

HP Storage Essentials

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File Servers Guide

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1 Overview of File System Viewer

File System Viewer helps you to understand if your file storage infrastructure is growing in a managed, organized, and efficient manner. File System Viewer creates an information store about your storage system.

By combining file, logical, and physical storage resource monitoring and reporting with active SAN management, File System Viewer provides a single integrated system for managing your entire file storage infrastructure.

Use File System Viewer to obtain detailed information about file servers and volumes across your network. File System Viewer can provide summary information about your files from across your enterprise to a specific file server or volume.

File System Viewer can help you with answering the following questions:

- **Overall View – Dashboard**
 - How do I obtain an overview of the following statistics?
 - Top five file servers by scanned space
 - Top 10 file extensions by size or count
 - Top five file extensions
 - Accessed age distribution by usage or count

The usage is the total size of all the files with the particular extension.

The count is the number of files with the particular extension.

- **Composition – Aging, Size**
 - Why are there files on a system that have not been accessed for more than six months?
 - What is the size group distribution on various file systems?
 - Do we need hierarchical storage management or a store and delete policy?
- **Content – Extensions**
 - Are file systems being used properly?
 - Is there misuse of storage space?
 - If there is, then who are the offenders?
- **Consumer – Users, Ownership, Applications**
 - Who is using how much space?
 - Is the usage planned?
- **Capacity – Used and Available**
 - What is the total available capacity?

- How much is being used?

File System Viewer does a recursive lookup on the file system and stores the information in an embedded database. File System Viewer can scan files very quickly because File System Viewer never opens the files.

You can use UNC shares to discover file system data from a server. If you want to scan UNC volumes, you must define them in a `UncShares.xml` file. For details, see [Defining UNC Volumes on page 51](#).

Caveats with Using File System Viewer

Keep in mind the following when using File System Viewer:

- The maximum number of threads File System Viewer can use is 15.
- If you do not see information for the file server, verify that the collector for the file server is running. You can verify that the collector is running by selecting **Configuration > File System Viewer**. On the Scan Schedule tab, look in the Running? column. See [Working with Scans and Schedules in File System Viewer on the facing page](#).
- File System Viewer is able to detect duplicate files only within a storage volume. File System Viewer cannot detect duplicate files that exist on different volumes. For example, if you have a duplicate file on two different storage volumes, File System Viewer will not be able to detect the duplicate file.
- If you plan to have File System Viewer scan a host, make sure you have 80-120 MB for each set of 1 million files. The actual size is dependent on the length of the file names.
- If you want to use File System Viewer bulk import capability for non-ASCII characters (such as Chinese, Japanese, or Korean), the file should be created with UTF-8 encoding. Notepad, among other tools, lets you specify the encoding in its “Save As” dialog.
- Reparse points (junctions) for file servers on Microsoft Windows are scanned. For example, assume you create a junction named `C:\DDrive`, which points to the root of the D drive. The content of the D drive is available under `C:\DDrive`. After a scan, information on capacity and amount used are displayed for the C drive; however, the sum of the file sizes on the C drive also includes the junction (`C:\DDrive`), which points to the root of the D drive. If you do not want to include the scanning of reparse points, see [Enable the Scanning of Reparse Points on page 32](#). Reparse points created using the Windows Disk Management tool are discovered as a drive that can be scanned independently.
- A storage volume on a member node that is shared as a cluster resource will not be managed through the member node. It will be available only from the cluster. The File System Viewer scheduler user interface does not list cluster shared volumes of a member node.

Setting up File System Viewer

Before you can obtain information your file servers and volumes, you must perform the following steps:

1 Overview of File System Viewer- Working with Scans and Schedules in File System Viewer

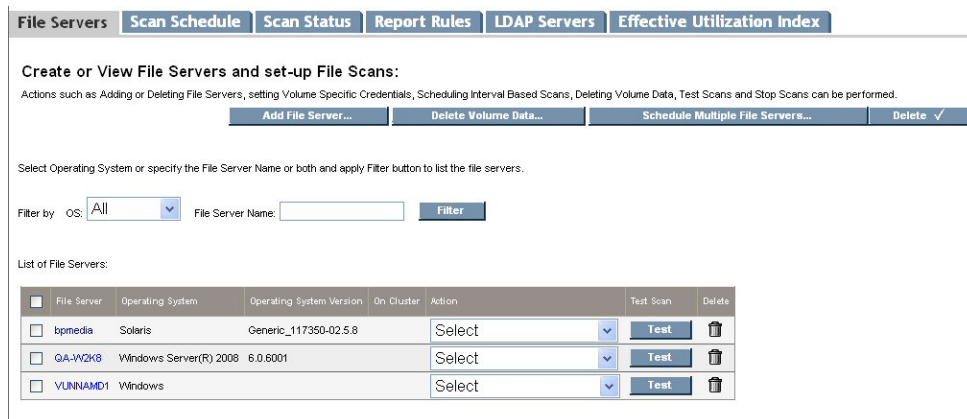
1. Discover the host as described in “Step 1 – Discovering Your Hosts and Backup Manager Hosts” in the installation or user guide.
2. Make File System Viewer aware of the file servers it needs to scan, as described in [Adding File Servers for File System Viewer to Scan on page 13](#). Then, scan the file servers.
You will not see data in File System Viewer until you complete this step.
3. Create schedules for scans, as described in [Working with Scans and Schedules in File System Viewer below](#).
4. Import user information as described in [Importing User Information from LDAP and Active Directory Servers on page 26](#).
5. Create rules for gathering file server information, as described in [Working with Rules for Gathering File Server Information on page 33](#).
6. Enabling the collection of ACL data, as described in [Enabling the Collection of Access Control Entry Data Collection for Directories on Windows Servers on page 43](#).

You will not see data in the Trustee view until you complete this step.

Working with Scans and Schedules in File System Viewer

The File System Viewer simplifies the process of specifying file servers for scan schedules and for working with the scan schedules. The following shows the File System Viewer main page, with a representative list of file servers displayed.

Figure 1 File System Viewer – File Servers Tab



The File Servers tab also displays a List of file servers, from which you can choose a specific server. You can select the following actions in the associated pull-down menus: Select, Add Schedule, Credentials, Scan Now, and Stop Scan. These are described further in the following paragraphs.

The screen lets you filter by operating system, or file server name, or both. The screen contains these three buttons located across the upper part of the page:

- **Add File Server** – Adds a file server.

- **Schedule Multiple File Servers** – Opens a wizard to schedule more than one file server at a time.
- **Delete** – This button at the upper corner of the page allows you to delete more than one file server at a time. A user first selects the file servers to be deleted, and then selects this Delete button. A confirmation page appears before the deletion occurs.

The screen displays a list of file servers and indicates the name, the operating system and version, and whether a file server is part of a cluster. Associated pull-down menus (in the Action column) let you select the following actions for selected file servers:

- **Add Schedule** – Opens the Add Schedule wizard to enable the addition of a new File Server Viewer schedule. Only one schedule can be added for file servers on hosts with agents prior to 6.0.
- **Credentials** – Starts a wizard for you to specify the credentials to be used for scan volumes on the file server. This functionality is supported for CIFS shares in case of Windows file servers and all types of volumes for UNIX file servers that are supported by File Server Viewer.
- **Scan Now** – Allows user to perform a “run once” scan on a selected set of volumes on a specified file server immediately. Selecting Scan Now opens a wizard where you can select a set of volumes to scan immediately.
- **Stop Scan** – Stops all the File Server Viewer scans currently running on the file server. This stops all scans running globally on the file server at the moment, but it does not stop the schedule.
- **Test Scan** – Enables you to perform the Test Scan functionality. The feature is not available for file servers on virtual cluster hosts. See [Performing a Test Scan on page 26](#).
- **Delete File Server (icon)** – Deletes the File Server Application that was created on the host. It deletes all File Server Viewer information collected on the file server.

Other tabs on the File System Viewer main screen include the Scan Schedule tab, the Scan Status tab, and the Reports Rules tabs:

The Scan Schedule tab displays the screen used to setup and associate scan schedules to a selected file server. Functions available at the Scan Schedule screen include the Start and Stop scan buttons, Edit the schedule, and Delete (for individual file server schedule deletion and for deleting all the selected file server schedules). The Scan Schedule tab page is described in more detail later in this section of the guide.

The Scan Status tab provides information about the status of the most recent scan on each of the configured volumes.

The Report Rules tab was described previously in this chapter, and displays the screen used to set up the rules for creating reports for specific needs.

The following paragraphs describe the process of setting up and working with scan schedules.

Adding File Servers for File System Viewer to Scan

You must make File System Viewer aware of file servers it needs to scan in order to see information from your file servers.

Keep in mind the following:

- File System Viewer does not scan the volumes with file system of type “GPFS” on HACMP clusters.
- Cluster shared resources on file server member nodes are not displayed on the Topology tab.

To add file servers for File System Viewer to scan:

1. Click **Add File Server** on the File System Viewer main page (**Configuration > File System Viewer**).

The Add File Server button displays a list of available file servers that support File System Viewer (data collection must be enabled on these file servers).

2. From the displayed list of available file servers, add file servers by selecting the check boxes for the file servers and clicking **OK**.

File servers that are part of a host cluster are marked accordingly in the Is Cluster column of the list.

Deleting Volume Data

You can delete the file system specific data of a scanned volumes, so that the volume would be similar to an unscanned volume. The volume would also be removed from the scan schedule and any report rule mappings. If all volumes in a schedule are deleted, the schedule is also deleted.

Data from volumes currently being scanned would not be deleted. You can tell if a volume is currently being scanned because it will have a scan status of one of the following:

- Scan started
- Scan in progress
- Transferring
- File uploading

The volume with symbol (#) denotes that the volume was scanned before assigning it as a cluster volume through the Build Cluster. This volume data shall be removed since it will not be shown in any of the FSV page.

To delete volume data:

1. Click **Configuration > File System Viewer**.
2. Click the **File Servers** tab.
3. Click **Delete Volume data**.
4. Click the **Show Available Volumes** link if the volumes are not displayed.

Chapter 1

5. Click the **Show Filter** link if the filter is not displayed.
6. In the Select OS field, select the operating system for the file server or select all to display all file servers.

The file servers meeting the criteria of the Select OS field are displayed in the Select File Server window.

7. In the Select File Server window, select a file server.

The name of the file server is displayed in the File Server Name field.

8. Click **Go**.

HP Storage Essentials displays the volumes on the selected file server in the pane below.

9. Select the volumes you want to delete, and click **Add Selected Volumes to Delete Data**.

The selected volumes are displayed in the Selected Volumes table. Volumes that are in the Selected Volumes table are reverted to the status of an unscanned volume when the **Finish** button is clicked.

10. To remove a volume from the Selected Volumes table, select the volume and click **Remove Selected Volumes form Deleting Data**.

11. Click **Finish**.

Volumes in the Selected Volumes table are reverted to the status of an unscanned volume.

Scheduling Single and Multiple Scans

You can create single scan and multiple scan schedules for a file server. The multiple scan schedule feature lets you schedule scans of different volumes at different intervals and at different start times. However, you can add only one schedule for file servers on hosts with agents prior to 6.0.

To begin configuring for single or multiple scans, you must first declare the intended host a file server, and then you use the Add Schedules wizard to create the schedules for the intended file server.

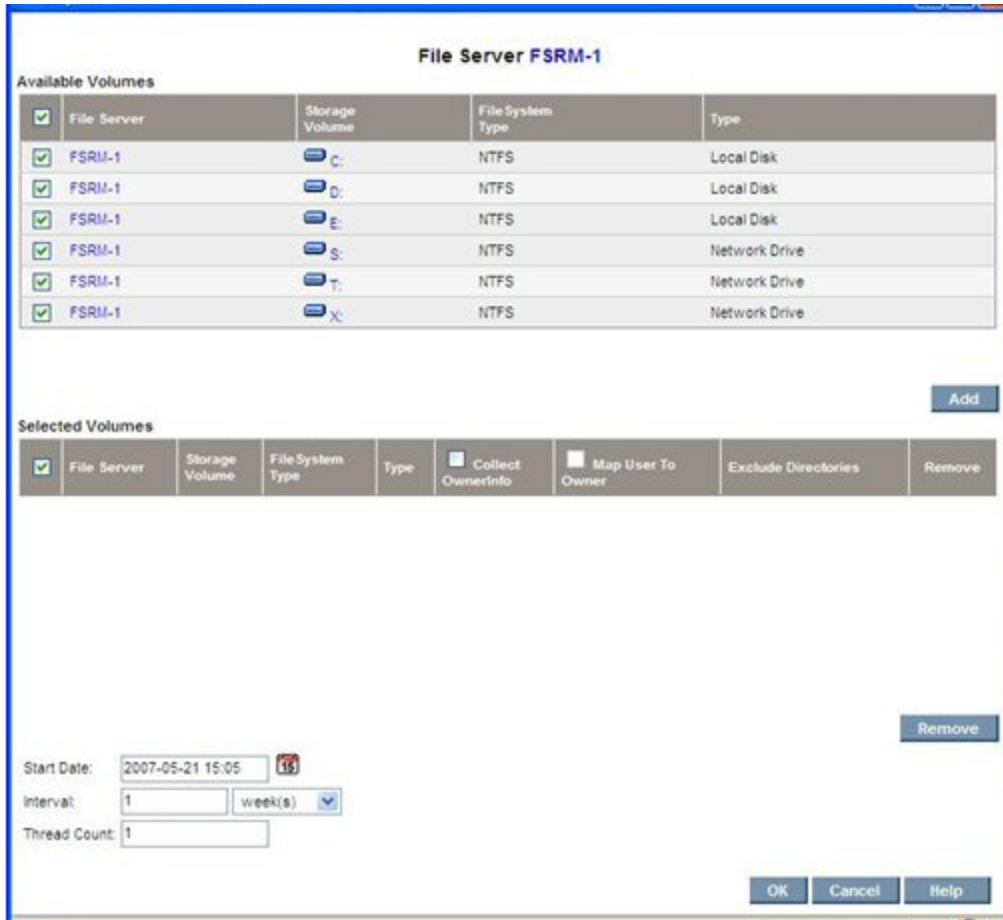
Adding a Schedule

On the File System Viewer Main page (File Servers tab), locate the file server on which you want to setup the scan schedule.

To add a schedule, follow these steps:

1. Select **Add Schedule** from the pull-down menu choices (in the Action column).
2. Select the **Create Schedule** wizard, which opens and displays a screen similar to the following:

Figure 2 Add (Create) Schedule



The wizard contains two volume lists.

- Available Volumes – This table shows volumes that are available for scheduling
- Selected Volumes – This table shows volumes selected for scan.

The lower part of the display contains scan schedule information (start date and time, interval for the scan). The display also shows the number of threads, representing the number of parallel scans to be performed for this schedule. Minimum value for the field is 1. Start time cannot be earlier than the current time, and thread count cannot be more than the number of volumes.

Volumes can be selected for inclusion in a schedule by selecting corresponding check boxes and clicking the **Add** button. This removes the selected volumes from the Available Volumes table and adds them to the Selected Volumes table.

You can correct inadvertent selections by clicking the **Delete** button below the selected volumes table. This moves the corresponding volumes from the Selected Volumes table to the Available Volumes table.

Each volume can be individually configured. The options for each volume in the Selected Volumes table are:

- Volume specific exclude directory list. The default exclude directory list is based on value of JBOSS property “fileSrm.excludeDirectories”.

Note: Scanning of a directory mentioned in the exclude directory list will be skipping collections if the directory exists in the root of the volume. If a directory of the same name exists at any other level, then that directory will be scanned.

- Option to collect ownership. For UNIX file servers, the default is true. For Windows file servers, it is based on the property “fileSrm.collectWindowsSID,” which is available from the Show Default Properties window (**Configuration > Product Health > Advanced > Default Properties**).
- Option to map users to ownership. The option is enabled only if the ownership collection is selected.
- Option to collect ACL information for Windows file server. By default, this option is disabled. You can enable this by setting the “fileSrm.collectACL” property to true.

The properties specified above are to help a user in the Add Schedule wizard. Once the schedule is saved, any changes to the properties will not affect already saved schedules. All schedules can be viewed and edited in the Scan Schedules page.

Excluding Volumes from Scanning of File Extension Details

If you have volumes with more than two million files, you may want to decrease the scanning time by excluding volumes with many files from the scan.

File extension details are not collected for the volumes specified in the fileSrm.volumesToSkipExtensionsGathering property; for example:

```
fileSrm.volumesToSkipExtensionsGathering=10000,10001
```

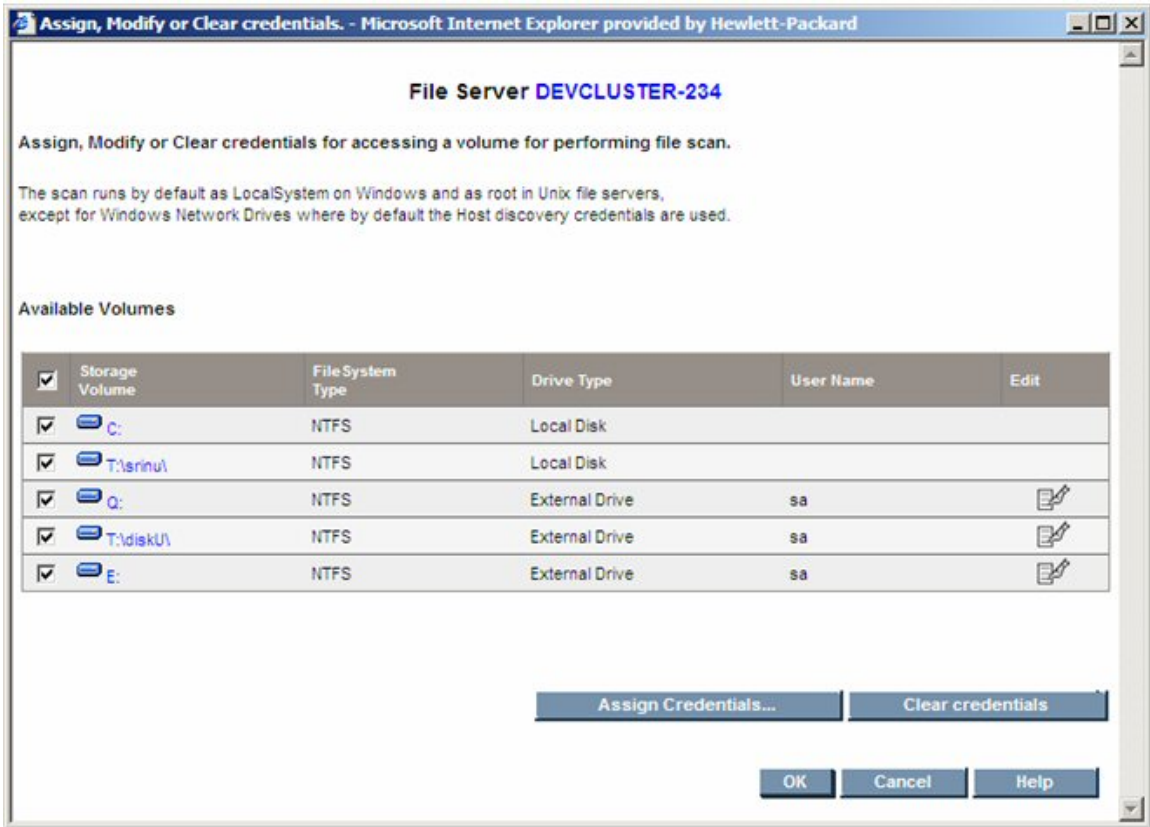
In this instance, 10000 and 10001 are volume IDs for the volumes that are designated to be excluded. The property can be found in **Configuration > Product Health > Advanced > Default Properties**. Refer to the online help for the Default properties page for more information on how to change a property.

Note: Skipping collection of file extensions could impact the way file extensions are displayed in the drill-down menus of the product. The information displayed for the file extensions on excluded volumes could be missing or outdated.

Credentials

You can specify or edit the credentials used by the File Server Viewer to scan volumes on the File Server Viewer. To assign or clear credentials, select **Credentials** from the pull-down menu choices (in Action column). The wizard opens a display similar to the following:

Figure 3 Credentials Wizard

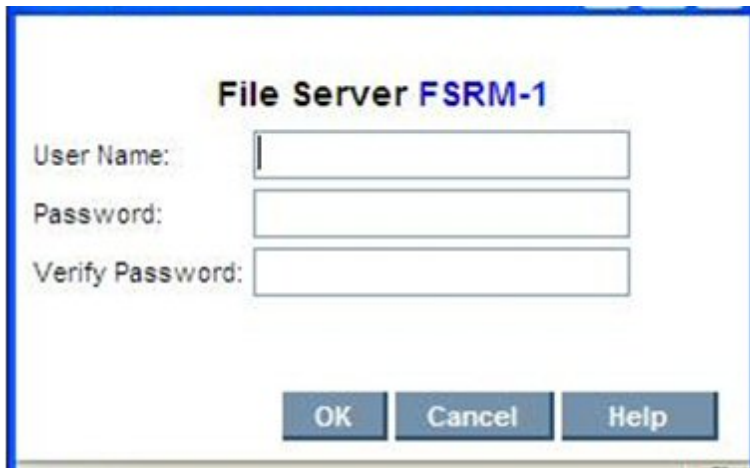


The screen lets you assign credentials, clear credentials, and edit credentials. To assign credentials to a given set of volumes, choose the volume and select the **Assign Credentials** button.

Note: You can edit or clear credentials for a UNC share volume using the Credentials wizard. However, on Windows-based systems, doing so does not prevent running further successful scans on the volume. This is because Windows allows you to run a successful scan on that volume, even though the credentials for it were edited or cleared.

A display similar to the following opens to let you assign (specify) the user name and password to use for scanning the volume.

Figure 4 Assign Credentials



The screenshot shows a dialog box titled "File Server FSRM-1". It has three text input fields labeled "User Name:", "Password:", and "Verify Password:". Below the input fields are three buttons: "OK", "Cancel", and "Help".

In the display, specify the user name and password, and then select **OK**. The credentials are saved into the database after the wizard completes.

Edit Credentials

If you chose Edit Credentials from the wizard shown previously, the following screen displays to allow you to change a user name and password previously assigned.

Figure 5 Edit Credentials



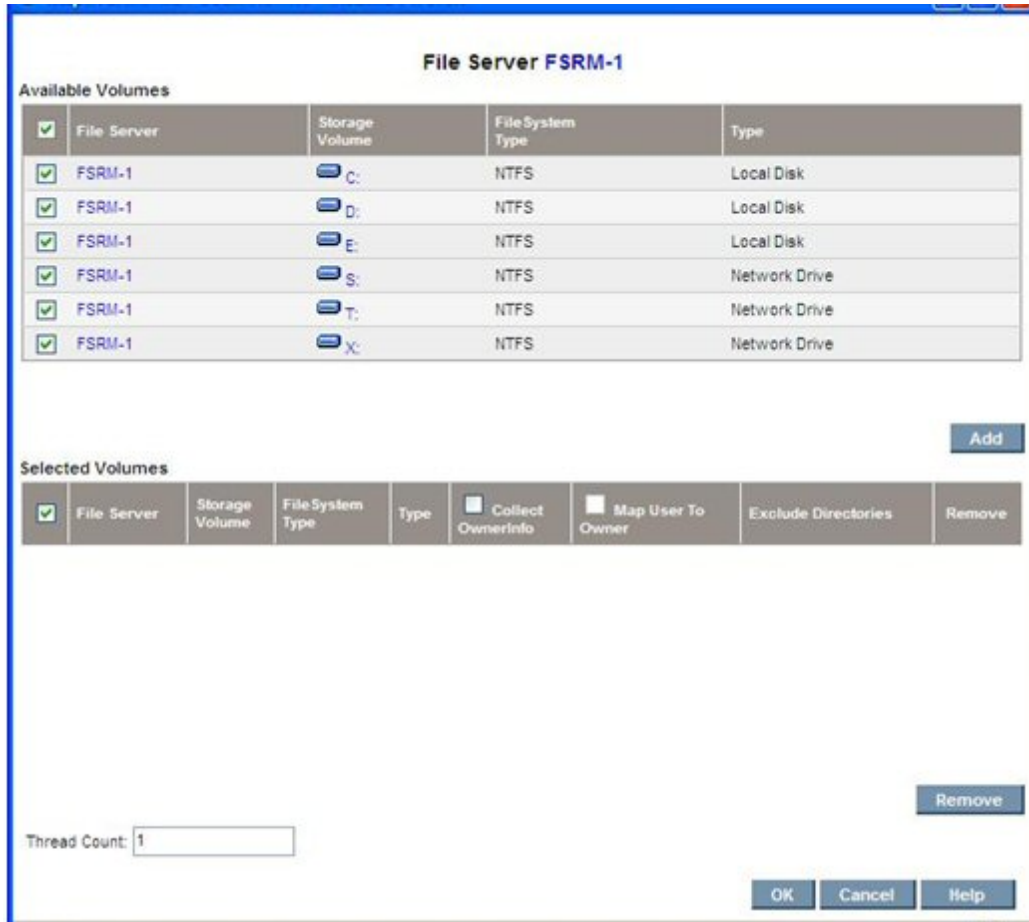
The screenshot shows a dialog box titled "File Server FSRM-1" with a subtitle "Volume E:". It has three text input fields: "User Name:" (containing "sfsc"), "Password:", and "Verify Password:". Below the input fields are three buttons: "OK", "Cancel", and "Help".

The associated volume is shown in the header. Enter the new credentials and then select **OK**.

Scan Now

Select the **Scan Now** pull-down menu choice (Action column) to perform an immediate scan on a given set of volumes. The wizard and functionality are similar to configuring an interval-based scan, except that the start time and interval are not required. See the following figure showing a representative Scan Now display.

Figure 6 Scan Now



The “@” symbol appended to the drive name indicates that the volume is scheduled for a scan in an interval schedule. The “Thread Count” feature allows you to specify the number of parallel scans to be run in the schedule.

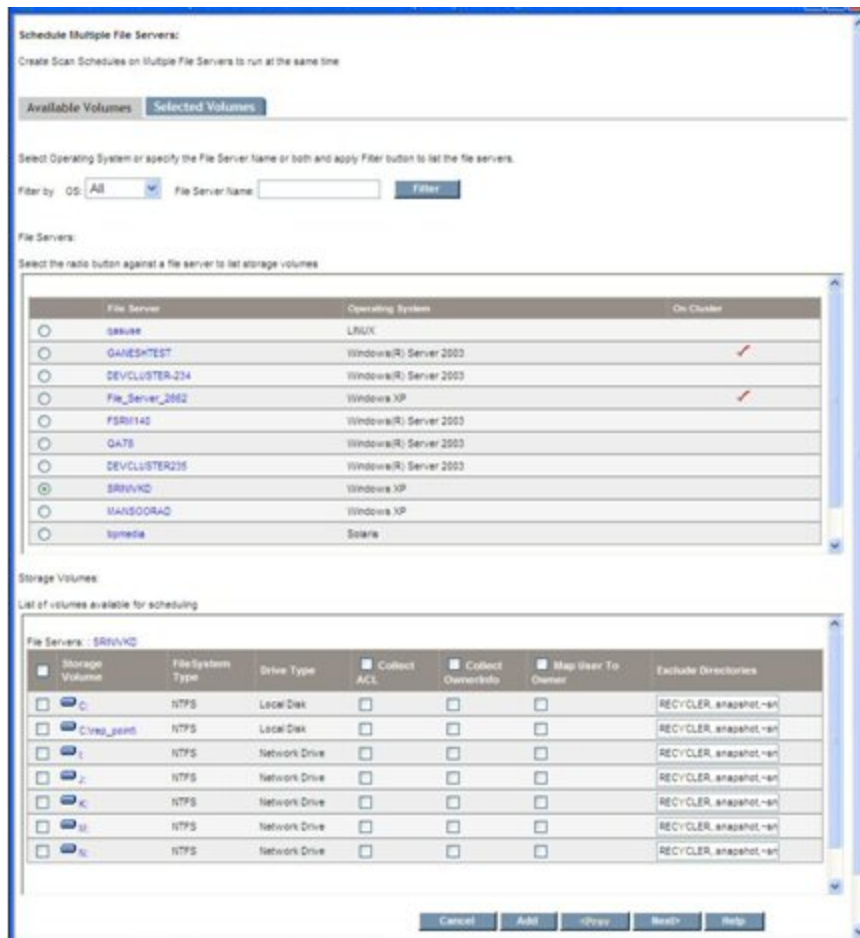
Note: The Scan Now option creates a “run once” schedule, and that the schedule information is not stored for future use. Exercise caution when using the Scan Now option, because a scheduled scan might be already in-process at the instant a forced scan is invoked. In these situations, the volumes currently being scanned, or the volumes currently in the scan queue, will be omitted from the new scan request.

Schedule for Multiple File Servers (Multiple Scans)

The Schedule Multiple File Servers button on the main FSRM display page, File Servers tab, was shown previously and provides functionality similar to the Add Schedule button. It also provides the additional capability to create multiple schedules across multiple file servers. Selecting the button starts a wizard which contains two tabs, Available Volumes and Selected Volumes.

The following representative screen shows the Available Volumes display.

Figure 7 Schedule Multiple File Servers (Available Volumes Tab)



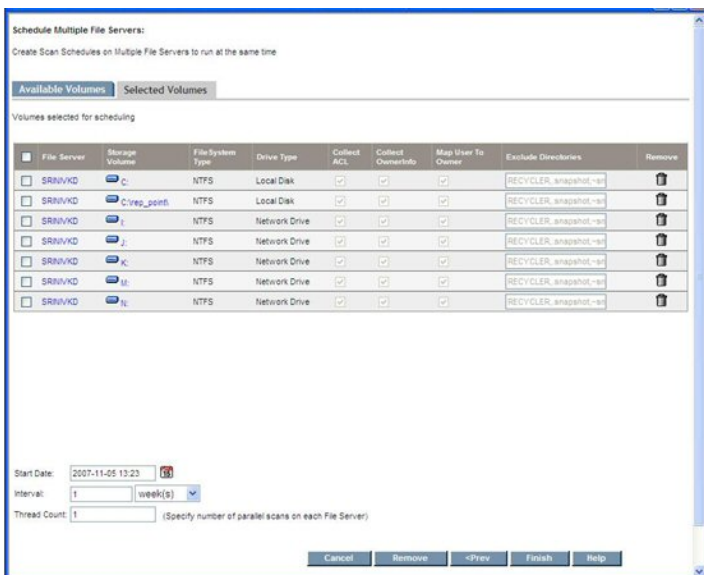
The filter lets you narrow the list of file servers displayed. After filtering, the File Servers list shows the list of file servers available for scheduling. Use the corresponding radio buttons to populate the list of volumes available for scheduling (Storage Volumes table).

Multiple volumes can be selected and configured from the table to be added in the schedule. After the configuration is finished, select the **Add** button to confirm the number of volumes selected for the schedule.

1 Overview of File System Viewer- Working with Scans and Schedules in File System Viewer

You can repeat the previous steps for other file servers in the File Servers table, or you can filter new file servers. After you add the volumes for the file servers, select the **Next** button to open the Selected Volumes tab display. The following is a representative display.

Figure 8 Schedule Multiple File Servers (Selected Volumes Tab)



The display shows the volumes added for the various file servers in the Available Volumes tab. The Selected Volumes tab display does not permit editing volumes. To edit configurations, or remove volumes, select the **Prev** button to go back and make the changes.

The Selected Volumes tab displays the date and time, the interval, and the thread count for the schedules created. After you assign the required values, select the **Finish** button to create schedules for the multiple file servers.

The wizard helps you create multiple schedules at the same time. Once submitted, schedules are created for each file server that was configured.

The thread count for the schedule created is computed by the formula:

$$\text{Thread Count} = \text{minimum (Number of Volumes Selected, value in Thread Count field)}$$

Warning and Alert for Deleted Volumes

When you select drives for a particular host, they show as selected (on the Configuration File Viewer page) for a period of time (one day, 12 hours, etc.). When the drives no longer display as selected after that period of time, a warning icon appears for those schedules that are partially or fully affected.

When you click the warning icon, an alert message appears. The message content depends upon whether the volumes are partially or fully affected and are described in the following paragraphs.

All volumes affected – Assume a schedule contains five volumes (for example) and are all deleted in the database. If you click on the warning icon that appears, then an alert message similar to the following displays:

Storage volumes scheduled for a scan in this task either do not exist now, or have changed in the database. These volumes cannot be scanned now. Please click **Delete** icon to delete them and create a new schedule.

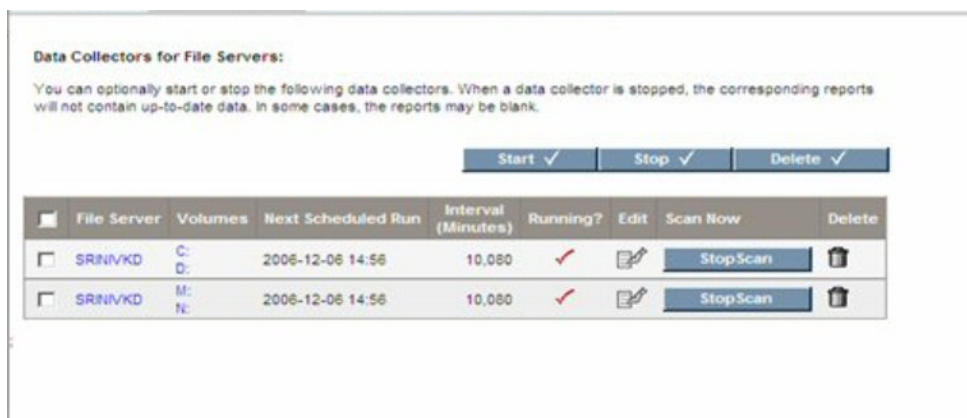
Some volumes affected – Assume a schedule contains five volumes and only some of them are deleted in the database. If you click the warning icon that appears, then an alert message similar to the following displays:

Some Storage volumes scheduled for a scan in this task either do not exist now, or have changed in the database. These volumes cannot be scanned now. Please click on **Edit** icon to include them for a scan.

Scan Schedules Tab

The Scan Schedules Tab on the File System Viewer main page lists all the schedules created for the various file servers, as shown in the following representative display.

Figure 9 Edit Schedule (Scan Schedule Tab)



The **Start** and **Stop** buttons near the middle of the screen, at the right, can be used as batch operations to start or stop the selected multiple schedules. The **Delete** button can be used as a batch operation to delete selected multiple schedules.

Each schedule lists the file server, volumes selected for scan on the file server, the time the schedule is invoked next, the interval in minutes, and its status (running or stopped). The display also contains the following:

- **Stop Scan** – This button attempts to stop the scan on the volumes selected in the schedule. It does not stop the schedule and the schedule can run at the next interval. If you want to disable a schedule, select the Stop button (at the top of the page) after selecting the schedule to be disabled.
- **Delete Schedule icon** – Select this icon to delete the schedule. It stops the scan on the volumes selected for the schedule before the deletion. However, this does not alter any File Server Viewer data already collected for the volumes in the schedule.

1 Overview of File System Viewer- Working with Scans and Schedules in File System Viewer

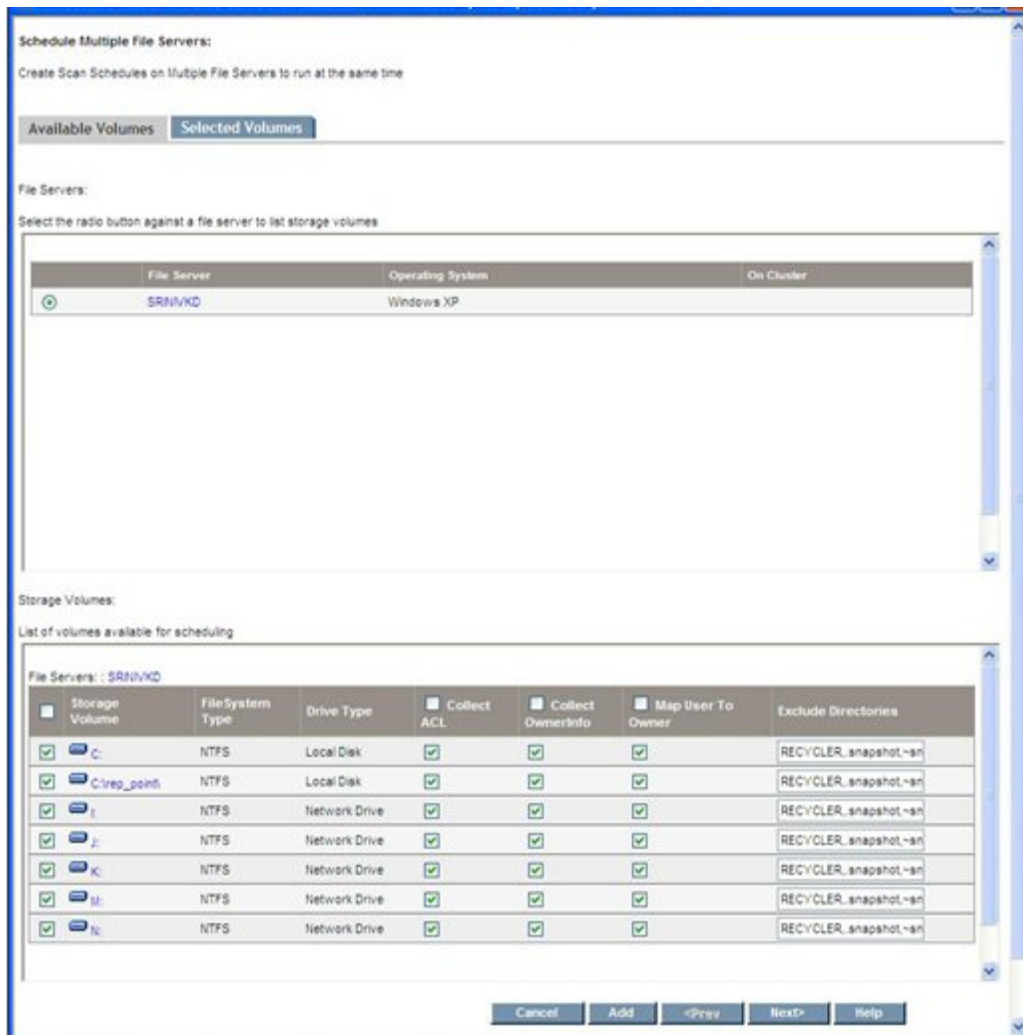
- **Edit icon** – This starts the Edit wizard, letting you modify the schedule to change the volume list or its other scan options. Edit is described further in the following paragraphs.

Editing a Scan Schedule

The Edit button lets you change the scan configuration by changing the volume list for the scan, changing the start time (next scheduled time to run if one is already started), interval, and thread count. You can also change volume specific information, such as ownership collection, mapping users to ownership, exclude directory list, and ACL collection for the Windows file server.

Clicking the Edit icon starts a wizard. The screen contains two tabs, Available Volumes and Selected Volumes, as shown in the following representative screen displays.

Figure 10 Scan Schedule Edit (Available Volumes Tab)



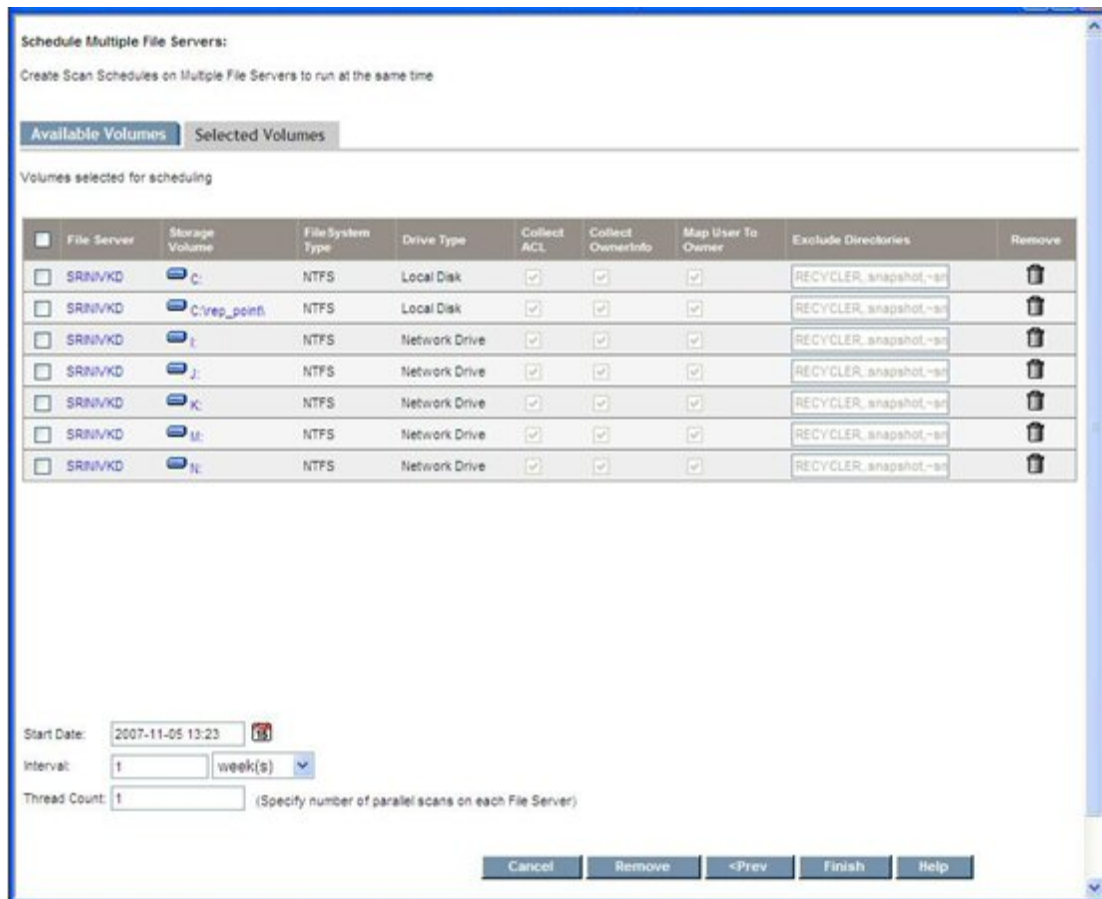
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This screen lets you select volumes available for further addition to the schedule by checking the corresponding check box. You can also modify the default configuration information for each volume. After making your selections, select the **Add** button to confirm your intent to add them to the schedule.

Note: The **Add** button does not add the volumes to the schedule yet; it only confirms they are considered for addition.

After selecting the **Add** button, select the **Next** button to open the **Selected Volumes** tab. A screen similar to the following is displayed.

Figure 11 Scan Schedule Edit (Selected Volumes Tab)



This display provides a list of volumes for this schedule. You can remove volumes by selecting the **Remove** button.

Note: There must be at least one volume in the Selected Volumes tab. You cannot delete the schedule by simply removing all the volumes from the Select Volumes tab. If you attempt to delete all the volumes in the Selected Volumes tab, an alert is raised.

Scan Status Tab

You can review the status of the current scan or the most recent scan that took place on each of the volumes on which a scan was started. To check the status of a scan:

1. Select **Configuration > File System Viewer**.
2. Click the **Scan Status** tab.

The following table provides details about the **Scan Status** tab:

Table 1 About File System Viewer Scan Status

Column Heading	Description
File Server	Displays the name of the file server from which this collector gathers information.
Volume	Displays the volume selected for scanning on a file server.
Scan Start	Displays the time that the scan began.
Last Polled	If the scan is still in progress or failed, it displays the time of the last scan.
Scan End	If the scan is completed, displays the completion time.
Scanned Space	Displays the total size of the files scanned by File System Viewer.
No. Of Files	Displays the number of files that have been scanned.
Current Directory	Displays the directory that is currently being scanned.
Scan Status	The following scan statuses are possible: No Data Scan in Progress Scan Done Scan Failed Transferring Data Transfer Completed Uploading Data Uploading Completed Error

Performing a Test Scan

If you have changed your network configuration, and you are not sure the management server can still scan the server running File System Viewer, you can perform a test File System Viewer scan. During this scan, the management server verifies that it can access the server and perform a high-level File System Viewer scan. It also verifies whether or not it can scan network volumes with host discovery credentials.

Keep in mind the following:

- This feature only works with CIM extensions version 5.1 and later.
- If you want to scan network-mounted drives on a host running Windows, you must make sure a user is logged onto the Windows host. The user must have permission to mount the network drives. Network drives mounted on Windows 2000 hosts are not visible as storage volumes on the Navigation tab or in the topology.

To perform a test File System Viewer scan:

1. Select **Configuration > File System Viewer**.
2. Verify that the File Servers tab is selected, and then click **Test** in the Test Scan column of the File Servers table.

After you click the **Test** button, the management server attempts to access the server and perform a test File System Viewer scan.

Importing User Information from LDAP and Active Directory Servers

You can enable the automatic population of user details from Active Directory and/or Light weight direct access protocol (LDAP) servers, so at least the following information is retrieved from directory services:

- User Name
- Full Name
- Email ID
- Department Number
- User Quota
- *User Status, for example: Active or Disable
- *Manager
- Home Directory
- Owner

*The User Status and Manager columns are populated when the information is imported from an LDAP server. Users cannot add this information from within HP Storage Essentials.

HP Storage Essentials lets you import user data from two types of servers:

- **Exchange servers** – If you have already discovered Exchange servers, you can select the servers from which you HP Storage Essentials to import user data, as described in [Importing User Information from a Discovered Exchange Domain Server below](#). Exchange servers are considered as LDAP servers in the LDAP Users Collection table.
- **LDAP servers** – Discover LDAP servers from which you want HP Storage Essentials to import user data, as described in [Importing User Information from LDAP Servers on next page](#).

You can specify how often user information from the servers listed in the LDAP Users Collection table is updated, as specified in the [Modifying the Collection Schedule for LDAP Servers on page 31](#).

About the LDAP Users Collection Table

The LDAP Users Collection table lists the servers that have been designated to be scanned by HP Storage Essentials for user data.

The LDAP Users Collection table provides the following information about an LDAP server:

- **Domain** – The domain in which the LDAP server resides.
- **Domain controller name** – The name of the controller name for the LDAP server.
- **Next Scheduled Run** – When HP Storage Essentials will scan the LDAP server again for updated user information.
- **Interval in Minutes** – How often the scan is scheduled to run.
- **Enabled** – A check mark is displayed if collectors are running. Collectors must be running for a scan to run.
- **Collection status** – Lets you know if a scan is currently taking place or if the scan is complete

You can also do the following from the LDAP Users Collection table:

- Edit discovery information for an LDAP server, as described in [Editing Discovery Information of LDAP Servers on page 29](#).
- Edit the scan schedule for an LDAP server, as described in [Modifying the Collection Schedule for LDAP Servers on next page](#).
- Delete an LDAP server from the table. When an LDAP server is deleted from the table, HP Storage Essentials no longer scans the LDAP server for user information.

Importing User Information from a Discovered Exchange Domain Server

To import user data from a previously discovered Exchange Domain Server, follow these steps:

1. Select **Configure > File System Viewer > LDAP Servers** and then click **Add Active Directory Domain Controller(s)**.

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2. Select the discovered Exchange Domain Server that contains the user data you want to appear in HP Storage Essentials.
3. Click **Add**, and then click **OK**.

The Exchange Domain server is designated as an LDAP server.

Importing User Information from LDAP Servers

To import user data from LDAP servers, follow these steps:

1. Select **Configure > File System Viewer > LDAP Servers** and then click **Add LDAP Servers**.
2. Expand the link, **Add New LDAP Server**.
3. Select the discovered LDAP that contains the user data you want to appear in HP Storage Essentials.
4. Provide the name of the domain in the Domain field.
5. Provide the name of the domain controller in the Domain Controller Name field.
6. Provide user name in the User Name field.



Note: The user name can be the common name (CN) of the user or the Windows login name. You can find the CN from the Active Directory Users and Computers plug-in. The user must possess a minimum of "Domain Users" privileges.

7. Provide the password for the User name in the Domain Password field.
8. Provide the password again in the Verify Password field.
9. Click **Add**, and then click **OK**.

The product imports user data from the LDAP server.

Modifying the Collection Schedule for LDAP Servers

To modify how often user information is gathered on an LDAP server, follow these steps:

1. Select **Configure > File System Viewer > LDAP Servers**.
2. Select the LDAP server for which you want to modify the schedule.
3. Click the **Edit Schedule** () button.
4. Click the calendar icon, .
5. In the Time box, enter the time in 24-hour format with the hour and minutes separate by a colon, for example, 22:15. Click the date on which you want the task to run. Today's date is highlighted in pink. Click **Set**.


The date and time appear in the Next Scheduled Run box in the yyyy-mm-dd hh:min format.

If you change the date in the box to a date that does not exist in a month, the software automatically calculates the date to the next month. For example, if you enter 2003-11-31, the software assumes the date is 2003-12-01.

6. In the Interval box, enter an interval. Select one of the following units from the list:
 - **Second(s)**
 - **Minute(s)**
 - **Hour(s)**
 - **Day(s)**
 - **Week(s)**
7. Click **OK**.

Editing Discovery Information of LDAP Servers

To edit discovery of LDAP servers, follow these steps:

1. Select **Configure > File System Viewer > LDAP Servers**.
2. Select the LDAP server you want to edit, then its corresponding **Edit** () button.
3. Modify the user name and/or password.
4. Click **OK**, and then click **OK** again.

The product imports user data from the LDAP server.

About Reports for File System Viewer

Report Optimizer provides a variety of detailed reports for file servers.

Data collectors gather information for reports. If you stop a data collector, its reports are not updated. You might want to verify that a collector is running if you are having difficulty viewing a report or you believe the report is not displaying the latest information. See the user guide for more information.

In addition, you can configure File Server SRM to gather specific information based upon user-defined rules for gathering the information, through the capability to add rules, delete rules, edit rules, and map volumes to the rules. This is described in more detail later in this guide.

Also, you can create multiple schedules for a single file server. You can add volumes to schedules, and can remove them from schedules. A schedule cannot contain volumes (details) for more than one file server; however, each file server may have more than one schedule.

After a successful file server scan, the upload process starts. During this time, details (extensions, aging and size groups, and so on) are collected. After that, the File Server SRM custom report data collection begins.

The first part of the process enumerates all rules for the given volume; the process then executes according to the rules specified.

The reporter reads the results, to display the information according to the display criteria specified.

The management server provides reports that display performance information in a variety of formats:

- **HTML (default)** – The software displays the report in a Web page by default.
- **PDF** – The software displays the report in Adobe Acrobat, a good option if you need to print the report. The software assumes you already have Adobe Acrobat Reader installed on your computer. To obtain a copy of Adobe Acrobat Reader, go to the following URL:
<http://www.adobe.com>.
- **Excel** – The software displays the report in Microsoft Excel, providing you have a copy of Microsoft Excel already installed.
- **XML** – The software displays the report in the XML format.

Examples of reports include those that list files not accessed in the past *n* years, files with specific file extensions and that exceed a given size, etc. For example, File Server SRM can group the file extensions into different categories, so that users can generate reports for the different applications, such as office-related files (*.doc, *.ppt, *.xls) or music-related files (*.mp3, *.avi). Supported reports can be used by external reporting tools.

Report information can be filtered. UNIX Global Permissions allows users to filter files into the report based on the selection of rwx permissions. Files with other permissions will be present in the report if they satisfy the selection. For example, the report corresponding to global write permission also may contain files with global execute permission, provided the files also have the global write permission.

The Windows Attributes option allows users to filter files into the report based on the selected set of attributes. Only the files that have the selected attributes will be collected against the rule (irrespective of the state of the other attributes). For example, selecting Archive and Encrypted attributes will filter all files that have these attributes; some of the files in the report may contain files of other attributes (that is, Hidden), if they have the archive and encrypted attributes.

Note: Non-ANSI text—for example Asian characters and the Euro symbol—included in a comma-separated values file is not displayed properly by Microsoft Excel. Excel replaces the non-ANSI text with a question mark (?).

Creating Policies for File System Viewer Users

You can create a utilization policy that generates an event, sends an email, or runs a custom command when an element is being overused. For example, you can configure Policy Manager so you receive an email message when the amount of free space on a server decreases to a specified level.

Note: If you plan to use email notification with your policy, first assign an SMTP server from which the management server can send its email notifications.

To create a utilization policy for a file server:

1. Access Policy Manager by clicking the Policy Manager icon in the left pane.
2. Expand the Policy Manager tree so it displays File Server Users and the users beneath the node.
3. Do one of the following:

1 Overview of File System Viewer- Creating Policies for File System Viewer Users

- If you want the policy to apply to all File System Viewer users, select the File Server Users node.

Or

- If you want the policy to apply to only one of the File System Viewer users, select the user you want the policy to apply.

4. In the right pane, select **Add**.
5. Select a policy, and then select **Next**.
6. In the Name box on the Policy Properties tab, modify the name of the policy or keep the default.
7. In the Description box, modify the description for the policy or keep the default.
8. In the Re-arm Period box, specify a re-arm period in minutes.

The re-arm period is the amount of time after the policy executes before it can execute again. It is useful for limiting the number of times the same actions will execute.

Note: Specify shorter periods for important applications.

9. To the right of the comparison operator menu, enter a percentage or an amount in gigabytes (GB), depending on the box name displayed.
10. For trending policies, enter the number of days in the Historic period box (min=7; max=180) and Projection period box (min=1; max=180).
11. Select an action to occur when the policy condition is fulfilled, by selecting one or more of the following buttons (more than one action can be assigned to a policy):
 - **Send E-mail** – Policy Manager sends an email when the condition is fulfilled. Enter a comma-separated list of email addresses, and then select **OK**.
 - **Generate Event** – Policy Manager generates an event of the specified event type. The event appears in Event Manager. Select one of the following event types.

Note: Since the severity level for an element is set by the manufacturer, the meanings of the severity levels vary. It is best to view the description of the event.

- **Unknown** – The severity level is not known.
- **Informational** – An example of an informational event is a progress report event for firmware download operation currently in progress.
- **Warning** – An example of a warning is when one or more new physical fabric objects (device port, switch, or fabric) have appeared.
- **Minor** – An example of a minor event is when a physical fabric object (switch port or fabric) has changed state.
- **Major** – An example of a major event is when one or more physical fabric objects (device port, switch, or fabric) have disappeared.

- **Critical** – An example of a critical event is Brocade switches that have a failed firmware download and the failure reason code for each respective switch.

After you select an event level, select **OK**.

- **Execute a Custom Command** – Policy Manager executes a custom command on the management server when the condition is fulfilled. Enter a command that will execute the script in the box, and then select **OK**. The software assumes you are in the [Install_Dir]\JBossandJetty\server\appiq\remotescripts directory on the management server when the script is executed. You can use environment variables in your script, such as POLICY_NAME and POLICY_DESCRIPTION. POLICY_NAME provides the policy name and POLICY_DESCRIPTION provides the policy description. See “Software Environment Variables for Scripting” in the user guide.

Prefix the command with start if the custom command triggers a UI component, such as a program that uses the UI (for example, Microsoft Internet Explorer) or a command prompt window.

For example, assume you want the custom command to open a command prompt window and list the contents in the directory. You would prefix the command with start:

```
start dir
```

12. Select **Finish**.
13. To test a policy, select the **Test** button in the Utilization Policy table.
14. For more information about editing, deleting, and emailing policies, see the “Managing Policies” chapter in the user guide.

Enable the Scanning of Reparse Points

Reparse points (junctions) for file servers on Microsoft Windows are scanned. For example, assume you create a junction named C:\DDrive, which points to the root of the D drive. The content of the D drive is available under C:\DDrive. After a scan, information on capacity and amount used are displayed for the C drive; however, the sum of the file sizes on the C drive also includes the junction (C:\DDrive), which points to the root of the D drive.

To enable the scanning of reparse points on Windows file servers:

1. Select **Configuration > Product Health**, and then select **Advanced** in the Disk Space tree.
2. Select **Show Default Properties** at the bottom of the page.
3. Copy the fileSm.disableReparsePointsScan property. How you copy the text depends on your Web browser. If you are using Microsoft Explorer or Netscape Navigator, select the text, and then right-click the selected text, and then select **Copy**.
4. Return to the Advanced page (**Configuration > Product Health**, and then select **Advanced** in the Disk Space tree).

1 Overview of File System Viewer- Working with Rules for Gathering File Server Information

5. Paste the copied text into the Custom Properties box. How you paste the text depends on your Web browser. If you are using Microsoft Explorer or Netscape Navigator, right-click the box and select **Paste**.
6. Change the value assigned to the fileSrm.disableReparsePointsScan property to **false** in the Custom Properties box.

```
fileSrm.disableReparsePointsScan=false
```

7. When you are done, select **Save**.
8. Restart the AppStorManager service for your changes to take effect.

Working with Rules for Gathering File Server Information

You can create specific rules for the kind of information the system gathers and reports about file server volumes and directories (rule-based reporting). You do this by adding, deleting, and assigning rules to selected file server volumes and directories. In addition, you can edit previously created rules to accommodate changing reporting needs.

The Report Rules tab in the File System Viewer (**Configuration > File System Viewer**) provides the user interface and wizards to create and modify these rules. The following graphic shows a representative display of the page.

Figure 12 Report Rules Tab



Using the buttons and check boxes on this screen, you have functionality to Add, Delete, and Edit rules, Add/Remove volumes associated with the rules, Refresh File Server Reports Cache, and Clear Data.

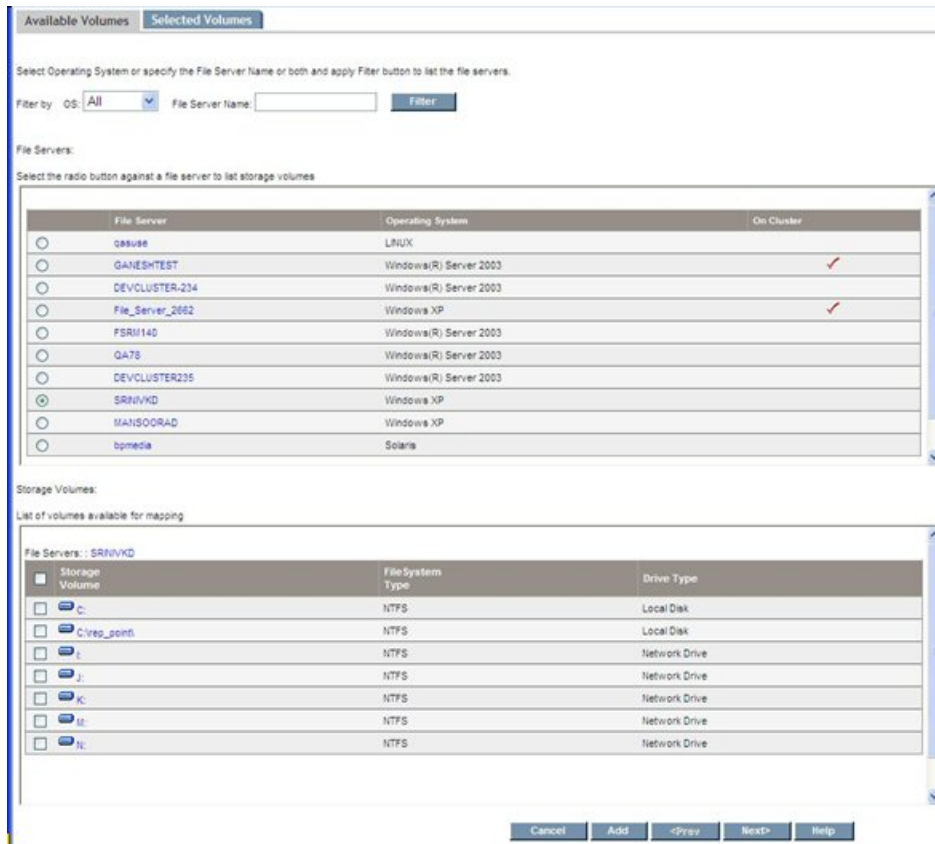
Data collected for the rules is reflected in reports according to the reports refresh schedule. The Refresh File Server Cache button refreshes the reports cache immediately with data acquired using latest rules for gathering the data.

The Clear Data button deletes the data collected against a Rule. Clearing the data for a Rule, then refreshing the reports cache using the Refresh File Server Reports Cache button also removes the rule's earlier data from the reports cache.

Add/Remove Volumes

The Add/Remove volumes icon starts a wizard that lets you map volumes to rules (or remove them). The wizard has two tabs, Available Volumes and Selected Volumes, as shown in the following representative display.

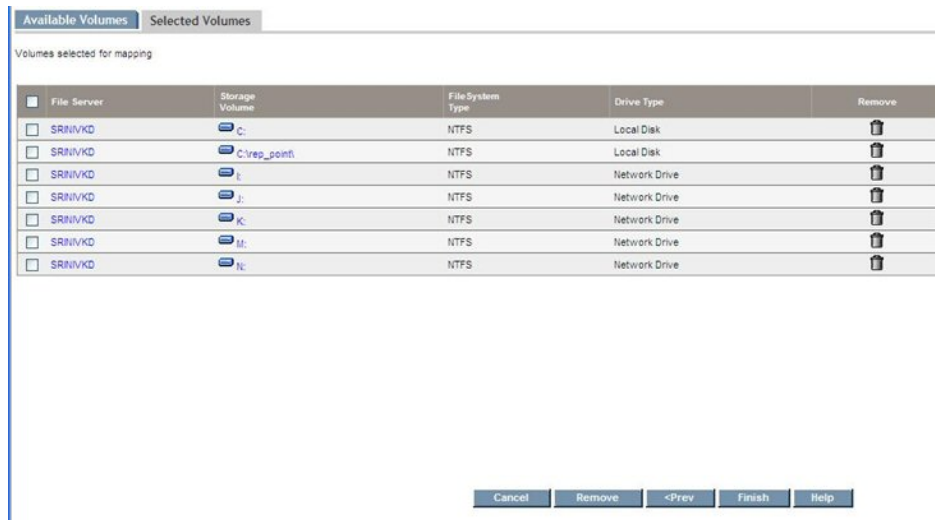
Figure 13 Available Volumes and Selected Volumes Tabs



From the Available Volumes tab display, use the Filter button to display a list of file servers. Select the radio buttons to select the volumes from those available for mapping the rules. After making your selections, click the **Add** button to confirm the choices selected. You can repeat the process for other file servers in the table, or click the **Filter** button to populate a new list.

Select the **Next** button to open the Selected Volumes tab, shown in the following representative display.

Figure 14 Selected Volumes



This wizard helps you map volumes on multiple file servers at the same time. If you need to edit your selections, select the **Prev** button. When you are finished, select the **Finish** button to map volumes to a rule, or select the **Remove** button to remove them from.

Create Rule Wizard

Use the Create Rule wizard to help you create report rules for files. The Create Rules button was shown earlier in this section, in the Report Rules Tab screen display. The Create Rule wizard opens a page similar to the following.

Figure 15 Create Rule Wizard Display

Create File Server Report Rule

Create Rule with the specified criteria based on various file attributes.

Rule Name *

Description

Apply this rule to : Files
 Duplicate Files
 Directories

Rule criteria :

Select corresponding checkboxes to include the criterion in the rule. Where a range is allowed, leaving the lower limit blank would be deemed as no lower limit and leaving the upper limit blank would be deemed as no upper limit.

<input type="checkbox"/> File Size	>=	<input type="text"/>	bytes	<=	<input type="text"/>	bytes
<input type="checkbox"/> Last Accessed	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Last Modified	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Create	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Owned by						(Example: Administrator,guest)
<input type="checkbox"/> Include extensions						(Example: txt,exe)
<input type="checkbox"/> Include directories						(Example: Windows,bash/core)
<input type="checkbox"/> Windows Attributes	<input type="checkbox"/> Read Only <input type="checkbox"/> Hidden <input type="checkbox"/> System <input type="checkbox"/> Archive <input type="checkbox"/> Device <input type="checkbox"/> Normal <input type="checkbox"/> Temporary <input type="checkbox"/> Sparse File <input type="checkbox"/> Reparse point <input type="checkbox"/> Compressed <input type="checkbox"/> Offline <input type="checkbox"/> Not Content Indexed <input type="checkbox"/> Encrypted					
<input type="checkbox"/> Unix Global Permissions	<input type="checkbox"/> Read <input type="checkbox"/> Write <input type="checkbox"/> Execute					
<input type="checkbox"/> Limit Rows	<input type="text"/>					

OK Cancel Help

To create rules for files, use the radio buttons to select the files or directories to which the rules will be applied.

Use the screen to input the following information for the rule:

1. Select corresponding check boxes to include the criteria in the rule
2. Rule name is mandatory
3. Select the appropriate text box before entering value in text box. Otherwise, text box is disabled.
4. All check boxes are unchecked, by default.
5. Description is optional.
6. At least one checkbox should be selected, in addition to RULENAME and Limit Rows.
7. Maximum value should be greater than minimum value (File Size ≥ 5 and ≤ 4 is invalid.)

1 Overview of File System Viewer- Working with Rules for Gathering File Server Information

8. In the “Owned by” text field, you can set single user, or multiple users separated by commas.
9. In the “Include directories” text field, you can set single directory, or multiple directories separated by commas.
10. Enter a value in the “Limit Rows” field, to limit the number of rows in the result of rule, such as 100. Otherwise, a generic rule may return a very large number of rows; if no value is entered, then all data is returned. Limit Rows fetches the Top “n” largest from the total result set.
11. Drop-down choices for sizes shows units for bytes, KB, MB, and GB. Maximum number of digits allowed is five.
12. Drop-down choices for days shows units for days, weeks, months, and years. Maximum allowed digits to enter is five, and accepts a maximum of 43,800 days (120 years) only after converting the units (weeks, months, years) into days.
13. Windows Attributes only affects Windows file servers even though a Report Rule is mapped to a UNIX-type file server.
14. UNIX Global Permissions only affects UNIX-type servers even though a Report Rule is mapped to Windows file servers.
15. When you select **OK**, the rule is created for all the fields whose check boxes are selected. At the time of information gathering, the associated rules are applied to the gathering process to collect the data prescribed by the rule, and to store the data in the database.

Edit Rule

Use the Edit wizard to edit rules by modifying the Rule criteria. The Edit wizard icon was shown earlier in this section, in the Report Rules Tab screen display. When you start the Edit wizard, a screen similar to the following displays.

Figure 16 Edit Rule Screen

Edit File Server Report Rule

Create Rule with the specified criteria based on various file attributes.

Rule Name: +

Description:

Apply this rule to: Files
 Duplicate Files
 Directories

Rule criteria:

Select corresponding checkboxes to include the criterion in the rule. Where a range is allowed, leaving the lower limit blank would be deemed as no lower limit and leaving the upper limit blank would be deemed as no upper limit.

<input checked="" type="checkbox"/> File Size	>=	<input type="text" value="50"/>	KB	<=	<input type="text"/>	bytes
<input type="checkbox"/> Last Accessed	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Last Modified	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Create	>=	<input type="text"/>	day(s)	<=	<input type="text"/>	day(s)
<input type="checkbox"/> Owned by	<input type="text"/>					
<input checked="" type="checkbox"/> Include extensions	<input type="text" value="jpg, jpeg, bmp, gif, png, pcx"/>					
<input type="checkbox"/> Include directories	<input type="text"/>					
<input type="checkbox"/> Windows Attributes	<input type="checkbox"/> Read Only <input type="checkbox"/> Hidden <input type="checkbox"/> System <input type="checkbox"/> Archive <input type="checkbox"/> Device <input type="checkbox"/> Normal <input type="checkbox"/> Temporary <input type="checkbox"/> Sparse File <input type="checkbox"/> Reparse point <input type="checkbox"/> Compressed <input type="checkbox"/> Offline <input type="checkbox"/> Not Content Indexed <input type="checkbox"/> Encrypted					
<input type="checkbox"/> Unix Global Permissions	<input type="checkbox"/> Read <input type="checkbox"/> Write <input type="checkbox"/> Execute					
<input checked="" type="checkbox"/> Limit Rows	<input type="text" value="100"/>					

The input field for the rule name is disabled so that you cannot change the rule name for any report. Also, the radio buttons for “Apply this rule to” are disabled so the type (files, duplicate files, directories) cannot be changed.

The preceding “Create Rules” requirements also apply to the “Edit Rule” screen.

Create Rule (for Directories)

The Create Rule (for Directories) wizard helps you create rules for reporting about directories.

Start by selecting the **Create Rule** button shown earlier in this section, in the Report Rules Tab screen display. This opens the Create File Server Report Rule page, where you must select the **Directories** radio button. Selecting the Directories radio button displays a screen similar to the following.

Figure 17 Create Rule (for Directories)

Create File Server Report Rule

Create Rule with the specified criteria based on various file attributes.

Rule Name

Description

Apply this rule to : Files
 Duplicate Files
 Directories

Rule criteria :

Select corresponding checkboxes to include the criterion in the rule. Where a range is allowed, leaving the lower limit blank would be deemed as no lower limit and leaving the upper limit blank would be deemed as no upper limit.

<input type="checkbox"/> Last Accessed	>=	<input type="text"/>	day(s)
<input type="checkbox"/> Last Modified	>=	<input type="text"/>	day(s)
<input type="checkbox"/> Limit Rows		<input type="text"/>	

OK Cancel Help

The screen then displays the input fields for creating the Rule criteria for Directories. The criteria includes Last Accessed time interval (days, weeks, months, years) and Last Modified time interval.

Enter the Access and Last Modified Days criteria. Reports will be generated for directories that have been accessed greater than the Access days value, and greater than the Last Modified days value.

Provide input to the screen according to the following rules:

- Rule name is mandatory
- At least one checkbox should be selected, in addition to the Limit Rows, and the respective input box should be filled.
- The description is optional.
- Enter a value in the “Limit Rows” field, to limit the number of rows in the result of rule, such as 100. Otherwise, a generic rule may return a very large number of rows; if no value is entered, then all data is returned. Limit Rows fetches the Top “n” largest from the total result set.
- The drop-down for days will show units for days, weeks, months, and years. You can enter a maximum of 5 digits; input accepts a maximum of 43800 days (120 years) only after converting the units (weeks, months, years) into days.
- When you select **OK**, the rule is created for all the fields whose check boxes are selected.

Edit Rule (for Directories)

The following shows a representative screen display for the Edit Rule (for directories) wizard.

Figure 18 Edit Rule (for Directories)

Edit File Server Report Rule

Create Rule with the specified criteria based on various file attributes.

Rule Name: *

Description:

Apply this rule to : Files
 Duplicate Files
 Directories

Rule criteria :

Select corresponding checkboxes to include the criterion in the rule. Where a range is allowed, leaving the lower limit blank would be deemed as no lower limit and leaving the upper limit blank would be deemed as no upper limit.

<input checked="" type="checkbox"/>	Last Accessed	>=	<input type="text" value="1"/>	year(s)
<input checked="" type="checkbox"/>	Last Modified	>=	<input type="text" value="1"/>	year(s)
<input checked="" type="checkbox"/>	Limit Rows		<input type="text" value="100"/>	

With the Edit Rule (for Directories) screen, you can change the access and modified days. The input field for the rule name is disabled; you cannot change the rule name for any report. Also, the radio buttons for “Apply this rule to” are disabled so that you cannot change the type (Files, Duplicate Files, Directories) of the rule. The criteria for the other remaining entries are the same as described previously for creating a rule for Directories.

Duplicate Files

The system takes various inputs (match file size, match modified time stamp and directory) that are used as criteria to collect the duplicate files, and then generates a rule that you can map to any volume across fileservers. When the system gathers information, it applies the rules that exist for the particular volumes, and then collects the data and stores it in the database.

Add Rule (for Duplicate Files)

Start by selecting the **Create Rule** button shown earlier in this section in the Report Rules Tab screen display. This opens the Create File Server Report Rule page, where you must select the **Duplicate Files** radio button. Selecting the Duplicate Files radio button displays a screen similar to the following.

Figure 19 Add Rule (for Duplicate Files)

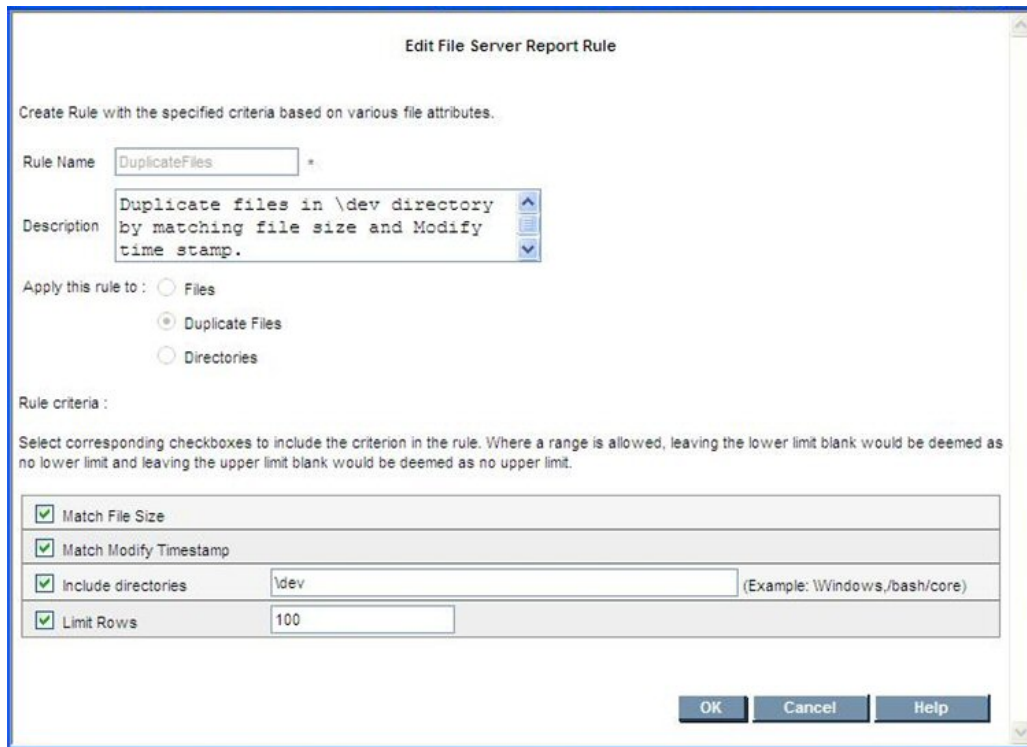
Rules for this screen are:

- Rule name is mandatory.
- In “Include directories” text field, set single or multiple directories separated by commas.
- Enter a value in the “Limit Rows” field, to limit the number of rows in the result of rule, such as 100. Otherwise, a generic rule may return a very large number of rows; if no value is entered, then all data is returned. Limit Rows fetches the Top “n” largest from the total result set.
- The description is optional.
- When you select **OK**, the rule is created based upon the selected check boxes.

Edit Rule (for Duplicate Files)

With the Edit Rule screen, you edit the rule by changing the Rule Criteria and description, as shown in the following representative screen display.

Figure 20 Edit Rule (for Duplicate Files)



The Rule Name is disabled so that you cannot change the rule name for any report. Also, Radio buttons for “Apply this rule to” are disabled so that you cannot change the rule type (Files, Duplicate Files, Directories). The remaining criteria to enter is the same as described previously to create a rule for duplicate files.

Deleting Rules

To delete rules, use the screen displayed with the Report Rules tab. The following shows a representative screen display.

Figure 21 Delete Rules



1 Overview of File System Viewer- Enabling the Collection of Access Control Entry Data Collection for Directories on Windows Servers

You can select the **Delete** button to delete multiple rules (those with checked boxes next to the rule name), or you can delete individual rules using the Delete icon for the specific rule.

The result from removing (deleting) rules depends upon whether or not the rule is mapped to a volume, and whether the data has been collected for that rule. The following summarizes the conditions and effects:

- If you remove a rule that is not mapped to a volume, the rule is deleted directly.
- If you remove a rule that is mapped to a volume, AND the data is not collected, the system deletes both the rule AND the mapping data.
- If you remove a rule that is mapped to a volume, AND the data is collected, the system deletes the rule, the mapped data, and also the collected data (report).
- When you select the **Clear Now** button, the system clears the data related to the rule.

Viewing Results in Report Tree

When the system gathers data for a volume, it checks to see if any rules are mapped to that volume. If rules are mapped to that volume, the system collects the data according to the parameters defined in the rule, then stores this information in the data tables. The collected information can then be viewed from the Reporter tree (Reporter > System > File Server).

Sometimes the File System Viewer report data might not be visible immediately after the rule executes because the reports cache has not yet been updated. To refresh the File System Viewer-related report cache data, select the **Refresh FSRM Reports Cache Now** button. The button is on the Custom Reports tab screen, and is located next to the **Add** and **Delete** buttons in the upper right part of the screen.

Enabling the Collection of Access Control Entry Data Collection for Directories on Windows Servers

Access Control Entries for directories can be collected on Windows file servers running 6.0 or later CIM Extensions. You must enable the collection of Access Control Entry Data to view information in the Trustee view.

To enable the collection of Access Control Entry Data, follow these steps:

1. Change the global property, fileSrm.collectACL, from false to true:
 - a. Click **Configuration > Product Health**.
 - b. Select **Advanced** from the Disk Space tree.
 - c. Change the value of fileSrm.collectACL from false to true by pasting the following in the Custom Properties field:

```
fileSrm.collectACL=true
```

- d. Click **Save**.

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- e. Restart the service for HP Storage Essentials, AppStorManager.
2. Select the Collect ACL option for a scan of a volume on a Windows server:
 - a. Click **Configuration > File System Viewer**.
 - b. On the File Server tab, select **Windows** in the Select OS Type menu, and then click **Filter**.
 - c. Click **Add Schedule**.
 - d. In the top pane, select the storage volumes you want to add, and then click **Add**.
 - e. In the lower pane, select the Collect ACL option. You can select the option for specific volumes or for all of the volumes at once. The following figure shows the Collect ACL option being selected for all of the volumes on a file server by selecting the option in the heading.

Figure 22 Selecting the Collect ACL Option for all of the Volumes on a File Server

Available Volumes

<input checked="" type="checkbox"/>	Storage Volume	FileSystem Type	Drive Type
-------------------------------------	----------------	-----------------	------------

Add

Selected Volumes

<input checked="" type="checkbox"/>	Storage Volume	FileSystem Type	Drive Type	<input checked="" type="checkbox"/> Collect ACL	<input type="checkbox"/> Collect OwnerInfo	<input type="checkbox"/> Map User To Owner	Exclude Directories
<input checked="" type="checkbox"/>	C:	NTFS	Local Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RECYCLER, snapshot, sr

3. Click **OK**.
4. Select **Scan Now**.

HP Storage Essentials starts gathering ACL data. To view the ACL data for all of your file servers, access the Trustee view, as described in Trustee View on page 78.

When the collection option is enabled, the file scan process collects each directory's Discretionary ACL information, governed by the following considerations:

- The process collects only the information allowed by the access rules and ignores the information denied by the access rules.
- The process considers allowing access based upon all the related rules, whether directly assigned on the directory or whether they are inherited from one of the parent directories.
- The trustees corresponding to the Well Known SIDs as defined by Microsoft (<http://Support.microsoft.com/kb/243330>) are excluded from being listed in the output.

- The effective permissions for each trustee are designated as “Full Access,” “Write Access,” or “Read Access.”
 - Write Access is the combination of the rights – List Directory, Traverse Directory, Add File, Add Subdirectory, Write Directory, Traverse Directory, Read Attributes, and Read Permissions.
 - Read Access is a combination of rights – List Directory, Traverse Directory, Read Attributes, and Read Permissions.
 - Full Access is the combination of rights as defined by “Full Control by Windows.”
- Data Collection treatment is similar for both individual users and groups, that is, groups are not drilled down to get a list of individual users.
- The collection attempts to get the name of the various security entries from the corresponding security ID (SID). However, the name resolution from the SID may fail if the SID is from a different host or domain from the file server through which the file system is being scanned. In such cases, the SID itself would be listed as the trustee, instead of the name.

The collected data is sent to a file on the disk along with other scan data files. Then, the data file created by the process is transferred to the management server along with other scan files. On the management server, the data is parsed to extract the effective usage by each trustee.

Note: The process can have a performance impact during the scan. If the Access Control Lists are extracted, the scan times can be larger than they would be otherwise.

About the FileSRMProvider.properties File

The FileSRMProvider.properties file resides in the conf directory of installed CIM Extensions. It contains the following properties:

- **com.appiq.fsrn.dataDir** – Defines the directory in which FSRM data and log files are written. The default is the <CIM EXTN root>/xData directory. If there is an error with the directory specified, then the default directory will be used. When you change the property, you must restart the CIM extension for the new value to take effect.
- **com.appiq.fsrn.chunkSize** – Defines the chunk size (in KB) used to transfer FSRM data to the management server. Typically, it does not need modification by the user.
- **com.appiq.fsrn.StatusPollInterval** – Defines how often (in seconds) the management server retrieves the state of the current scan from the native FSRM process. The default interval is 60 seconds. Note that increasing the frequency of status polling (decreasing the polling interval) may increase the length of time required by the scan.

Defining UNC Volumes

You can use UNC shares to discover file system data from a server. If you want to scan UNC volumes, you must define them in a UncShares.xml file. To create the UncShares.xml file on a Windows host, follow these steps:

1. Confirm that a CIM extension is installed on the Windows host.

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2. Go to the <Installation_Directory>\CimExtensions\conf directory.
3. Open the UncShares.xml-sample file in a text editor.
4. Identify the host through which the UNC shares' scan is planned. This is the host through which you will be scanning UNC shares from a different/remote host.
5. Add the host name and shared directory to the following line:

```
<!-- <UNC_SHARE PATH=""/> -->
```

Here is an example:

```
<UNC_SHARE PATH="//RemoteSystem\MyShare1"/>
```

In this instance, RemoteSystem is the name of the host and MyShare is the name of the shared directory.

Repeat it for all of your shares; for example:

```
<UNC_SHARE PATH="//RemoteSystem\MyShare1"/>
```

```
<UNC_SHARE PATH="//RemoteSystem\MyShare2"/>
```

```
<UNC_SHARE PATH="//RemoteSystem\MyShare3"/>
```

6. Save the file as UncShares.xml.
7. Restart the CIM Extension service on the managed host.
8. Update the element details for the host from the management server by running a Get Details.
9. Edit the File System Viewer configuration page for the host selecting the desired UNC shares to scan.

The username and password combination you used for discovering the host should have at least read only permissions on the file shares which need to be scanned. So in most cases this would be a service account which you can have created in the active directory. This service account should be an admin on the "proxy FSV host" and should have read only (at least) access to the UNC share

Note: You can use the IP address of the host instead of the name.


With management server versions earlier than 6.0, if you want to discover multiple UNC shares which have different credentials, you must use different "proxy FSV hosts". This is because for these earlier versions, you can use only use one login / password pair (each UNC share has its own associated login / password).

For management server version 6.0 and later, this restriction does not exist. For these later management server versions, you can specify different credentials for each UNC Share or volume by using the **Credentials** option.

2 Viewing File System Information Across the Enterprise

Use File System Viewer to obtain detailed information about the file servers enterprise wide, a specific file server or volumes.

File System Viewer displays information from file servers in views, which are accessible by clicking

File System Viewer () in the left pane and then setting a context, as described in [Setting a Context](#) below.

Note: File servers and their hosts must be in the same organization for File System Viewer to work properly.

This chapter describes the following information:

- [Setting a Context](#) below
- [Saving a View](#) on next page
- [Dashboard Information for the Enterprise](#) on page 49
- [Properties of the File Servers](#) on page 51
- [Extension View](#) on page 52
- [Providing Expressions for the Filter Fields](#) on page 52
- [Viewing Extension Groups](#) on page 53
- [Aging View for the Enterprise Context](#) on page 54
- [Sizes View for the Enterprise Context](#) on page 55
- [Managing Users on a File Server](#) on page 57
- [Policies for a User](#) on page 64
- [Viewing Security and User Identifiers for All File Servers](#) on page 67
- [Trustee View](#) on page 69
- [Scan Status](#) on page 72
- [Scan Schedule](#) on page 72
- [Viewing Attribute Details](#) on page 73

Setting a Context

Note: If you do not see any file servers listed, verify that you have set up File System Viewer, as described in [Setting up File System Viewer](#) on page 10.

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Use the Set Context feature in File System Viewer to specify which elements you want File System Viewer to scan.

To set a context for File System Viewer.

1. Select one of the following:

- **Enterprise.** All file servers or elements are included in the scan.
- **File Server.** All file servers, selected file servers or only one file server is selected in the scan.
- **Volume.** All volumes, selected volumes or only one volume is selected in the scan.

2. If you selected:

Enterprise, go to [Click Go](#). File System Viewer scans the specified elements and provides the information in the lower half of the page. below.

File Server, follow these steps in order:

- a. Select all or one of the operating systems from the Select OS Type menu.
- b. (Optional) Enter all or part of a file servers name in the Filter by File Server Name field. Wild cards (*) are accepted. For example, if you want to scan all file servers that begin with California, you would enter the following: California*
- c. Select file servers from the Select File Server field.

Volume, follow these steps in order:

- a. a) Select all or one of the operating systems from the Select OS Type menu.
 - b. b) Enter all or part of a file servers name in the Filter by Volume Name field. Wild cards (*) are accepted. For example, if you want to scan all volumes that begin with Sacramento, you would enter the following: Sacramento*
 - c. c) Select file servers from the Select Volume field.
3. Click **Go**. File System Viewer scans the specified elements and provides the information in the lower half of the page.

If you want to reset the context to Enterprise, click the **Reset** button.

4. Select the view you want.

[Individual File Server Details on page 75](#) provides information about the views for a file server.
[Individual Volume Details on page 97](#) provides information about the views for a volume.

Saving a View

File System Viewer lets you save a view, so you can quickly access the information again without selecting a context.

2 Viewing File System Information Across the Enterprise- Dashboard Information for the Enterprise

For example, assume you have a volume that periodically fills up with data. You may want to save the Sizes view for a volume so you can quickly access the view again to determine if the space is being taken up by several very large files or many small files.

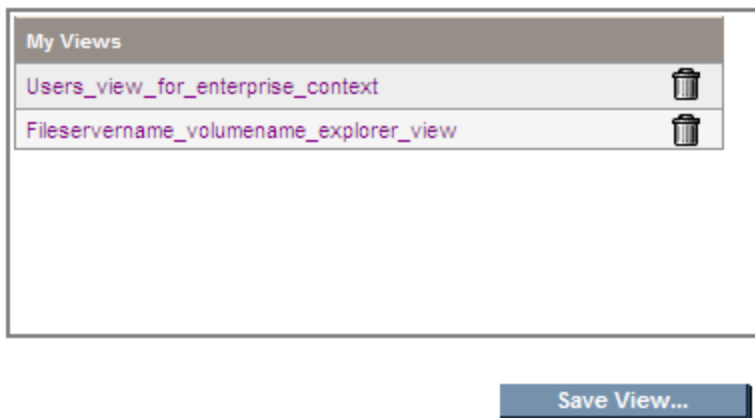
To save a view.

1. Select a context as described in [Setting a Context on page 47](#).
2. Select a view.
3. Click **Save View**.
4. Provide a name for the view.

If you are saving the name of a view that includes information about a file server or volume, include the name of the file server and/or volume as well as the name of the view.

File System Viewer saves the view in the My Views table, as shown in the following figure:

Figure 23 Saving Views



Wait for the current page to complete loading before clicking a saved view in the My Views table; otherwise, you may see an error when you click a saved view.

Dashboard Information for the Enterprise

The dashboard page of the management server provides an overview of the status of all file servers in your network. The dashboard provides the following four panes:

Note: As the file sizes grow, the units switch from megabytes to gigabytes.

- **Summary.** The summary pane displays the following items:
 - A graph displaying the top five file servers by scanned space.
 - A table listing:
 - Number of file servers
 - Volumes

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- Scanned space in megabytes
- Users - The number of users
- Users space - The amount of space in megabytes that is being consumed.

If you want to see a full-page view, access the File Servers view for the Enterprise context, as described in [Properties of the File Servers on the facing page](#).

- **Top ten extensions by size.** The pane displays the top 10 file extensions that take up the most space in gigabytes. If you want to see a full-page view, access Extensions view for the Enterprise context, as described in [Extension View on page 52](#).
- **Aging.** The pane displays in gigabytes the size of files that have been modified or used within the following periods:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years
 - 5+ years


For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.

- **Sizing.** The pane displays the number of files modified within the following period:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years
 - 5+ years

2 Viewing File System Information Across the Enterprise- Properties of the File Servers

For example, if two 3-GB files were modified within the last 30 to 60 days, two would be displayed for the 30-60 day label.

To access the dashboard:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.

The Enterprise option tells File System Viewer to scan for all file servers on the network.

3. Select **Dashboard** from the Select View menu.
4. Click **Go**.

The four panes are displayed.

Tip: To refresh data in a pane, click the **Refresh** button () in the upper-left corner of the pane.

Properties of the File Servers

The File Servers view provides the same information as the Summary pane in the dashboard, in addition to a table that lists all the file servers and their properties.

You can view the following information when you select the File Servers view for an Enterprise context:

- A graph displaying the top five file servers by scanned space.
- A table listing:
 - Number of file servers
 - Volumes
 - Scanned space in megabytes
 - Users - The number of users
 - Users space - The amount of space that is being consumed.
- A table displaying the following information for each of the file servers:
 - Volumes
 - Scanned space
 - Number of users
 - Amount of space the number of users

Note: As the file sizes grow, the units switch from megabytes to gigabytes.

To access information about file servers:

1. Click **File System Viewer** () in the left pane.

2. Select **Enterprise** from the Select Context menu.
3. Select **File Servers** from the Select View menu.

Extension View

The Extensions view for the Enterprise context provides the following information for file extensions:


- A graph displaying the top 10 file extensions by:
 - **Usage** – Total size of all the files with the particular extension.
 - **Count** – Number of files with the particular extension.
- A table displaying the following information for each file extension:
 - **Usage** – Total size of all the files with the particular extension.
 - **Count** – Number of files with the particular extension.

To filter the information for one or more file servers, provide the name of the file extension or provide an expression in the Filter field and then click **Submit**. For more information about expressions, see [Providing Expressions for the Filter Fields](#) below.

To view information about extension groups, select Extension Group from the Filter menu or provide an expression. You must create extension groups before seeing any information, see [Viewing Extension Groups on the facing page](#) and [Creating Extension Groups on the facing page](#).

Note: Data less than 1 MB is not displayed in the charts. This could result in an empty chart if all data points are less than 1 MB.

To access the Extension view for the Enterprise context, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Extensions** from the Select View menu.

Providing Expressions for the Filter Fields

File System Viewer provides filter fields throughout the various windows. Use expressions such as the wildcard (*) to narrow your view to a particular set of items.

All of the filters work the same. For example, even though the following examples are for file extensions, the same expressions would work for any other item you want to filter, such as file servers.

- d* returns all extensions starting with d
- *d returns all extensions ending with d
- *d* returns all extensions having d in the extension

Viewing Extension Groups

Create extension groups to determine how groups of file extensions are being used. For example, assume you want to understand how much space graphic files are using and how often they are being used. You could create a discovery group that contains file extensions for graphic files, such as gif, png, and jpg.

Once you have created your extension groups, you can view the following information about your extension groups:


- A graph displaying the top 10 file extension groups by:
 - **Usage** – Total size of all the files with the particular extension.
 - **Count** – Number of files with the particular extension.
- A table displaying the following information for each extension group:
 - **Extensions** – File extensions that make up the extension group.
 - **Usage** – Total size of all the files with the particular extension.
 - **Count** – Number of files with the particular extension.

To display a reduced set of information, provide the name of the extension group or an expression in the Filter field and then click **Submit**. For more information about providing expressions in the Filter field, see [Providing Expressions for the Filter Fields on previous page](#).

Note: Data less than 1 MB is not displayed in the charts. This could result in an empty chart if all data points are less than 1 MB.

Creating Extension Groups



To create an extension group, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Extensions** from the Select View menu.
4. Select **Extension Group** from the Filter menu.
5. Click **New Extension Group**.
6. Enter a name for the extension group in the **Extension Group Name** field; for example, Graphic files.
7. Enter the extensions you want to be included in the group in the Extensions field. Separate each file extension with a comma. For example, assume you want the discovery group to track file extensions for gif, png, and jpg files, you would enter the following in the Extensions field:

```
gif, png, and jpg
```
8. Click **Finish**.



Editing Extension Groups

To edit a discovery group, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Extensions** from the Select View menu.
4. Select **Extension Group** from the Filter menu.
5. Click Edit () for the extension group you want to edit.
6. Modify which extensions you want to belong to the group in the Extensions field.
7. Click **Finish**.

Deleting Extension Groups

To delete an extension group, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Extensions** from the Select View menu.
4. Select **Extension Group** from the Filter menu.
5. Click **Delete** () for the extension group you want to remove.

Aging View for the Enterprise Context

The Aging view provides the following information about the file servers in your environment

Note: As the file sizes grow, the units switch from megabytes to gigabytes.

- A graph displaying the size of files that have been modified or used within the following time periods:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years


2 Viewing File System Information Across the Enterprise- Sizes View for the Enterprise Context

- 3-4 years
- 4-5 years
- 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.

- A table displaying the number of files and their size that have been accessed, modified, and created in the specified time periods, which are the same as those listed in the graph. To view this table, click the plus sign (+) to the left of the Show/Hide Aggregated Summary Details text.
- A table displaying by file server the number of files and their size in megabytes that have been created, modified or accessed within the specified time period. To determine which type of information you want displayed in the table, select **Accessed**, **Modified** or **Created** from the Age Distribution since last menu. Then click **Submit**.

To access the Aging view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Aging** from the Select View menu.

The Aging view is displayed.

Sizes View for the Enterprise Context


The Sizes view can help you understand if space on a server is being taken up by a few very large files that are never used.

The Sizes view displays the following information:

- A graph displaying the distribution of files by usage or by count within the following size groups:
 - 0 Bytes
 - 0-10 KB
 - 10-100 KB
 - 100 KB-1 MB
 - 1 10 MB
 - 10-100 MB
 - 100+ MB
- A table displaying by file server the number of files and their size that fall within the specified size groups.

Note: As the file sizes grow, the units switch from megabytes to gigabytes.

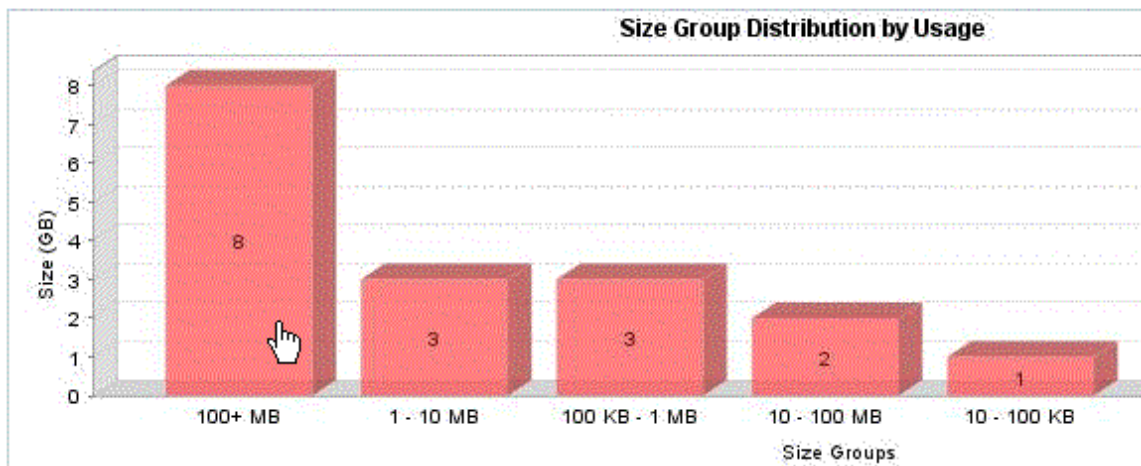
To access the Sizes view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Sizes** from the Select View menu.

The Size view is displayed.

To view additional information about the files within a size group, click one of the size groups in the graph, as shown in the following figure.

Figure 24 Clicking a Size Group for More Information



The following are displayed:

- A pie chart showing the sizes of the files with the size group on each server.
- A pie chart showing the number of files with the size group on each server.
- A table showing the number of files with the size group on each server and the amount of space they occupy.

Note: Data less than 1 MB is not displayed in the graphs. This could result in an empty graph if all the data points are less than 1 MB.

4. To view more information about the size group on a volume, click a file server in the File Server column in the table.

The following are displayed:


- A pie chart showing the sizes of the files with the size group on each volume
- A pie chart showing the number of files with the size group on each volume
- A table showing the number of files with the size group on each volume, the amount of space they occupy, and the collection time.

Managing Users on a File Server

Properties of Users

The Users tab displays the properties of the user accounts assigned to file servers.

To access the properties, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.

Note: The user account names displayed on this page are obtained by the following methods:

- The management server scanning the file servers.
- Information imported through LDAP servers. For more information about importing users through LDAP, see [Importing User Information from LDAP and Active Directory Servers on page 26](#).
- Users created through the Create User tool in File System Viewer. For more information about creating users in File System Viewer, see [Adding File System Viewer Users on next page](#).

The page displays the following:

- A graph showing the top five users by usage and the amount of space they use.
- A summary table to the right of the graph displaying the following:
 - **Users** – The number of users assigned to all of the file servers monitored.
 - **Users Size** – The amount of space the users use.
 - **Largest User** – The user who uses the most space.
 - **Largest User Size** – The amount of space the largest user uses.
- A table below the graph displaying the users and the following properties:
 - **User ID** – The ID of the user
 - **User Name** – The name of the user
 - **Home Directory** – The home directory of the user. The home directory is assigned to a user by the user's organization. By default, the user has full access rights (read, write, execute) to the home directory. A user can have multiple home directories.
 - **Owner** – The owners who are associated with the user. A user can have multiple owners.
 - **Department Number** – The number of the department to which the user is assigned. The department number was entered when the department was created in Chargeback.

- ***User Status** – The user’s status. User Status information will be displayed for users retrieved from Active Directory; however, the Edit option will not be displayed for them.
- ***Manager** – The name of the user’s manager.
- **Quota** – The amount of space the user is allocated.
- **Used** – The amount of space the user is using.
- **Instances** – The number of file servers on which the user’s home directory is present.

*The User Status and Manager columns are populated when the information is imported from an LDAP server. Users cannot add this information from within HP Storage Essentials.


To display the properties of just one user account or provide a wild car, enter the full name in the Filter box, and then click **Submit**.

Viewing Details for a File System Viewer User

You can view detailed information about a File System Viewer user, such as the following:

- Department
- Quota
- Total Used by Owners
- Total Used by Directories

To view details of a File System Viewer user, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Under the User ID column, click the link for the user you want to know more about.

You are shown detailed information about the user, such as the following:

- Which volumes and file servers the user is taking up space and the amount.
- Any policies assigned to the user.

Adding File System Viewer Users


File System Viewer provides data about users on the file servers. For example, the software provides information such as:

- The amount of space the users are using
- The user who is using the most amount of space and the amount of space being used

It obtains information about its users from the file scans of the servers. You can also provide user information through this tool.

This tool simulates the creation of a user account. To obtain information about users, you must first add them in File System Viewer. These users differ from the users for the management server. When you add a File System Viewer user, you are making File System Viewer aware of that user for monitoring. That user is not granted access to the management server.

To add a File System Viewer user, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click the **New User** button located under the graph.
5. In the ID box, enter the user ID.
6. In the Name box, enter the name for the user.

Provide the domain name for users on servers running Windows, for example, mydomain\username. The domain name is case sensitive.

7. In the Directories box, specify a user's home directory. Home directories are assigned to users by their organization. A user can have multiple, comma-separated home directories.

Note: Directory paths are case sensitive and must be fully qualified paths. Map a user's usage to the home directory when configuring a file server scan.

8. In the Owners box, enter the owners that are associated with the user. Separate multiple owners with a comma. The owner names should be similar to what the OS reports. For example, the domain\username on Windows.

Note: It is required that information be entered into either the Directories box or the Owners box, but not both. Entering information into both boxes is accepted, but not required.

9. In the **Department No** menu, select a department number corresponding to the department to which the user belongs. The department number was assigned to the department when the department was added by using Chargeback Manager
10. In the E-mail box, enter the user's e-mail address.
11. In the Quota box, enter the maximum amount in megabytes the user can use.

Note: Entering **0** in the Quota box grants unlimited storage capacity to the selected user.

12. Click **OK**.

Modifying File System Viewer Users



You can modify the following properties for a File System Viewer:

- **Name**
- **Directories**
- **Owners**

- **Department Number**
- **E-mail**
- **Quota**

Note: These steps modify a File System Viewer user, not a user account for the management server.

To modify one or more of these properties for a user, follow these steps:



1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. In the table below the graphic, click the **Edit** () button corresponding to the user you want to modify.
5. Modify one or more of the properties listed at the beginning of this section.
6. Click **OK**.

The File System Viewer user is updated.

Deleting File System Viewer Users

These steps modify a File System Viewer user, not a user account for the management server. They do not impact access to the management server nor to the file server.


To delete a File System Viewer user, follow these steps:

1. Click **File System Viewer** () in the left pane.
 2. Select **Enterprise** from the Select Context menu.
 3. Select **Users** from the Select View menu.
 4. Do one of the following steps:
 - To delete one user at a time, click the **Delete** () button corresponding to the user you want to remove. When you are asked if you want to delete the user, click **OK**.
- Or*
- To delete multiple users at once, select the users in the far left column and click the **Delete** button located above the table. When you are asked if you want to delete the users, click **OK**.

Exporting a List of Users

After you add your users, export the list of users in case you need to reinstall the management server. The user list is saved as a comma-separated values file, which can be opened in a text editor, such as Notepad. You can add to the comma separated list as described in [Modifying a List of Users](#) below.

To export the list of users, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click **Export Users**.
5. When you are asked if you want to save the comma-separated values file, click **Save**, and then designate a location to save the file.

Modifying a List of Users

After you export a list of users, you can easily add to it. The attributes for each user appear on a row for that user. The format of a user's record is as follows:

```
<User ID>,<User Name>,<Home Directory(s)>,<Department>,  
<E- Mail>,<Quota><Owner(s)>
```

Assume you have a user with the following attributes:

- **User ID** – JS
- **User Name** – John Smith
- **Home Directory** – Program Files
- **Department** – Engineering
- **E-Mail** – jsmith@companyname.com
- **Quota** – 500
- **Owner** – jsmith

The information for the user would appear as follows in the list:

```
JS,John Smith,\Program  
Files,Engineering,jsmith@companyname.com,500,jsmith
```

A list with multiple users would appear as follows:

```
JS,John Smith,\Program  
Files,Engineering,jsmith@companyname.com,500,jsmith  
  
JD,John Doe,\Program Files,Engineering,jdoe@companyname.com,500,jdoe
```

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```
DD,David Double,\Program Files,Engineering,jdouble@companyname.com,  
500,ddouble
```

The record for a user with multiple home directories would appear as follows:

```
JS,John Smith,"\jsmith,\home\jsmith",Engineering,  
jsmith@companyname.com,500
```

The record for a user with multiple owners would appear as follows:

```
Adm,A-  
dministrator,, ,netadmin@mycompany.com,,"root,bin,adm,uucp,nobody,  
Administrator"
```

Note: The owner can be omitted if the home directory is provided, and the home directory can be omitted if the owner is provided.

The following boxes must be valid. Failure of any of these conditions causes the management server to log that record as an error and continue to the next record:

- <User ID>
- <Home Directory> or <Owner>
- *Optional:* <Department> – If you provide a department, the department must exist on the management server. The department can be empty.
- *Optional:* <Quota>
- *Optional:* <E-Mail>


Table 2 Restrictions for User Boxes

Box	Condition
User ID	Required box. Cannot include the following: More than 64 characters Single quote (') Double quote (") Forward slash (/) Back slash (\)
User Name	Required box. Cannot include more than 64 characters.

Box	Condition
Home Directory	Required if the owner is not specified. List of one or more directories separated by commas, with each directory name not more than 4000 characters. Individual directory names should not contain commas.
Department	Null or an existing department.
E-Mail	Null or a string of up to 253 characters.
Quota (Megabytes)	Null or 0 to indicate unlimited, or a rational decimal number less than 9999999999999. Value is in MBs.
Owner	Required if the home directory is not specified. List of one or more owner names separated by commas, with each individual owner name not exceeding 256 characters. Individual owner names should not contain commas.

Viewing Detailed Information for a User

To view detailed information for a user, such as the amount of space being used on a volume, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click a **User ID** in the User ID column.
5. Click the **Owners** tab.

The following information is displayed for the user:

- File server name
- Volume name
- Size used
- Owner


Importing a List of Users

You can import a list of users from a comma-separated values file. For information on how to add to the current list of users in File SRM, see [Exporting a List of Users on page 61](#) and [Modifying a List of Users on page 61](#).

The management server provides two ways to import a list of users:

- **Full Import** – Replaces all current users in the list with the users in the import file.
- **Partial Import** – Updates existing users and adds new users.

To import a list of users, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click **Import Users**.
5. Click **Browse** to select the list of users you want import.
6. Select **Full Import** or **Partial Import**.
7. Click **OK**.

When you perform a partial or full import, you are provided with a report with the following information:

- Number of records read
- Number of users created
- Number of users updated
- Number of users that could not be created
- Format errors
- Directory and owner both unspecified
- Directory already mapped to a user
- Owner already mapped to a user
- Invalid departments
- Multiple entries for users

Policies for a User

To view the policies for a user, follow these steps:

1. Click **File System Viewer** () in the left pane.

2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click a **User ID** in the User ID column.
5. Click the **Policies** tab.

File System Viewer displays the policies assigned to the user.

The features displayed on this page are also shown in Policy Manager, which is a tool in HP Storage Essentials that is used for generating policies.


Policy Manager can automatically send an e-mail, generate an event, or run a custom script when the file server is being overused. For example, you can configure Policy Manager so you receive an email message when the amount of free space on a file server decreases to a specified level.

- Add Policies
- Edit Policies
- Test Policies
- Delete Policies

Adding Policies

Top-level information is provided in this section about policies. For more information, see the Managing Policies chapter in the User Guide.

To add the policies for a user:

1. Click **File System Viewer** () in the left pane.
 2. Select **Enterprise** from the Select Context menu.
 3. Select **Users** from the Select View menu.
 4. Click a **User ID** in the User ID column.
 5. Click the **Policies** tab.
 6. Click **Add** in the right corner.
 7. In the Name box on the Policy Properties tab, enter a name for the policy or keep the default.
 8. In the Description box, modify the description for the policy or keep the default.
 9. In the Re-arm Period box, specify the amount of time (in minutes) after the policy executes before it can execute again. The re-arm period is useful for limiting the number of times the same actions will execute.
- Note:** Specify shorter periods for important applications.
10. In the Condition menu, specify a comparison operator.



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11. To the right of the Comparison Operator menu, take the following action, depending on the box displayed:
 - Enter a percentage.
 - Enter an amount in gigabytes (GB).
 - Type the number of available media that will trigger an alert.
12. For trending policies, enter the number of days in the Historic period box (7 to 180 days) and Projection period box (min=1; max=180). The Historic period is the number of days in the past that meet the condition.
13. For trending policies, enter the number of days in the future that would meet the condition in the Projection period box (1 day to 360 days).
14. Select an action to occur when the policy condition is fulfilled. For more information, see “Actions Available for When a Policy Condition is Fulfilled” in the User Guide.
15. Click **Finish**.

Editing Policies

Top-level information is provided in this section about policies. For more information, see the Managing Policies chapter in the User Guide.

To edit a policy, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click a **User ID** in the User ID column.
5. Click the **Policies** tab.
6. Click the **Edit** () button corresponding to the policy you want to modify.
7. In the Name box, change the name for the policy.
8. In the Description box, change the description for the policy.
9. Select or deselect the **Active** option to activate or de-activate the policy.
10. In the Re-arm Period box, specify the amount of time (in minutes) after the policy executes before it can execute again. The re-arm period is useful for limiting the number of times the same actions will execute.


Note: Specify shorter periods for important applications.
11. In the Condition menu, change the conditions of the policy.
12. For trending policies, change the number of days in the Historic period box (min=7; max=180) or Projection period box (min=1; max=180).

13. Select an action to occur when the policy condition is fulfilled. For more information, see “Actions Available for When a Policy Condition is Fulfilled” in the User Guide.

14. Click **OK**.




Testing Policies

To test a policy, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Users** from the Select View menu.
4. Click a **User ID** in the User ID column.
5. Click the **Policies** tab.
6. Click the **Test** button for the policy.

Deleting Policies

To delete a policy, follow these steps:

1. Click **File System Viewer** () in the left pane.
 2. Select **Enterprise** from the Select Context menu.
 3. Select **Users** from the Select View menu.
 4. Click a **User ID** in the User ID column.
 5. Click the **Policies** tab.
 6. Perform one of the following actions:
 - **Delete a policy** – To delete just one policy, click the **Delete** () button corresponding to the policy you want to delete.
- Or*
- **Delete several policies at once** – To delete several policies at one time, select the check boxes next to the policies you want to delete. To select all of the policies, select the check box next to the **Name** heading, and click the **Delete** () button.


The policies are deleted.

Viewing Security and User Identifiers for All File Servers

You can get owner-related details by accessing the Ownership tab. This tab also lets you determine how many files this owner is using on the file server.

Note: The Ownership tab is disabled by default for file servers running on Microsoft Windows. To view the Ownership tab, set the fileSrm.collectWindowsSID property to true as described in [Enabling the Ownership Tab on Windows on the facing page](#), or you can select the Collect Ownership Information checkbox when configuring a file server scan.

To access the Ownership tab, follow these steps:


1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Ownership** from the Select View menu.

The following are displayed:

- A graph showing the top 10 owners, who use the most in megabytes.
 - A table displaying the following:
 - **Ownership** – The security identifier (Windows) or user identifier (UNIX).
 - **Files** – The files that the security identifier or user identifier uses.
 - **Size** – The total size of the files the security identifier or user identifier uses.
4. To filter by owner or by expression, enter the information in the Filter field, and click **Submit**. For more information about filtering by expressions, see [Providing Expressions for the Filter Fields on page 52](#).

Viewing Detailed Information About an Owner

To view detailed information, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Ownership** from the Select View menu.
4. To learn more about an owner, click the owner's name.

The following are displayed:

- A pie chart showing the sizes of the files with the owner on each server.
- A pie chart showing the number of files with the owner on each server.
- A table showing the number of files with the owner on each server and the amount of space they occupy.

Note: Data less than 1 MB is not displayed in the graphs. This could result in an empty graph if all the data points are less than 1 MB.

Enabling the Ownership Tab on Windows

The Ownership tab is disabled by default for file servers running on Microsoft Windows. To view the Ownership tab, you must set the fileSrm.collectWindowsSID property to true.

To set the fileSrm.collectWindowsSID property to true, follow these steps:

1. Select **Configuration > Product Health**, and then click **Advanced** in the Disk Space tree.
2. Click **Show Default Properties** at the bottom of the page.
3. Copy the fileSrm.collectWindowsSID property. How you copy the text depends on your Web browser. If you are using Microsoft Explorer or Netscape Navigator, select the text, and then right-click the selected text, and then select **Copy**.
4. Return to the Advanced page (**Configuration > Product Health**, and then click **Advanced** in the Disk Space tree).
5. Paste the copied text into the Custom Properties box. How you paste the text depends on your Web browser. If you are using Microsoft Explorer or Netscape Navigator, right-click the box, and select **Paste**.
6. Make your changes in the Custom Properties box.
7. Change the value assigned to the fileSrm.collectWindowsSID property to true.


```
fileSrm.collectWindowsSID=true
```
8. When you are done, click **Save**.
9. Restart the AppStorManager service for your changes to take effect.


Trustee View

If you do not see information in the Trustee View, make sure you have enabled ACL data collection, as described in [Enabling the Collection of Access Control Entry Data Collection for Directories on Windows Servers](#) on page 43.

The Trustee view provides the following:

- A graph listing the top 10 trustees by size.
- A table listing the following for each trustee:
 - Size
 - Directories

To access the Trustee view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select **Enterprise** from the Select Context menu.
3. Select **Trustee** from the Select View menu.

To filter the information for one or more trustee, provide the name of the trustee or provide an expression in the Filter field and then click **Submit**. For more information about expressions, see [Providing Expressions for the Filter Fields on page 52](#).

For information about viewing detailed trustee data, see [Viewing Detailed Trustee Data below](#).

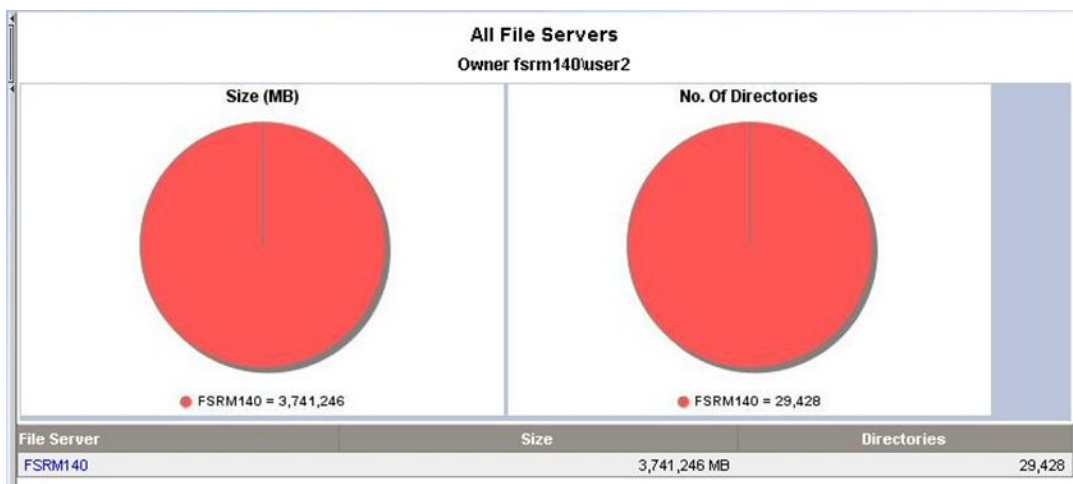
Viewing Detailed Trustee Data

To view detailed information for a trustee, click the name of a trustee in the Trustee view. You are then shown two pie charts:

- Size associated with the trustee in megabytes.
- Number of directories associated with the trustees.

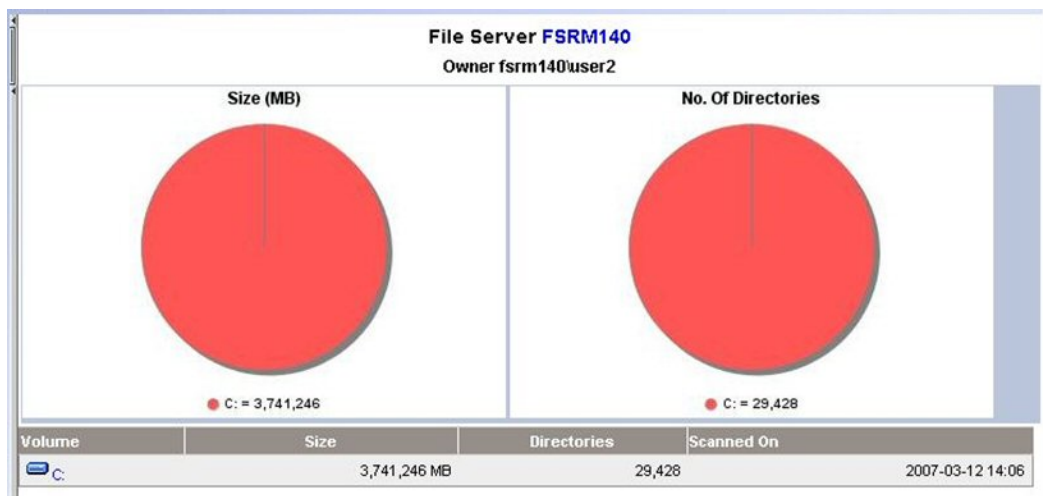
Below the pie charts is a table listing the size in megabytes and directories for each file server associated with the trustee. An example of the pie charts is shown in the following figure:

Figure 25 Selected Trustee Drill-down at Enterprise Level



The following shows a display of Selected Trustee Drill-down at the file server level.

Figure 26 Selected Trustee Drill-down at File Server Level



To obtain even more detailed information about the directories associated with the trustee, click one of the pie charts or a file server listed in the table.

A table is provided with the following information for each directory associated with the trustee:

- Size of the current directory in megabytes
- Size of the current directory including subdirectories
- Number of trustees
- Trustee's share
- Attributes – See [Viewing Attribute Details on page 73](#) for more information about the meaning behind the letters.
- Permissions – The letters in the Permissions column have the following meaning:
 - **R** – Read
 - **W** – Write
 - **F** – Full

How Data is Calculated in the Trustee View

On the management server, the data is parsed to extract the effective usage by each trustee. This is calculated by the summation of effective usage by the trustee on each directory has permission to access. The following shows how the effective space calculations are determined for the statistics shown in the example.

Table 3 Directory Statistics

Directory Name	Full Size	Own Size	Trustee	Rights
A	10 GB	8 GB	X Y Z	F R –
B	18 GB	12 GB	X Y Z	– F W
C	14 GB	6 GB	X Y Z	F F F

The following is the effective space calculation:

- X: From A + From B + From C = $(8/2) + 0 + (6/3) = 6\text{GB}$
- Y: From A + From B + From C = $(8/2) + (12/2) + (6/3) = 12\text{GB}$
- Z: From A + From B + From C = $0 + (12/2) + (6/3) = 8\text{GB}$

The “own” size of a directory is considered for calculation and not the full size (which includes the size of its subdirectories), because the subdirectories are being calculated separately anyway.

User interface screens are available to display the ACL information at various levels, including the Enterprise level (all file servers), a selected file server, and a Volume level, for all the trustees. In addition, drill-down is available for selected trustees at various levels.

Scan Status

The Scan Status view displays detailed information from the scans. This information is also available from the Scan Status tab, which is accessed by selecting **Configuration > File System Viewer**. For detailed information about scan status information, see [Scan Status Tab on page 25](#).

Scan Schedule

The Scan Schedule view displays the scheduled scans. This information is also displayed in the Scheduled Scan tab accessible from the **Configuration > File System Viewer** menu. For more detailed information about scan schedules, see [Schedule for Multiple File Servers \(Multiple Scans\) on page 20](#).

Viewing Attribute Details

In several of the views, attribute information is provided as a letter or several letters in the Attribute column. The attributes have the following meaning:

Letter	Detail
R	Read Only
H	Hidden
S	System
D	Directory
A	Archive
V	Device
N	Normal
T	Temporary
P	Sparse File
J	Reparse Point
C	Compressed
O	Offline
I	Not Content Indexed
E	Encrypted

3 Individual File Server Details

This chapter describes the following:

- [Dashboard Information for a File Server below](#)
- [Properties for a File Server on page 77](#)
- [Finding Volume Details on page 78](#)
- [Types of Files on a File Server on page 79](#)
- [Aging Properties of Files on a File Server on page 82](#)
- [Size Group Distribution Information on page 83](#)
- [Users for a File Server on page 84](#)
- [Ownership Information for a File Server on page 85](#)
- [Trustee Information for a File Server on page 86](#)
- [Events for a File Server on page 86](#)
- [Topology for a File Server on page 94](#)
- [Scan Status for File Servers on page 95](#)
- [Scan Schedule for File Servers on page 96](#)

Dashboard Information for a File Server

The dashboard displays the following information for file servers.

- **Summary**
 - A graph displaying the top five volumes by usage on the file server. The amounts for free space and used space are displayed. Data less than 1 MB is not displayed in the graph. This could result in an empty graph if all data points are less than 1 MB.
 - A summary table to the right of the graph displaying the following:
 - **Volumes** – Number of volumes on the file server.
 - **Capacity** – Size of all volumes on the file server.
 - **Used** – Amount of used space on all volumes on the file server.
 - **Free** – Amount of free space on all volumes on the file server.
 - **Used Percent** – Amount of used space on all volumes on the file server.
 - **Free Percent** – Amount of free space on all volumes on the file server.
 - **Users** – Number of users assigned to one or more of the volumes on the file server.
 - **Users Space** – Amount of space the users use on the file server.

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To see a full-page view, access the Volumes view for the file server context, as described in [Finding Volume Details on page 78](#).

- **Top ten extensions by size** displays the top 10 file extensions that take up the most space in gigabytes.
- **Ageing** displays the (gigabyte) size of files modified or used within the following periods:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years
 - 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.


- **Sizing** displays the number of files modified within the following period:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years
 - 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, two would be displayed for the 30-60 day label.

To access the dashboard, follow these steps:


1. Click **File System Viewer** () in the left pane.

2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Dashboard** from the Select View menu.
4. Click **Go**.

To refresh data in a pane, click the **Refresh** button () in the upper-left corner of the pane.

Properties for a File Server

To view the properties for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Properties** from the Select View menu.

The Properties page displays the following information.

- **Business Cost** – Used to determine the cost impact of the application on the network. The currency displayed is dependent upon the standards and formats setting on the management server. In the Business Cost field, type an amount, for example 35.25. Then click **OK**.
- **Custom Name** – A unique name for the file server. The custom name is displayed for the File System Viewer application instead of the file server's default name. The unique name helps in distinguishing this File System Viewer instance from the actual server. To create a unique name, type the name in the Custom Name field, and then click the **Save** button.
- ***Vendor** – The vendor that created the file server.
 - You cannot enter a symbol in front of the number, except for the dollar sign (\$).
 - You can enter a number with decimal points, such as 30.50.
- ***Contacted** – The last time the software contacted the file server.
- ***Record Created** – When a record was created for the file server.
- ***Discovery Status** – The status of the last discovery. If the element was just discovered, the status is at “created.”
- **Install Date** – When the file server was installed.
- ***Name Detected** – The name of the file server detected.
- **OID** – The Object Identifier
- ***Description** – Provides information about the type of element. In this instance, it would display FileServer.
- ***Target Operating System** – The operating system of the file server.
- **IdentificationCode** – The identification code of the file server.
- ***Product Name** – The product name of the file server.


- **Serial Number** – The serial number of the file server.
- **Build Number** – The build number of the file sever.
- **Version** – The version number of the file server.
- ***Host** – The name of the host
- **Business Cost (per hour)** – The business cost that was set at the top of this page.

*These fields are populated. The rest of the fields are blank by default.

To update the data by doing a Get Details, click **Update Element Data**. Get Details may take awhile.

Finding Volume Details

To view the properties of the volumes on a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Volumes** from the Select View menu.

Note: You can view additional information on volumes that have had file server collection. See [Finding Volume Details above](#) for more information.

This page displays the following:

- A graph displaying the top five volumes by usage on the file server. The amounts for free space and used space are displayed.

Data less than 1 MB is not displayed in the graph. This could result in an empty graph if all data points are less than 1 MB.


- A summary table to the right of the graph displaying the following:
 - **Volumes** – The number of volumes on the file server.
 - **Capacity** – The size of all volumes on the file server.
 - **Used** – The amount of used space on all volumes on the file server.
 - **Free** – The amount of free space on all volumes on the file server.
 - **Used Percent** – The amount of used space on all volumes on the file server.
 - **Free Percent** – The amount of free space on all volumes on the file server.
 - **Users** – The number of users assigned to one or more of the volumes on the file server.
 - **Users Space** – The amount of space the users use on the file server.
- A table below the graph displaying the volumes and the following properties:
 - **Capacity** – The size of the volume.
 - **Used** – The amount of space that is used on that volume.

- **Used%** – The percentage used on the volume.
- **Users** – The number of users assigned to that volume.
- **Users Space** – The amount of space the users use.

Types of Files on a File Server

The Extensions view provides information about the types of files on a file server. For example, it can let you know how many mp3s are stored on a file server and their file size. In the extensions tab, there is a drop-down menu to select Extension Groups, in which files are grouped by file type.

To view information about file extensions on a server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Extensions** from the Select View menu.

You see the following:

- A graph displaying the top 10 extensions and their size.
 - A table below the graph displaying the extension and its following properties:
 - **Size** – The size of all the files with that extension. This property lets you see which types of files are using the most space on a file server.
 - **Count** – The number of files with this extension.
4. To filter by extension, enter the extension name and click the **Submit** button. See [Providing Expressions for the Filter Fields on page 52](#) for more information.
 5. Click an extension in the Extension column in the table.

The following is displayed:

- A pie chart showing the sizes of the files with the extension per volume.
- A pie chart showing the number of files with the extension per volume.
- A table showing the number of files with the extension per volume and the amount of space they occupy.

Data less than 1 MB is not displayed in the graph. This could result in an empty graph if all data points are less than 1 MB.

6. To view a listing of the files with the extension on the volume, click a volume in the Volume column in the table. The largest N and most aged N files with the extension are listed in the tabs “Largest Files” and “Aged Files.” The filename with path, size, and the accessed, modified, and created time are provided.

- You can save the extensions for a volume in a comma-separated list by clicking the **Save Extension Detail** button in the right pane. The extensions for that volume are saved in a comma-separated list (CSV file).

Note: If you attempt to view the CSV file in Microsoft Excel, keep in mind that Excel can only handle a limited number of records. If the file won't open in Excel, it may be necessary to bring the CSV file into a database. Another option is to break the CSV file into smaller pieces that Excel will be able to handle.

Extension Groups

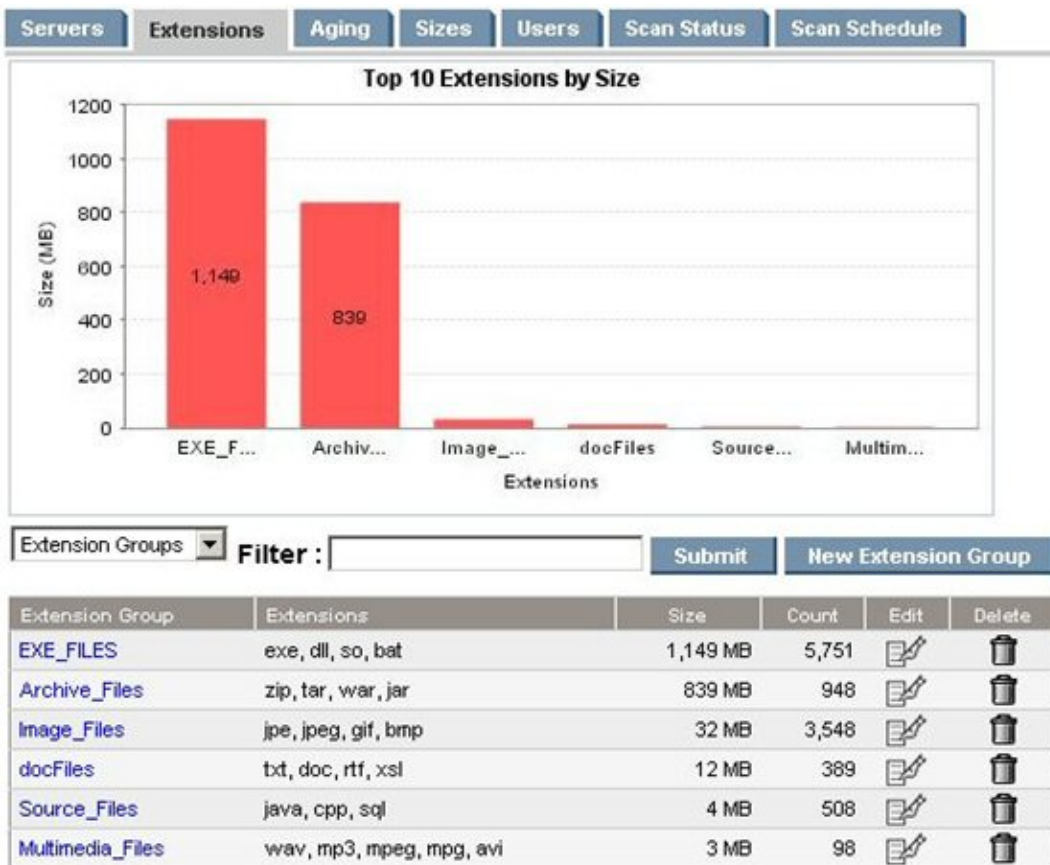
The following shows a representative display of the Extensions tab selected, and the drop-down menu choices for selecting Extension Groups.

Figure 27 Extensions Group Drop-Down Menu



Select **Extension Groups** to display a screen showing the extension groups along with the extensions. A screen similar to the following displays.

Figure 28 Groupings for Extension Groups



You can edit or delete extension groups using the Edit or Delete icons. To create a new extension group, select the **New Extension Group** button, and a screen similar to the following displays.

Figure 29 Create Extension Group Screen Display



You can enter the new extension group name and the extensions separated by commas. After extension groups are created, extension group detail information will appear in the Extensions tab when the extension group is selected from the drop-down menu.

From the volume level extension groups chart page, you can go to an intermediate page before a final drill-down page. The intermediate page lists constituent extensions with hyperlinks to the drill-down page to that specific extension. The following shows a representative display of the screen.



Extension	Size	Count
jar	319 MB	805
zip	517 MB	138
war	2 MB	5

The display lists constituent extensions with hyperlinks to the drill-down page for that specific extension.

Filtering Files


Filters use the following expressions:

- d* returns all extensions starting with d
- *d returns all extensions ending with d
- *d* returns all extensions having d in the extension

You can enter a list of extensions separated by a comma.

Aging Properties of Files on a File Server

To find information about the aging properties of the files on a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select the **Aging** view in the right pane.
4. To save the aging details to a comma-separated list (CSV file):

By default the page displays the following information:

- A graph displaying in gigabytes the size of files that have been modified or used within the following time periods:
 - 0-30 days


- 30-60 days
- 60-90 days
- 90-180 days
- 180 days-1 year
- 1-2 years
- 2-3 years
- 3-4 years
- 4-5 years
- 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.

- A table displaying the number of files and their size in megabytes that have been accessed, modified, and created in the specified time periods, which are the same as those listed in the graph. To view this table, click the plus sign (+) to the left of the Show/Hide Aggregated Summary Details text.
- A table displaying by volume the number of files and their size in megabytes that have been created, modified or accessed within the specified time period. To determine which type of information you want displayed in the table, select **Accessed**, **Modified** or **Created** from the Age Distribution since last menu. Then click **Submit**.

Size Group Distribution Information

To view size information for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select the **Sizes** view.

The page displays the following:

- A bar chart displaying the size group distribution by usage or by count depending on the option selected.
 - **Usage**. It is the total size of all the files with the particular extension.
 - **Count**. It is the number of files with the particular extension.
 - A table listing the number of files and the total size for each size group on each volume.
4. To obtain more detailed information about a size group, click its corresponding heading in the table:

The following is displayed:

- A pie chart showing the sizes of the files with the size group per server.
- A pie chart showing the number of files with the size group per server.
- A table showing the number of files with the size group per server and the amount of space they occupy.


Data less than 1 MB is not displayed in the graphs. This could result in an empty graph if all the data points are less than 1 MB.

5. To view a listing of the oldest files with the size group on the volume, click a volume in the Drive column in the table.

Note: You can save the files with the size group for a volume in a comma-separated list (CSV file) by clicking **Export Files to CVS**.

Users for a File Server

To view user information for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Users** from the Select View menu.

The user account names displayed on this page are obtained by the following methods:

- The management server scanning the file servers.
- Information imported through LDAP servers. For more information about importing users through LDAP, see [Importing User Information from LDAP and Active Directory Servers on page 26](#).
- Users created through the Create User tool in File System Viewer. For more information about creating users in File System Viewer, see [Adding File System Viewer Users on page 58](#).

The page displays the following:

- A graph showing the top five users by usage and the amount of space they use.
- A summary table to the right of the graph displaying the following:
 - **Users** – The number of users assigned to all of the file servers monitored.
 - **Users Size** – The amount of space the users use.
 - **Largest User** – The user who uses the most space.
 - **Largest User Size** – The amount of space the largest user uses.
- A table below the graph displaying the users and the following properties:
 - **User ID** – The ID of the user
 - **User Name** – The name of the user


- **Home Directory** – The home directory of the user. The home directory is assigned to a user by the user's organization. By default, the user has full access rights (read, write, execute) to the home directory. A user can have multiple home directories.
- **Owner** – The owners who are associated with the user. A user can have multiple owners.
- **Department Number** – The number of the department to which the user is assigned. The department number was entered when the department was created in Chargeback.
- ***User Status** – The user's status. User Status information will be displayed for users retrieved from Active Directory; however, the Edit option will not be displayed for them.
- ***Manager** – The name of the user's manager.
- **Quota** – The amount of space the user is allocated.
- **Used** – The amount of space the user is using.
- **Instances** – The number of file servers on which the user's home directory is present.

*The User Status and Manager columns are populated when the information is imported from an LDAP server. Users cannot add this information from within HP Storage Essentials.

To display the properties of just one user account or provide a wild card, enter the full name in the Filter box, and then click **Submit**. See [Providing Expressions for the Filter Fields on page 52](#) for more information.

Ownership Information for a File Server

To view ownership information for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select **Ownership** from the Select View menu.

The following is displayed for the file server:

- A graph showing the top 10 owners, who use the most in megabytes.
 - A table displaying the following:
 - **Ownership** – The security identifier (Windows) or user identifier (UNIX).
 - **Size** – The total size of the files the security identifier or user identifier uses.
 - **Files** – The files that the security identifier or user identifier uses.
4. To filter by owner or by expression, enter the information in the Filter field, and click **Submit**. For more information about filtering by expressions, see [Providing Expressions for the Filter Fields on page 52](#).


Trustee Information for a File Server

If you do not see information in the Trustee View, make sure you have enabled ACL data collection, as described in [Enabling the Collection of Access Control Entry Data Collection for Directories on Windows Servers](#) on page 43.

The Trustee view provides the following:

- A graph listing the top 10 trustees by size.
- A table listing the following for each trustee:
 - Size
 - Directories

To access the Trustee view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context](#) on page 47.
3. Select **Trustee** from the Select View menu.


To filter the information for one or more trustee, provide the name of the trustee or provide an expression in the Filter field and then click **Submit**. For more information about expressions, see [Providing Expressions for the Filter Fields](#) on page 52.

For information about viewing detailed trustee data, see [Viewing Detailed Trustee Data](#) on page 70. For information about how the trustee data is collected, see [How Data is Calculated in the Trustee View](#) on page 71.

Events for a File Server

The Events view lists the events that involve the file server. It provides the following information about the events for a file server.

To access the Events tab, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context](#) on page 47.
3. Select the **Events** view in the right pane.

Note: Events listed on this page may not be attributed to the correct source until Getting Details has completed.

Setting up a Filter

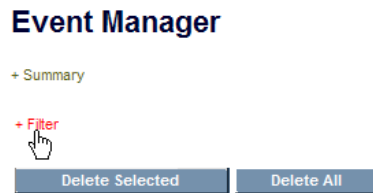
The management server provides several types of event filters which lets you specify which events you want Event Manager to display.

You can use all the event filters at once or you can use just one of them. You can filter events by:

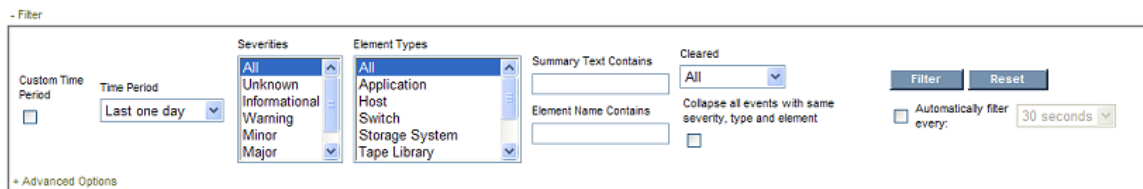
- Time period
- Severity level
- Element type
- Summary text
- Element name
- Cleared status
- Specific element

To set up a filter, follow these steps:

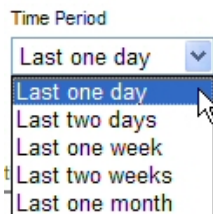
1. Click the Filter heading at the top of the page:



The following filtering feature is displayed:



2. Select a time from the **Time Period** combo box. You can also select a customized time as described in [Selecting a Custom Time Period on page 89](#).



3. Select which events of a severity type you want displayed. Use the Control and Shift keys to select multiple severities. The following options are provided:
 - **All** – Events of all severities are displayed.

- **Unknown** – Only events of the severity type, unknown, are displayed.
 - **Informational** – Only events of the severity type, informational, are displayed.
 - **Warning** – Only events of the severity type, warning, are displayed.
 - **Minor** – Only events of the severity type, minor, are displayed.
 - **Major** – Only events of the severity type, major, are displayed.
 - **Critical** – Only events of the severity type, critical, are displayed.
4. Select which events of an element type you want displayed. Use the Control and Shift keys to select multiple severities. The following options are provided:
- **All**
 - **Application**
 - **Host**
 - **Switch**
 - **Storage System**
 - **Tape Library**
 - **Fabric**
 - **Other**
 - **HP Storage Essentials**
5. To set the filter by summary text, enter the text you want to be used for the filter in the **Summary Text Contains** field.
- You may want to use this option when you are seeing several events that span over several elements or severity levels.
- For example, if you want to determine if someone else is logging into the management server as admin, you can find how often the admin user has logged into the management server over the last few days by entering the following text in the **Summary Text Contains** field:
- User admin logged in
6. To set the filter by element name enter text in the **Element Name Contains** field.
- This feature can be helpful if you are interested in events from elements that have similar names.
- For example, let's assume you have a naming convention for hosts, where all hosts that belong to the engineering group begin with engineering. Event Manager could display only events from those hosts by entering engineering in the **Element Name Contains** field.
7. To set a filter by cleared status, select one or more of the following by using the Control and Shift keys.
- **All** – All events regardless of their clear status
 - **All But Clear** – All events except for those marked clear
-

- **Clear** – Only events marked clear
- 8. To merge all events together, select **Collapse all events with same severity, type and element**.
 This feature is very useful when numerous events of the same severity, type and element are being picked up by the management server. If you select the option **Collapse all events with same severity, type and element**, the management server displays just unique events with a total count in front of them, rather than list all of the events individually.
- 9. To have Event Manager filter elements automatically at a set interval, select the **Automatically filter every** option and select one of the following:
 - 30 seconds
 - 1 minute
 - 5 minutes
 - 10 minutes
- 10. When you are done setting your options, click the **Filter** button.

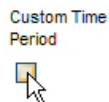
Note: You can update the events displayed by clicking the **Filter** button.

Selecting a Custom Time Period

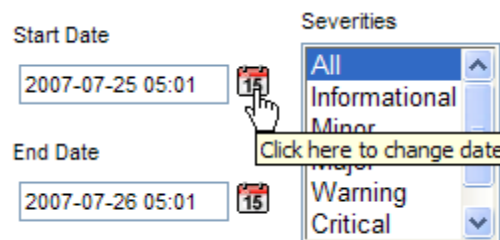
Note: You may want to select a custom time period for the filter when troubleshooting an issue.

To select a custom time period:

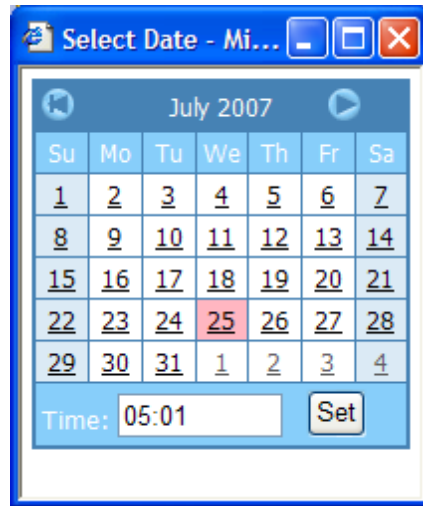
1. Select the **Custom Time Period** option.



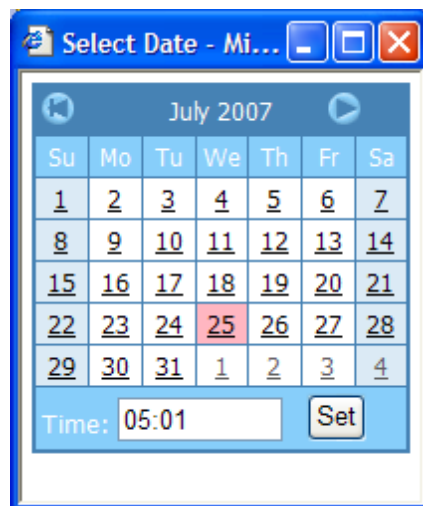
2. Event Manager only displays events that occur after the start date and time and before the end date and time:
 - a. Click the Calendar icon to the right of the **Start Date** field:



- b. In the Calendar, select the start date:



- c. In the **Time** field, enter the start time.
 The time is based on a 24-hour clock. For example, to have Event Manager display events occurring after 8 p.m. on the specified date, enter 20:00.
 - d. When you are done setting the start time and date, click **Set**.
3. To set the end date and time for the filter. Event Manager only displays events that occur after the start date and time and before the end date and time:
- a. Click the Calendar icon to the right of the **End Date** field.
 - b. In the Calendar, select the end date:



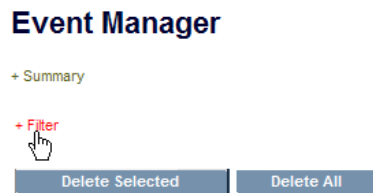
- c. In the **Time** field, enter the end time.
 The time is based on a 24-hour clock. For example, if you want Event Manager to display events occurring before 8 p.m. on the specified date, you would enter 20:00.

- d. When you are done setting the end time and date, click **Set**.

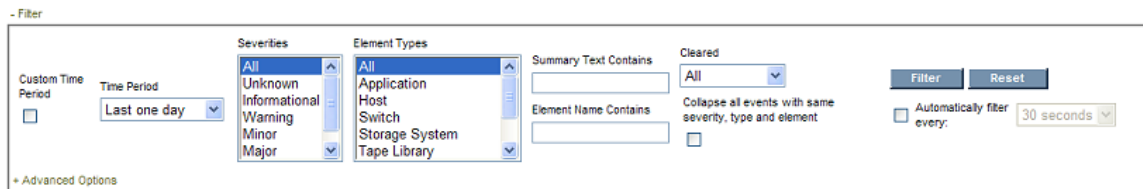
Resetting a Filter

To revert to the default settings for the filter, follow these steps:

1. To access the filter for Event Manager, click the **Filter** heading at the top of the page:



The filtering feature is displayed:



2. Click the **Reset** button.

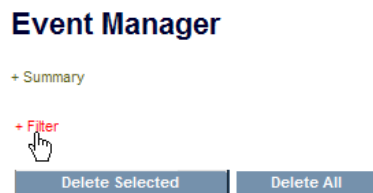
The filter is reset.

Setting up Advanced Filtering

Event Manager has an advanced filtering feature that lets you provide detailed information for filtering.

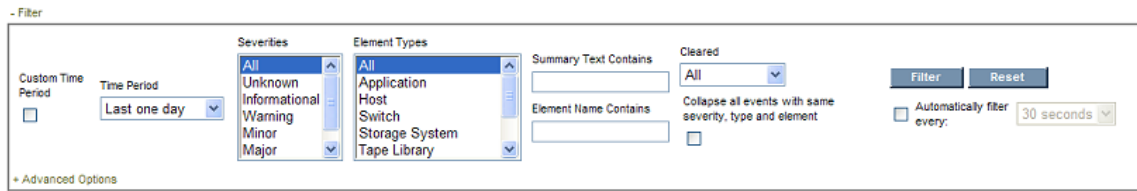
To set up advanced filtering, follow these steps:

1. To access the filter for Event Manager, click the **Filter** heading at the top of the page:



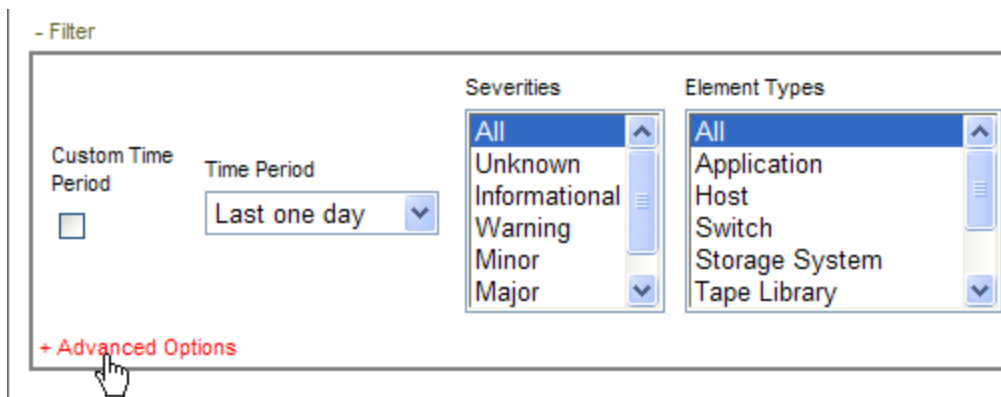
The filtering feature is displayed:

Chapter 3

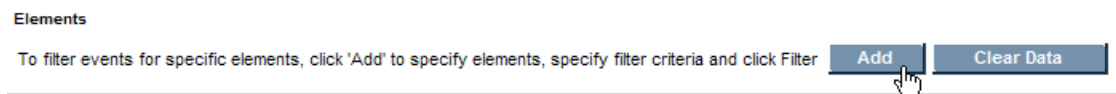


2. Expand the **Advanced Options** heading, as shown in the following figure:

Once the Advanced Options heading has been expanded, the Element Name Contains field becomes inactive. Any values entered in the Element Name Contains field are ignored as long as the Advanced Options heading is expanded.



3. Click the **Add** button:



4. Select the element type you want to add and then click **Next**.
5. Select one or more elements you want to add to the filter and then click **Next**.

Only the elements of the type you specified in the previous window are displayed.

For example, if you selected hosts in the previous window, only hosts are displayed in this screen.

If the element you are looking for does not appear on the first page of the table, use the navigation tools at the top of the table to page through the list of elements.

The hosts you select are listed in the navigation filter.

For example, in the following figure Host_13081 and Host_10380 were selected for advanced filtering, so they are listed under the Advanced Filtering heading:

Event Manager

+ Summary

- Filter

Delete Selected
Delete All
Clear Selected
Clear All

- Verify that **Advanced Options** heading is expanded as shown in the following figure. **Advanced Options** must be expanded for advanced filtering to work.

- Click the **Filter** button.

Event Manager displays the elements specified under **Advanced Options**.

Clearing Advance Filtering Options

You can clear the filtering set for advanced options, by clicking the **Clear Data** button under the Advanced Options heading.

Viewing Event Details

To access event details, click the link for the event under the Summary Text column. You can also right-click an event and select **Event Details** from the drop down menu.

The Event Details pane provides information on one or more of the following:


- **Serial Number** – The number assigned to the event
- **Summary Text** – A brief explanation of the event
- **Element** – It is the source of the event. An element can be a switch, host, application, fabric or anything else on the network. If this field is blank, the event did not come from an element.
- **Source** – If the event came from an element, the name of the element is provided.
- **Time Reported** – The time the event was reported to the management server.
- **Probable Cause** – Provides an explanation of a probable cause.
- **Recommended Actions** – Provides recommendations.
- **Event Type** – Provides a description of the event.
- **Correlated Indications** – Information obtained from the provider.
- **Severity** – Provides the severity level, which can be one of the following:
 - Clear
 - Unknown
 - Informational
 - Warning
 - Minor
 - Major
 - Critical

Sorting Events

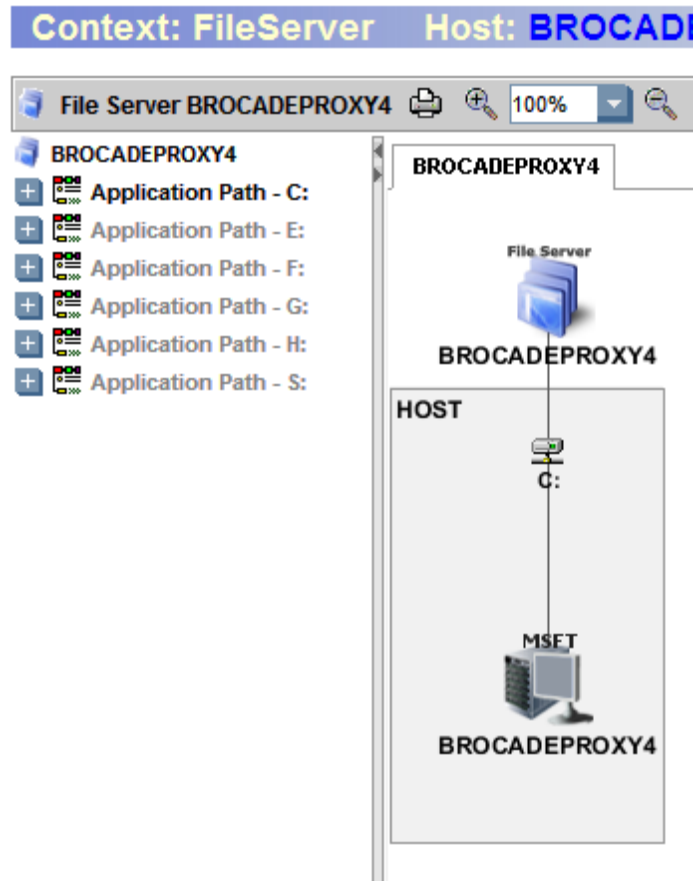
To sort events, click the column title corresponding to the attribute you want to sort the event. For example, if you want to sort events by time, click the Time heading on the table on the Events tab. The events are sorted by time on the Events page.

Topology for a File Server

To view the topology for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select the **Topology** view in the right pane.


The topology is displayed for the file server:



Scan Status for File Servers

The Scan Status view displays detailed information from the scans for a file server. This information is also available from the Scan Status tab, which is accessed by selecting **Configuration > File System Viewer**. You will also see information for other file servers. For detailed information about scan status information, see [Scan Status Tab on page 25](#).


To view the scan status for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context on page 47](#).
3. Select the **Scan Status** view.

Scan Schedule for File Servers

The Scan Schedule view displays the scheduled scans for a file server. This information is also displayed in the Scheduled Scan tab accessible from the **Configuration > File System Viewer** menu; however, you will also see information for other file servers as well. For more detailed information about scan schedules, see [Schedule for Multiple File Servers \(Multiple Scans\)](#) on page 20.

To view the scan status for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a file server, as described in [Setting a Context](#) on page 47.
3. Select the **Scan schedule** view.

4 Individual Volume Details

This chapter describes the following:

- Dashboard Information for a Volume below
- Properties for a Volume on page 99
- File System Details for a Volume on page 100
- Extensions on Volumes on page 102
- Aging Information for a Volume on page 103
- File Sizes on a Volume on page 105
- Users on a Volume on page 106
- Ownership Information for a Volume on page 107
- Trustee Information for a Volume on page 107
- Scan Status for Volumes on page 108
- The Explorer View on page 108
- Directory Dashboard Details on a Volume on page 109

Dashboard Information for a Volume

The dashboard displays the following information for volumes.

- **Summary**
 - A graph represented in one of the following ways:
 - If all large directories are less than 1 MB, the pie chart has only two sectors, Free and Used.
 - If there are several large directories with a size larger than 1 MB, the pie chart has one sector for Free, eight sectors for the top eight directories, and one last sector for Used (Rest).
 - A summary table to the right of the graph displaying the following:
 - **Total Storage** – The capacity of the volume.
 - **Used** – The amount of used space on the volume.
 - **Free** – The amount of free space on the volume.
 - **Scanned Space** – The total size of the files that are scanned by File System Viewer.
 - **Capacity** – The size of the volume.
 - **Used %** – The percentage of used space on the volume.

- **Free %** – The percentage of free space on the volume.
- **File System** – Type of the file system on the volume.
- **Number of Files** – Total number of files on the volume.
- **Number of Directories** – Total number of file on the volume.

To see a full-page view, access the File System Info view for the volume context, as described in [File System Details for a Volume on page 100](#).

- **Top ten extensions by size** displays the top 10 file extensions that take up the most space in gigabytes. To see a full-page view, access Extensions view for the Enterprise context, as described in [Extensions on Volumes on page 102](#).
- **Agging** displays the (gigabyte) size of files modified or used within the following periods:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years
 - 5+ year


For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.


- **Sizing** displays the number of files modified within the following period:
 - 0-30 days
 - 30-60 days
 - 60-90 days
 - 90-180 days
 - 180 days-1 year
 - 1-2 years
 - 2-3 years
 - 3-4 years
 - 4-5 years

- 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, two would be displayed for the 30-60 day label.


To access the dashboard, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Dashboard** from the Select View menu.
4. Click **Go**.

To refresh data in a pane, click the **Refresh** button () in the upper-left corner of the pane.

Properties for a Volume

To view the properties for a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Properties** from the Select View menu.

The Properties page displays the following about the volume:


- ***Contacted** – The last time the software contacted the file server.
- ***File System Type** – The type of file system on the volume, such as New Technology File System (NTFS).
- ***Block Size**
- ***Discovery Status** – The status of the last discovery. If the element was just discovered, the status is at “created.”
- **Consumable Blocks**
- *Number of Blocks
- *Remote Storage
- ***Record Created** – When a record was created for the file server.
- ***Device ID**
- *Total Space
- **Data Organization**
- *Description
- Access

- ***Host** – The name of the host
- **Business Cost (per hour)** – The business cost that was set at the top of this page.
- ***Disk Drives** – The drive(s) associated with the volume.
- ***Disk Partitions** – Partitions on the volume.

*These fields are populated. The rest of the fields are blank by default.

File System Details for a Volume

To view the properties of the volumes on a file server, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **File System Info** from the Select View menu.

This page displays the following:

- A graph represented in one of the following ways:
 - If all large directories are less than 1 MB, the pie chart will have only two sectors, Free and Used.
 - If there are several large directories with a size larger than 1 MB, the pie chart will have one sector for Free, eight sectors for the top eight directories, and one last sector for Used (Rest).
- A summary table to the right of the graph displaying the following:
 - **Total Storage** – The capacity of the volume.
 - **Used** – The amount of used space on the volume.
 - **Free** – The amount of free space on the volume.
 - **Scanned Space** – The total size of the files that are scanned by File System Viewer.
 - **Capacity** – The size of the volume.
 - **Used %** – The percentage of used space on the volume.
 - **Free %** – The percentage of free space on the volume.
 - **File System** – Type of the file system on the volume.
 - **Number of Files** – Total number of files on the volume.
 - **Number of Directories** – Total number of file on the volume.
- Below the chart, there are three tabs which provide the following:

- **Largest Directories** – This table lists the largest directories on the volume first. File System Viewer provides the following for each directory: the size of the directory, number of files in the directory, and number of sub directories in the directory. The information in this table consists only of the files and directories directly contained in the directory in question and not those in the sub directories. Click the hyperlink on the directory name to display a summary snapshot of the directory where the Aging, Extension, Size, Largest Files, and Aged Files information is presented in respective tabs.
 - **Largest Files** – This table provides lists the directories with the largest files on the volume first. File System Viewer displays the name of the file, its size, and the accessed, modified, and created time.
 - **Aged Files** – This table provides information about the age of the directories with on the volume. It displays the following information about the volume:
 - Name of the file
 - Its size
 - Owner
 - Last accessed
 - Last modified
 - Created
 - Attributes, as described in [Viewing Attribute Details on page 73](#).
 - **Largest Temp Files** – Displays the largest temporary directories. File System Viewer provides the following information:
 - Name of the file
 - Its size
 - Owner
 - Last accessed
 - Last modified
 - Created
 - Attributes, as described in [Viewing Attribute Details on page 73](#).

The time and date the file was last accessed. If information is displayed in the table, either the Extension group TEMP does not exist or File System Viewer could not find any temporary files. If no TEMP extension group found, create the extension group with the name TEMP and map all temporary file extensions to get the list of largest temp files.
 - **Duplicate Files** – Displays duplicate file data. File System Viewer provides the following information:
 - Name of the file
 - Its size
-

- Owner
- Last accessed
- Last modified
- Created
- Attributes, as described in [Viewing Attribute Details on page 73](#).


If no duplicate file data is found for the volume, one of the may have occurred:

- No rule was created
- A volume not mapped to the duplicate report rule
- No duplicate files exists.

Extensions on Volumes

The Extensions view provides information about the types of files on a volume. For example, it can let you know how many mpps are stored on a file volume and their file size. In the extensions tab, there is a drop-down menu to select Extension Groups, in which files are grouped by file type.

To view information about file extensions on a server, follow these steps:


1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Extensions** from the Select View menu.

You see the following:

- A graph displaying the top 10 extensions and their size. Data less than 1 MB is not displayed in the graph. This could result in an empty graph if all data points are less than 1 MB.
 - A table below the graph displaying the extension and its following properties:
 - **Size** – The size of all the files with that extension. This property lets you see which types of files are using the most space on a volume.
 - **Count** – The number of files with this extension.
4. To filter by extension, enter the extension name and click the **Submit** button. See [Providing Expressions for the Filter Fields on page 52](#) for more information.
 5. If you want to view the extension groups for a volume, select the **Extension Group** filter. See [Viewing Extension Groups on page 53](#) for more information about creating, viewing, and removing extension groups.
 6. To view a listing of the files with the extension on the volume, click a volume in the Volume column in the table. The largest N and most aged N files with the extension are listed in the tabs “Largest Files” and “Aged Files.” The filename with path, size, and the accessed, modified, and created time are provided.

Extensions at the File Level

To view extensions at the file level, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Extensions** from the Select View menu.
4. Click an extension in the table.


File System Viewer displays Largest Files and Aged Files tabs, which provide the following information:

- File name
 - Size
 - Owner
 - Last accessed
 - Last modified
 - Created
 - Attributes – See [Providing Expressions for the Filter Fields on page 52](#).
5. To export the information to a comma, separated list, click **Export files to CSV**.

Note: If you attempt to view the CSV file in Microsoft Excel, keep in mind that Excel can only handle a limited number of records. If the file won't open in Excel, it may be necessary to bring the CSV file into a database. Another option is to break the CSV file into smaller pieces that Excel will be able to handle.

Aging Information for a Volume

To view aging information for a volume, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select the **Aging** view in the right pane.

By default the page displays the following information:

- A graph displaying in gigabytes the size of files that have been modified or used within the following time periods:
 - 0-30 days
 - 30-60 days
 - 60-90 days

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- 90-180 days
- 180 days-1 year
- 1-2 years
- 2-3 years
- 3-4 years
- 4-5 years
- 5+ years

For example, if two 3-GB files were modified within the last 30 to 60 days, 6 GB would be displayed for the 30-60 day label.

- A table displaying the number of files and their size in megabytes that have been accessed, modified, and created in the specified time periods, which are the same as those listed in the graph. To view this table, click the plus sign (+) to the left of the Show/Hide Aggregated Summary Details text.
- A table displaying by volume the number of files and their size in megabytes that have been created, modified or accessed within the specified time period. To determine which type of information you want displayed in the table, select **Accessed, Modified or Created** from the Age Distribution since last menu. Then click **Submit**.

Aging Properties for Individual Files

To view aging properties for individual files, follow these steps:


1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select the **Aging** view in the right pane.
4. Click the heading of an age group in the table.

You are shown a table listing the following information for the files in the age group:

- Size
 - Owner
 - Last accessed
 - Last modified
 - Created
 - Attributes. See [Viewing Attribute Details on page 73](#) for more information.
5. To save the aging details to a comma-separated list (CSV file), click **Export files to CSV**.

File Sizes on a Volume

To view information about file sizes on a volume, follow these steps:


1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select the **Sizes** view in the right pane.

The page displays the following:

- A bar chart displaying the size group distribution by usage or by count depending on the option selected.
 - **Usage.** It is the total size of all the files with the particular extension.
 - **Count.** It is the number of files with the particular extension.
- A table listing the number of files and the total size for each size group on each volume.

Individual File Sizes

To view detailed information about individual file sizes on a volume, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select the **Sizes** view in the right pane.
4. To obtain more detailed information about a size group, click its corresponding heading in the table:

A table is displayed showing the following information about each file in the size group:


- Size
- Owner
- Last accessed
- Last modified
- Created
- Attributes. See [Viewing Attribute Details on page 73](#) for more information.

Note: Data less than 1 MB is not displayed in the graphs. This could result in an empty graph if all the data points are less than 1 MB.

5. To save the details to a comma-separated list (CSV file), click **Export files to CSV**.

Users on a Volume

To view information about users on a volume, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Users** from the Select View menu.

The user account names displayed on this page are obtained by the following methods:

- The management server scanning the file servers.
- Information imported through LDAP servers. For more information about importing users through LDAP, see [Importing User Information from LDAP and Active Directory Servers on page 26](#).
- Users created through the Create User tool in File System Viewer. For more information about creating users in File System Viewer, see [Adding File System Viewer Users on page 58](#).

The page displays the following:


- A graph showing the top five users by usage and the amount of space they use.
- A summary table to the right of the graph displaying the following:
 - **Users** – The number of users assigned to all of the file servers monitored.
 - **Users Size** – The amount of space the users use.
 - **Largest User** – The user who uses the most space.
 - **Largest User Size** – The amount of space the largest user uses.
- A table below the graph displaying the users and the following properties:
 - **User ID** – The ID of the user
 - **User Name** – The name of the user
 - **Home Directory** – The home directory of the user. The home directory is assigned to a user by the user's organization. By default, the user has full access rights (read, write, execute) to the home directory. A user can have multiple home directories.
 - **Owner** – The owners who are associated with the user. A user can have multiple owners.
 - **Department Number** – The number of the department to which the user is assigned. The department number was entered when the department was created in Chargeback.
 - ***User Status** – The user's status. User Status information will be displayed for users retrieved from Active Directory; however, the Edit option will not be displayed for them.
 - ***Manager** – The name of the user's manager.
 - **Quota** – The amount of space the user is allocated.
 - **Used** – The amount of space the user is using.

*The User Status and Manager columns are populated when the information is imported from an LDAP server. Users cannot add this information from within HP Storage Essentials.

To display the properties of just one user account or provide a wild cars, enter the full name in the Filter box, and then click **Submit**. For more information, see [Providing Expressions for the Filter Fields on page 52](#).

Ownership Information for a Volume

To view ownership information for a volume, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Ownership** from the Select View menu.

The following is displayed for the file server:


- A graph showing the top 10 owners, who use the most in megabytes.
 - A table displaying the following:
 - **Ownership** – The security identifier (Windows) or user identifier (UNIX).
 - **Size** – The total size of the files the security identifier or user identifier uses.
 - **Files** – The files that the security identifier or user identifier uses.
4. To filter by owner or by expression, enter the information in the Filter field, and click **Submit**. For more information about filtering by expressions, see [Providing Expressions for the Filter Fields on page 52](#).

Trustee Information for a Volume

The Trustee view provides the following:

- A graph listing the top 10 trustees by size.
- A table listing the following for each trustee:
 - Size
 - Directories

To access the Trustee view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Trustee** from the Select View menu.

To filter the information for one or more trustee, provide the name of the trustee or provide an expression in the Filter field and then click **Submit**. For more information about expressions, see [Providing Expressions for the Filter Fields on page 52](#).

For information about viewing detailed trustee data, see [Viewing Detailed Trustee Data on page 70](#). For information about how the trustee data is collected, see [How Data is Calculated in the Trustee View on page 71](#).

Scan Status for Volumes

The Scan Status view displays detailed information from the scans for a volume. This information is also available from the Scan Status tab, which is accessed by selecting **Configuration > File System Viewer**. You will also see information at the level of the file server. For detailed information about scan status information, see [Scan Status Tab on page 25](#).

The Explorer View

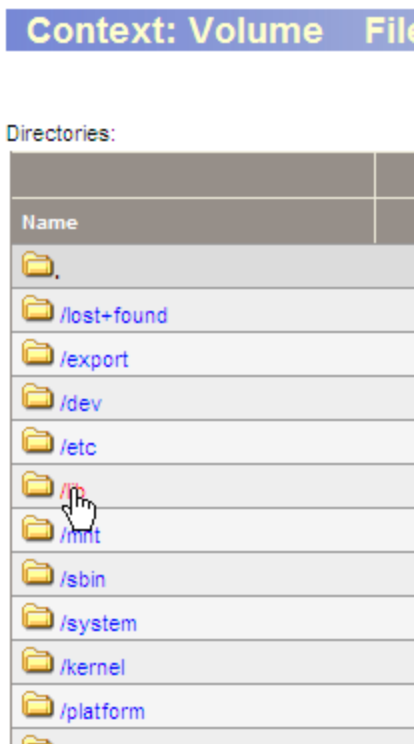
The Explorer view provides the following information:

- A table providing the following information about the directories on the volume:
 - Current directory information:
 - Size of the current directory in megabytes
 - Number of directories in the current directory
 - Number of files in the current directory
 - Current directory and subdirectories information:
 - Size of the current directory and its subdirectories in megabytes.
 - Number of directories in the current directory and its subdirectories in megabytes.
 - Number of files in the current directory and its subdirectories in megabytes.
 - When the current directory was created.
 - When the current directory was modified.
 - When the current directory was last accessed.
 - Attributes of the current directory. See [Viewing Attribute Details on page 73](#) for more information about attributes.
- A table listing the files that are at the top-level of the current directory and the following information about them:
 - Size in megabytes.
 - Owner.
 - When the file was created.


- When the file was last modified.
- When the file was last accessed.
- Attributes of the file. See [Viewing Attribute Details on page 73](#) for more information about attributes

Note: On Windows, the file owner listed for an encrypted file will be the account running the CIM extension service (usually the host's local administrator account).

To view the directory's files and subdirectories, click the name of the directory in the first table:




To access the Explorer view, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).
3. Select **Explorer** from the Select View menu.

Directory Dashboard Details on a Volume

To view directory dashboard details, follow these steps:

1. Click **File System Viewer** () in the left pane.
2. Select a volume, as described in [Setting a Context on page 47](#).

3. Select **Explorer** from the Select View menu.
4. Click the **Directory Dashboard Details** link located above the first table.

File System Viewer provides the following detailed information at your fingertips in the directory dashboard details page for files.

The Directory Dashboard provides the directory size and the number of files in the directory. This information can be found under the name of the directory:



When you access the Directory Dashboard, you are shown the following tabs:

- **Aging** – A table displaying the number of files and their size in megabytes that have been accessed, modified, and created in the specified time periods, which are the same as those listed in the graph.
- **Extensions** – A table displaying the extension and its following properties:
 - **Size** – The size of all the files with that extension. This property lets you see which types of files are using the most space on a volume.
 - **Count** – The number of files with this extension.
- **Sizes** – A table listing the number of files and the total size for each size group on each volume.
- **Aged Files** – A table listing the following properties of a file:
 - Size
 - Owner
 - When the file was last accessed
 - When the file was last modified
 - When the file was created
 - Attributes. See [Viewing Attribute Details on page 73](#) for more information.

Files are listed by age with the oldest files displayed first.

- **Largest Files** – A table listing the following properties of a file:
 - Size
 - Owner
 - When the file was last accessed
 - When the file was last modified

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- When the file was created
- Attributes. See [Viewing Attribute Details on page 73](#) for more information.

Files are listed by size with the largest files displayed first.

- **Trustee** – A table listing the following for each trustee:
 - Trustee's Share
 - Permissions

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