

Compaq SANworks Virtual Replicator Version 2.0

README

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These are the release notes for Version 2.0 of Compaq SANworks Virtual Replicator (Virtual Replicator), containing the following sections:

Overview

Prerequisites

Installation and Upgrade Notes

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Known Documentation Errors

After you install Virtual Replicator 2.0, it is strongly recommended that you also install the Version 2.0A Update kit (Service Pack 1), which contains numerous enhancements. This kit is available on the installation CD or from the Compaq SANworks Virtual Replicator website:
www.compaq.com/products/storageworks/swvr/swvr_index.html.

For additional information, see the release notes for Version 2.0A. These are in a file named **readme_vr20a.htm** located on the installation CD or on the Compaq SANworks Virtual Replicator website.

Overview

Version 2.0 of Compaq SANworks Virtual Replicator provides advanced, centralized storage management capabilities in Microsoft Windows NT and Windows 2000 computing environments. Its innovative storage management features simplify storage configuration and management, and enhance availability and scalability. With Virtual Replicator, you can

- Create **pools** of storage.
- Divide the pools into **virtual disks** of whatever sizes you want, up to a maximum of 1 TB.
- Create virtual copies, called **snapshots**, of the virtual disks.
- Grow basic and virtual disks.

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Prerequisites

To install Version 2.0 of Compaq SANworks Virtual Replicator, your computer must be running the following software:

- Either of the following operating systems:
 - Microsoft Windows NT Version 4.0, with Service Pack 4, 5, or 6
 - Microsoft Windows 2000, Professional, Server, or Advanced Server

Note: Of these versions of Windows 2000, only Advanced Server supports clustering.

- Internet Explorer Version 5.0 or greater

You can download a free copy of the latest version of Internet Explorer from the Microsoft website at www.microsoft.com.

- The Windows Scheduled Tasks applet

The following hardware is required:

- Any system that supports Windows NT 4.0 or Windows 2000
- 128 MB of memory
- 40 MB of disk space for a full installation

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Installation and Upgrade Notes

This section describes issues concerning installation, uninstallation, or upgrades.

Upgrading to Virtual Replicator 2.0 from an evaluation copy

If you have installed and operated the Virtual Replicator V2.0 evaluation kit and subsequently decide to buy the product, you must uninstall the evaluation software prior to installing the V2.0 licensed copy. This applies to both Windows NT 4.0 and Windows 2000. The storage environment created with the evaluation software will be automatically preserved.

If you have already installed the licensed copy over the evaluation copy, you must also follow this procedure and uninstall the current copy.

To remove the evaluation kit and install the licensed copy:

Note: Compaq strongly recommends backing up all data first.

1. Remove the evaluation kit using the Add/Remove Programs applet in the Windows Control Panel.
2. Restart the computer.
3. Install the V2.0 licensed copy.

4. Restart the system. The storage pools, virtual disks and snapshots previously created with the evaluation software are now available.

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Disconnect network clients before upgrading to Virtual Replicator 2.0

If you are serving network disks with Version 1.1 of Virtual Replicator, it is recommended that you disconnect clients before upgrading to Version 2.0. After the upgrade, the network disks are available for client reconnection.

Use caution when upgrading a Windows NT 4.0 cluster to a Windows 2000 cluster

If you are upgrading a Windows NT 4.0 cluster that is running Virtual Replicator to Windows 2000, exercise extreme caution during the upgrade process. Failure to follow the procedures described in the Windows 2000 Advanced Server documentation might result in corruption of your cluster disks, including those used by Virtual Replicator. It is highly recommended that you make a backup of your data before performing the upgrade.

For more information about cluster upgrades, refer to the Windows 2000 Advanced Server Documentation or:

windows.microsoft.com/windows2000/en/advanced/help/default.asp?url=/windows2000/en/advanced/help/installation_and_upgrading_of_cluster_nodes.htm

As part of a rolling upgrade of a Windows NT 4.0 cluster to Windows 2000, you might need to reboot the newly upgraded machine one additional time before Virtual Replicator resources are able to failover between cluster members.

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Upgrading to Virtual Replicator 2.0 on a cluster

Use the following procedure when upgrading from Version 1.1 of Virtual Replicator to Version 2.0 on a cluster system.

In a two-node cluster with nodes A and B:

1. Move all cluster groups to node B and then install Virtual Replicator 2.0 on node A using the instructions provided with the software.
2. Reboot node A and then move all of the cluster groups over to node A.
3. Using Cluster Administrator, confirm that any pre-existing pools or network disks are working correctly on node A.
4. Install Virtual Replicator 2.0 on node B and reboot.
5. Using Cluster Administrator, confirm that any pre-existing pools or network disks are working correctly on node B.

Note: Error messages appear during the process of uninstalling Version 1.1. These can be safely ignored. Click **OK** to dismiss the messages.

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SCE Connected Disk resource type occasionally fails when upgrading to Virtual Replicator 2.0 on a Windows NT 4.0 cluster

After upgrading from Version 1.1 of Virtual Replicator to Version 2.0 on a Windows NT 4.0 cluster system, when you reboot, in Cluster Administrator the "SCE Connected Disk" resource type is sometimes in a failed state. To correct this problem, delete the resource type and create a new one using the following commands:

```
C: \winnt\cluster> cluster restype "SCE Connected Disk" /delete /type
```

```
C: \winnt\cluster> cluster restype "SCE Connected Disk" /create /dll:ntdsres.dll /type:"SCE Connected Disk"
```

Custom configurations are not preserved when upgrading to Virtual Replicator 2.0

The features available when installing Version 2.0 are independent of your Version 1.1 configuration. If you used selected features of Virtual Replicator 1.1 and want to duplicate the configuration on Version 2.0, use the Custom install option.

Upgrading to Virtual Replicator 2.0 when Microsoft Windows V1.1 Installer is not installed

A problem occurs when upgrading from Version 1.1 of Virtual Replicator on Windows NT 4.0 systems that do not have Version 1.1 of the Microsoft Windows Installer. An automatic reboot does not occur to finish the Version 2.0 upgrade.

To avoid or correct this problem, do one of the following:

Run **instmsiw.exe** from the \Storage Software directory on the kit before performing the upgrade (recommended).

Run the Virtual Replicator setup program again after the "Uninstallation" process has completed.

Note: To check the version of the installer on your system, verify that the version of MSIEXEC.EXE in the C:\winnt\system32 directory is version 1.1 or greater.

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Some scheduled tasks are not retained after upgrading to Virtual Replicator 2.0

With Virtual Replicator 1.1, you could use a virtual disk's Properties page/Snapshot Schedules tab to specify a schedule for creating snapshots. Those schedules are not saved by Virtual Replicator when you upgrade to Version 2.0. The schedules are preserved in the Scheduled Tasks applet, however.

Installing the Online Volume Growth feature after upgrading to Windows 2000

Online Volume Growth is supported only on Windows 2000, therefore, this feature is not installed on Windows NT 4.0 systems. If you install Virtual Replicator 2.0 on a Windows NT 4.0 system and later upgrade to Windows 2000, run the Virtual Replicator setup program again, select the Modify option, and in the Custom Setup dialog box, select Online Volume Growth.

You can also change Virtual Replicator features by using the Add/Remove Programs applet in the Control Panel.

Delete pools and virtual disks before uninstalling Virtual Replicator 2.0

Before using the Add/Remove Programs applet in the Control Panel to uninstall Virtual Replicator, manually delete all pools and virtual disks. This ensures that all Virtual Replicator data is erased from the disk.

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Known Issues and Problems

This section describes known issues, problems, and recommendations for using Version 2.0 of Virtual Replicator.

Growing a virtual disk with snapshots present is not supported

Virtual disks that have associated snapshots cannot be grown using the Online Volume Growth feature. Before growing a virtual disk, you must delete all snapshots of that disk.

Growing a served virtual disk is not supported

A virtual disk that has been served is not available and, therefore, cannot be grown.

Using the Snapshot Manager snap-in to serve a virtual disk or snapshot

To serve a virtual disk or snapshot, it must have a drive letter assigned. If it doesn't, you will receive an error when attempting to serve it.

Using the Snapshot Manager snap-in to stop serving a virtual disk or snapshot

If a remote client is connected to a network disk and the disk is being served by a cluster, when you use the Snapshot Manager snap-in to stop serving the disk, the cluster stops serving the disk.

If you now use MMC to disconnect the remote client from the network disk, MMC hangs. If this happens, use the Task Manager on the remote client to stop the MMC application. If you want to disconnect the client from the network disk that is no longer being served, restart the client and then use MMC to disconnect it from the network disk.

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Creating snapshots of a served virtual disk on which Microsoft Exchange Server is installed

If you installed Microsoft Exchange Server on a served virtual disk, you must flush the data in the local cache before you create a snapshot of the remote virtual disk. To flush the local cache, do one of the following:

- Stop the Exchange Server software.
- In a cluster, take all the Exchange Server cluster resources offline.

If you don't do this before you create the snapshot, even though you will be able to read and write the snapshot, Exchange might not be able to work against the snapshot disk. For more complete information on using Virtual Replicator as a backup solution for Microsoft Exchange, go to the Compaq website at www.compaq.com/products/storageworks/solutions/eas/msxbrsprod.html

Installing Microsoft Exchange Version 5.5 on a virtual disk

If you are using Virtual Replicator Version 2.0 in a Windows 2000 cluster and you try to install Exchange V5.5 on a virtual disk, the following error message appears:

"This cluster group does not contain the appropriate cluster resources. Select a group that contains an IP address, network name, and a shared hard disk."

To correct this problem, install a patch for Exchange 5.5 before you install it on a cluster where you are running Virtual Replicator. Go to the following Microsoft website for information on the patch: support.microsoft.com/support/kb/articles/q184/8/80.asp

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Error when serving a virtual disk after attempting to grow it

An error occurs when using the Online Volume Growth wizard from the **Start > Programs** menu to grow a virtual disk and then serving it as a network disk.

Virtual disks that have associated snapshots cannot be grown. An error is correctly returned when using the Online Volume Growth wizard to grow a virtual disk containing a snapshot. However, if you then attempt to serve out the virtual disk as a network disk, the operation fails. To correct this problem, restart the Virtual Replicator Management Service. You can then serve the virtual disk.

Note: Serving a virtual disk after a failed attempt to grow it does not cause errors if you have used Grow Volume from the Snapshot Manager **Action > All Tasks** menu.

Connecting to a network disk in a cluster fails

In a cluster, if you try to connect to a served network disk and the attempt to connect fails, you might find that there is an SCE Connected Disk resource, and possibly also a new group, for the failed connection. Use Cluster Administrator to delete this resource and group.

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Pool creation occasionally appears to fail when using Microsoft Cluster Services

When using Cluster Services on Windows NT 4.0 SP6 or Windows 2000, attempts to use a shared SCSI disk to create a pool occasionally appear to fail. The pool is created, however, it will be unavailable until the cluster node is rebooted. To correct this problem, reboot the cluster node. For more information on this problem with Windows NT, search for "Q251007" on support.microsoft.com.

Using Virtual Replicator policies when using Microsoft Cluster Services

When using Virtual Replicator policies, make sure that all nodes in a Microsoft Cluster Services cluster have the same settings. The policies are maintained separately for each system and not for the cluster as a whole.

Using the SnapMgr command line interface to grow a virtual disk on a Microsoft Cluster Services cluster

When using the SnapMgr command line interface for growing a virtual disk on a Microsoft Cluster Services cluster, SnapMgr should be run on the node that owns the "SCE Pool" resource for the pool where the virtual disk exists, or should be run remotely. Running SnapMgr on a node in the MSCS cluster that does not own the resource might not allow the disk to be grown.

Using Diskperf with Virtual Replicator

When using Diskperf, it must be set to start during system boot or system startup. Setting Diskperf to start manually or automatically can result in a critical system fault.

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Updating the Windows Registry namespace

Virtual Replicator keeps track of the names of pools, virtual disks, snapshots, and logical drives added to a pool in the Windows Registry. If a pool fails, the Snapshot Manager no longer displays the pool or any of its children. However, the names are still registered in the Windows Registry. Attempts to create another pool, virtual disk, or snapshot using one of the previous names will fail, producing a message saying that the name is already used. If the namespace becomes out of sync in this way, use the command:

```
SNAPMGR.EXE UTILITY /RECOVER:NAMESPACE
```

This will update the registry based on pools that are present and online.

Increasing storage pool capacity through LUN expansion not supported

You should not add storage capacity to a pool by extending/growing a logical unit through your RAID controller. Extending a logical drive through the Array Configuration Utility (ACU) is not supported by Virtual Replicator; it will not recognize the new space. You should always use the array controller to create a new logical unit and add it to the pool.

Creating logical units on Windows 2000

If you create a logical unit using your RAID controller, Virtual Replicator might not recognize the new unit in the Create Pool or Add New Storage Units wizards. If this happens you can open the Disk Management snap-in and choose "Rescan Disks" from the menu.

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Formatting virtual disks and snapshots

If it is necessary to format a virtual disk with a snapshot, you should use a quick format so as not to generate copy outs. If you must format a snapshot, you should also use a quick format.

Restoring files from a snapshot using Legato's Networker

When you use Networker's restore files utility, it only lists disks that are currently online and that you have backed up. When you use snapshots to do backups, Networker might not list snapshot disks.

For example, say you have a virtual disk Z, and use Networker to create a snapshot of the virtual disk, map drive X to the snapshot, back up the snapshot, and then delete the snapshot. When you want to restore files, the snapshot disk isn't listed because the files in the saveset are marked as coming from drive X, but drive X no longer exists.

The workaround to this problem is to use the SUBST command to associate the parent disk with the drive letter that was mapped to the snapshot when you backed it up. For example:

```
C:\> SUBST X: Z:
```

You can now see all the files on the snapshot, and select the files you want to restore.

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SNMP support

If the SNMP service is installed after Virtual Replicator, Virtual Replicator must be re-installed before information can be retrieved about Virtual Replicator resources using SNMP. Virtual Replicator does not need to be uninstalled first. Remember to apply all appropriate service packs after installing the SNMP service.

Microsoft Management Console (MMC) installation

On Windows NT 4.0 systems, if MMC is not present on the machine where Virtual Replicator is being installed, the Virtual Replicator installation will prompt you to install MMC Version 1.1 (available on the Virtual Replicator CD). If MMC Version 1.0 is already installed on the machine, no MMC installation will be performed. To obtain the latest version of MMC, contact Microsoft Corporation at www.microsoft.com.

The console files included with Virtual Replicator are created with MMC Version 1.1, but are compatible with MMC Version 1.2. If a Virtual Replicator console file is changed, you will be prompted to save changes upon closing the console file or exiting MMC. The first time this console file is saved, you will be prompted to upgrade the console file to MMC Version 1.2 format. MMC Version 1.2 console files are not compatible with MMC Version 1.1.

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External storage arrays

When using external storage arrays, as opposed to disks installed in the cabinet of a computer, the storage array must be powered on before starting the computer to which it is attached. Failing to do so might prevent Virtual Replicator from accessing disks that it needs.

StorageWorks SecurePath compatibility

Physical disks that make up a storage pool can consist of logical units available via SecurePath Version 3.0. Automatic failover between paths will occur, providing high-availability to these logical units.

SecurePath might incorrectly show disk information when viewing disks by drive letter. Other viewing modes work correctly.

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Definition of Workday Snapshot

A Workday Schedule is 23 hours 59 minutes.

For example, if you create a Workday Snapshot starting at 8:00 a.m. on day one and ending on day two at 8:00 a.m., you need to enter 8:00 a.m. for the create time and 7:59 a.m. for the delete time.

If you enter 8:00 a.m. for a create time and 8:00 a.m. for a delete time, the snapshot might be deleted before the current snapshot is created.

Workday Snapshot anomaly

The first time the Workday Snapshot is executed, problems might occur if the schedule is launched after the "create snapshot time" and the "delete snapshot time". However, for the second day and subsequent days, the job will run as defined.

For example, if the Schedule Time and Date is set to:

Create Snapshot Time: 07:00:00 (24 hour format:hh:mm:ss)

Delete Snapshot Time: 12:00:00 (24 hour format:hh:mm:ss)

and you launch the schedule at 15:00:00, both the create and delete times have already passed.

Both the create snapshot and delete snapshot tasks will run at the same time. This will produce one of the following results:

- The snapshot will get created and deleted right away.
- The delete operation will occur slightly before the create operation.

Therefore, there will be a snapshot present after the schedule is completed. In this case, the "Delete Pre-existing Snapshot of Same Name" option needs to be selected for the Workday Snapshot process to work the next day.

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Error when using Veritas Backup Exec with Open File Option

Veritas Backup Exec users should disable OFO before performing a backup job. Failure to disable this option will result in errors for each virtual disk or snapshot selected for backup.

Using Veritas Backup Exec and the Snapshot for Backup Wizard

Veritas Backup Exec users should uncheck the "Interpret Non-Zero Return Code from Backup Command as Error" option. Failure to uncheck this option will result in failure notification even though backup might execute successfully.

Veritas Backup Exec users will not receive a failure notification of backup jobs, because Veritas spools the backup job and immediately returns the status to the Windows Scheduled Tasks applet. Check the Veritas Backup Exec for the job status.

Backup Wizard not sending failure notification

Notification of failure is based upon the backup software returning a status code to the Windows Scheduled Tasks applet. The scheduling tool expects a status code equal to zero (0) for success and a status code of non-zero for failure. Some backup software applications return a status code of zero for failure. Therefore, the schedulers process the job as being a success, and no failure notification is sent.

There are circumstances that will generate a failure notification: the snapshot is not available at time of backup, an error in the backup command or parameter fields, or the drive letter is in use at the time the snapshot is run.

Most of the third-party backup software applications can be configured for failure notification using pagers and e-mail. Refer to your third-party backup documentation on how to configure failure notification.

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Error when using Restore from Snapshot Wizard

The Restore from Snapshot wizard occasionally produces the following error, even when both the virtual disk and snapshot have a drive letter already assigned to them:

"Both the original disk and the snapshot must have a mapped drive letter prior to running this wizard. Please assign a drive letter and return the wizard."

This error is spurious. Restart Virtual Replicator and retry your operation.

Scheduled task dates appear to be off by two days

When you set a Virtual Replicator task to "run immediately", it executes as soon as the wizard finishes. However, if you look at this task, either in the Windows Scheduled Tasks window or in the Scheduled Tasks tab of a Properties page, the task's schedule date is two days prior to the actual run date. This is intentional. Tasks that are set to "run immediately" do not show the current date because there is a chance that the schedule could execute twice: once when the wizard finishes and again if the current date has not passed when the wizard finishes.

Deleting scheduled tasks

Virtual Replicator does not have a feature for deleting scheduled tasks. To do this, use the Windows Scheduled Tasks applet, as described on page 11-4 of the Virtual Replicator System Administrator's Guide.

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Interaction with StorageWorks Command Console

When your HSG80 Controller is configured in SCSI-2 mode, do not use the SWCC "SCSI" or "TCP/IP" communications options if all of the SWCC logical units in a StorageWorks RAID array are used by Virtual Replicator. Use the "Serial" communications option. If you configure SWCC with either the "SCSI" or "TCP/IP" communications options, at least one SWCC Virtual disk must be directly mapped to a Windows NT drive letter. This disk may be any type of logical unit (RAID-x, JBOD) or a controller-based partition. To avoid this problem, use the "Serial" communications option when configuring SWCC with Virtual Replicator.

Using SCSI-3 mode will provide SWCC with a controller LUN that SWCC can use to interact directly with the controller.

Using virtual disks and snapshots in DFS systems

Virtual disks and snapshots can participate in DFS through shared folders (or mount points). Virtual Replicator does not support creating a DFS root on a virtual disk or snapshot.

Power-saving and hibernation not supported

Virtual Replicator does not support any power-saving modes.

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Known Documentation Errors

Storage Unit cluster resources no longer available

The Virtual Replicator Administrator's Guide and online help incorrectly state that pool resources *and* storage unit resources are automatically created when you create or add storage units to a pool in a cluster. Virtual Replicator 2.0 no longer creates cluster resources of type SCE Storage Unit. Only a pool resource (SCE Pool) is created. However, any pool migrated from Virtual Replicator 1.1 will continue to have Storage Unit resources.

Do not use Cluster Administrator to manually create or remove any Virtual Replicator cluster resources. Always use the VR MMC or command line tools to create and delete pools. By so doing, you then correctly create or remove cluster resources.

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