume replication jobs, and remaining failover depends on user choice of planned and unplanned failover. A Failover procedure involves configuring DNS to point to the new resources. Failover steps are explained in detail in [Failover](#) on page 20.

Failback

After a failover we expect that the new DR resources will be used for some time before the original resources are again available. Thus, it is important to remember that the failback procedure includes making those source volumes look like the target volumes this time. Thus, failback includes setting up the replication pairs once again and achieving differential sync on these pairs. Once this is accomplished, DNS is again reconfigured to point to the original source resources.

4 Installation Checklist

Following installation checklist is provided to help in the rollout of the solution. Use it to verify whether all the necessary requirements are met for each of the server in the farm.

4.1 Accounts

Table 1:

S.No	Application installed/executed	Domain \ Account
1	SharePoint	
2	SQL server	
3	Web server	
4	FX jobs run as	

4.2 Check List for each App Server

Table 2:

S.No		Yes/No
1	FX service is configured to run as a user with Domain admin privilege	
2	User under which FX service is configured to run as should be part of IIS_WPG group on target web server	
3	SharePoint Central administration is configured on Target with the same port number as that of production server.	

4.3 Check List for each production and DR WEB Servers

Table 3:

S.No		Web Server1	WebServer 2	WebServer 3	WebServer 4	WebServer 5
1	FX service is configured to run as a user with Domain admin privilege					
2	User under which FX service is configured to run as should be part of IIS_WPG group on target web server					

4.4 Check List for each SQL Database Server

Table 5

S.No	Action Item	Yes/No
1	Ensure that SQL VSS writer service is up	
2	Ensure that SQL browser service is up	

5 Protect

SharePoint is protected in a single Discovery step. This discovery wizard should be executed on the application server only. Upon execution, the wizard detects all the servers involved in the SharePoint server farm. You will be prompted to enter the corresponding target DR servers' details. Once these values are entered, in the next step, all the VX and FX replication pairs are set by the wizard.

5.1 Discovery

5.1.1 Standalone Farm Wizard

This encloses application server, web server, and database server and this combined together forms “**Standalone Server**”. The entire operations run from application server and both Fx and Vx jobs run from this single server.

Step 1. Log on to the CX UI and click on “**Protection Status**” to observe a blank CX UI.

Protection Status

Logged in as 'admin' - [Logout](#)

Volume Protection Status							
Server	Volume	Group	Resyncs In Transit Step1 (MB)	Resync In Transit Step2 (MB)	Differentials Left (MB)	Resync progress	

(Snapshot / Recovery / Rollback) Pair Status

Host	Host Drive	Snapshot / Recovery / Rollback Drive	Drive Type	Progress	Start Time	End Time	Expected Recovery Point	Actual Recovery Point	Status	Info Message
------	------------	---	------------	----------	------------	----------	-------------------------	-----------------------	--------	--------------

File Protection Status

Filter	Job Description	Application	Status	Source Host	Source Directory	Target Host	Target Directory
--------	-----------------	-------------	--------	-------------	------------------	-------------	------------------

No logs available

Clear logs for selected jobs

Delete all job history

Figure 3:

Step 2. Then logon to the production Application server's command prompt and navigate to the “**filerrep**” folder under the FX installation path to issue the following command

spapp.exe --config --retention <retention path for replication pairs set through wizard>

```
C:\Program Files\InMage Systems\FileRep>spapp.exe --config --retention H:\jan04
Retention path entered = H:\jan04

Sharepoint Planned Failover : "C:\Program Files\InMage Systems\FileRep\spapp.exe" --failover
ServerName = share_126_sr, IP = 10.0.126.25
```

Figure 4: Command on production Application Server



Notes:

The sppap.exe command should be run only at the application server's command prompt.

Step 3. This starts the discovery wizard, click on “Next” to continue. This would take some time to discover the application, web, and DB servers in the SharePoint setup.

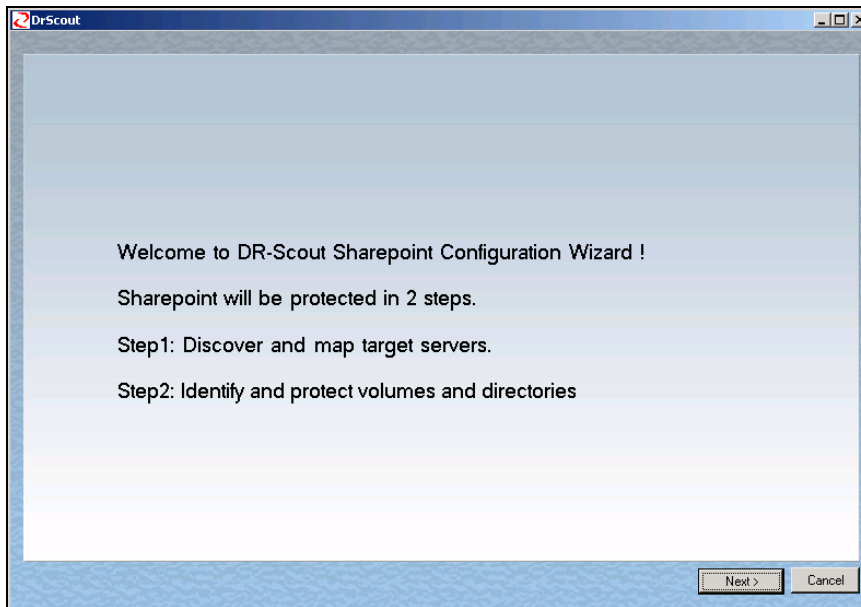


Figure 5:

Step 4. You would see a standalone server name and IP details (only one server name). Enter the DR server's host name and IP address. Select the process server and click on “Next”.

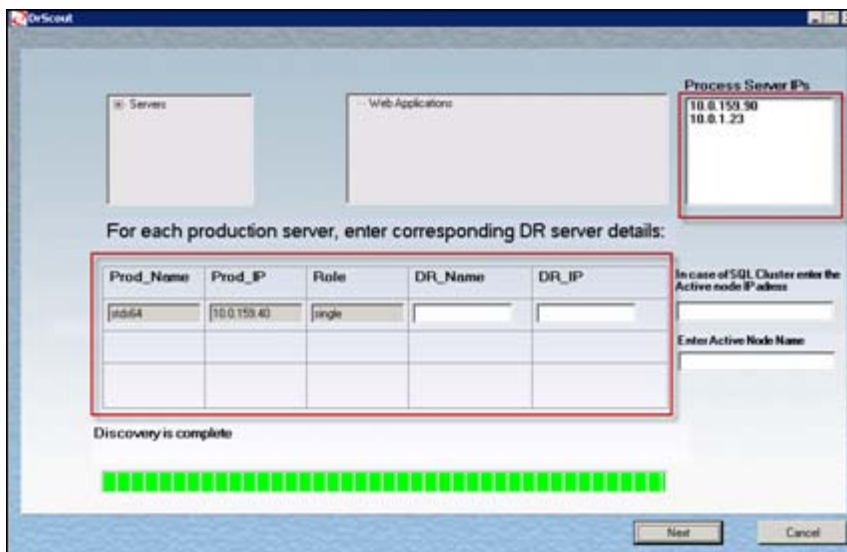


Figure 6:

Step 5. The configuration details are displayed in the next screen. You can click on “Back” to go to the previous screen and make the necessary changes such as change the host name or IP address. Click on “Next” to proceed to set replication pairs.

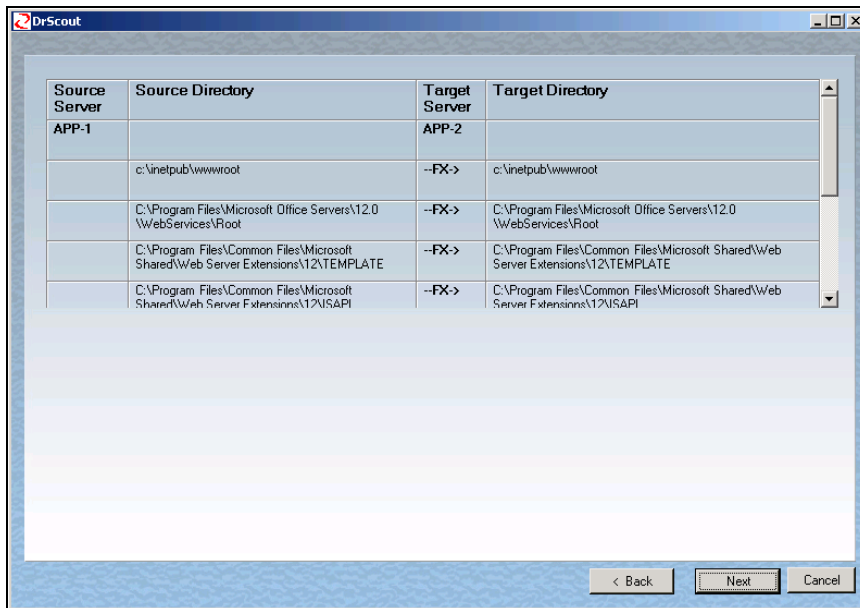


Figure 7:

Step 6. All the replication pairs will be set and would be displayed in the next screen. Click on “Finish”.

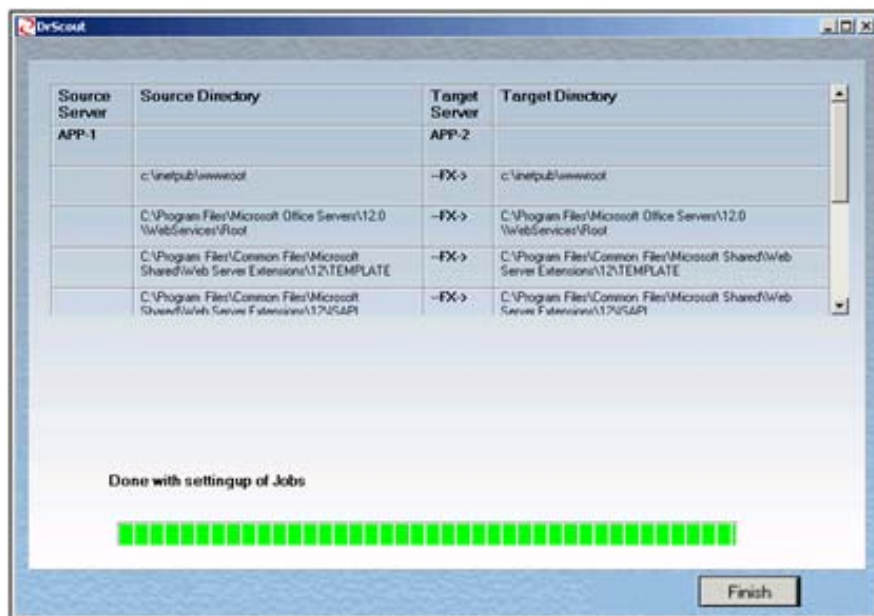


Figure 8:

Step 7. Switch back to the CX UI to observe that the required jobs are set by the wizard.

File Protection							
Applications							
							Filter: Application
							Application Per Page: 5
SharePoint_share_126_sr							
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory	RPO
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root	SHARE_126_TGT	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root	5 m 40 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	c:\inetpub\wwwroot	SHARE_126_TGT	c:\inetpub\wwwroot	34 m 48 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	3 m 39 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\WINDOWS\system32\serverappliance\web	SHARE_126_TGT	C:\WINDOWS\system32\serverappliance\web	3 m 39 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12	SHARE_126_TGT	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12	3 m

Figure 9:

5.1.2 Server Farm Wizard

This encloses one or more application server, web server, and database server on different machines. The FX jobs would be set from the respective production to the DR servers such as the production application server to DR application server, production web server to DR web server etc.

Step 1. Logon to the production Application server's command prompt and navigate to the "filerrep" folder under the FX installation path to issue the following command,

spapp.exe --config --retention <retention path for replication pairs set through wizard>

```
C:\Program Files\InMage Systems\FileRep>spapp.exe --config --retention H:\jan04
Retention path entered = H:\jan04

Sharepoint Planned Failover : "C:\Program Files\InMage Systems\FileRep\spapp.exe" --failover
ServerName = share_126_sr, IP = 10.0.126.25
```

Figure 10: Command on production Application Server



Notes:

The sppap.exe command should be run only in application server command prompt.

Step 2. This starts the discovery wizard, click on "Next" to continue. This would take some time to discover the application, web, and DB servers in the SharePoint setup.

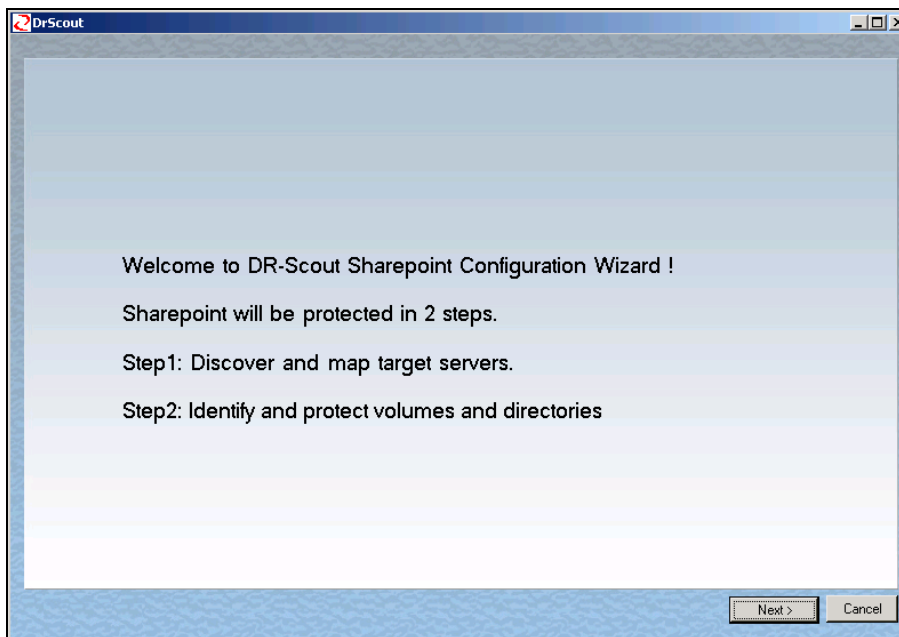


Figure 11:

Step 3. The list of servers involved in SharePoint are detected by the wizard and shown in this screen. Based on the roles, enter the corresponding DR server's name and IP address for all detected production servers. Select the process server and click on “Next”.

For each production server, enter corresponding DR server details:

Prod_Name	Prod_IP	Role	DR_Name	DR_IP
APS-32	10.0.162.41	app		
dbs-32	10.0.162.43	unknown		
WEBS-32	10.0.162.42	web		

Discovery is complete

In case of SQL Cluster enter the Active node IP address

Enter Active Node Name

Next Cancel

Figure 12:

Step 4. The configuration details are displayed in the next screen. You can click on “Back” to go to the previous screen and make the necessary changes such as change the host name or IP address. Click on “Next” to proceed to set replication pairs.

Source Server	Source Directory	Target Server	Target Directory
APP-1		APP-2	
	c:\inetpub\wwwroot	--FX-->	c:\inetpub\wwwroot
	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root	--FX-->	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root
	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12\TEMPLATE	--FX-->	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12\TEMPLATE
	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12\ISAPI	--FX-->	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12\ISAPI

< Back Next Cancel

Figure 13:

Step 5. All the replication pairs will be set. Click on “Finish”.

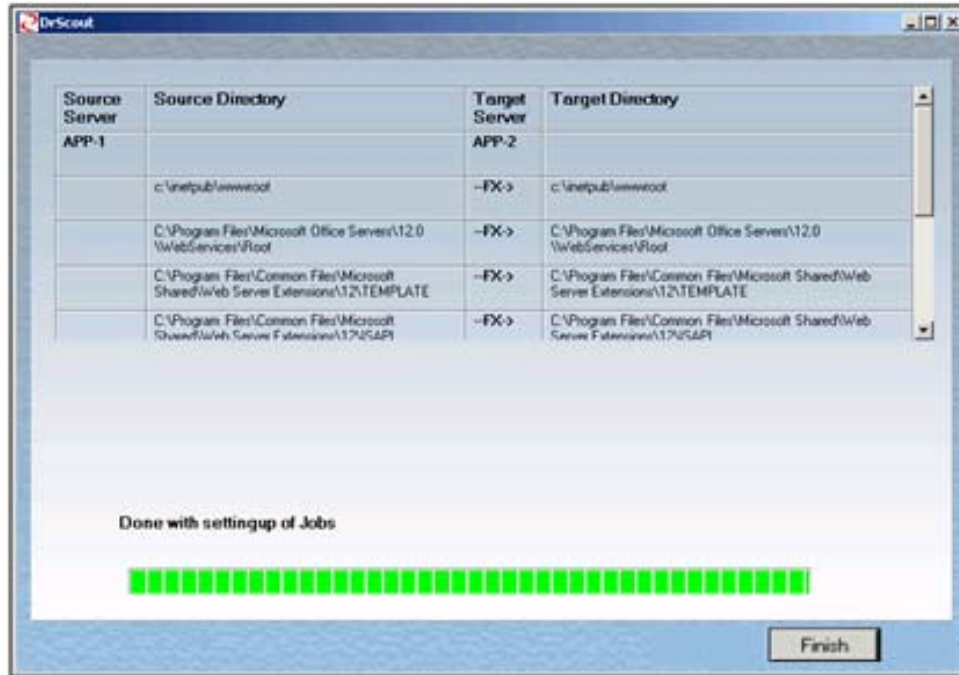


Figure 14:

Step 6. Switch back to the CX UI to observe that the required jobs are set by the wizard.

File Protection							
Applications							
						Filter:	Applicati
						Application Per Page:	5
SharePoint_share_126_sr							
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory	RPO
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root	SHARE_126_TGT	C:\Program Files\Microsoft Office Servers\12.0\WebServices\Root	5 m 40 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	c:\inetpub\wwwroot	SHARE_126_TGT	c:\inetpub\wwwroot	34 m 48 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	3 m 39 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\WINDOWS\system32\serverappliance\web	SHARE_126_TGT	C:\WINDOWS\system32\serverappliance\web	3 m 39 s
<input type="radio"/>	sharepoint...	Not started...	SHARE_126_SR	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12	SHARE_126_TGT	C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\12	3 m

Figure 15:

5.1.3 Server farm Wizard with SQL Cluster

This section is similar to server farm with SQL server on cluster. FX jobs would be set from production to DR servers such as production application server to DR application server etc.

Step 1. Log in to the CX UI and click on “**Protection Status**” to observe the blank CX UI.

Protection Status

Logged in as 'admin' - [Logout](#)

Volume Protection Status										
Server	Volume	Group	Resyncs In Transit Step1 (MB)	Resync In Transit Step2 (MB)	Differentials Left (MB)	Resync progress				
(Snapshot / Recovery / Rollback) Pair Status										
Host	Host Drive	Snapshot / Recovery / Rollback Drive	Drive Type	Progress	Start Time	End Time	Expected Recovery Point	Actual Recovery Point	Status	Info Message

File Protection Status								
Filter	Job Description	Application	Status	Source Host	Source Directory	Target Host	Target Directory	
No logs available								

Clear logs for selected jobs

Delete all job history

Figure 16:

Step 2. Then login to the production Application server’s command prompt and navigate to the FX installation path\filerep to issue the following command
spapp.exe --config --retention <retention path for replication pairs set through wizard>



Notes:

The sppap.exe command should be run only in application server command prompt.

Step 3. This starts the discovery wizard, click on “Next” to continue. This would take some time to discover the application, web, and DB servers in the SharePoint setup.

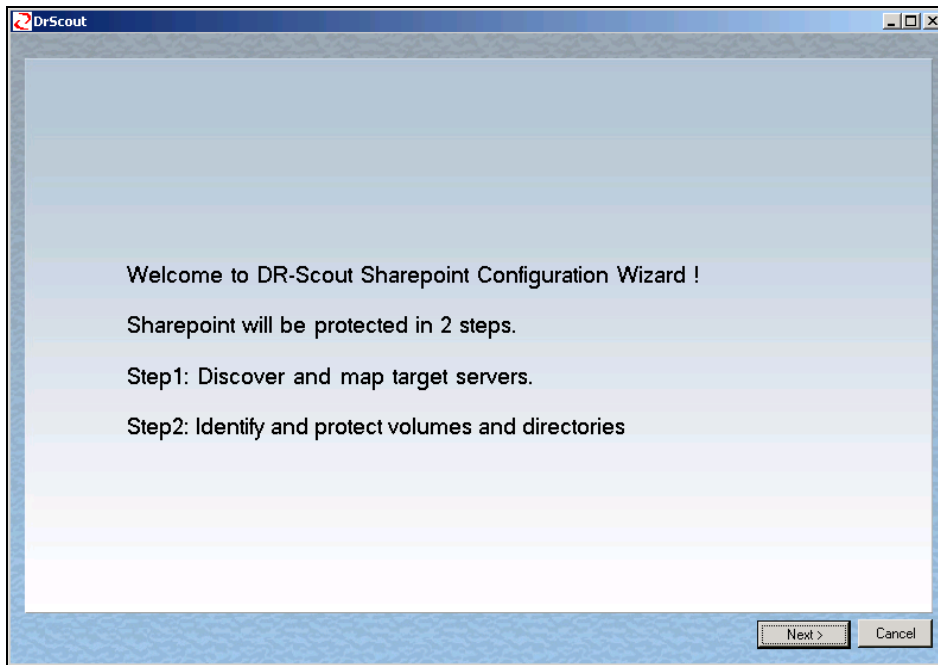


Figure 17:

Step 4. The wizard detects the list of servers involved in SharePoint and displays them in this screen. Enter the DR server’s name and IP address for each of the production host based on their role. Select the process server. In case of SQL cluster, enter “Active Node Name” and “Active Node IP Address”, and click on “Next”.

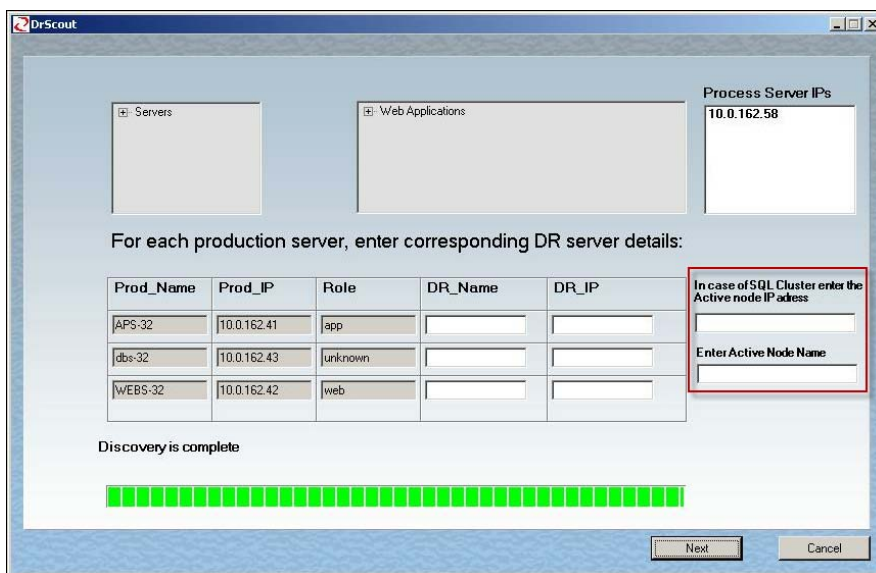


Figure 18:

Step 5. The configuration details are displayed in the next screen. You can click on **“Back”** to go to the previous screen and make the necessary changes such as change the host name or IP address. Click on **“Next”** to proceed to set replication pairs.

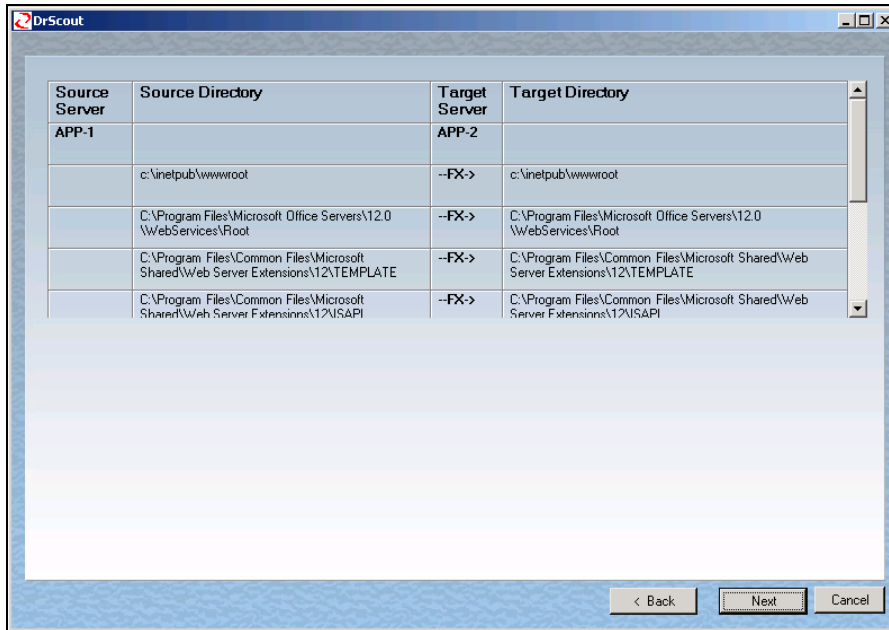


Figure 19:

Step 6. All the replication pairs will be set. Click on **“Finish”**.

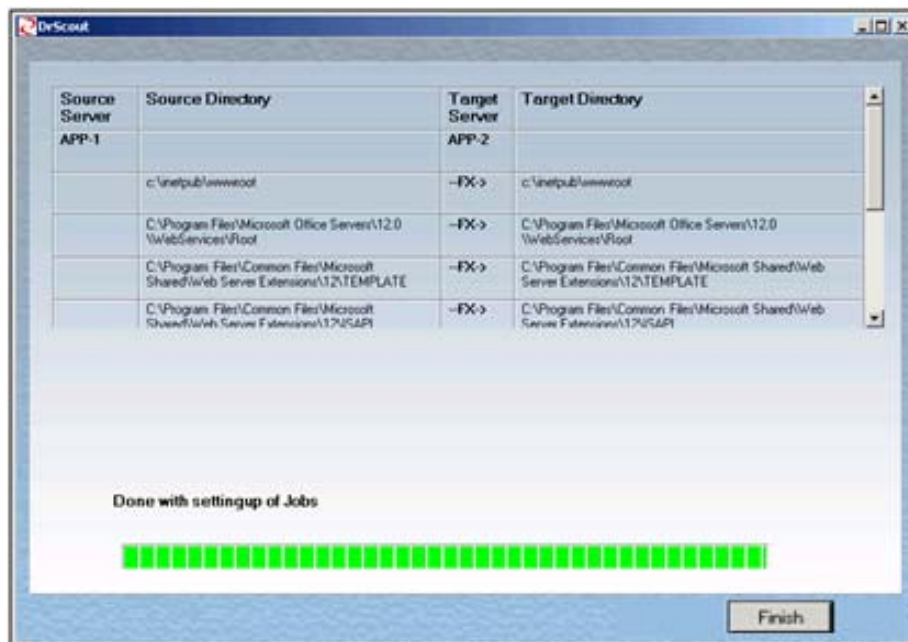


Figure 20:

Step 7. Switch back to the CX UI to observe that the required jobs are set by the wizard.

File Protection						
Logged in as 'admin@10.0.5 Server Time: Jul-14-2						
Applications Filter:						
Application Per Page: 10						
[-] SharePoint_SHARE_126_SR						
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory
<input type="radio"/>	sharepoint_farm_planned_failover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_farm_unplanned_failover...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_sql_plannedfailover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sharepoint_sql_unplannedfailover...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sql_consistency...	Running	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
Results 6-10 of 10 << < 1 2 > >>						
<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Details"/> <input type="button" value="Remove"/>						

Figure 21:

5.2 Jobs and Replications set by the Wizard

Table 6:

FX/VX Jobs	Purpose
VX Data Replication	All SQL volumes with media retention
FX Data replication	All web content through FX set to run every 30 mins
FX scheduled jobs	SQL consistency set to run every 30 mins
Recovery jobs	sharepoint_sql_unplannedfailover, sharepoint_sql_plannedfailover, sharepoint_farm_planned failover sharepoint_farm_unplanned failover

5.3 Monitoring jobs for standalone and server farms

Once the jobs are set by the configuration wizard, they need to be monitored on periodic basis to ensure that they are completing successfully.

List of jobs to be monitored are as follows:

1. SQL consistency jobs: Ensure that these jobs are completing successfully.



Notes:

Rarely VACP tags do fail, to overcome this delete the "HKLM\Software\Microsoft\EventSystem\{26c409cc-ae86-11d1-b616-00805fc79216}\Subscriptions" key from the registry of the production host (where VACP is being used) and reboot the system

Ensure the service "SQL VSS writers" is up and running, else VACP tags fail. Also ensure that the service "SQL server VSS writer" is set to start automatically.

While using Symantec antivirus Ver 10.0.100, always install SAV 10.0 Maintenance Patch 1, else vacp fails

2. Web applications are getting restored on to respective target servers

Following steps illustrate the steps necessary to validate that the Web servers are protected through the jobs.

Switch to the desired target web server

You should be able to see all the websites created on the production web servers on their respective target web servers.

However, if you need to confirm that the replication is successful, delete the web sites and web applications. They would be recreated automatically once the Web consistency FX jobs between the web servers executed successfully. You may follow the following steps to verify successful web content replication.

- "My Computer-→ Manage→Services Applications →IIS→Web Sites".
- Delete the web sites except the "Central Administration" and "Office Server web services"
- "My Computer-→ Manage→Services Applications →IIS→Web Applications".
- Delete the web sites except the "Central Administration" and "Office Server web services"
- Wait for the Web consistency job to run automatically. This job should recreate the deleted sites automatically.

6 Failover

There are two types of failover unplanned and planned failover. The following table shows when to choose to planned and unplanned failovers.

Table 4

Failover Actions	Unplanned failover	Planned failover
When to use	Real-time outages or unexpected outages	Mock drills, To test the setup. Any expected outages
Recovered to	To latest consistent tag common for all SharePoint replication pairs	Issues a consistency tag on the SharePoint volumes. Target is recovered to the same consistent tag.
Performed through CX UI	Yes, unless the CX is down.	Yes
Performed through CLI	Yes	Yes



Notes:

The Steps involved in planned and unplanned failover is same for standalone, server farm, and cluster

6.1 Planned Failover

To perform a planned failover through CX UI, start the FX jobs in the same sequence as in the picture below. Ensure that you start the second job only when the first FX job is successful.



Figure 22:



Notes:

Ensure that you wait until each of the jobs successfully completes before starting the next job.

In the CX UI, all the jobs mentioned in the figure above would be present, run the jobs as per the order mentioned in the figure below.

File Protection						
Logged in as 'admin@10.0.5'						
Server Time: Jul-14-2						
Applications						
Filter:						
Application Per Page: 10						
SharePoint_SHARE_126_SR						
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory
<input type="radio"/>	sharepoint_farm_planned_failover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_farm_unplanned_failover..	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_sql_plannedfailover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sharepoint_sql_unplannedfailover...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sql_consistency...	Running	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
Results 6-10 of 10 << < 1 2 > >>						
<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Details"/> <input type="button" value="Remove"/>						

Figure 23:

6.2 Un-Planned Failover

To perform an unplanned failover through CX UI, start the FX jobs in the same sequence as in the picture below. Ensure that you start the second job only when the first FX job is successful.

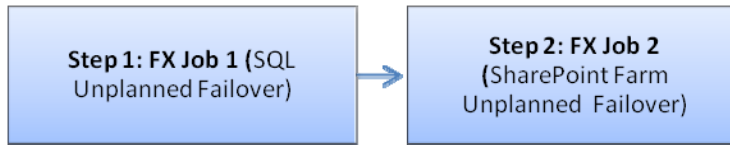


Figure 24:

In the CX UI, all the jobs mentioned in the figure above would be present, run the jobs as per the order mentioned in the figure below.

File Protection						
Logged in as 'admin@10.0.5'						
Server Time: Jul-14-2						
Applications						
Filter:						
Application Per Page: 10						
SharePoint_SHARE_126_SR						
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory
<input type="radio"/>	sharepoint_farm_planned_failover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_farm_unplanned_failover...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_sql_plannedfailover...	Not started...	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sharepoint_sql_unplannedfailover...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sql_consistency...	Running	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data
Results 6-10 of 10 << ≤ 1 2 >>						
<div>Stop</div> <div>Start</div> <div>Details</div> <div>Remove</div>						

Figure 25:

6.3 Planned failover through CLI

6.3.1 SQL Planned Failover through CLI

Step 1. Planned failover can be performed through CLI as well. Access the production database server's console and navigate to the InMage installation folder to issue the following command

Application -failover -planned -app sql2005 -s <production SQL server name> -t <target SQL server name> -builtin -tag NONE

```
C:\Program Files\InMage Systems>application -failover -planned -app sql2005 -s S
QL2K5-SOURCE -t SQL2K5-TARGET -builtin -tag NONE
SQL2K5-SOURCE IP address = 10.0.163.21
SQL2K5-TARGET IP address = 10.0.163.22
Attempting to determine Virtual Server Name for host : SQL2K5-SOURCE in case it'
s a clustered configuration
Discovering Databases ...
Instance Name is :sql2k5-source
Instance Name is :sql2k5-source\instance1
Connecting to server sql2k5-source
Connecting to server sql2k5-source\instance1
Discovering Volumes ...
Discovering sql2005 volumes for the host: sql2k5-source
```

Figure 26: Command on production database server



Notes:

-nodnsfailover switch is added only when DNS failover is not required. Also, if this switch is added to the failover command in source “-nodnsfailover” switch must be added at the target side failover command

At the end of the output another command is displayed within the “important information” as shown in the figure below. This command has to be executed from the target database server's console to complete SQL planned failover through CLI.

```
***** The actual tag to failover to is : FileSystem48084b50
*****IMPORTANT INFORMATION*****
Please run the following command on the Target Host to complete failover
Application.exe -failover -planned -app sql2005 -s sql2k5-source -t sql2k5-targe
t -builtin -tag FileSystem48084b50
*****Successfully finished failover at source*****
```

Figure 27:

Step 2. Now switch to the target database server's console, navigate to InMage installation folder and issue the above mentioned command. This concludes planned failover through CLI.

```
C:\Program Files\InMage Systems>Application.exe -failover -planned -app sql2005
-s sql2k5-source -t sql2k5-target -builtIn -tag FileSystem48084b50
sql2k5-source IP address = 10.0.163.21
sql2k5-target IP address = 10.0.163.22
Attempting to determine Virtual Server Name for host : sql2k5-source in case it's
a clustered configuration

Discovering Databases ...

***** Attempting to read configuration file C:\Program Files\InMage Systems\Fail
over\Data\sql2k5-source_sql_config.dat for database configuration

Discovering Volumes ...

Discovering sql2005 volumes for the host: sql2k5-source
HostName= sql2k5-source
```

Figure 28: Command issued on target database server to complete planned failover



Notes:

For SQL 2000 the -app switch will be sql

For SQL 2008 the -app switch will be sql2008

To failover to an application tag or user defined consistency tag, append the command with -tag <name of the tag> -tagtype <type of the tag>.

The tagtype for SQL Server 2000 is "SQL" and for SQL server 2008 it's "SQL2008".

The tag type for user defined tag is USERDEFINED.

The name of tag given should belong to the type of the tag specified.

If the tagtype is not mentioned, by default the FS tagtype is considered

6.3.2 SharePoint Farm Planned Failover Through CLI

To perform SharePoint Farm Planned Failover through CLI do the following:

Step 1. Go to production application server console and navigate to InMage installation path\filerep folder and issue command,

```
spapp.exe --stopSourceFarm
```

Step 2: Go to DR application server (target application server) console and navigate to InMage installation path\filerep folder and issue command,

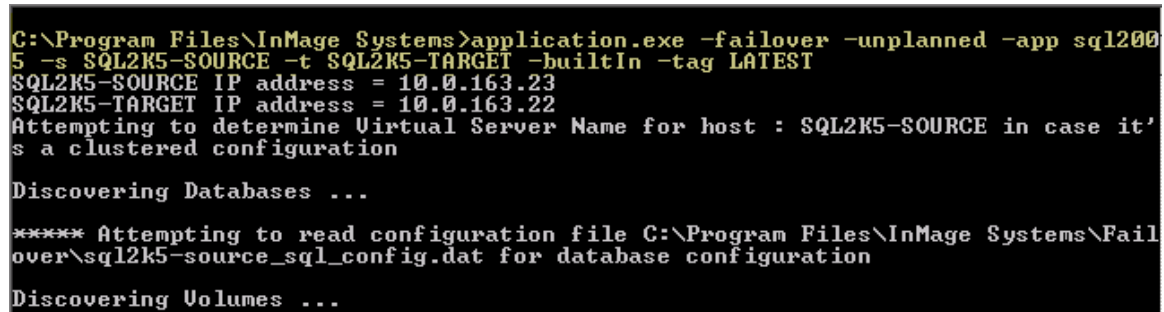
```
spapp.exe --farmplannedfailover
```

6.4 Un-Planned Failover through CLI

6.4.1 SQL Unplanned Failover through CLI

When the CX and the production servers are both down, then to perform an unplanned failover, access the target database server's console to issue the following command

Application -failover -unplanned -app sql2005 -s <production SQL server name> -t <target SQL server name> -builtin -tag LATEST



```
C:\Program Files\InMage Systems>application.exe -failover -unplanned -app sql2005 -s SQL2K5-SOURCE -t SQL2K5-TARGET -builtin -tag LATEST
SQL2K5-SOURCE IP address = 10.0.163.23
SQL2K5-TARGET IP address = 10.0.163.22
Attempting to determine Virtual Server Name for host : SQL2K5-SOURCE in case it's a clustered configuration

Discovering Databases ...

***** Attempting to read configuration file C:\Program Files\InMage Systems\Failover\sql2k5-source_sql_config.dat for database configuration

Discovering Volumes ...
```

Figure 29:



Notes:

For SQL 2000 the -app switch will be sql

For SQL 2008 the -app switch will be sql2008

6.4.2 SharePoint Farm Unplanned Failover through CLI

To perform sharepoint farm unplanned failover do the following:

Step 1. Go to DR application server (target application server) console and navigate to InMage installation path\filerep folder and issue command,

spapp.exe --farmunplannedfailover

7 Failback

To start the Failback process, follow the following steps:

Step 1. Go to DR Application Server (target application server) console and navigate to InMage installation path\filerep folder and issue the following command,
Spapp.exe --failback --retention <Enter Retention Path>.

```
C:\Program Files\InMage Systems\FileRep>spapp.exe --failback --retention H:\12au  
  
Retention path entered = H:\12au  
  
Going to discover the servers in sharepoint farm
```

Figure 30



Notes:

This failback is supported for non-clustered machines

Step 2. This starts the discovery wizard, click on “**Next**” to continue. This would take some time to discover the application, web, and DB servers in the SharePoint setup.

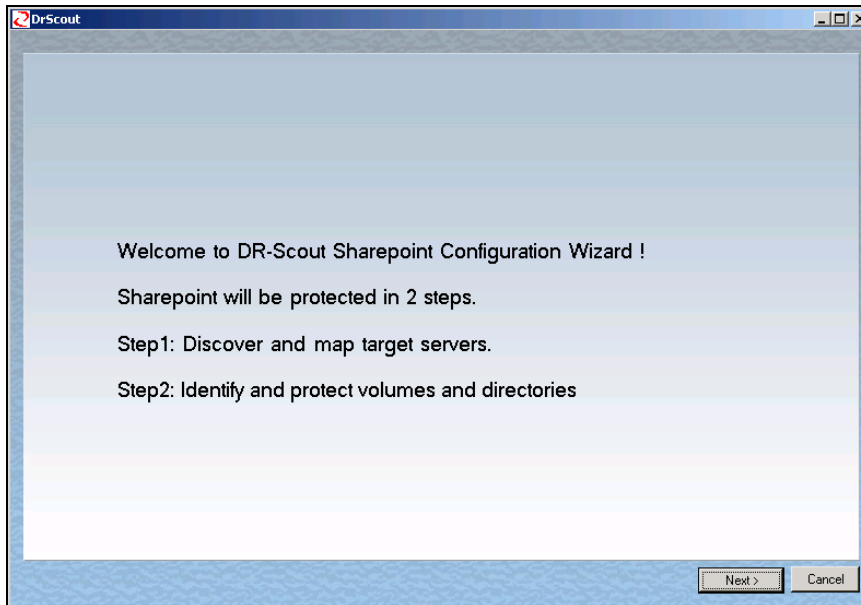


Figure 31:

Step 3. You would see a standalone server name and IP details (only one server name). Wizard will also give the required details. Select the process server and click on “Next”.

DrScout

Servers

- Single_Server
- Web_Servers
- App_Servers
- SQL_Servers

Web Applications

- 16jlu_AFB
- afb2ndtime
- forssp
- new alFo
- SharePoint - 39869
- SR_Secondwebsite

Process Server IPs

10.0.50.10

For each production server, enter corresponding DR server details:

Prod_Name	Prod_IP	Role	DR_Name	DR_IP
share_126_tgt	10.0.126.26	single	SHARE_126_SR	10.0.126.25

In case of SQL Cluster enter the Active node IP address

Enter Active Node Name

Discovery is complete

Next > Cancel

Figure 32:

Step 4. The configuration details are displayed in the next screen. You can click on “Back” to go to the previous screen and make the necessary changes such as change the host name or IP address. Click on “Next” to proceed to set replication pairs.

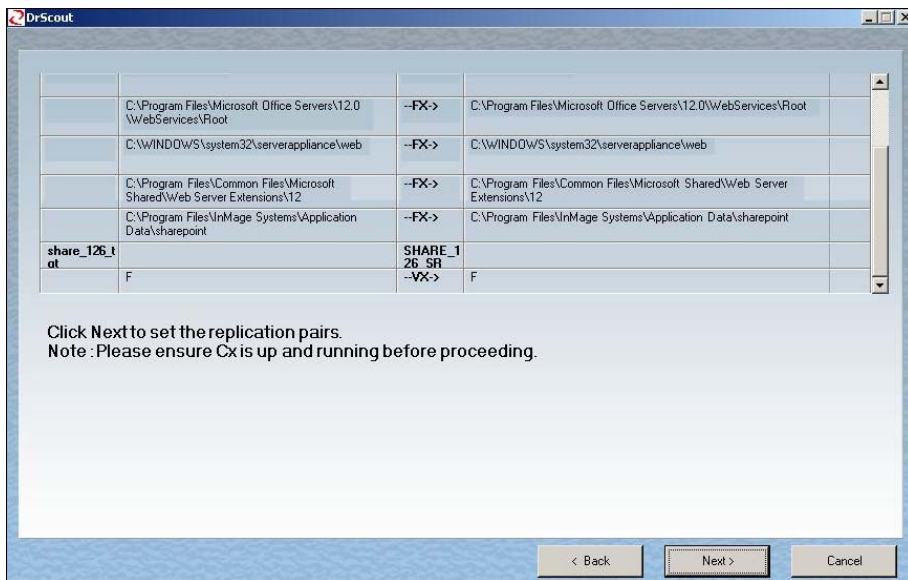


Figure 33:

Step 5. All the replication pairs will be set and would be displayed in the next screen. Click on “Finish”.

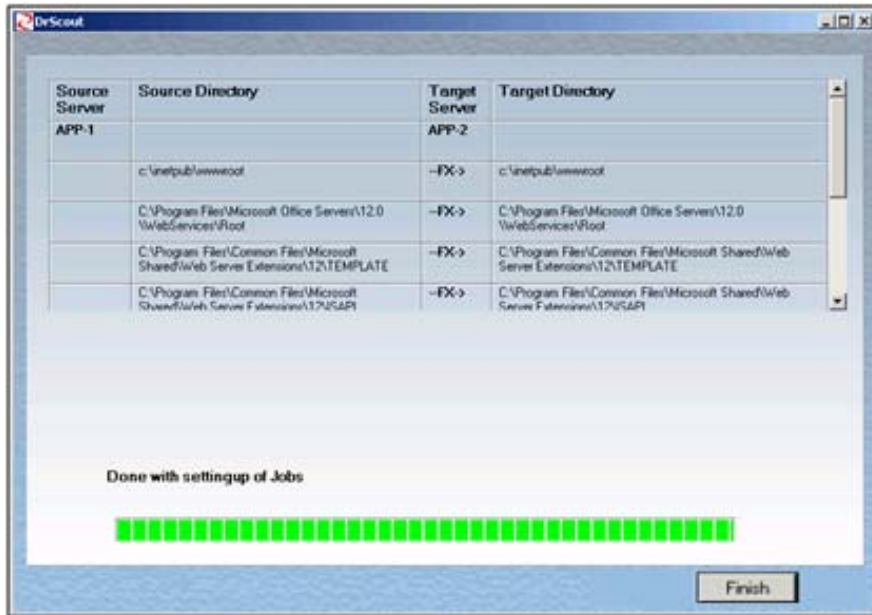


Figure 34:

7.1 Planned Failback CX UI

The Failback process can only be planned type.

To perform a Failback through CX UI, start the FX jobs in the same sequence as in the picture below. Ensure that you start the next job only when the previous FX job is successful.

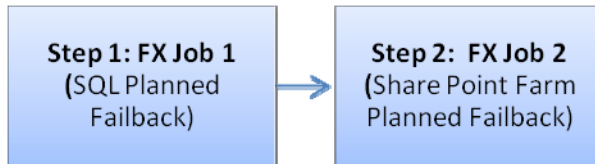


Figure 35:



Notes:

Ensure that you wait until each of the jobs successfully completes before starting the next job.

In the CX UI, all the jobs mentioned in the figure above would be present, run the jobs as per the order mentioned in the figure below.

File Protection						
Applications						
						Filter: A
						Application Per Page: 5
+ SharePoint_SHARE_126_SR						
- SharePoint_share_126_tgt						
	Job Description	Status	Source Host	Source Directory	Target Host	Target Directory
<input type="radio"/>	sharepoint_farm_planned_failback...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Application Data\sharepoint	SHARE_126_SR	C:\Program Files\InMage Systems\Application Data\sharepoint
<input type="radio"/>	sharepoint_sql_plannedfailback...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data
<input type="radio"/>	sql_consistency...	Not started...	SHARE_126_TGT	C:\Program Files\InMage Systems\Failover\data	SHARE_126_SR	C:\Program Files\InMage Systems\Failover\data
Results 6-8 of 8 << < 1 2 > >>						
<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Details"/> <input type="button" value="Remove"/>						

Figure 36:

7.2 Planned Failback through CLI

7.2.1 SQL Failback through CLI

Step 1. Failback can be performed through CLI as well. Access the DR Database Server console and navigate to the InMage installation folder to issue the following command

Application -failback -planned -app sql2005 -s < DR SQL server name> -t <Production SQL server name> -builtin -tag NONE

```
C:\Program Files\InMage Systems>Application.exe -failback -planned -app sql2005
-s share_126_tgt -t share_126_sr -builtin -tag NONE
Command Line: Application.exe -failback -planned -app sql2005 -s share_126_tgt -
t share_126_sr -builtin -tag NONE
Running under the user: APP_DEUXSRV.NET\administrator
Local Machine Name is : SHARE_126_TGT
Process ID: 2336
Attempting to determine SQL Virtual Server name for host : share_126_tgt in case
```

Figure 37: Command on DR database server



Notes:

-nodnsfailover switch is added only when DNS failover is not required. Also, if this switch is added to the failover command in source “-nodnsfailover” switch must be added at the target side failover command

At the end of the output another command is displayed within the “important information” as shown in the figure below. This command has to be executed from the source database server’s console to complete SQL failback through CLI.

```
***** The actual tag to failover to is : FileSystem4a83a9ff
*****IMPORTANT INFORMATION*****
Please run the following command on the Target Host to complete failover
Application.exe -failback -planned -app sql2005 -s share_126_tgt -t share_126_sr -builtin -tag FileSystem4a83a9ff
*****Successfully finished failover at source*****
```

Figure 38:

Step 2. Now switch to the production database server's console, navigate to InMage installation folder and issue the above mentioned command. This concludes planned failover through CLI.

```
Command Line: "C:\Program Files\InMage Systems\application.exe" -failback -planned
-app sql2005 -s share_126_tgt -t SHARE_126_SR -builtin -tag FileSystem4a83a9ff
Running under the user: APP.DEVXSRV.NET\administrator
Local Machine Name is : SHARE_126_SR
Process ID: 4752
Attempting to determine SQL Virtual Server name for host : share_126_tgt
in case it's a clustered configuration

Successfully fetched the IP address i.e(10.0.126.25) of SHARE_126_SR from C:\Program
Files\InMage Systems\Failover\Data\FailoverServices.conf
share_126_tgt IP address = 10.0.126.26
SHARE_126_SR IP address = 10.0.126.26
```

Figure 39: Command issued on Production database server to complete Failback



Notes:

For SQL 2000 the `-app` switch will be `sql`

For SQL 2008 the `-app` switch will be `sql2008`

To failover to an application tag or user defined consistency tag, append the command with `-tag <name of the tag> -tagtype <type of the tag>`.

The tagtype for SQL Server 2000 is "SQL" and for SQL server 2008 it's "SQL2008".
The tag type for user defined tag is USERDEFINED.

The name of tag given should belong to the type of the tag specified.

If the tagtype is not mentioned, by default the FS tagtype is considered

7.2.2 SharePoint Farm Failback through CLI

Step 1. To perform SharePoint Farm Planned Failover through CLI do the following:

Step 2. Go to DR application server console and navigate to InMage installation path\filerep folder and issue command,

```
spapp.exe --stopSourceFarm
```

Step 3. Go to Production application server (source application server) console and navigate to InMage installation path\filerep folder and issue command,

`spapp.exe --farmplannedfailback`

8 Trouble shooting

8.1 SQL Consistency Jobs are failing

Symptom: On CX UI SQL consistency FX jobs are failing.

Solution:

- Check that the SQL VSS writer services are running on the source.
- Rarely VACP tags do fail, to overcome this delete the “HKLM\Software\Microsoft\EventSystem\{26c409cc-ae86-11d1-b616-00805fc79216}\Subscriptions” key from the registry of the production server (where VACP is being used) and reboot the system
- Ensure the service “SQL VSS writers” is up and running, else VACP tags fail. Also ensure that the service “SQL server VSS writer” is set to start automatically.
- Ensure that SQL browser services are up and running on the production database server.

While using Symantec antivirus Ver 10.0.100, always install SAV 10.0 Maintenance Patch 1, else vacp fails



Notes:

Rarely VACP tags do fail, to overcome this delete the “HKLM\Software\Microsoft\EventSystem\{26c409cc-ae86-11d1-b616-00805fc79216}\Subscriptions” key from the registry of the production server (where VACP is being used) and reboot the system

Ensure the service “SQL VSS writers” is up and running, else VACP tags fail. Also ensure that the service “SQL server VSS writer” is set to start automatically.

While using Symantec antivirus Ver 10.0.100, always install SAV 10.0 Maintenance Patch 1, else vacp fails

8.2 FX jobs stuck

Symptom: FX jobs are stuck at “not started state”

Solution: Restart the FX service on the respective production and DR servers

8.3 Service not available


Symptom: When trying to access a web site you would see a message saying that service is not available.

Solution:

- Check the application pool under which this web site is served.
- Click “My Computer”, Right click and select **Manage**”.
- Go to “**Applications Services->IIS ->Application Pools**”
- If the application pool is stopped with an error, check that the User under which the failover is executed is part of the IIS_WPG group.
- If the user is not part of the IIS_WPG group, make it part of the IIS_WPG group and restart the application pool.

8.4 IIS is failing to start

Symptom: IIS is not started and attempts to restart also fails



```
C:\WINDOWS\system32\inetsrv>iisreset /restart
Attempting stop...
Internet services successfully stopped
Attempting start...
Restart attempt failed.
IIS Admin Service or a service dependent on IIS Admin is not active. It most li
kely failed to start, which may mean that it's disabled.
C:\WINDOWS\system32\inetsrv>
```

Figure 40:

- Re start the service “**IIS Admin service**” in the services.
- If service fails to start, then look for a process called **inetinfo.exe** using Task Manager. Kill the inetinfo.exe process and start the IIS Admin service from the services.
- Start the service “**IIS Admin service**” in the services.
- Start the IIS with the command
iisrestart /restart

8.5 Sql consistency jobs failing

Symptom: SQL consistency job is failing with the following error messages

```
Discovering Databases:
Instance Name: TGTSTAND32BIT
Connecting to server TGTSTAND32BIT Discovering Volumes:
Discovering sql2005 volumes for the host: tgtstand32bit
HostName= tgtstand32bit
File path: e:\microsoft sql
server\mssql.1\mssql\data\sharepoint_admincontent_f3eb3a06-d88b-
4d4b-ae0e-8ae9e25c9a00.mdf abspath= \\tgtstand32bit\e$\microsoft
sql server\mssql.1\mssql\data\sharepoint_admincontent_f3eb3a06-
d88b-4d4b-ae0e-8ae9e25c9a00.mdf
GetVolumePathName failed Error= 2 HostName=tgtstand32bit
Failed to discover the SQL volumes for the host: tgtstand32bit

Failed to discover volumes for one or more hosts:
Directory: C:\Program Files\InMage Systems\Failover\Mssql already
existed
```

To resolve the above errors share the production database drive.

8.6 Replication not Getting deleted after Failover

Start the svagents service on the target machine if the services are in stopped state.

8.7 After Failover Trying to Access Central Admin Other Than Application Server

During failback, to access central administrator UI, replace the source server name with target server name in the URL

8.8 FX Job Failing

Symptom: FX jobs failed with exit code 23 with the below error messages

Solution: Restart the FX service in the particular machine where the above error is occurring.

8.9 Unable to access Central Admin and Web Site after failover

Symptom: After failover from application server if you are not able to access central admin with Internet Explorer with valid credentials.

Solution: Access central admin and web site using other web browsers like Firefox.

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