

# *Compaq SANworks*

## **Release Notes**

### **Secure Path for Windows 2000 on RAID Array 4000/4100 Version 3.1A**

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*This document summarizes features and characteristics of SANworks Secure Path for Microsoft Windows 2000 on RAID Array 4000/4100 Version 3.1A, a High-Availability software solution for Intel-based Platforms for use with StorageWorks RA4000 and RA4100 RAID Storage Systems.*

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**Compaq Computer Corporation**

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**SANworks Secure Path for Windows 2000 on RAID Array 4000/4100 Version 3.1A**  
**Release Notes**  
**Second Edition (July 2001)**  
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These *Release Notes* provide information for SANworks Secure Path Version 3.1A not available elsewhere in the product documentation, and takes precedent over all other sources. Individuals responsible for configuring, installing, and using this software should use this document.

To obtain the latest information and upgrades, please visit our website at:  
<http://www.compaq.com/storage>

Read this entire document before installing or upgrading the software.

These Release Notes include the following sections:

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## Notes and Warnings

- To ensure driver compatibility with Secure Path, server setup must be completed with the SmartStart and Support Software. Refer to the following SmartStart Support Matrix chart for specific configurations.

**Table 1 SmartStart (SS) Support Matrix**

<b>FC-AL Switch, Hubs</b>		
Smart Start (SS)	Version 4.90	Version 5.00 or later
RA4100 SAN Solution Support Software	N/A	N/A
Secure Path for Windows 2000 on RAID Array 4000/4100	Version 3.1	Version 3.1A
RA4000 Controller Firmware	Version 2.58	Version 2.60
FC-AL Loop Switch	120G03	120G07
<b>SAN Switch</b>		
SmartStart (SS)	N/A	Version 5.00 or later
RA4100 SAN Solution Support Software	N/A	Version 5.11
Secure Path for Windows 2000 on RAID Array 4000/4100	N/A	Version 3.1A
RA4000 Controller Firmware	N/A	Version 2.60
SAN Switch Firmware	N/A	Version 2.1.9m

■ **To manually repair a path under the Secure Path Manager:** Repair the condition that caused the path failure by performing the following procedure:

1. In the Secure Path Manager, highlight the broken path.
2. Select **Verify**.
3. If the path verification pop-up box indicates successful completion of path verification, select **Repair**.

Manual repairs may initially appear to work even if there is a path problem, but will eventually revert back to a broken state under Secure Path Manager.

- If you are using Microsoft Cluster Services (MSCS) Software, ensure the proper network adapter binding order. From Windows 2000 Advanced Server:
  1. Click **Start**, point to **Settings**, and click **Network and Dial-up Connections**.
  2. On **Advanced** menu, click **Advanced Settings**.
  3. In the **Connections** box, make sure your bindings are ordered as follows:
    - first: external public network
    - second: internal private network
    - third (if applicable): remote access connections
  4. Re-order if necessary.
- Due to the extended error checking features inherent to Secure Path software, there may be some delay with SPM failed path reporting.
- In a Windows 2000 installation, the addition of new LUN(s) may cause the hardware wizard to display an error in initializing the LUN(s), and “yellow warning” signs may show up in the device manager. This is resolved by reboot(s) of the system.
- The Secure Path Agent Configuration utility will occasionally append a period to the end of the client’s name as shown in the Client box. This will prevent client connections to the Agent. If this occurs, first select the client name with the period from the Client box and choose **Delete Client**. Then re-enter the name without the period in the selected Client box and choose **Add Client**.

After the Server reboot, Secure Path Agent automatically starts.

## Secure Path Guidelines

- Booting from Secure Path devices is not supported.
- The Windows NT Fault-Tolerant driver (for host-based RAID sets) may not be used in conjunction with Secure Path.
- There is no support for more than eight LUNs per target ID.
- There is no support for Windows 2000 dynamic disks.
- SPM passwords for all hosts in a profile must be the same.
- Changing the Agent’s list of authorized clients or passwords requires that the Agent be manually stopped and restarted.
- Modifications to device volume labels made with Windows 2000 Disk Management require that the Agent be manually stopped and restarted before they will become visible in SPM.

## Secure Path Installation

The following procedure is the preferred method for Secure Path installation. It varies from the instructions published in the *Secure Path Installation and Reference Guide* found on the release media. The instructions here take precedence.

If installing or upgrading a Compaq ProLiant Cluster HA/F200, refer to the instructions located in the cluster kit for complete installation details.

1. Install and configure all Windows servers and all HBAs, referencing the user documentation included with your hardware. Attach the HBAs to the applicable Fibre hubs or switches at this time.
2. Install the Windows 2000 Advanced Server operating system, using the SmartStart and Compaq RA4100 SAN Solution Software Version per Table 1.
3. If your RA4000/4100 storage systems were not configured during the initial SmartStart assisted installation process, use the Array Configuration Utility (ACU), which was installed during the Windows 2000 Advanced Server installation process, to create storagesets and provide unit attributes for the required LUNs.
4. Using Windows 2000 Disk Management, configure your basic disk partitions as required.
5. Install the Secure Path for Windows 2000 on RAID Array 4000/4100 Version 3.1A software. You will be prompted to restart the server after the installation process is complete.

Following system reboot, verify the Windows 2000 Event Log shows a successful RaiDisk driver start event.

**Verify the Windows 2000 application Event Log shows a successful Secure Path Agent start event.**

## Secure Path Operational Features

### Secure Path Manager Refresh

SPM automatically refreshes the display every 90 seconds. If you wish to update the displayed information sooner use the F5 key.

## Secure Path Manager Controller Designations

In the SPM display, controller designations are based on manufacturing designated serial numbers assigned to physical controllers in your RAID Array cabinet. This does not necessarily correlate to the physical position (upper and lower) of the controllers within the cabinet. Always reference the controller serial numbers if you need to associate information in the SPM display with the controllers.

## Controller Hot-Replace

Auto-Failback and/or Path Verification can be either enabled (or disabled).

1. Remove either *active or standby* Compaq RA4000 Controller.
2. Disconnect fiber cable from removed controller.
3. Insert replacement controller
4. Wait for “heartbeat” (led #8 flashing) before continuing to step #5.  
(Allow several minutes for controller to come fully online.)
5. Connect fiber cable to replaced Compaq RA4000 Controller.
6. Rescan by either pressing F5 function key or by selecting View – Refresh under Secure Path Manager.
7. Note change in (replaced) controller serial number

**NOTE:** In order to swap a previously removed Compaq RA4000 Controller into its original slot/location, the system must be re-booted. In a clustered configuration, this can be accomplished without taking the cluster off-line by using proper failover/failback techniques and re-booting one server at a time.

## Secure Path Manager Heterogeneous GUI

Secure Path Manager, versions 3.1.025a and after (currently 3.1.027) include a universal Secure Path Management utility that supports profiles consisting of mixed heterogeneous operating systems.

Presently, the operating systems profiles supported are:

- Windows NT 4.0 (RA8000 only)
- Windows 2000
- Novell NetWare

Depending on the host operating system in the profile, some or all of the features may be available. Features consist of the following:

- Load Balancing
- Path Verification
- Device Identification Options

**NOTE:** Device identification options vary between Windows NT/Windows 2000 and Novell Netware operating systems.

## **Configuration Information**

### **Operating System Compatibility**

Secure Path for Windows 2000 on RAID Array 4000/4100 Version 3.1A is supported on Intel-based platforms running the following operating system:

- Microsoft Windows 2000 Advanced Server for the Secure Path Server installation (or combined Server-Client installations)

**NOTE:** Microsoft Windows 2000 Advanced Server includes Microsoft Cluster Services (MSCS) for cluster configurations as a component.

- Microsoft Windows 2000 (all versions) for the Secure Path Client installation.

### **Supported Storage System Types**

Compaq StorageWorks RAID Array 4000 and RAID Array 4100 storage systems with Compaq RA4000 Controller firmware revision 2.60.

### **Secure Path Supported Configurations**

The following list defines operational configuration limits for Secure Path Version 3.1A. The effective limit may be less due to Windows storage constraints, storage system type, or interconnect requirements.

- Maximum 9 storage systems shared by a single host (per profile) or five, 2 node clusters using any selective storage presentation.

**NOTE:** Use the Compaq 16 Port Fabric Switch, part numbers 380578-B21, DS-DSGGA-AB.

- Maximum 8 LUNs per target.



- RA4000 Controllers cannot be shared by more than one cluster when using Microsoft Windows NT or Microsoft Windows 2000.
- Redundant RA4000 Controllers cannot be shared with non-redundant servers/clusters.
- RA4000/RA4100s owned by a Microsoft Windows NT or Microsoft Windows 2000 cluster cannot be shared with standalone servers.
- A server can only support a single or redundant path to the Storage Area Network (SAN). A server cannot attach to multiple SANs.

**NOTE:** For more information refer to the “Compaq StorageWorks RA4000/RA4100 Based San Solution User Guide”.

- **Special Considerations for using fabric switches on ProLiant HA/F100 or HA/F200 Clusters.**

- When implementing more than one cluster on the same SAN Switch infrastructure (i.e., Multi-Clusters), zoning must be applied to isolate the clusters from each other to achieve the highest levels of stability. For more information see the Compaq StorageWorks SAN Switch Zoning Reference Guide.
- For RA4100 SAN configurations with heavy I/O traffic, increase the fabric switch buffer capacity from the default value of 16 to 27. See [www.compaq.com/storageworks](http://www.compaq.com/storageworks) for more details.

- **Special Considerations for using a FC-AL switch on ProLiant HA/F100 or HA/F200 Clusters.**

- For optimum performance and stability, use port LIP propagation policies as follows: for each port connected to a server = Disabled (NOLIP) and for each port connect to storage = Enabled (LIP).
- When using SAN and FC-AL Switches on the same network, powerup the SAN Switches before powering up the FC-AL Switch.

## **Fibre Channel Configurations**

For the latest device drivers and firmware information, please check the Compaq website at <http://www.compaq.com/support/storage>.

## **Secure Path Install Kit Contents**

- Secure Path for Windows 2000 on RAID Array 4000/4100 V3.1A CD
- Secure Path for Windows 2000 on RAID Array 4000/4100 V3.1 Installation and Reference Guide

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- Secure Path for Windows 2000 on RAID Array 4000/4100 V3.1A Release Notes (this document)
- License
- Warranty Card
- Warranty Addendum