Plan using File Analytics

XCP

NetApp
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Plan your data migration

Plan your data migration using File Analytics.

XCP is a CLI, whereas File Analytics has a GUI.

Overview

XCP File Analytics uses the XCP scan API to collect data from NFS or SMB hosts. This data is then displayed on XCP File Analytics GUI. There are three main components involved in XCP File Analytics:

- XCP service
- File Analytics database
- File Analytics GUI to manage and view data

The deployment method for XCP File Analytics components depends on the solution required:

- Deploying XCP File Analytics solutions for NFS file systems:
  - You can deploy the File Analytics GUI, database, and XCP service in the same Linux host.
- Deploying XCP File Analytics solutions for SMB file systems:
  You must deploy the File Analytics GUI and database in a Linux host and deploy the XCP service on a Windows host.

Access File Analytics

File Analytics provides a graphical view of scan results.

Log in to the File Analytics GUI

The XCP File Analytics GUI provides a dashboard with graphs for visualizing File Analytics. The XCP File Analytics GUI is enabled when you configure XCP on a Linux machine.

To check the supported browsers for accessing File Analytics, see the NetApp IMT.

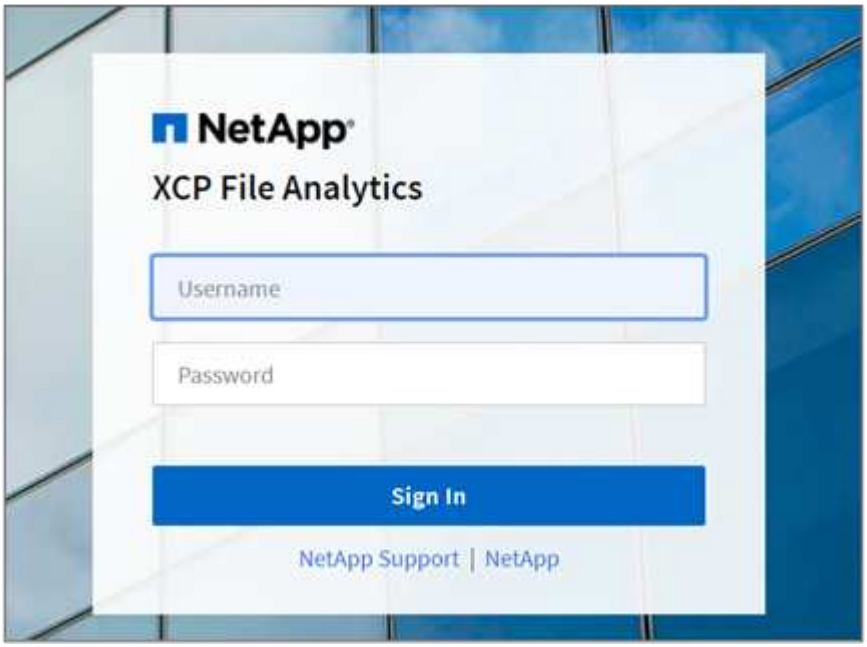
Steps

1. Use the link `https://<IP address of linux machine>/xcp` to access the File Analytics GUI. When prompted, accept the security certificate:
   a. Select **Advanced** below the privacy statement.
   b. Select the **Proceed to `<IP address of linux machine>`** link.
2. Log in to the File Analytics GUI.

   There are two ways to log in to the File Analytics GUI:

Log in using user credentials

a. Log in to the GUI using the user credentials obtained when you installed File Analytics.



b. Optionally, change the password to your own password.

If you want to change the password obtained during installation to your own password, select the user icon and select **Change password**.

Your new password must be at least eight characters in length and contain at least one number, one upper case letter, one lower case letter, and one special character (! @ # $ % ^ & * - _).

After changing the password, you are automatically logged out of the GUI and you must sign in again using the new password that you created.

Configure and enable SSO capability

You can use this login capability to set up XCP File Analytics on a particular machine and share the web UI URL enterprise-wide, allowing users to log in to the UI using their single sign-on (SSO) credentials.

SSO login is optional and can be configured and enabled permanently.
To set up Security Assertion Markup Language (SAML) based SSO login, see Configure SSO credentials.

3. After logging in, you can see the NFS agent; a green tick is present showing minimal system configuration of the Linux system and XCP version.
4. If you have configured an SMB agent, you can see the SMB agent added in the same agent card.

Configure SSO credentials

The SSO login functionality is implemented in XCP File Analytics using SAML and is supported with the Active

Directory Federation Services (ADFS) identity provider. SAML offloads the authentication task to the third-party identity provider (IdP) for your enterprise which can utilize any number of approaches for MFA (multifactor authentication).

Steps

1. Register the XCP File Analytics application with your enterprise identity provider.

   File Analytics now runs as a service provider and therefore must be registered with your enterprise identity provider. Generally, there is a team in the enterprise that handles this SSO integration process. The first step is to find and reach out to the relevant team and share the File Analytics application metadata details with them.

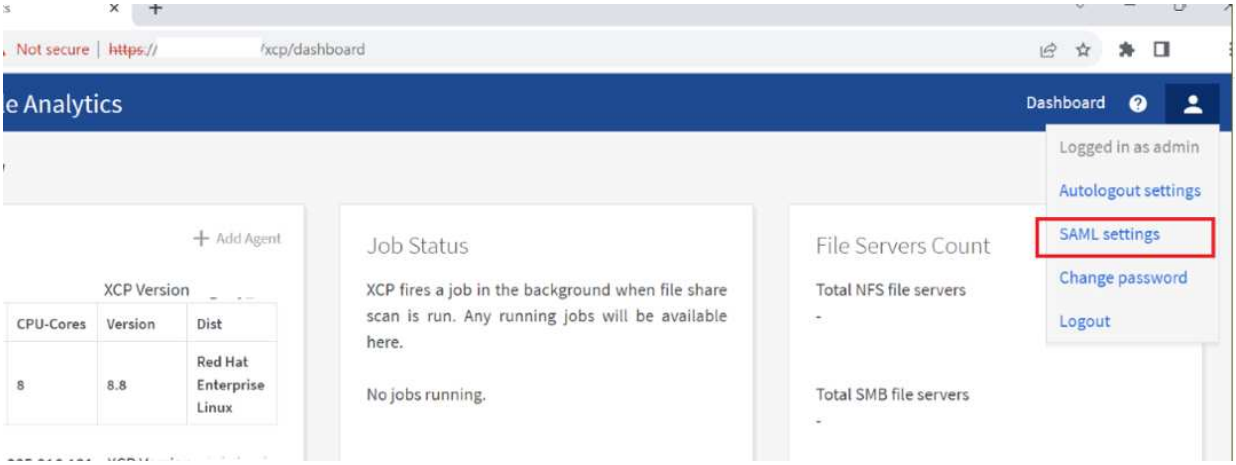
   The following are the mandatory details that you must share to register with your identity provider:

   - **Service provider entity ID:** `https://<IP address of linux machine>/xcp`
   - **Service provider Assertion Consumer Service (ACS) URL:** `https://<IP address of linux machine>:5030/api/xcp/SAML/sp`

     You can also verify these details by logging in to the File Analytics UI:

     a. Log in to the GUI using the steps described in Log in to the File Analytics GUI.
     b. Select the **User** icon on the top right corner of the page, then select **SAML settings**.

        Check **Service provider settings** in the drop down menu that appears.

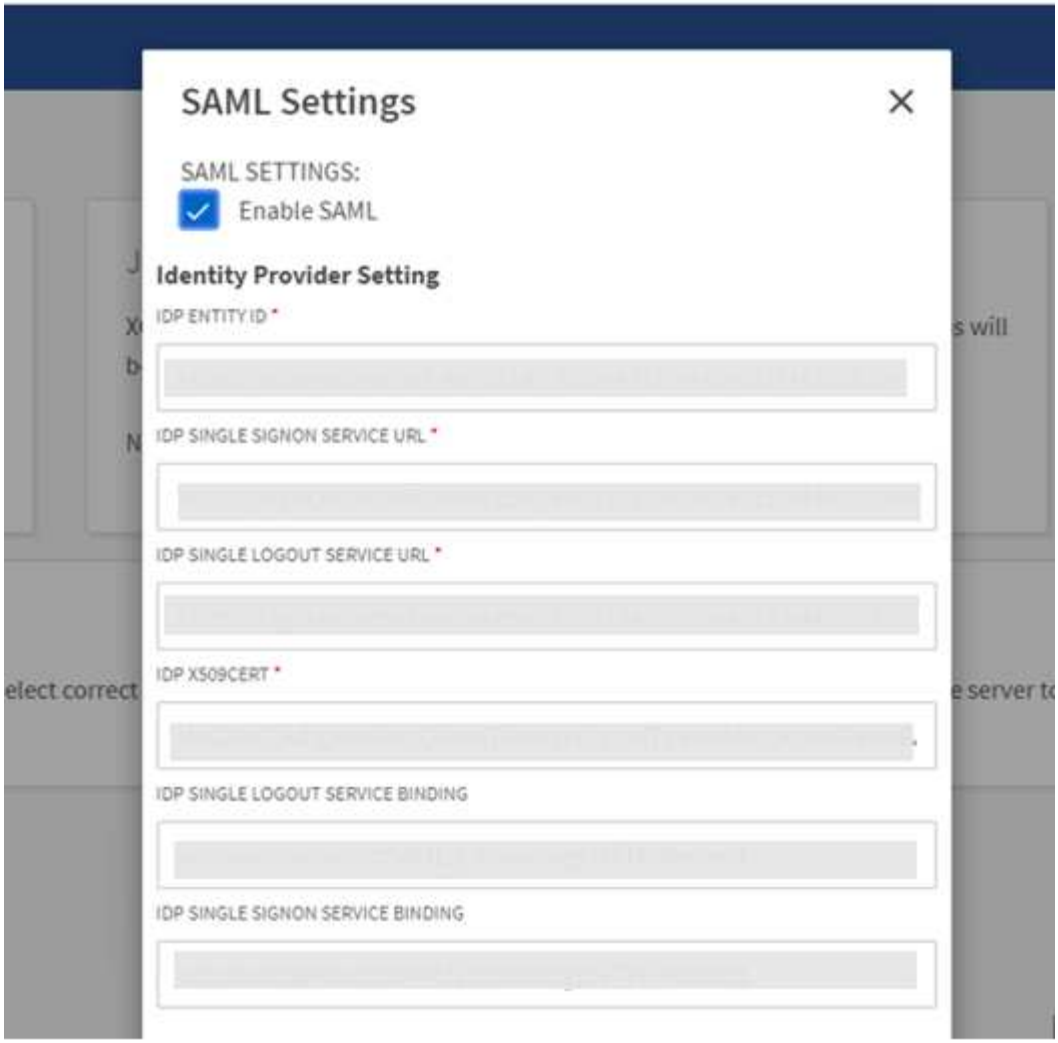


     After registration, you receive the IdP endpoint details for your enterprise. You are required to provide this IdP endpoint metadata to the File Analytics UI.

2. Provide the IdP details:

   a. Go to **Dashboard**. Select the **User** icon at the top right corner of the page and select **SAML settings**.
   b. Input the IdP details that you obtained after registration.

      Example



c. Select the **Enable SAML** checkbox to permanently enable SAML-based SSO.
d. Select **Save**.
e. Log out of File Analytics and log back in again.

   You are redirected to your enterprise SSO page.

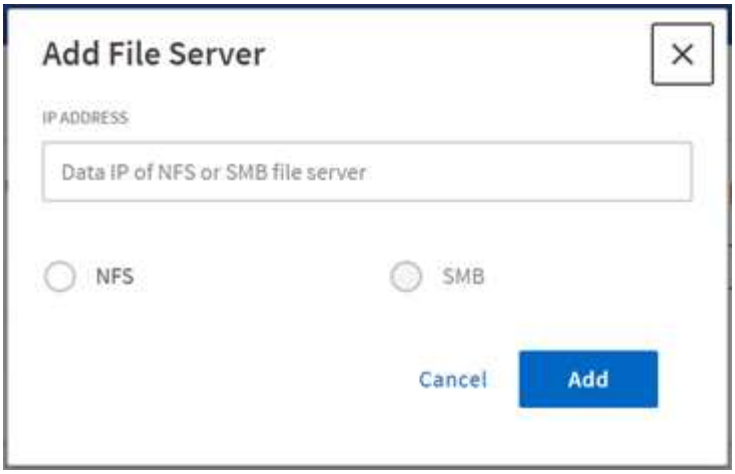
Add file servers

You can configure NFS and SMB exported file systems in the XCP File Analytics GUI.

This enables XCP File Analytics to scan and analyze data on the file system. Use the following steps to add NFS or SMB file servers.

Step

1. To add file servers, select **Add File Server**.



Add the file server IP address, select the NFS or SMB option and click **Add**.

If an SMB agent is not visible in the GUI, you will not be able to add SMB server.

After adding the file server, XCP displays:

- Total file shares available
- File shares with analytics data
  (The initial count is “0”, this updates when you run a successful scan)
- Total space utilization – the sum of space utilized by all the exports
- The data for file shares and space utilization is real-time data direct from the NFS/SMB server. Collecting and processing the data takes several seconds.

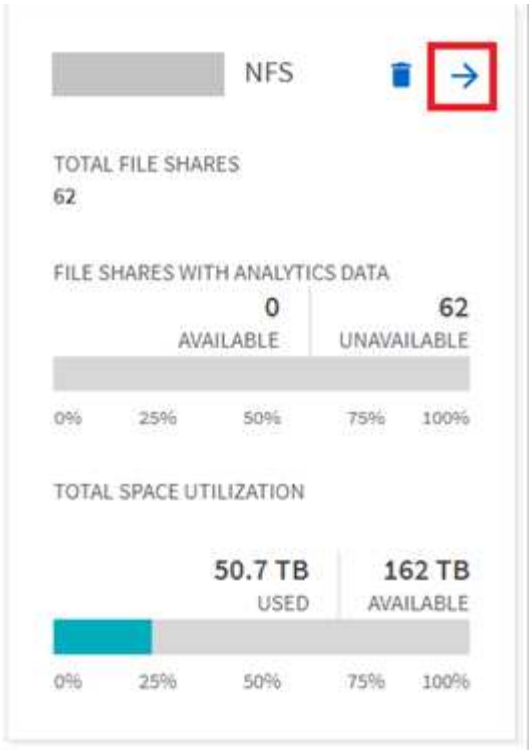
Space available versus space used in File Analytics is calculated from each exported file system available over NFS. For example, if the volumes consist of qtrees and the exports are created over a qtree, the overall space is the cumulative space of the volume size and the qtree size.

Run a scan

When the NFS/SMB files system is added to the XCP File Analytics GUI, you can start a file system scan to analyze and represent the data.

Steps

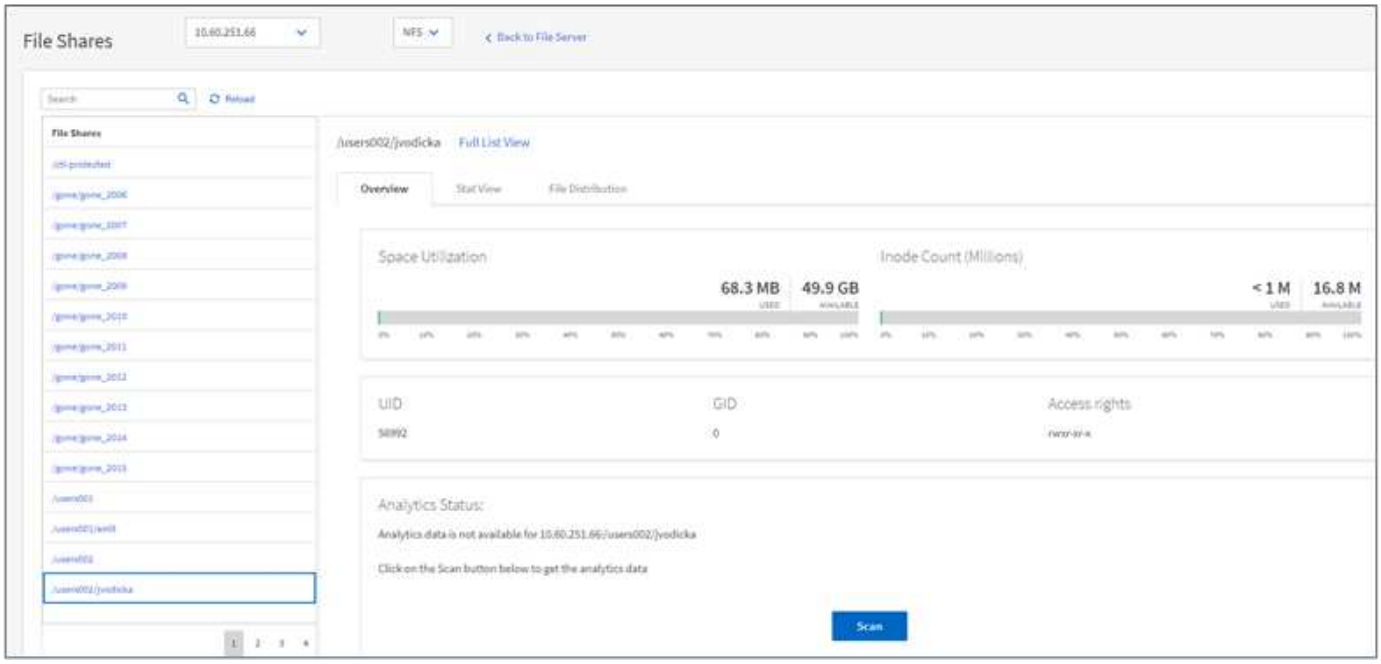
1. Select the arrow on the added file server card to view the file shares on the file server.



2. From the list of file shares, select the name of the file share to scan.
3. Select **Scan** to start the scan.

   XCP displays a progress bar for the scan.

4. When the scan is complete the **stat view** and **file distribution** tabs are enabled to allow you to view graphs.

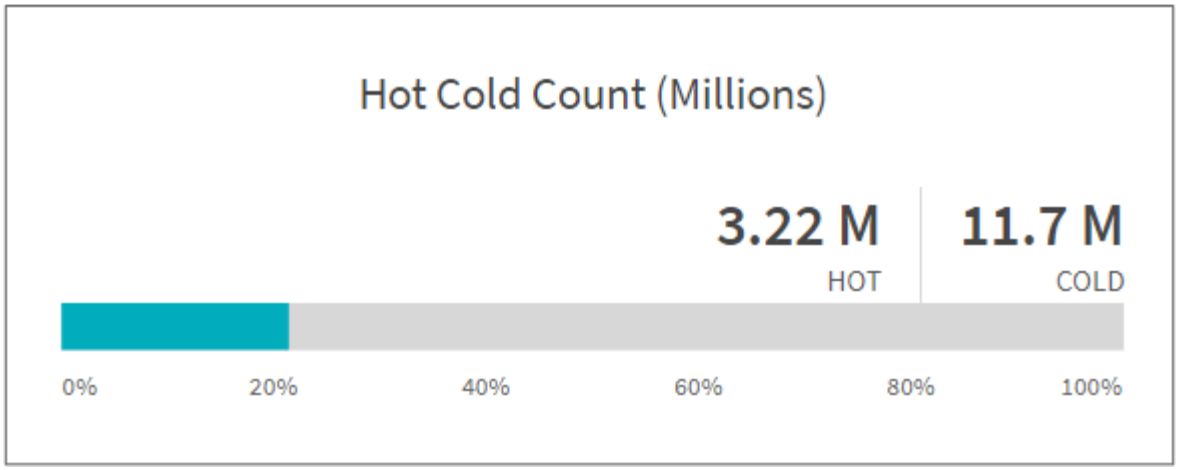


Learn about graphs

The File Analytics GUI dashboard displays multiple graphs for visualizing File Analytics.

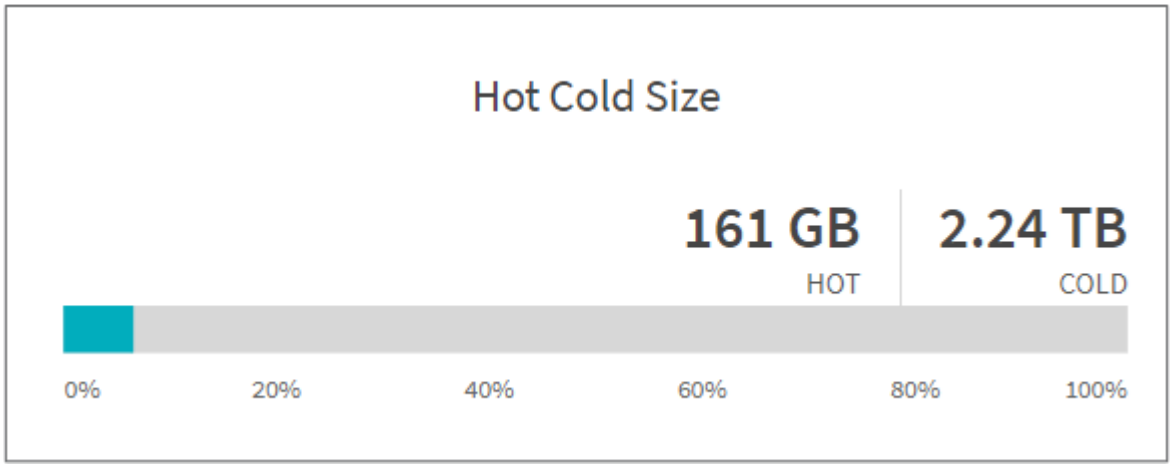
Hot Cold Count Graph

XCP File Analytics categorizes files not accessed for 90 days as cold data. Files accessed in the last 90 days are hot data. Criteria to define hot and cold data is based on access time only.



The Hot Cold Count graph displays the number of inodes (in millions) that are hot or cold in XCP NFS. In XCP SMB, this graph denotes the number of files that are hot or cold.
The colored bar represents the hot data and shows the percentage of files accessed within 90 days.

Hot Cold Size Graph



The Hot Cold Size graph displays the percentage of files that are hot and cold and the total size of the files in each category. The colored bar represents the hot data and the uncolored part represents the cold data. Criteria to define hot and cold data is based on access time only.

Entries in Directory Graph

The Entries in Directories graph displays the number of entries in directories. The Depth column contains different directory sizes and the Count column indicates the number of entries in each directory depth.

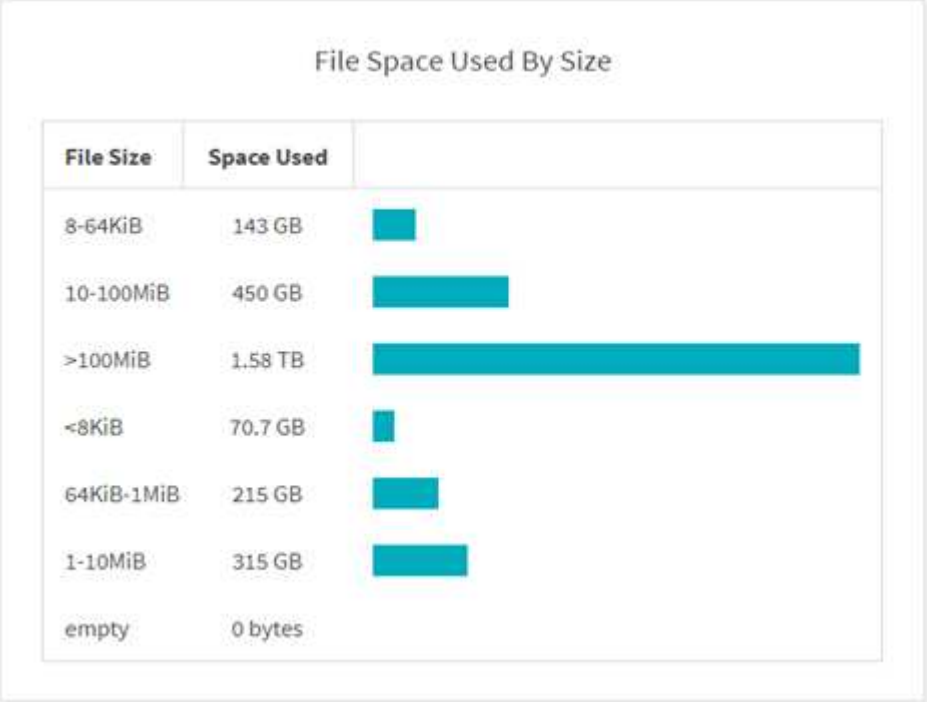
File Distribution by Size Graph

The File Distribution by Size graph displays the number of files that are under the given file sizes. The File Size column contains the categories of file size and the Count column indicates the distribution of the number of files.

Directory Depth Graph

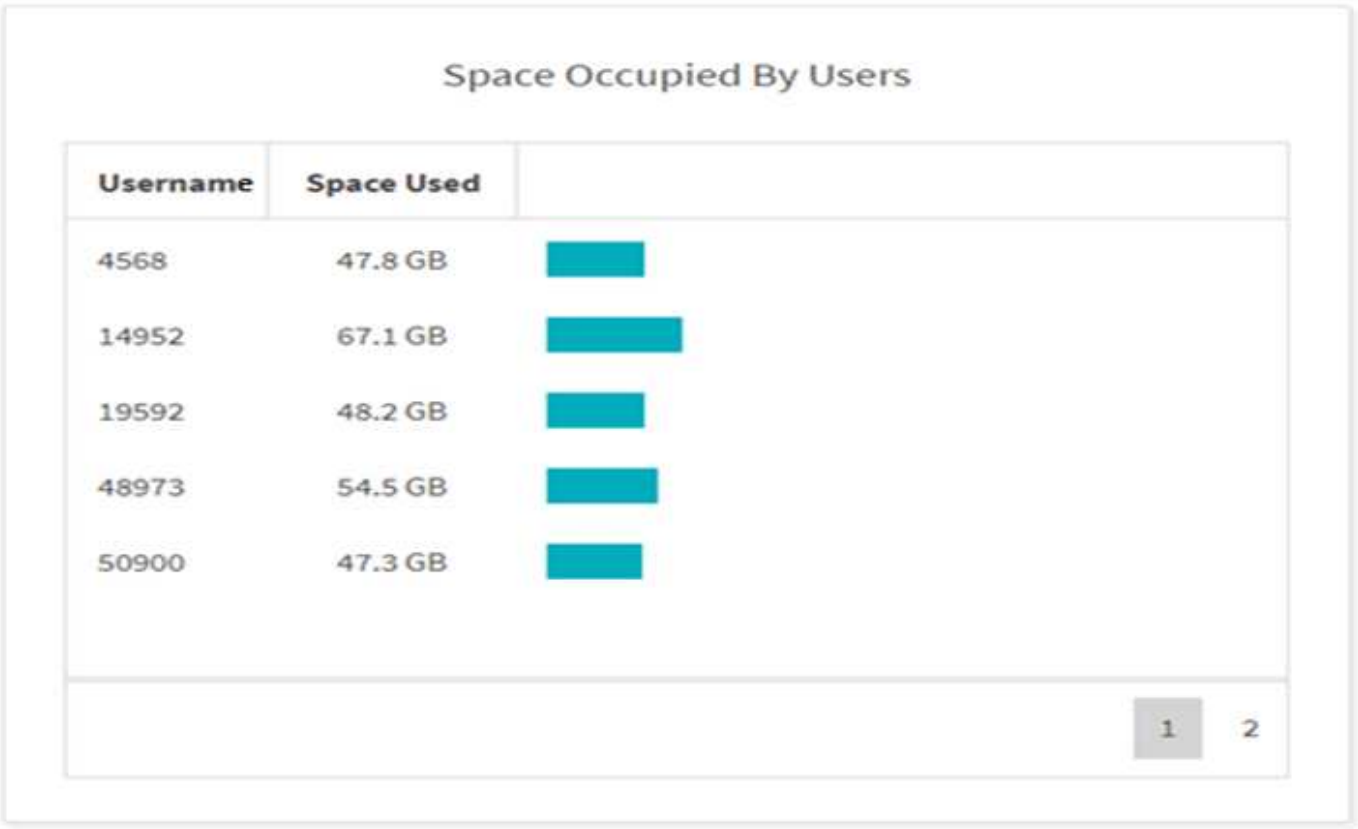
The Directory Depth graph represents the distribution of the number of directories in various directory depth ranges. The Depth column contains various directory depths and the Count column contains the count of each directory depth in the file share.

File Space Used by Size Graph



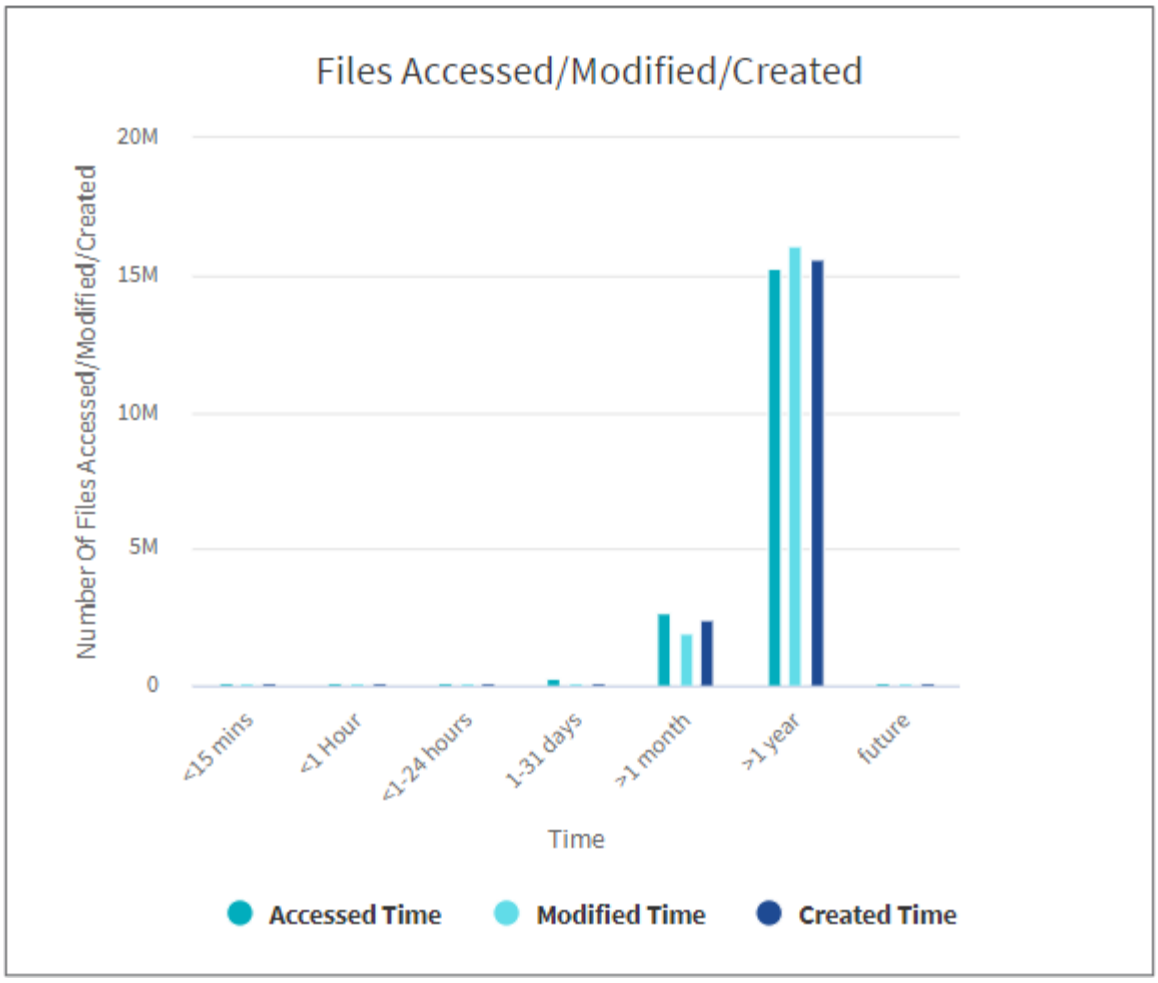
The File Space Used by Size graph displays the number of files in different file-size ranges. The File Size column contains different file size ranges and the Space Used column indicates the space used by each file size range.

Space Occupied by Users Graph



The Space Occupied by Users graph displays the space used by users. The Username column contains the names of users (UID when usernames cannot be retrieved) and the Space Used column indicates the space used by each username.

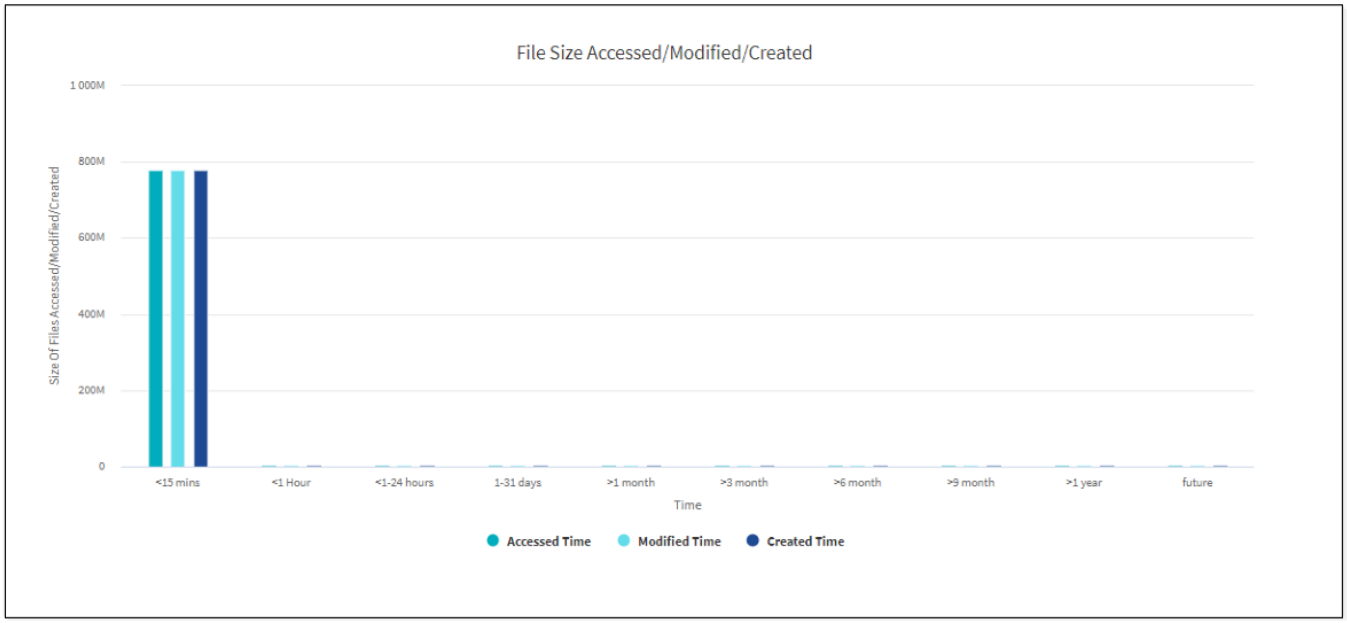
Files Accessed/Modified/Created Graph



The Files Accessed/Modified/Created graph displays the count of files changed over time. The X-axis represents the period of time within which changes were made and the Y-axis represents the number of files changed.

To get the access time (atime) graph in SMB scans, check the box for preserving atime before running a scan.

File Size Accessed/Modified/Created Graph



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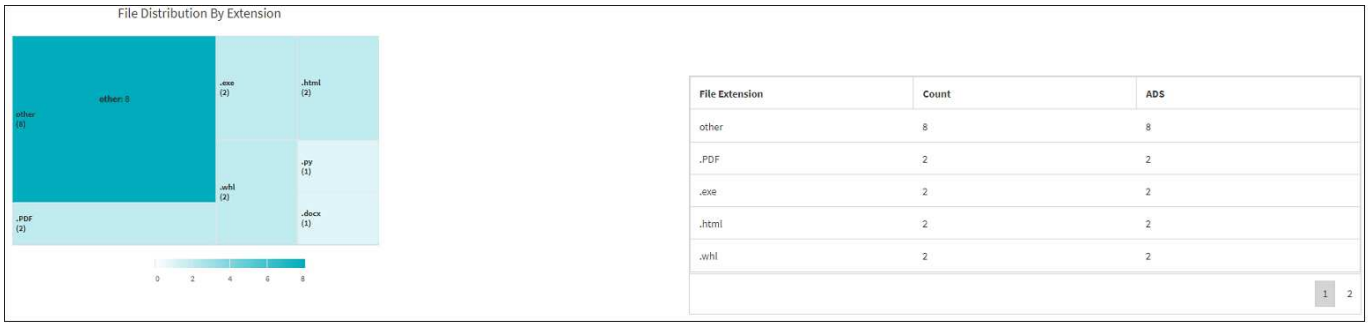
File Distribution by Extension Graph

The File Distribution by Extension graph represents the count of the different file extensions in a file share. The size of the divisions representing the extensions is based on the number of files with each extension.

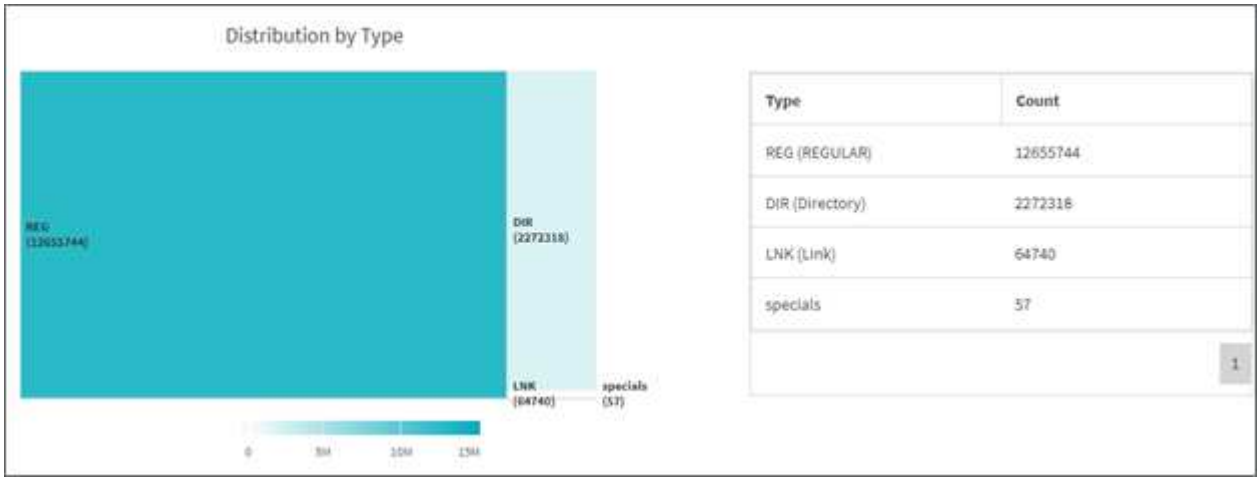
Additionally, for SMB shares, you can get the number of Alternate Data Streams (ADS) files for each file extension by checking the box for ADS before running a scan.



File Size Distribution by Extension Graph

The File Size Distribution by Extension graph represents the cumulative size of the different file extensions in a file share. The size of the divisions representing the extensions is based on the size of files with each extension.

File Distribution by Type Graph



The Distribution by Type graph represents the count of the following types of files:

- REG: Regular files
- LNK: Files with links
- Specials: Files with device files and character files.

- DIR: Files with directories
- Junction: Available in SMB only

Additionally, for SMB shares, you can get the number of Alternate Data Streams (ADS) files for different types by checking the box for ADS before running a scan.

Type	Count	ADS
REG (REGULAR)	18	18
DIR (Directory)	1	2
LNK (Link)	0	0
specials	0	0
junction	0	0

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