

# HP OpenView

## Storage Mirroring application notes

### Guidelines for using Storage Mirroring with Windows Print Servers

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Storage Mirroring Guidelines for using Storage Mirroring with Windows Print Servers application notes

## Document overview

This document is a Storage Mirroring application note. An application note provides guidelines on the use of Storage Mirroring in a specific environment.

This document contains:

- **Document overview**—Explains what an application note contains, how it should be used, what you need to know before trying to use the application note, and where you can go for more information.
- **Implementation guidelines**—Describes all of the considerations that you must weigh when implementing your Storage Mirroring solution. Includes both basics, such as system requirements, as well as configuration and environment-specific topics, such as interactions with specific clients or special considerations for WAN (Wide Area Network) environments. Pay special attention to those topics that are directly related to your environment.

## Audience

This document is written for network and application administrators who have a working understanding of the applications and environments where the Storage Mirroring solution is to be deployed. You may need to expand on the documented information in order to customize the solution to fit your environment.

Before you use this application note, you should have an understanding of basic Storage Mirroring operation.

## Expectations

Application notes are intended to provide a framework for configuring a Storage Mirroring solution in a specific environment and to draw attention to decisions you will need to make when configuring your solution.

Because there are an infinite number of possible configuration, network, and environment scenarios, application notes contain general configuration guidelines as well as an example configuration procedure that has been tested for a specific environment.

This document assumes that you are comfortable working with your operating system, Storage Mirroring, and your application(s).

## Related documentation

Before you begin to configure your solution, make sure that you have complete documentation for your operating system, application, and Storage Mirroring. This application note does not provide step-by-step instructions for using standard operating system, application, and Storage Mirroring functionality.

The following documents contain additional information that you may need while setting up this solution:

- *HP OpenView Storage Mirroring user's guide* or online documentation

## Getting help

For help using Storage Mirroring, refer to the Storage Mirroring online manual or online help.

## Implementation guidelines

This document describes the steps necessary to configure HP OpenView Storage Mirroring to provide high availability for print servers on Windows 2000 Service Pack 3 or earlier. Once this configuration is complete, should a disaster happen to the primary server, the secondary server will automatically failover using Storage Mirroring and the printer server will remain available through the network.

To complete these instructions, you will install and configure Storage Mirroring for replication and failover. Due to the complexities of this application and print servers, this document is intended for network administrators with experience installing, configuring, and maintaining network applications including Storage Mirroring.

## Requirements

- Two servers that meet one of the following operating system requirements:
  - Microsoft Windows NT 4.0 with Service Pack 4 or later
  - Microsoft Windows 2000 Service Pack 3 or earlier

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 **NOTE:** If you are using Windows 2000 Service Pack 4 or later or Windows 2003, this application note is not necessary. Because the print spooler service is not name sensitive in these operating systems, you do not have to perform any additional failover configuration options nor are any print spooler specific failover or fallback scripts required. See the *HP OpenView Storage Mirroring user's guide* for the basic steps for configuring failover.

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- Two licensed copies of Storage Mirroring
  - One printer configured and shared on both the production (source) and backup (target) machines
  - The Storage Mirroring Chngname utility

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 **NOTE:** The Chngname.exe utility is available in the Tools directory when you download the product from the following web site: <http://www.openview.hp.com/downloads/index.html>.

## Naming Conventions

Storage Mirroring for Windows provides failover capabilities for multiple source servers to be monitored by and failed over to a single target server. When a source server fails, Storage Mirroring causes the target server to add the failed server's name and IP address. For most applications, this provides nearly instantaneous failover, with no need to reboot the target server, and it allows server-based applications already running on the target server to continue without interruption. When Storage Mirroring performs failover by adding the failed server's name to the existing name of the target this is known as multi-naming since the target machine is actually using multiple names on the network and responding for multiple IP address.

Unlike most client-server applications, the print spooler service on Windows 2000 Service Pack 3 and earlier is sensitive to the primary name of the server on which it is running. With the Storage Mirroring Chngname.exe utility, you are provided the ability to temporarily replace the primary name on the target to make failover of name sensitive services such as print servers possible. Since the print spooler service will only respond to one NetBIOS name after it is started, the target server can only stand in for one source at a time.

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 **NOTE:** The print spooler service is not name sensitive in Windows 2000 Service Pack 4 or later or Windows 2003. Therefore, the additional failover configuration steps in this application note are not necessary.

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## Sample implementation

This section describes an example of how to configure Storage Mirroring and Lotus Domino. Use these procedures as a guideline for creating your own implementation.

Because no two environments or configurations are exactly the same, you will probably need to implement additional or different steps than what is documented here in order to make the solution work in your environment.

### Install software on the source and target

1. Install Storage Mirroring on the source machine using the installation defaults. See the *HP OpenView Storage Mirroring getting started guide* for details.
2. Configure and share the network printer on the source machine.
3. Install Storage Mirroring on the target machine using the same installation defaults.
4. Configure and share the network printer on the target machine using the same settings as the source machine.

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 **NOTE:** You can use the Print Migrator tool in the Microsoft Resource Kit to simplify the process on the target. See Microsoft Knowledge Base article Q214795 for details on Windows NT or article Q275529 for details on Windows 2000.

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### Configure failover and begin failure monitoring

1. If a failure occurs, you will want to have the print spooler start on the target machine automatically. To do this, create a batch file called `postover.bat` using the sample batch file below. Save the batch file to the same directory where your Storage Mirroring files are installed.

#### SAMPLE\_POSTOVER.BAT

```
rem ***SAMPLE*** post-failover script for print servers.

rem This sample batch file is provided as an example only. Because no two
rem environments or configurations are exactly the same, you MUST modify
rem this script in order to make the solution work in your environment.

rem This command stops the spooler service so that the active server name of the target
rem machine can be changed.
net stop spooler

rem This command delays script processing so that the stop spooler command can be
rem completed. This command is available from the Windows 2000/NT Resource Kit. If you
rem do not have the Resource Kit, you will need to determine another method to delay
rem script processing. This command as executed below will wait for 60 seconds before
rem continuing. You may need to modify the length of time depending on the speed of your
rem print spooler.
sleep 60

rem This command temporarily changes the name of the server. You will need to replace
rem <drive>:\<directory>\ with the location of your Storage Mirroring script files and replace
rem source name with the name of the source machine. The Chngname utility should be
rem located in the same directory as the Storage Mirroring script files.
<drive>\<directory>\chngname /s source_name

rem This command restarts the spooler service with the name of the source machine.
net start spooler
```

2. After a failure is resolved, you will be ready to bring your source back online. At this time, you will want to stop the print spooler on the target automatically. To do this, create a batch file called `preback.bat` using the sample batch file below. Save the batch file to the same directory where your Storage Mirroring files are installed.

## SAMPLE\_PREBACK.BAT

```
rem ***SAMPLE*** pre-failback script for print servers.

rem This sample batch file is provided as an example only. Because no two
rem environments or configurations are exactly the same, you MUST modify
rem this script in order to make the solution work in your environment.

rem This command stops the spooler since it is currently using the source machine's name.
net stop spooler

rem This command delays script processing so that the stop spooler command can be
rem completed. This command is available from the Windows 2000/NT Resource Kit. If you
rem do not have the Resource Kit, you will need to determine another method to delay
rem script processing. This command as executed below will wait for 60 seconds before
rem continuing. You may need to modify the length of time depending on the speed of your
rem print spooler.
sleep 60

rem This command changes the target name back to its original name so that other network
rem applications are not impacted. You will need to replace <drive>:\<directory>\ with
rem the location of your Storage Mirroring script files. The Chngname utility should be located
rem in the same directory as the Storage Mirroring script files.
<drive>\<directory>\chngname /t

rem This command starts the spooler using the target machine name.
net start spooler
```

3. Select **Start, Programs, HP OpenView Storage Mirroring, Failover Control Center**.
4. Select the target machine from the list of available machines. If the target you need is not displayed, click **Add Target**, enter the machine name, and click **OK**.
5. To add a monitor for the selected target, click **Add Monitor**. Type the name of the source machine and click **OK**. The Monitor Settings window will open.
6. In the Monitor Settings window, mark the IP address that is going to failover.
7. Click **Scripts** and specify the scripts that were created above, using `postover.bat` for the target post-failover script and `preback.bat` for the target pre-failback script.

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**NOTE:** The scripts are processed using the same account running the Storage Mirroring service.

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8. Click **OK** to go back to the Monitor Settings dialog box.
9. If your printer is listed in Windows Active Directory, you will need to select **Failover Hostname** and **Failback Hostname** under Active Directory. Click **Account** and specify a user account with write access for Active Directory. If your printer is not listed in Active Directory, you can skip this step. (To confirm if your printer is listed in Active Directory, verify if the **List in Directory** option is enabled on the printer Properties, Sharing tab.)
10. Click **OK** from the Monitor Setting dialog box to begin monitoring the source machine.

In the event of a source machine failure, your target will stand in for the source and your print server is now completely protected. For information on monitoring failover, see the *HP OpenView Storage Mirroring user's guide*.

## Restoring your print server

If the source experiences a failure, such as a power, network, or disk failure, your target machine will stand in for the source while you resolve the source machine issues.

1. Verify that your source machine is not connected to the network. If it is, disconnect it.
2. Resolve the source machine problem that caused the failure.

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**NOTE:** If you must rebuild your hard drive, continue with step 3. If you do not need to rebuild your hard drive, continue with step 6 below.

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3. Install Windows. Since your source machine is not connected to the network, go ahead and use the source's original name and IP address.
4. Install Storage Mirroring using the installation defaults.
5. Install the print server and configure it exactly as before.
6. Select **Start, Programs, Storage Mirroring, Failover Control Center**.
7. Select the target machine that is currently standing in for the failed source and login.
8. Select the failed source and click **Failback**.
9. You will be prompted to determine if you want to continue monitoring the source server. Do not choose **Continue** or **Stop** at this time.
10. Connect the source machine to the network.
11. After the source is back online, select **Continue** to continue monitoring the source or **Stop** to discontinue monitoring.

If you selected to continue failover monitoring, the target is available to stand in for the source in the event of a failure.