

# HP Server Automation Storage Visibility and Automation

for the HP-UX, IBM AIX, Red Hat Enterprise Linux, Solaris, SUSE Linux Enterprise Server, Oracle Enterprise Linux, CentOS, VMware, and Windows® operating systems

Software Version: 7.83

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## Release Notes

Document Release Date: May 2010  
Software Release Date: May 2010



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# 1 What's New in Storage Visibility and Automation 7.83

Storage Visibility and Automation 7.83 is a storage enablement feature in Server Automation (SA) that offers storage management capabilities designed for server administrators by enabling end-to-end visibility and management of the entire storage supply chain. This feature helps storage administrators by providing tools that increase cost savings through application storage, dependency and visibility, storage audits, storage capacity and utilization trending, and scripting and automation.



While Storage Visibility and Automation is included as part of the Server Automation (SA) 7.83 release, it also requires compatible Storage Essentials (SE) for storage data discovery. SE 6.1.1 or later is required to view, report, or perform any Service Automation Visualizer (SAV) and Service Automation Reporter (SAR) operation on SAN objects, such as arrays, switches, volumes, and so on.

## Platform Support

Storage Visibility and Automation has been modified to support the following operating systems:

- Red Hat Enterprise Linux 5.5 Advanced Platform (x86\_32, x86\_64 and IA64)
- Oracle Enterprise Linux 4.8 (x86\_32, x86\_64)
- Oracle Enterprise Linux 5.4 (x86\_32, x86\_64)
- CentOS 5.3 (x86\_32 and x86\_64)
- CentOS 5.4 (x86\_32 and x86\_64)
- Windows Server 2008 R2 (x86\_64)
- ESX 3.5 U5

See the *Storage Visibility and Automation Support Matrix* for detailed platform and environment support information.

## New Features

### Storage Compliance Checks for Unreplicated LUN Counts

In this release, you can set the maximum acceptable number of unreplicated Logical Unit Numbers (LUNs) in the Unreplicated LUN Count storage compliance check.

A replicated LUN is replicated using only supported replication software and has a target volume displaying one of the following acceptable states:

Initialized, PrepareInProgress, Prepared, ResyncInProgress, Synchronized, FractureInProgress, QuiesceInProgress, Quiesced, RestoreInProgress, Idle, Fractured, Frozen, CopyInProgress, CopyOnWrite, TerminationInProgress, CopyOnAccess, SplitBeforeRestore, SplitBeforeSync, Restored, SplitNoIncremental, Suspended, R1UpdInProgress, R1Updated, or FailedOver.

When you set the Unreplicated LUN Count field, the snapshot returns the number of unreplicated LUNs (replicated using unsupported software) that also have target volumes displaying unacceptable states.

See [Unreplicated LUN Count Audit Rule](#) on page 19 for illustrations of the user interface that supports this new storage audit rule.

See the *SA User's Guide: Application Automation* for information about specifying rule details and servers that are used as targets in the audit, how to schedule an audit, how to view a summary of the audit results and a list of the storage compliance checks in an audit.

## Documentation Available

The following documentation is provided with this release:

- *Storage Visibility and Automation Release Notes*
- *SE Connector Release Notes*
- *Server Automation Release Notes*
- *Storage Visibility and Automation Support Matrix*
- *Server Automation Support Matrix*

For information about new features, and fixed and known problems in previous releases, see the *Storage Visibility and Automation Release Notes* for those releases. Go to:

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This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

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For information about new or modified features for Server Automation (SA), Service Automation Visualizer (SAV), Service Automation Reporter (SAR), and Storage Essentials (SE) please refer to separate *Release Notes* for those products.

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## 2 What's Fixed in Storage Visibility and Automation 7.83



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For information about fixed defects for Server Automation (SA), Service Automation Visualizer (SAV), Service Automation Reporter (SAR), and Storage Essentials (SE), please refer to the *Release Notes* for those products or features.

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### QCCRID 100316/100289

**Description:** In the SA Client, if you choose Inventory ► Storage ► Pools panel, no storage pools are displayed.

**Platform:** Solaris 10 x86-64bit

**Subsystem:** Storage Pools

**Symptom:** In the SA Client, no storage pools are displayed in the Pools panel.

**Resolution:** Fixed.



# 3 Known Problems, Restrictions, & Workarounds in Storage Visibility and Automation 7.83



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For information about known defects for SE Connector, Server Automation (SA), Service Automation Visualizer (SAV), Service Automation Reporter (SAR), and Storage Essentials (SE), please refer to the *Release Notes* for these products or features.

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## Database Scanner for Oracle

### QCCRID 91143

**Description:** The status of an ASM Diskgroup shown in the Properties view is different than the status shown in the Database Configuration Assistant (DBCA) view.

**Platform:** Independent

**Subsystem:** Database Scanner for Oracle

**Symptom:** In the Properties view, the status is CONNECTED. In the DBCA, the status is MOUNTED. By definition, the status of ASM Diskgroup is relative to the database instance. What is reported in the Properties view matches the status for one database instance only.

**Workaround:** None.

### QCCRID 93690

**Description:** The Server ► Relationships ► SAN Switches panel only displays SAN switches to which the given server is directly connected. In some cases, a server may depend on SAN switches that are not displayed in this panel. For example, a virtual server may be using storage allocated from a hypervisor that was allocated storage from a SAN.

**Platform:** Independent

**Subsystem:** Database Scanner for Oracle

**Symptom:** The content pane for Relationships (SAN Switches and SAN Fabrics) on a virtual server is empty (“No items found”).

**Workaround:** None.

### Bug ID: 156909 / QCCRID 68263

**Description:** Tablespace's free space view does not match the Oracle Enterprise Manager (OEM) view.

**Platform:** Independent

**Subsystem:** Database Scanner for Oracle

**Symptom:** In the tablespace view, the free space does not match what is displayed in the Oracle Enterprise Manager (OEM) tablespace.

**Workaround:** None.

**Note:** There is an OEM bug about some tablespaces showing the incorrect used size. The Database Scanner for Oracle gets the tablespace used size directly from all of its data files, which avoid the OEM bug.

## Storage Host Agent Extension

### QCCRID 93630

**Description:** On Windows servers that have EMC PowerPath installed as the multipathing software, the SCSI Bus number provided by PowerPath (using the `powermt` command) does not match the bus number of the disks (LUNs). In these cases, LUNs are displayed as "ROOT" and display alongside LUNs that are correctly displayed.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** LUNs that are multipathed by EMC PowerPath are shown as both "ROOT" and "LUN" in the Inventory ► Storage ► Volumes Panel.

**Workaround:** None.

### QCCRID 105382

**Description:** On Windows 2008, if the disk information is changed, such as presenting new LUNs or removing existing LUNs, running the storage snapshot specification results in incorrect capacity values shown in the Inventory ► Storage ► Disk panel. This occurs if there is a mismatch in the disk names, as reported by the hardware registration script and the storage snapshot specification.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** Disk capacity shown in the Inventory ► Storage ► Disk panel is incorrect.

**Workaround:** To resolve this issue, after changing disk information (such as installing or uninstalling multipathing software, presenting new LUNs, deleting LUNs, and so on) on the Windows managed server, the server must be rebooted. Run the hardware registration before running the storage snapshot specification.

### QCCRID 105953

**Description:** An EMC Symmetrix array that is discovered through SE Connector can report more than one storage volume with the same LUN number presented to a managed server. Running the storage snapshot specification on the managed server will succeed; however, the Inventory ► Storage ► File Systems and Inventory ► Storage ► Managed Software panels will be empty.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** The Inventory ► Storage ► File Systems and Inventory ► Storage ► Managed Software panels will be empty. Also, some host volumes with a LUN service type will not be displayed in the Storage ► Inventory ► Volumes panel. For the EMC storage array in the Relationships ► Storage Initiators panel for this managed server, there will be more than one volume that has the same LUN number.

**Workaround:** None.

## QCCRID 106400

**Description:** For AIX managed servers, if there are stale disks (LUNs) present on the server, the supply chain and composition information is not properly displayed. For some of the volumes, the composition information may not be present.

**Platform:** AIX

**Subsystem:** Storage Host Agent Extension

**Symptom:** For the AIX servers, under Inventory ► Storage ► Volumes, for some of the volumes created out of LUNs, the right hand lower panel will not show the Composition and/or Connectivity information.

**Workaround:** Delete the stale volumes on the AIX managed server and run the storage inventory snapshot specification.

## QCCRID 106699

**Description:** For Windows 2008 managed servers with mirrored volumes, if one of the disks that is part of a mirrored volume fails or is removed, the state of the volume is shown as "Failed Redundancy" in the Disks Management panel on the Windows server. However, in the Inventory ► Storage ► Volumes panel for the managed server, the status of this volume is shown as "OK", even after running storage snapshot specifications.

**Platform:** Windows 2008

**Subsystem:** Storage Host Agent Extension

**Symptom:** Status of mirrored volumes is shown as "OK" in the Inventory ► Storage ► Volumes panel, even if one of the disks that is part of the mirrored volume fails or is removed.

**Workaround:** None.

## QCCRID 109306

**Description:** On Linux, the supply chain breaks when users create multilevel LVM RAID volumes, such as RAID10 or RAID50, and the Inventory ► Storage ► Volumes panel does not display supply chains for multilevel-RAID volumes.

**Platform:** Linux

**Subsystem:** Storage Host Agent Extension

**Symptom:** The Inventory ► Storage ► Volumes panel does not display supply chains for multi-level RAID volumes.

**Workaround:** None.

## QCCRID 111727

**Description:** Storage Host Agent does not support virtual servers that have VMDK created on the NFS datastore.

**Platform:** All VMware servers

**Subsystem:** Storage Host Agent Extension

**Symptom:** The host storage inventory will fail on VMware servers that have VMDK created on the NFS datastore. Therefore, no storage information will be collected on VMware servers with this configuration.

**Workaround:** None.

## Bug ID: 149406 / QCCRID 60760

**Description:** Solaris LVM RAID on Soft Partition on slices stops responding.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** This configuration produces a defective storage supply chain.

**Workaround:** None.

## Bug ID: 149707 / QCCRID 61061

**Description:** The Storage Host Agent Extension reports two single port cards when a single dual port card is present.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** The SNIA v1 HBA API reports ambiguous information with regard to ports on a multi-port card. Some vendors may model dual port cards as two single-port cards. This is the information that ASAS reports on—output that shows a single dual port card with a single serial number, where each adapter has its own unique node WWN.

**Workaround:** None.

## Bug ID: 151921 / QCCRID 63275

**Description:** There is no distinction between the volume types “Mirror Concatenated” and “Mirror Striped” in the Volume Manager labels.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** When you add a mirror to concatenated or stripe, the volume display labels both as “Mirrored” and does not distinguish between concatenated or striped in the label. Note that “Mirrored Concatenated” and “Mirror Striped” are distinct on the volume manager on the host, such as on the Veritas Volume Manager.

**Workaround:** None. The type of the volume manager might not match the native tool, such as the Veritas Volume Manager. The STORAGE\_TYPE value is the immediate node in the supply graph, which is the storage type of the most decendent volume.

## Bug ID: 152016 / QCCRID 63370

**Description:** The `STORAGE_DRIVE` value is incorrectly formatted for SunOS 5.10 disks.

**Platform:** Unix

**Subsystem:** Storage Host Agent Extension

**Symptom:** The value stored in `STORAGE_COMPONENTS.STORAGE_DRIVE` is a different format on Solaris 5.10 than on Solaris 5.8 and 5.9. The different format for 5.10 causes a broken storage supply chain on affected servers.

**Workaround:** Check the version number in the `/etc/format.dat` file on the server. If it is less than 1.28, update the file.

## Bug ID: 152942 / QCCRID 64296

**Description:** QLogic 9.1.4.15 HBA API is defective.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** On a Windows 2003 server with the SNIA library from QLogic, Fibre Channel Adapter and storage volume information might not be discovered by the Storage Host Agent Extension, causing `fibrepox.exe` to stop responding.

**Workaround:** For Windows Server 2003 and Microsoft Windows 2000 operating systems, use the native Microsoft SNIA library instead of the SNIA that is provided by the QLogic driver. Download the Fibre Channel Information Tool to add the Microsoft HBA API support to the operating system. For Windows 2003 SP1 or later, the Microsoft HBA API support is built in. If the SNIA's version of `hbaapi.dll` is installed on the operating system, remove it.

## Bug ID: 154418 / QCCRID 65772

**Description:** The Unix QLogic snapshot is missing information in the Hardware view and Volumes pane.

**Platform:** Unix

**Subsystem:** Storage Host Agent Extension

**Symptom:** When you snapshot a Unix server that has a QLogic driver installed, there is no FC adapter information in the Hardware view. There is also no composition and connectivity information for any SAN volume in the Volumes pane.

**Workaround:** Install patches 108434 and 108435 on Solaris 8 SPARC servers. The Storage Host Agent Extension on Solaris 5.8 SPARC requires these patches.

**Note:** There is no known workaround for Red Hat 3 or Red Hat 4 servers using QLogic controllers.

## Bug ID: 154971 / QCCRID 66325

**Description:** Veritas Storage Foundation 4.3 with QLogic 9.1.4.15 results in invalid fibre proxy SCSI addresses.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** The SAN storage volume displays both LUN and Root as the Service Type. There are two lines for the physical drives: One line displays LUN and the other displays Root.

**Workaround:** None.

## Bug ID: 155476 / QCCRID 66830

**Description:** There is no support for mounting Windows 32 file systems on non-drive letter locations.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** The file system is not shown on the server storage file system panel when the partition and format on the Windows server is mounted to an empty NTFS folder.

**Workaround:** None.

**Note:** The Storage Host Agent Extension does not report file systems that have non-drive letter mount points. The Storage Host Agent Extension does not report file systems that have multiple mount points.

## Bug ID: 157044 / QCCRID 68398

**Description:** Fibreproxy is broken on Windows 2000 SP4 server with a QLA2310 HBA and vendor driver version 9.1.4.10.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** A storage inventory snapshot does not gather and supply complete data, including storage volume and FCA information.

**Workaround:** None.

## Bug ID: 157579 / QCCRID 68933

**Description:** Running fibreproxy on a Windows server with Emulex installed returns multiple FibreChannelTargetMappings.

**Platform:** Windows

**Subsystem:** Storage Host Agent Extension

**Symptom:** When you run take a Storage Host Agent Extension snapshot by running fibreproxy on a Windows server where Emulex LP850, LP952, LP9002, or LP9402 is installed, three FibreChannelTargetMappings are returned, two of which are duplicates. This symptom does not occur with Emulex driver 1.30a9.

**Workaround:** None.

## Bug ID: 158923 / QCCRID 70277

**Description:** Disabling all MPIO paths for a device causes diskproxy and mpioproxy to stop responding.

**Platform:** AIX

**Subsystem:** Storage Host Agent Extension



**Symptom:** If you run the `chpath` command as shown below to take a Storage Host Agent Extension snapshot for each available path to the device, all the MPIO paths to a logical device become disabled. In this state, the system calls used by the `diskproxy` and `mpioproxy` will stop responding.

```
chpath -l hdisk2 -p fscsi0 -s disable xx
```

**Workaround:** None.

## Bug ID: 159156 / QCCRID 70510

**Description:** After you remove a LUN mapping, the old LUN mapping information still displays in the SAN array volume view and in the server storage volume view. An additional access path is displayed in the SAN array volume view (Access Path subview) for the volume for which LUN mapping was removed. The access path that shows no initiator device and/or initiator port information is the correct one.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** For a mounted SAN volume on a server, when LUN mapping for the same SAN volume on the storage array is updated to remove the initiator ports, the server still reports that it sees the volume. As a result, an incorrect access path for the SAN volume is displayed. The Storage Agent for the storage array correctly updates the LUN mapping when the next synchronization is run and shows no initiator ports for the LUN mapping. The incorrect access path is removed from the display when the next Storage Host Agent Extension snapshot is run.

**Workaround:** Take a snapshot of the server to which the volume was mapped or partitioned.

## Bug ID: 159580 / QCCRID 70934

**Description:** SAV displays incorrect information after adding a zone to a fabric.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** A fabric zone to card WWN does not correlate to the server, but a zone to the port WWN does have correct correlation. The zone is not associated to the correct server/port/WWN.

**Workaround:** None.

## Bug ID: 164951 / QCCRID 76305

**Description:** Multipath information does not display correctly for an HP-UX 11iv2 server in the SA Client.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** The multipath information is not reported correctly for a server that has HP-UX 11iv2 OS installed and Veritas DMP managing the multipathing in the SA Client. The SNIA library does not support `HBA_GetFcpTargetMappingsV2r`.

**Workaround:** None.

## Bug ID: 168716 / QCCRID 80070

**Description:** Broken supply chain on AIX 5.2 with Powerpath.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** On servers running AIX 5.2 with PCI-X Fibre Channel Adapters, the supply chain does not display after taking an inventory snapshot.

**Workaround:** None.

## Bug ID:168889 / QCCRID 80243

**Description:** After a Storage Host Agent Extension snapshot is run, logical volume devices appear to be still under Veritas DMP control, even after disabling volumes in Veritas DMP.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** If you disable a volume in Veritas DMP and subsequently take a new Storage Host Agent Extension snapshot, the updated volume appears as though it remains managed by Veritas DMP.

**Workaround:** When constructing LVM modules on the HP-UX 11.31 platform, use agile DSF devices. There is no workaround for other platforms.

## Bug ID: 167103 / QCCRID 78457

**Description:** The Storage Disk panel appears empty after upgrading to SA 7.50 and ASAS 7.50.

**Platform:** Independent

**Subsystem:** Storage Host Agent Extension

**Symptom:** If you perform a core upgrade to SA 7.50 and ASAS 7.50 and then run the customer extension to upgrade a Storage Host Agent Extension on the host, the host disappears from the `INTERFACE` table and the host's `STORAGE_DRIVE` does not appear in the `STORAGE_COMPONENT` table.

**Workaround:** It may take one to two hours for the host and drives to repopulate their tables. Verify that the host is present in the `INTERFACE` table and that the `STORAGE_DRIVE` element is present in the `STORAGE_COMPONENT` table.

## Other

### Bug ID: 155094 / QCCRID 66448

**Description:** Advanced Search results for Storage System Discovery Date do not display correctly.

**Platform:** Independent

**Subsystem:** SA Client (Search)

**Symptom:** If the user profile setting on the SAS Web Client is UTC, all discovered dates will display as expected. If the user profile setting is set to a timezone other than UTC, some discovery dates for SAN arrays, NAS filers, and switches will not display as expected, although they are technically correct.

**Workaround:** Set the user profile to UTC.

---

## 4 Documentation Errata

This chapter updates information in the Storage Visibility and Automation user documentation.

### Storage Visibility and Automation User Guide

The following information expands the “Viewing Volume Properties” section in Chapter 2, Asset Discovery:

On some Windows servers, the disks of newly installed multipathing software are identified as foreign disks, and their disk volumes are not displayed in the server’s Disk Management panel. However, if you run the storage snapshot specification on the server from the SA client, you can display the missing volumes by choosing Inventory > Storage > Volumes.

### *Storage Compliance User Guide*

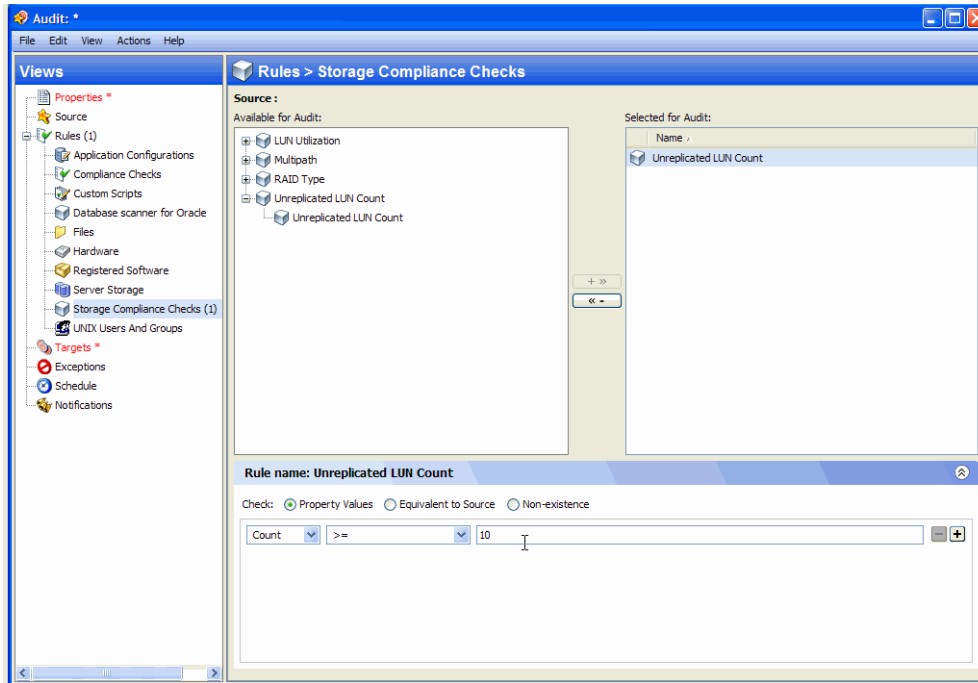
#### Unreplicated LUN Count Audit Rule

To illustrate the new Unreplicated LUN Count storage audit rule that was added in this release, the following screens update the screens in Chapter 2, “Audit Rules, Schedule, and Results”, in the *Storage Compliance User Guide*.

# Audit Browser

Figure 1 shows storage rules selected in an audit. See the *SA User's Guide: Application Automation* for information about specifying rule details.

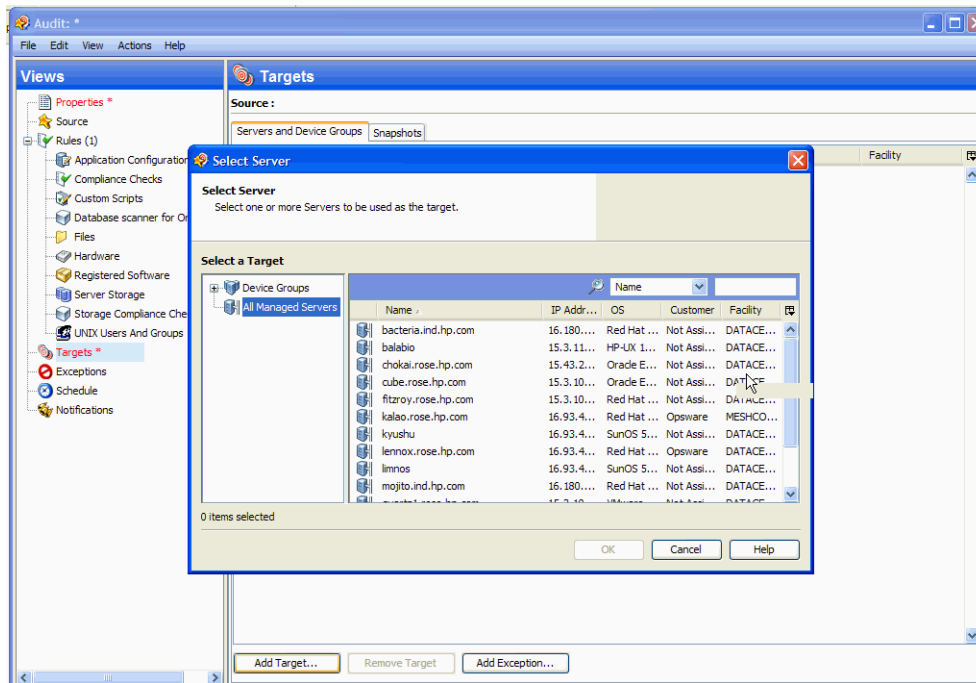
Figure 1 Audit Browser for Storage Rules



## Select Server

Figure 2 shows how you specify which servers are used as targets in the audit. See the *SA User's Guide: Application Automation* for information about adding audit targets.

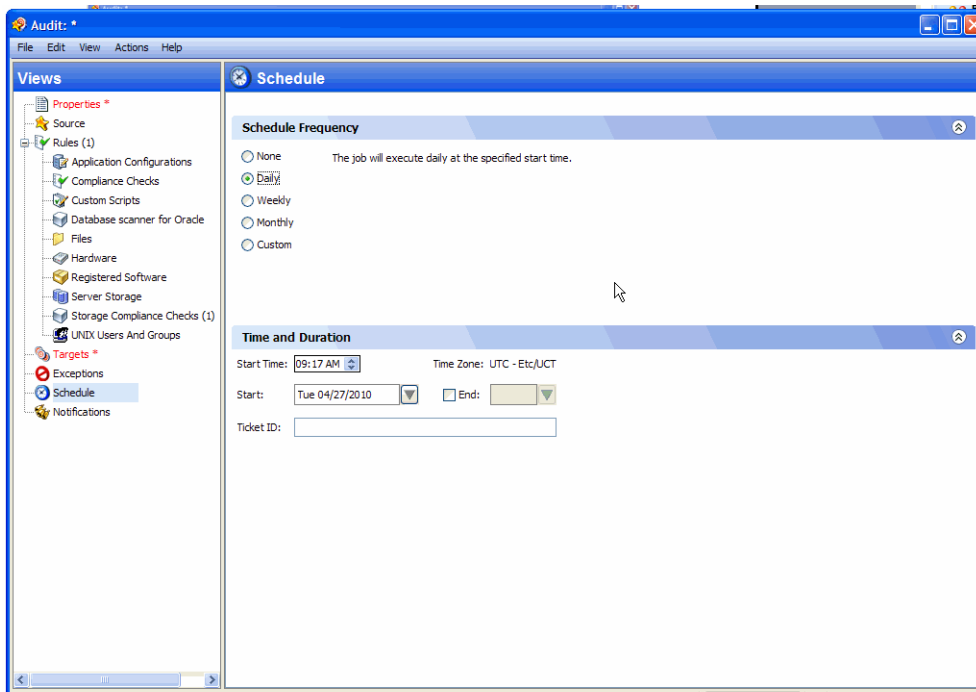
**Figure 2 Target Server for a Storage Audit**



## Audit Schedule

Figure 3 shows how to schedule an audit. See the *SA User's Guide: Application Automation* for information about scheduling audits.

**Figure 3** Schedule for a Storage Audit



# Audit Results

Figure 4 shows a summary of the audit results.

**Figure 4 Summary View**

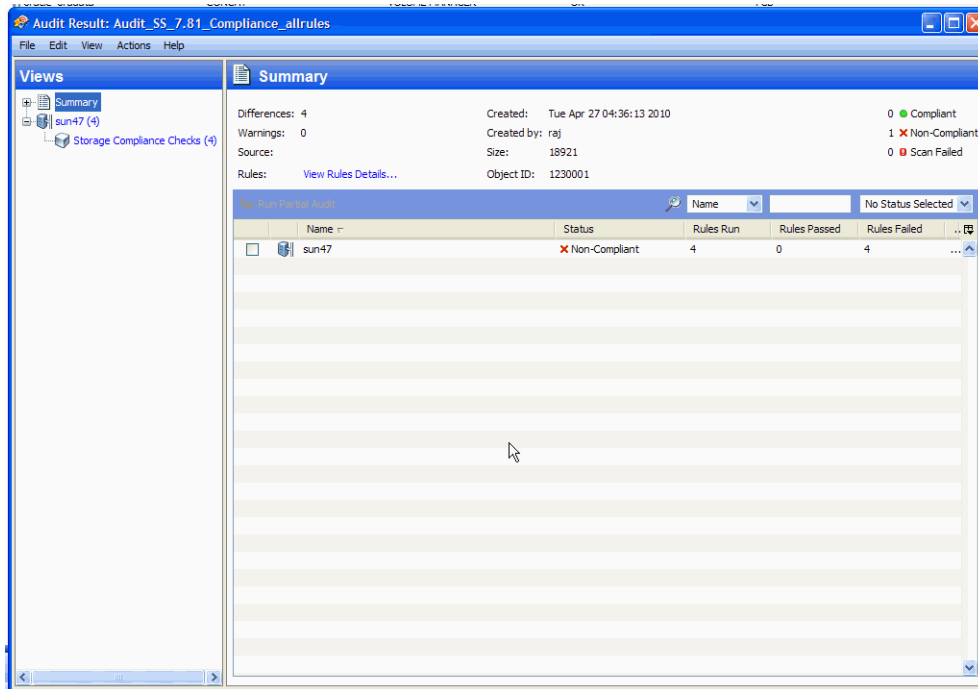


Figure 5 lists the storage compliance checks in an example audit.

**Figure 5 Storage Compliance Checks**

