Wasabi Cloud NAS Administration Guide

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Preface

About This Guide

This Guide provides details about Wasabi Cloud NAS features with procedures for new and experienced users.

Conventions

This document uses the following typographical conventions:

Convention	Description
IMPORTANT	Stresses the importance of the information presented.
NOTE	Calls attention to additional information or an explanation.
Bold Text	Used to indicate specific text that you need to enter (key in) or a button that you need to click.
Italics Text	Used to indicate titles of books or sections within this document, and for general emphasis.

Technical Support

The Wasabi web site has the latest product information. Use this resource to review product information, download software updates, contact technical support, access the Wasabi knowledge base, or provide feedback on Wasabi documentation and online help:

www.wasabi.com

Use this email address to contact a Wasabi Customer Support representative:

support@wasabi.com

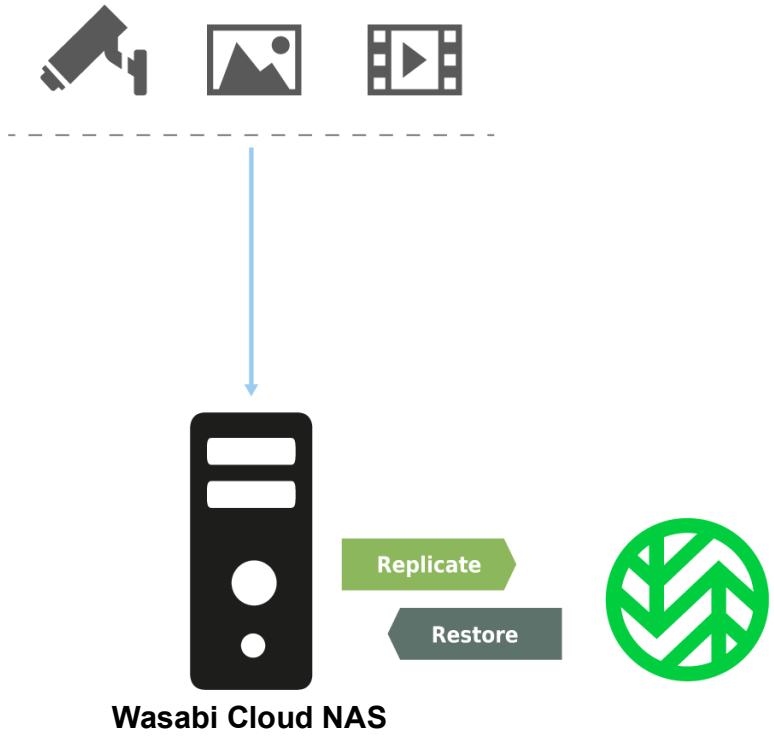
1 Overview

Wasabi Cloud NAS manages data across heterogeneous storage tiers. It lets you pair a source (locally mounted NTFS volume or an NFS/SMB network share) with a target (a Wasabi Cloud NAS storage bucket) into a seamless unity. Wasabi Cloud NAS takes care to automate the assignment of data to the source or the bucket tier, based on user-defined policies, thus addressing various work flow challenges—from alignment of data with storage costs, transparent data migration, and synchronization between storage devices or geographically dispersed places, to extending your primary storage on the cloud and gateway to object storage.

This chapter includes:

How Wasabi Cloud NAS Works

As soon as you install and activate Wasabi Cloud NAS on the computer, you can create as many pairs consisting of a source and a bucket storage system as you wish. While in most cases users and applications work directly on the source location, the virtual storage unity displays the contents of both the source and the bucket, as if it is stored locally. By applying one or more of the following data management mechanisms, Wasabi Cloud NAS distributes data among the two layers of the virtual unity:



Data Replication — Wasabi Cloud NAS copies a file from the source to the bucket. Automatic replication is performed based on user-defined criteria. You can also manually replicate a file or a whole folder from the source to the bucket, using the Wasabi Cloud NAS shell extension. While Data Replication is indispensable for all other data management mechanisms, it can also be used standalone for addressing the simplest sce-

narios, such as data backup and disaster recovery. To learn more, refer to "Configuring Automatic Data Replication," page 3-14.

Space Reclaiming — Wasabi Cloud NAS frees space on the source by replacing a replicated file with a nearline file. A nearline file is a stub file, which looks exactly like the actual file it replaces, but does not contain any data and does not take up space on your source. A nearline file points to the actual file on the bucket, which allows its retrieval back on the source. The retrieval from the bucket is automatic if a user, an application, or a process attempts to access the nearline file. Or, the retrieval can be manual through Wasabi Cloud NAS. Automatic Space Reclaiming is performed based on user-defined criteria. You can also perform manual Space Reclaiming, using the Wasabi Cloud NAS shell extension. The most common scenario with Space Reclaiming is alignment of data with storage costs. To learn more, refer to "Configuring Space Reclaiming," page 3-19.

IMPORTANT: With a NAS source, nearline files are located in the control folder and not on the network share. Still, retrieving a nearline file in the control folder will retrieve it directly on the NAS source. To learn more about Space Reclaiming on NAS sources, refer to "NAS Source Prerequisites and Setup," page 3-4.

Active Sync — The contents of multiple sources is automatically synchronized, each on a different computer running Wasabi Cloud NAS through a common bucket. Designed to facilitate geo replication scenarios, this mechanism allows you to select whether to synchronize the contents across all sources paired with the same bucket or set some sources to update their contents with updates from other sources. To learn more, refer to "Configuring Active Sync," page 3-25.

Data Synchronization — Wasabi Cloud NAS allows you to manually synchronize the contents of a bucket with its source. In case Wasabi Cloud NAS detects that a file on the bucket is not available on the source, the synchronization mechanism automatically creates a nearline counterpart for the missing file. Manual Data Synchronization facilitates scenarios involving data migration from one source to another and disaster recovery of data. For more information, refer to """Synchronizing Data on the Source and the Bucket," page 5-3.

In combination with additional configuration parameters, Wasabi Cloud NAS can be deployed for any of the following purposes:

- Data backup and disaster recovery
- Alignment of data with storage costs
- Extending local storage or a file server's storage capacity to Wasabi

- Interfacing object storage
- Geo replication

Data Protection

While Wasabi Cloud NAS gains programmatic access to your data at the source location and the bucket location, it takes care to prevent unauthorized access to it both when at rest and in transit.

To gain access to any Wasabi Cloud NAS functions, you need to authenticate yourself as the administrator of the computer on which Wasabi Cloud NAS runs. For more information, refer to "Wasabi Cloud NAS Interfaces," page 1-4.

- The Wasabi Cloud NAS work flow supports applying any Windows techniques for controlling access to and protecting data at rest at source level.
- Wasabi Cloud NAS does not require maximum privileges of the credentials used for access to the bucket and adopts the bucket's own mechanisms for ensuring credentials protection is not compromised.
- The credentials for access to the bucket are stored in the registry of the computer running Wasabi Cloud NAS and are encrypted using Advanced Encryption Standard with Wasabi's 256-bit key.
- Data in transit to cloud buckets is protected, allowing users to benefit from secure transfer (SSL/TLS) and also relying on the bucket provider's mechanism for protecting data in transit.

NOTE: Wasabi encourages you to use any applicable best practices for data protection specified by Microsoft Windows and by Wasabi.

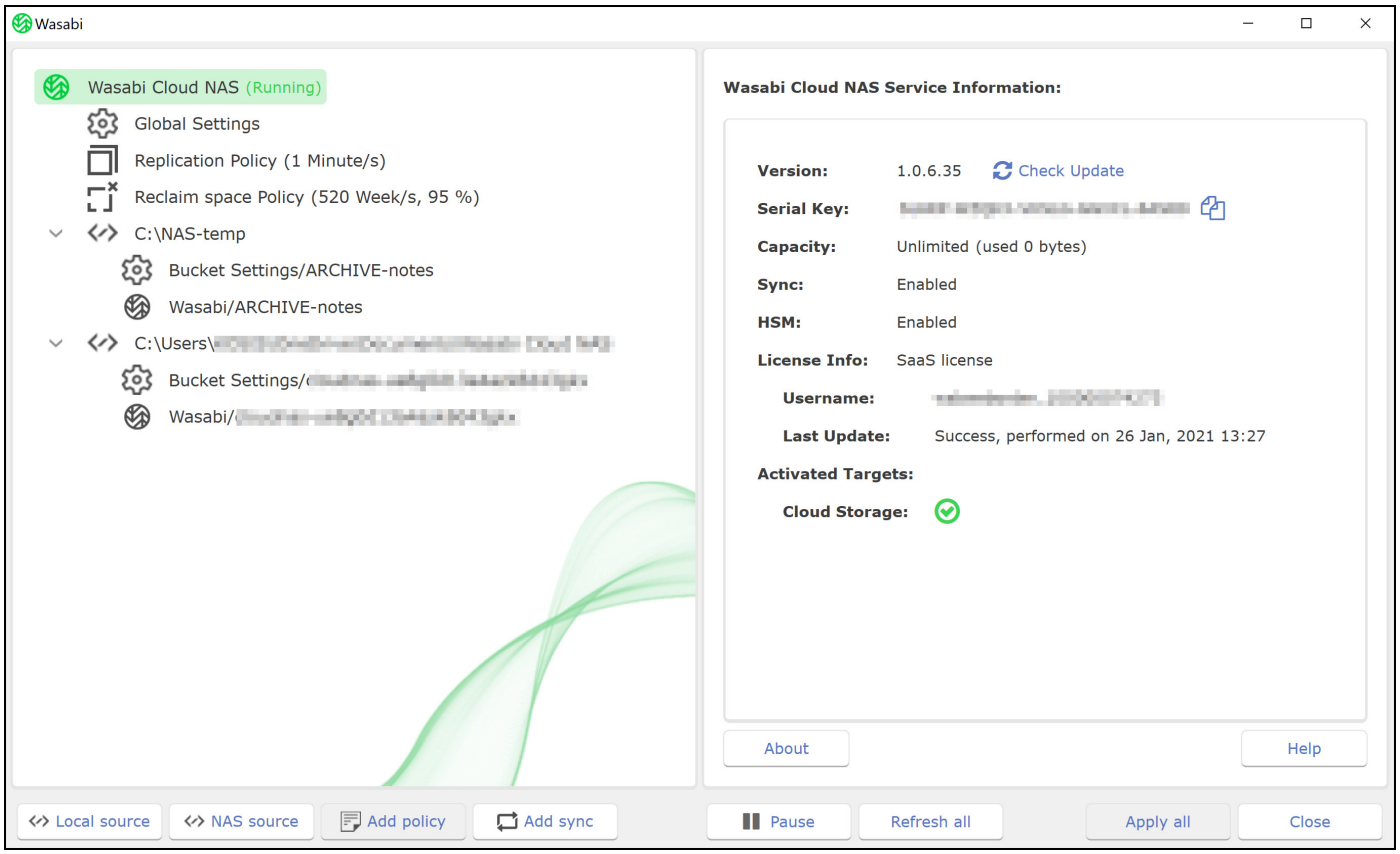
Wasabi Cloud NAS Interfaces

Wasabi Cloud NAS Configuration Interface

Use the Wasabi Cloud NAS Configuration interface to create pairs of source and bucket, and to configure the automatic data management mechanisms valid for all pairs or just for a specific pair.

NOTE: You need to run the Wasabi Cloud NAS Configuration interface as an administrator in order to apply changes to the product settings.

NOTE: To access the Wasabi Cloud NAS Configuration interface, you need to run it as administrator. Double-click the Wasabi Cloud NAS Configuration interface shortcut on the desktop.



Wasabi Cloud NAS Shell Extension

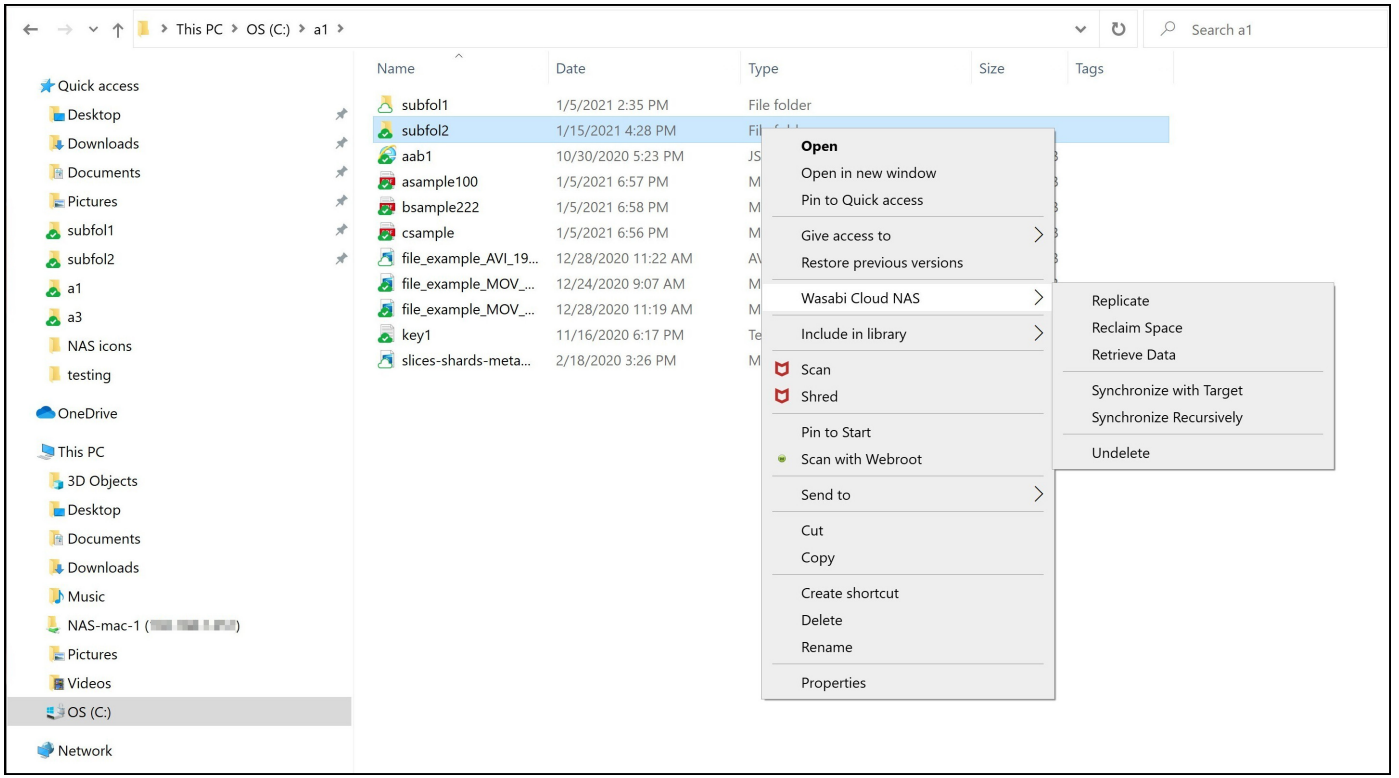
The shell extension of Wasabi Cloud NAS is integrated with Windows Explorer and displays the status of files and folders on your source—replicated or nearline. The shell extension also allows you to perform manual data management operations, using the Wasabi Cloud NAS menu in the Windows Explorer context menu. For more information, refer to "Managing Data Through the Shell Extension," page 5-2.

NOTE: Use NTFS permissions to control who can manage data at source level through the Wasabi Cloud NAS shell extension.

The shell extension can be installed during Wasabi Cloud NAS installation or later, following the same steps. To access the Wasabi Cloud NAS shell extension context menu:

1. In Windows Explorer, navigate to a source paired with a bucket.

2. Right-click the file/folder you want to manage and, in the context menu, select the respective command under Wasabi Cloud NAS.



Windows Event Viewer

To let you monitor its activity, Wasabi Cloud NAS logs all bucket/source connectivity events in the Windows Event Viewer. You can preview the logs by navigating to Applications and Services Logs | OpenSSH| Wasabi Cloud NAS. You can also use a third-party tool to automate the processing of notifications about important events.

Wasabi Cloud NAS can be configured to log an event each time a file is replicated or replaced with a nearline file, when a nearline file is retrieved from the bucket or when the status of a directory on the source is changed (replicated or nearline), following the steps in "Managing Wasabi Cloud NAS Logs," page 4-7.

Wasabi Cloud NAS logs three types of events in the Windows Event Viewer:

- **information**—logs information about successfully performed operation.
- **warning**—logs an unsuccessful attempt to perform an operation. Warning logs signify a temporary problem and Wasabi Cloud NAS attempts to perform the operation again until it either succeeds or reaches the threshold of scheduled attempts, after which it logs an error.
- **error**—logs a failure to perform an operation. Error logs signify a problem, which requires that you intervene in order to resolve it.

For a detailed description of each event logged by Wasabi Cloud NAS, refer to Chapter 6, *Wasabi Cloud NAS Logs*.

System Requirements

You can install Wasabi Cloud NAS on a computer that meets these minimum system requirements:

- PC with 64-bit (x64) processor
- 64-bit Microsoft Windows® 7/Server 2008 R2/Windows® 8/Server 2012/Server 2012 R2/Windows® 10/Server 2016/Server 2019

NOTE: Microsoft Windows® 7/Server 2008 R2 computers must run at least Service Pack 1 and have the KB976932 and the KB3033929 security updates installed.

- 4 GB of physical RAM at least
- 60 MB of available hard-disk space for installation

NOTE: Wasabi Cloud NAS keeps track of the files it manages in a database stored in the product installation folder. The size of the database grows proportionally to the number of files managed. For example, if Wasabi Cloud NAS manages 1,000,000 files, the size of the database is approximately 100MB. Unless there is enough free space for the database, Wasabi Cloud NAS is unable to operate.

- The following TCP ports must not be blocked by the firewall on the Wasabi Cloud NAS computer or the computer managing the inbound and outbound traffic on your network:
  - **443** – outbound rule only
  - **8536** – inbound and outbound rules
  - **8537** – inbound and outbound rules

Storage Requirements

Source Storage Requirements

Wasabi Cloud NAS supports the following sources:

- NTFS or ReFS volume, mounted on the computer running Wasabi Cloud NAS as a local volume with Read & Write permissions and on which the System account is granted Full Control

NOTE: You can use as a source the whole volume or just a folder on it. You cannot use as a source a folder whose parent folder is already paired with a bucket (i.e., is set as a source itself).

- SMB or NFS share accessible on the same network as the computer, running Wasabi Cloud NAS and a dedicated account (Active Directory domain or local account on the NAS appliance), which has Full Control (on Windows) or Read & Write permissions (on Linux) over each share, which will be used as a source

IMPORTANT: To use network storage as a source, for each network share you must prepare a shadow copy folder located on a locally mounted volume on the Wasabi Cloud NAS computer. The shadow copy folder is used only for storing stub file copies of the actual files on the network share and facilitates retrieving of data to the network share if you enable Space Reclaiming. For details about configuring a NAS source, refer to "NAS Source Prerequisites and Setup," page 3-4.

All sources can contain data prior to pairing them with their respective bucket.

2 Wasabi Cloud NAS Installation

Procedures in this chapter describe:

Installing Wasabi Cloud NAS

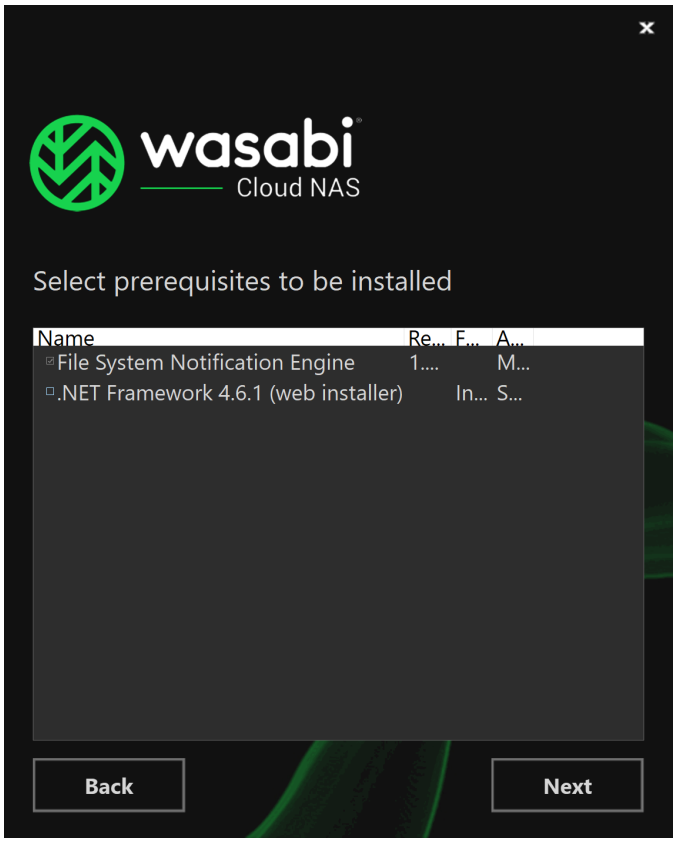
During Wasabi Cloud NAS installation, you can choose to install the following components:

- Wasabi Cloud NAS installs the product, the graphic interfaces for configuring the product.
- Shell Extension provides integration with Windows Explorer, allowing you to view the status of files and folders on your source (replicated or nearline), and to perform manual data management operations through the Windows Explorer context menu.

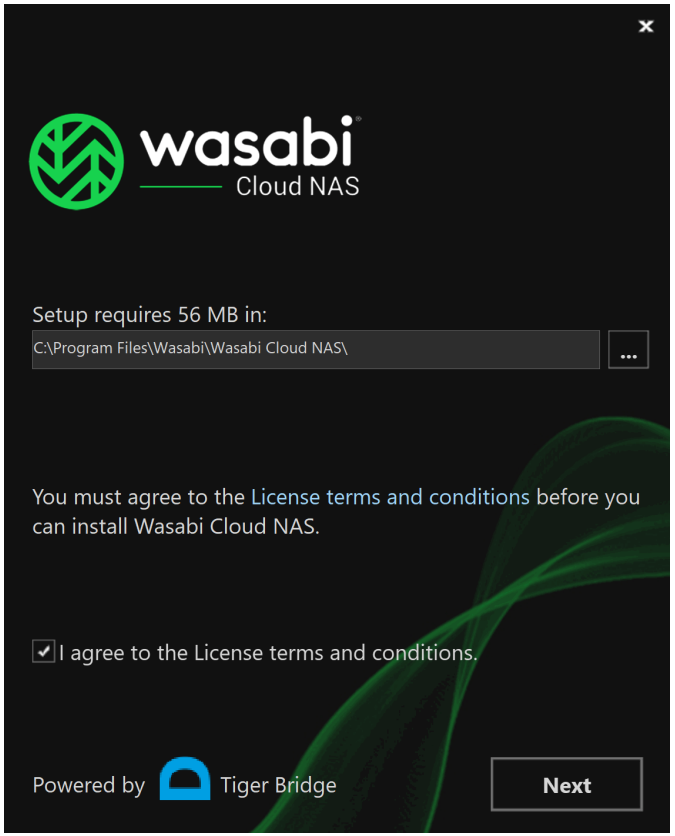
To install Wasabi Cloud NAS and additional components:

1 Double-click the Wasabi Cloud NAS installation file.

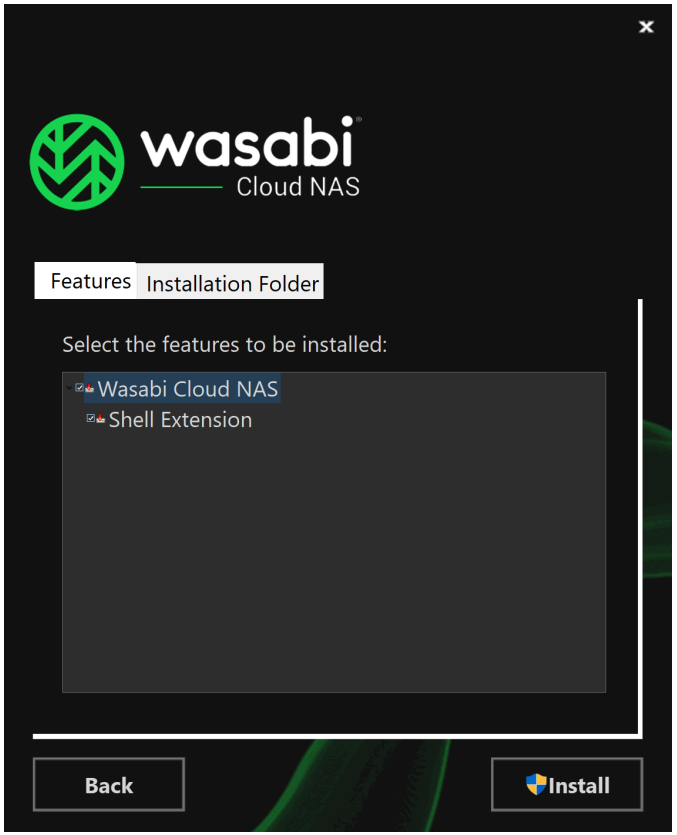
NOTE: If the setup wizard detects that prerequisites needed to run Wasabi Cloud NAS are not installed on the computer, click **Next** to install them. For example:



2 Select the folder where to install Wasabi Cloud NAS, accept the terms of the software license agreement, and click **Next**.



3 Make sure the check boxes of the Wasabi Cloud NAS components you want to install are selected and then click **Install**.



NOTE: If you clear the check box of a component, you can install it later, following the same installation steps.

4 When the installation is complete, click **Finish**.

The Wasabi Cloud NAS Configuration Wizard starts, allowing you to activate the product and perform the initial configuration.

Uninstalling Wasabi Cloud NAS

You can uninstall Wasabi Cloud NAS and/or any of the additional components at any time. After you uninstall Wasabi Cloud NAS, you will not be able to retrieve any replicated file, which has a copy only on the bucket, except by manually accessing the bucket. Wasabi Cloud NAS preserves the link between files on the source and the bucket and, if you install it again, you will be able to retrieve all your files from the bucket.

To uninstall Wasabi Cloud NAS or any of its components:

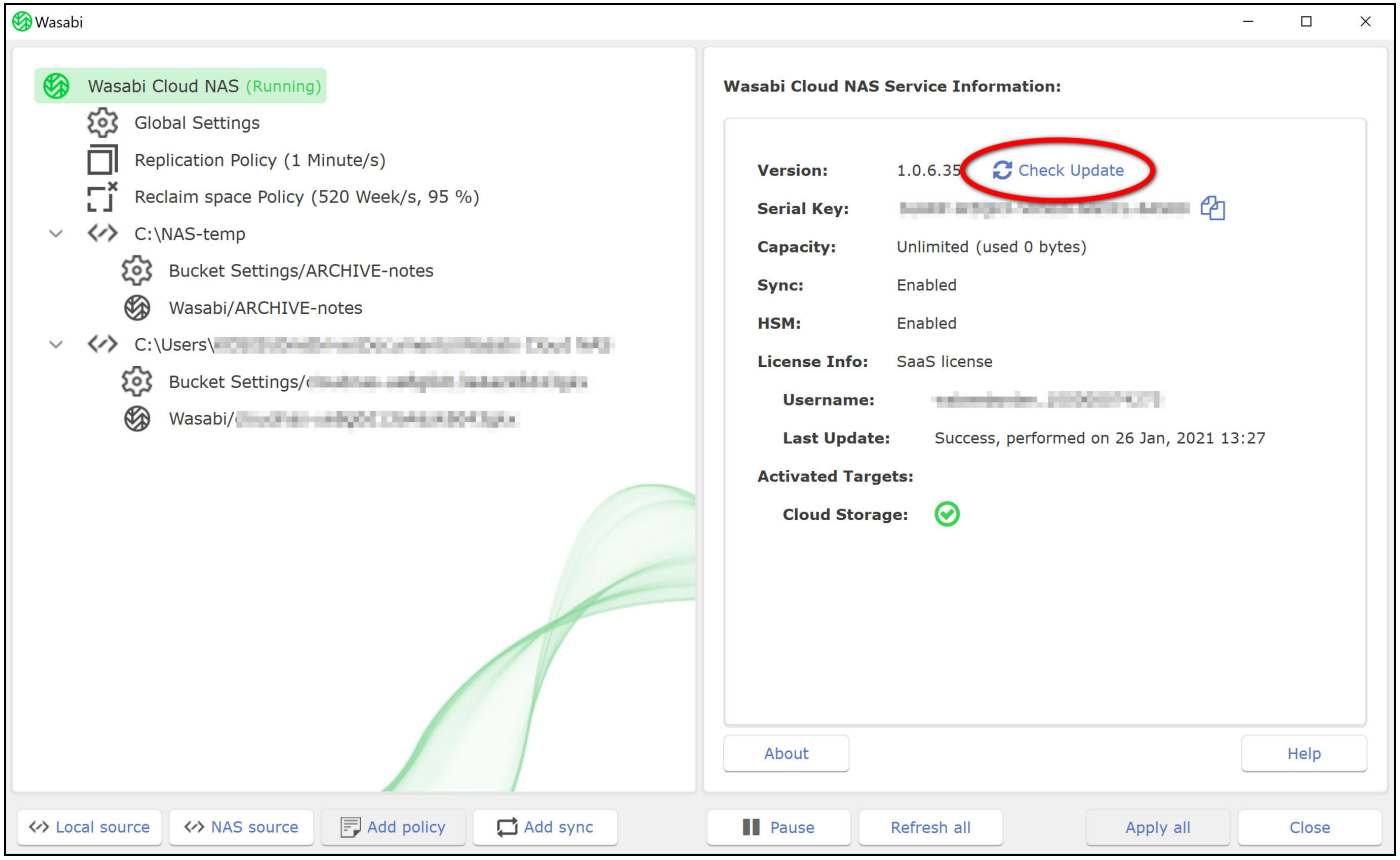
1. In the Control Panel, go to **Programs and Features**.
2. Right-click Wasabi Cloud NAS or any of its components and select **Uninstall**.
3. When prompted to confirm that you want to remove Wasabi Cloud NAS or any of its components from the computer, click **Yes**.

Updating Wasabi Cloud NAS

There is no need to uninstall Wasabi Cloud NAS when you want to upgrade it to a newer version. Simply run the new installation file on the computer running Wasabi Cloud NAS, following the steps in "Installing Wasabi Cloud NAS," page 2-1. All configuration settings will be preserved after the upgrade.

To use the Wasabi Cloud NAS Configuration interface to check for availability of a newer version:

1. Click **Wasabi Cloud NAS** in the left pane.
2. In the right pane of the Configuration, click **Check Update** in the Version section.



Wasabi Cloud NAS displays a dialog, showing you if a newer version is available and provides you with a link to the web page from which to download the installation file.

3 Using Wasabi Cloud NAS Configuration

Get started with Wasabi Cloud NAS Configuration by:

- "Activating Wasabi Cloud NAS," page 3-2
- "Pairing a Source with the Bucket," page 3-3
- "Configuring Bucket Settings," page 3-11
  Specify whether modifications of the file on the source should be kept each as a separate version on the bucket or the latest modifications should overwrite the previous one.
- "Configuring Automatic Data Replication," page 3-14
  Specify the files that are automatically replicated to the bucket. As Data Replication is indispensable for any Wasabi Cloud NAS workflow, a global replication policy governing all pairs of source and bucket is configured by default. The global replication cannot be deleted and you can change only its settings. You can overwrite the global replication policy for any pair of source and bucket.
- "Configuring Space Reclaiming," page 3-19
  Specify the replicated files that are to be replaced with nearline files on the source. You can configure global the Space Reclaiming policy, valid for all pairs of sources and buckets. You can also overwrite the global Space Reclaiming policy for any pair of source and bucket.

- "Configuring Active Sync," page 3-25 (geo replication)
  Specify when a source on one computer sends a notification to sources on other computers indicating that new data is replicated on the same bucket and also when a source updates its contents with files replicated on the same bucket from other sources. You can configure the global Active Sync policy, valid for all sources. You can also overwrite the global Active Sync policy for any source.
- "Configuring Operation Mode," page 3-31
  Specify whether or not Wasabi Cloud NAS should keep the copy on the bucket when a nearline file is retrieved back on the source, and whether or not to keep the replicated file on the bucket when its counterpart on the source is deleted.
- "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33

In addition, information is provided for:

- "Monitoring Data Management Statistics," page 3-34

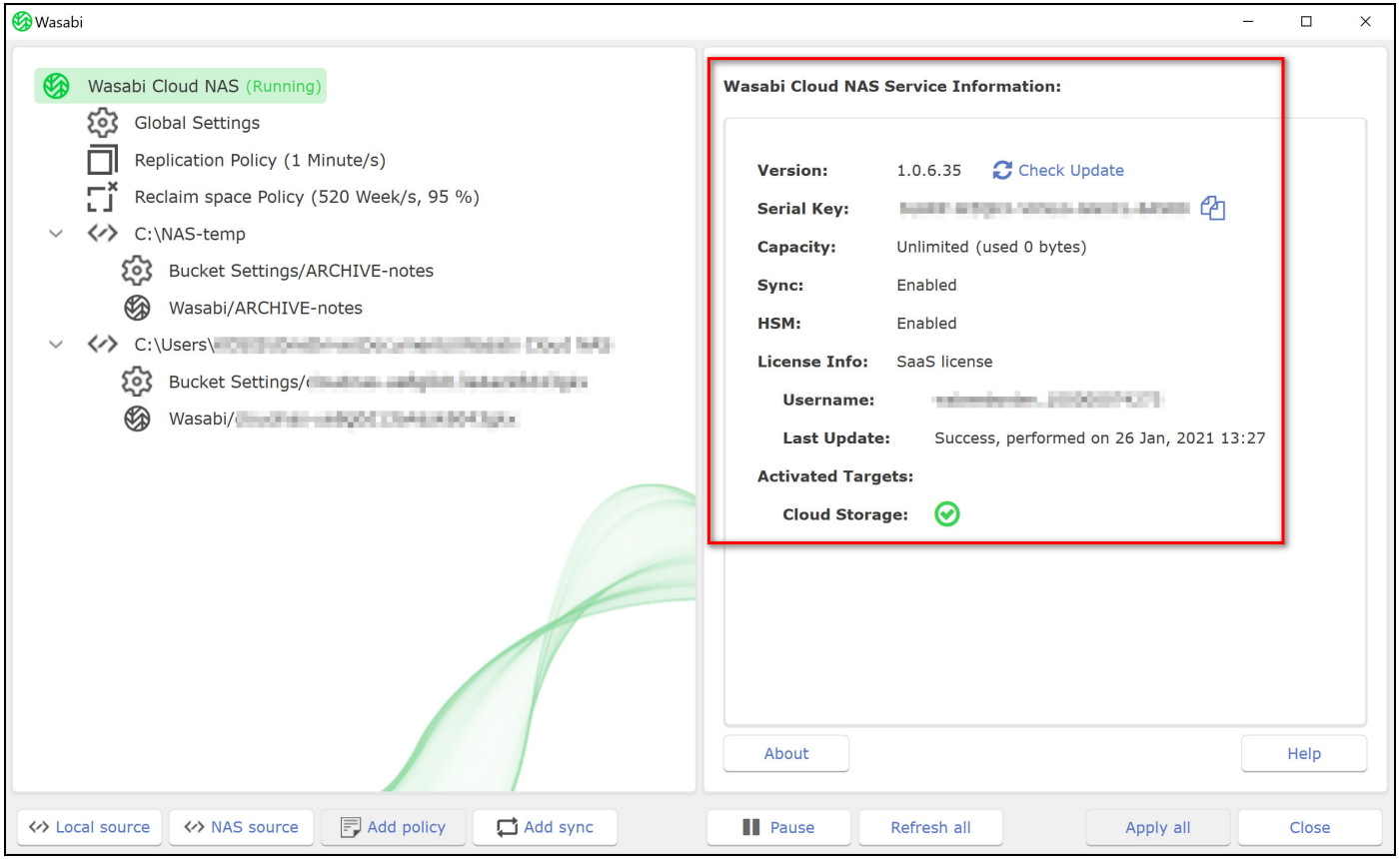
Activating Wasabi Cloud NAS

Checking the Activation Status

To view the activation status of Wasabi Cloud NAS on your computer:

1. Click **Wasabi Cloud NAS** in the left pane.
2. Check the Wasabi Cloud NAS service information displayed in the right pane.

NOTE: The **Check Update** button should be used to check for an update to the license (such as when a trial license is converted to a paid account).



Pairing a Source with the Bucket

For a source, you can use a locally mounted NTFS/ReFS volume, an SMB/NFS network share, or just a folder on the volume/share. You cannot use a folder as a source if the folder's parent folder is already paired with a bucket (i.e., is set as a source itself).

You can add as many sources as you wish.

NAS Source Prerequisites and Setup

For each network share you want to use as a source, you must assign an empty folder on a locally mounted volume on the Wasabi Cloud NAS computer. This folder is used as a shadow copy location and contains a copy of each file on the NAS source in the form of a stub file. The shadow copy folder acts as a gateway between the NAS source and the bucket.

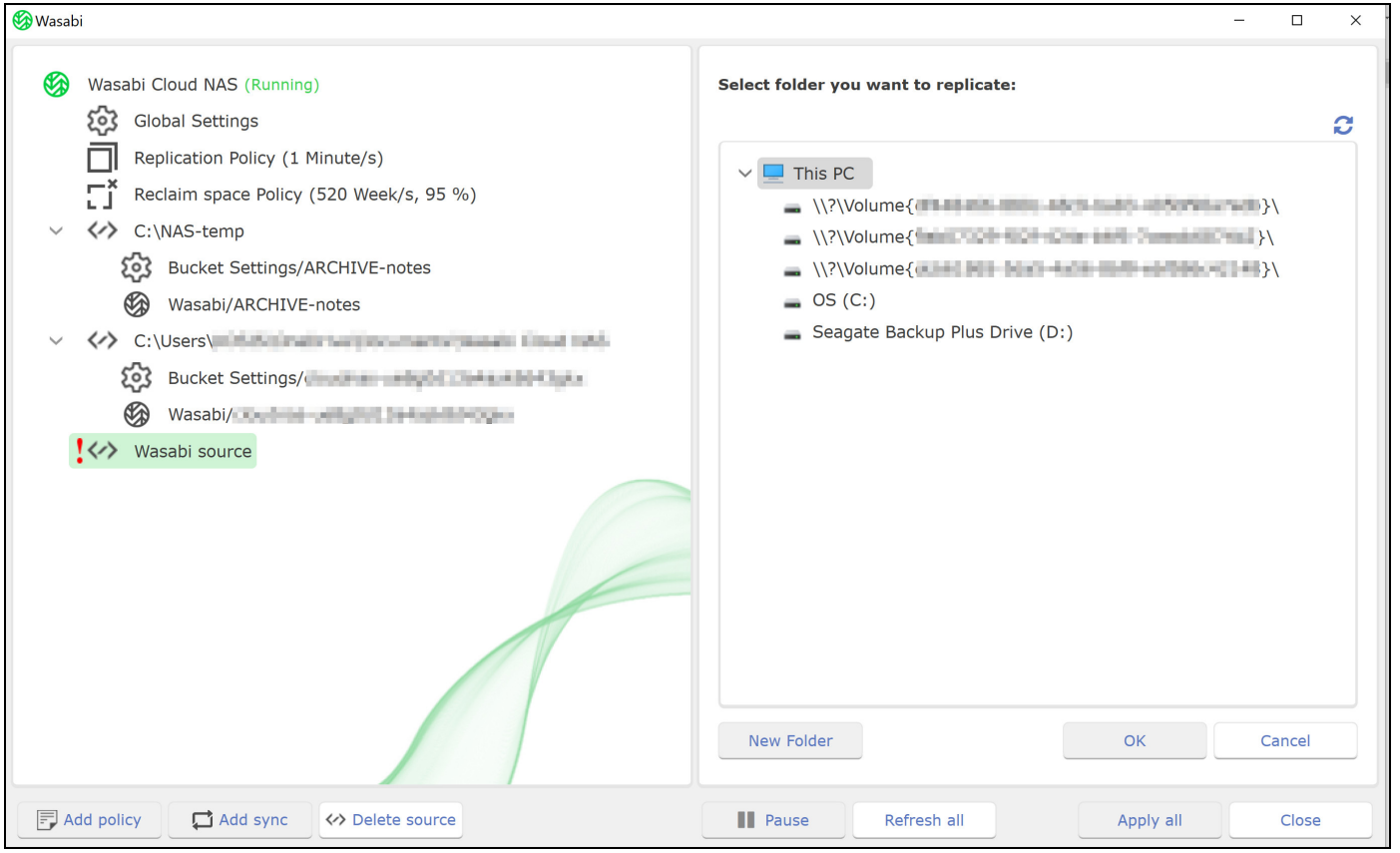
With Data Replication, there is no difference from local volume source. However, when the Wasabi Cloud NAS Space Reclaiming mechanism needs to replace the actual file on the NAS source with a stub file, it actually creates the stub file only in the shadow copy folder. This way, if you want to retrieve a nearline file manually, you need to perform the operation on the stub file located in the shadow copy folder. The same applies to the Active Sync mechanism unless you have configured the mechanism to automatically retrieve on the source synchronized data from other sources. When you need to synchronize the contents of source and bucket, you need to perform the operation on the shadow copy folder and all restored data will appear there in the form of stub files, which you can then manually restore on the NAS source.

As stub files are actually located only in the shadow copy folder, to allow retrieving them on demand, you must export the shadow copy folder as a SMB/NFS share on your network. Users and applications should then attempt to open a nearline file on the exported shadow copy folder in order to automatically retrieve it directly on the NAS source.

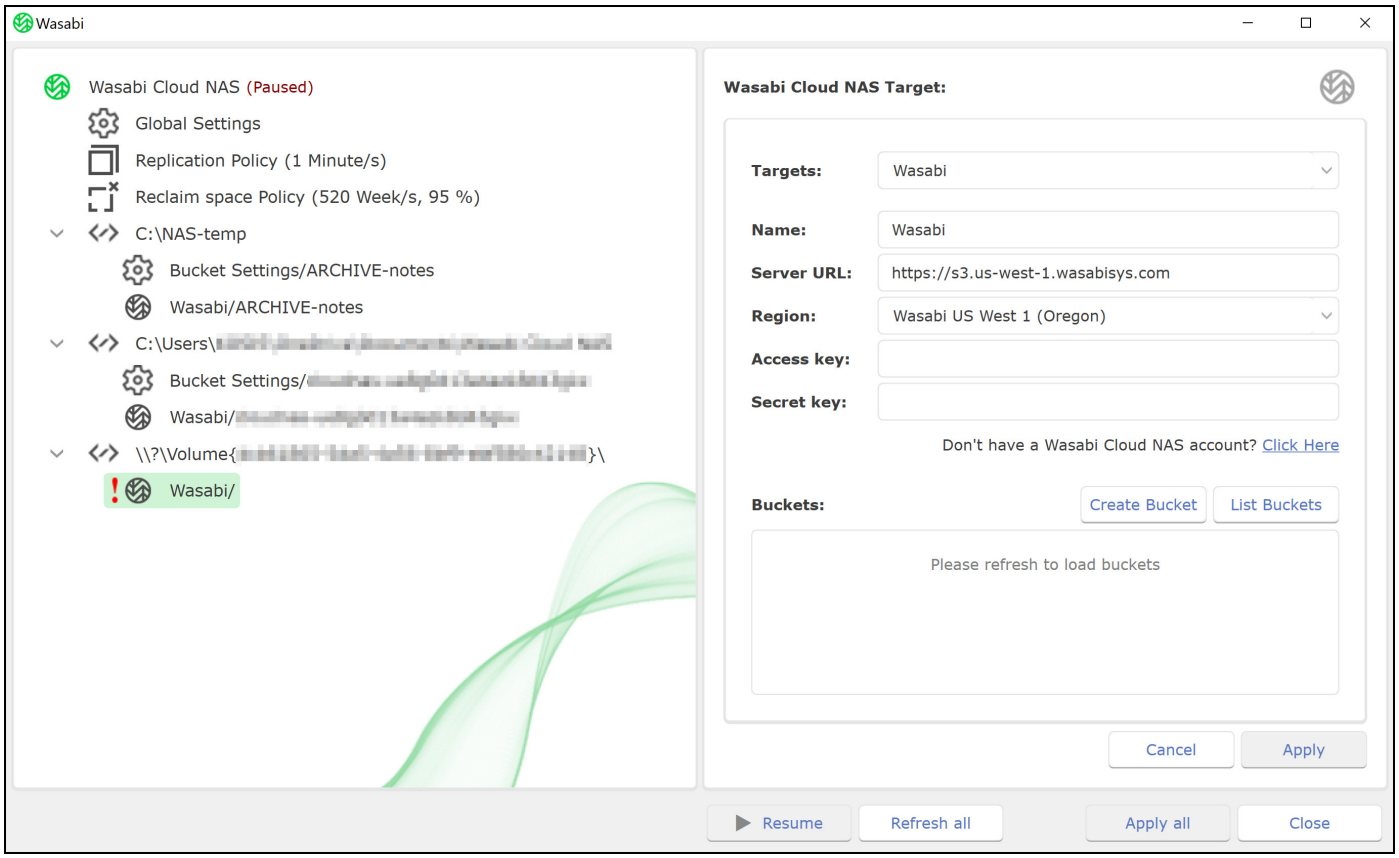
As a general rule, the capacity of the shadow copy folder must be at least 15% of the capacity of the NAS source itself.

Adding a Local Volume Source

1. In the Wasabi Cloud NAS Configuration interface, click **Wasabi Cloud NAS** in the left pane.
2. Click the **Local source** button at the bottom left of the window.
3. In the right pane, do one of the following:
   - To add a whole volume as a source, select the root of the volume and click **OK**.
   - To add an existing folder as a source, browse to and select the folder and click **OK**.
   - To create a new folder as a source, browse to the location where you want to create it, click **New Folder**, enter a name of the new folder, and click **OK**.


Wasabi
Wasabi Cloud NAS (Running)
Global Settings
Replication Policy (1 Minute/s)
Reclaim space Policy (520 Week/s, 95 %)
C:\NAS-temp
Bucket Settings/ARCHIVE-notes
Wasabi/ARCHIVE-notes
C:\Users\
Bucket Settings/
Wasabi/
Wasabi source
Select folder you want to replicate:
This PC
\\?\Volume{
\\?\Volume{
\\?\Volume{
OS (C:)
Seagate Backup Plus Drive (D:)
New Folder
OK
Cancel
Add policy
Add sync
Delete source
Pause
Refresh all
Apply all
Close

After you add a local source, you are ready to enter bucket information:

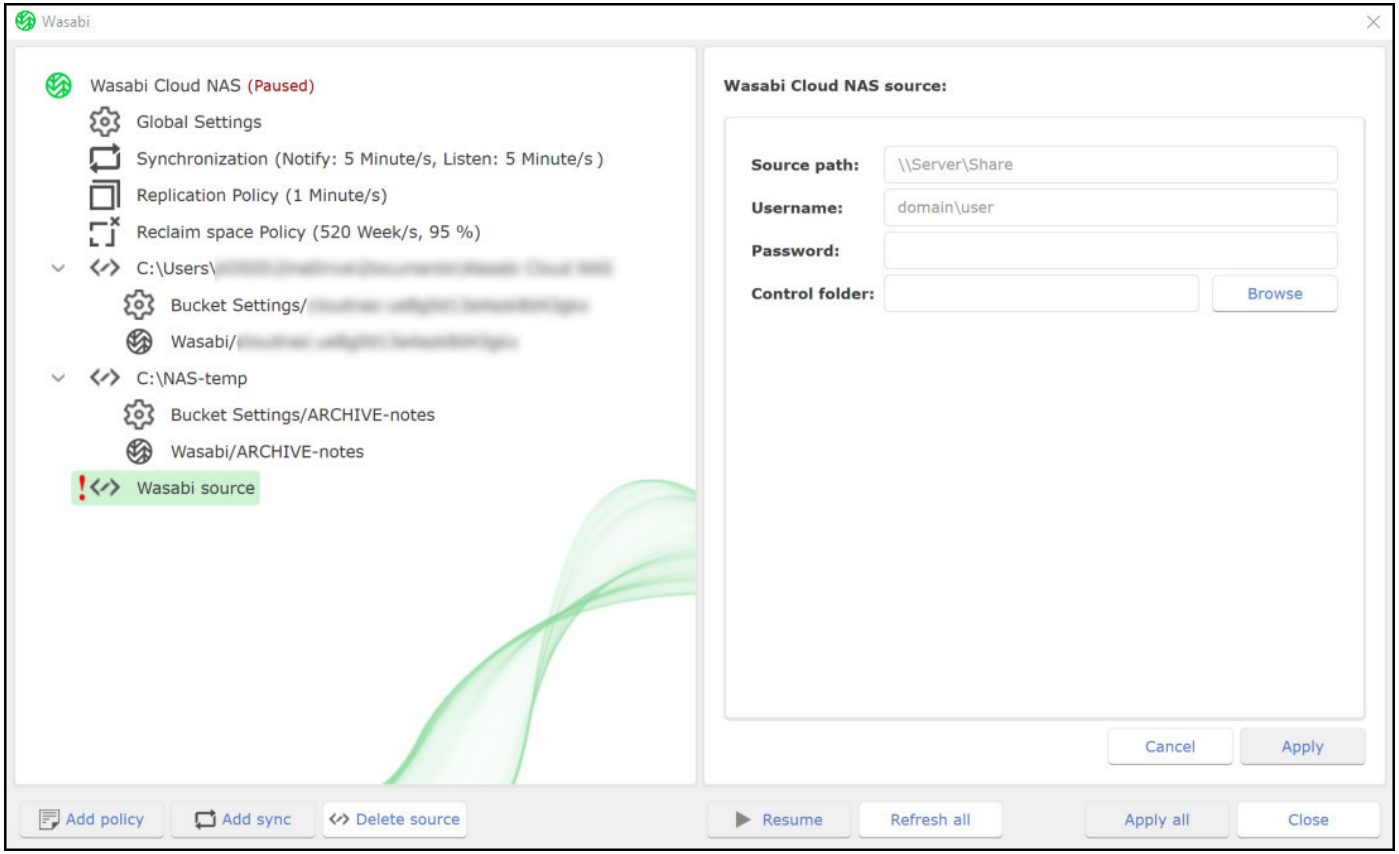


4 Continue with the steps for "Adding a Target," page 3-8.

Adding a NAS Source

1 In the Wasabi Cloud NAS Configuration interface, click **Wasabi Cloud NAS** in the left pane.

2 Click the **NAS Source** button at the bottom left of the window.



3 In **Source path**, enter the full path to the network share you want to use as a source.

4 Enter the **Username** and **Password** of a user with Full Control over the network share in the respective fields.

5 In **Control folder**, browse to and select a folder on a locally mounted volume to use as a shadow copy location.

6 Continue with the steps for "Adding a Target," page 3-8.

Adding a Target

1. In the right pane, enter a **Name** for the target.

TIP: Specifying a unique name of the target lets you reuse its parameters, when you pair another source with the same target. The target and its parameters will appear in the **Targets** drop-down box.

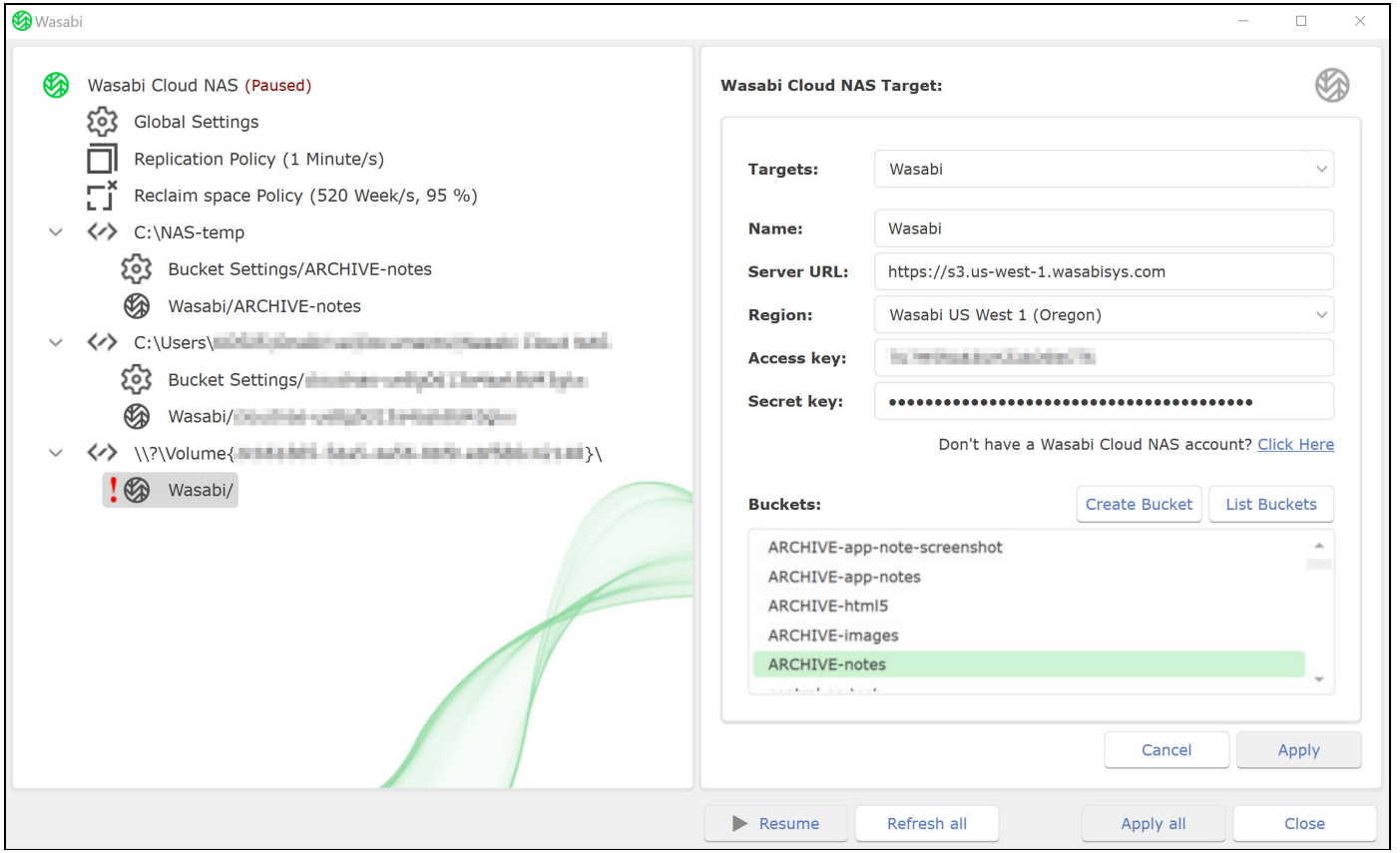
2. Select the **Region**. Based on the region you select, the **Server URL** is autopopulated.

3. Enter the **Access** and **Secret keys** of the Wasabi bucket.

4. You can perform one of these two options:

   - Create a new bucket by clicking **Create Bucket**. Then, enter a name for the new bucket. (For naming conventions , refer to https://wasabi-support.zendesk.com/hc/en-us/articles/115001405131-I-am-new-to-using-S3-style-cloud-storage-services-and-have-noticed-that-storage-bucket-names-must-be-unique-across-the-service-and-have-some-special-naming-requirements-why-is-that-)
   - Use an existing bucket. Click the **List Buckets** button and select a bucket from the list to pair it with the newly added source.

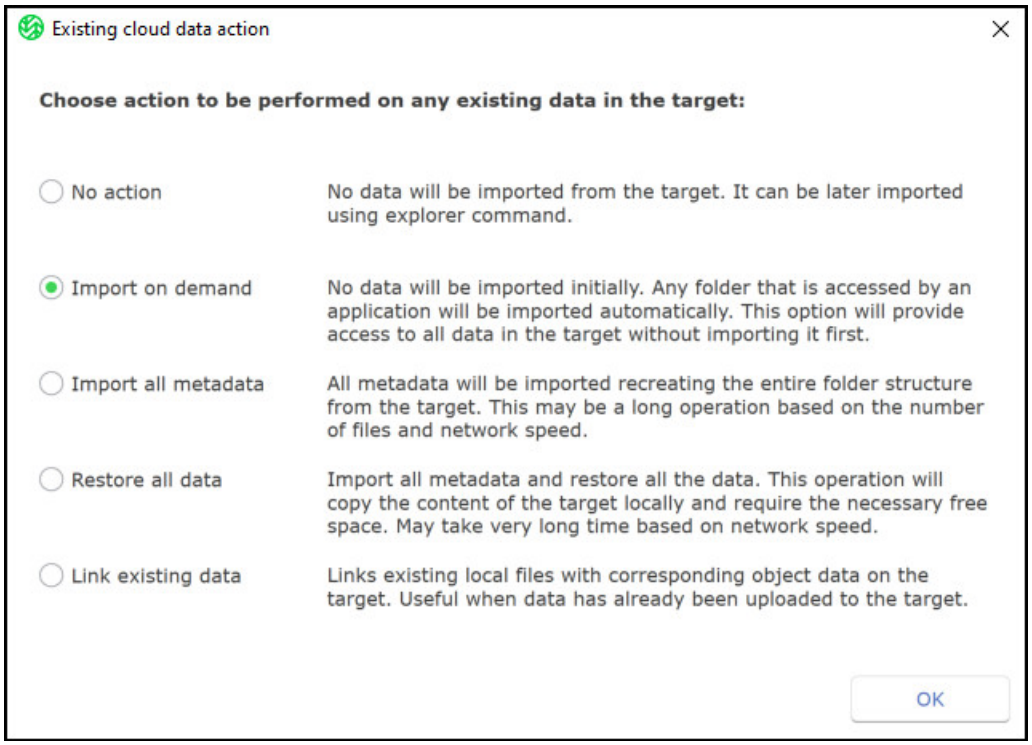
IMPORTANT: Do not use the same bucket for two or more sources on the same server.



5 Click **Apply**.

NOTE: If you do not have sufficient permissions to list all buckets on the bucket, enter the name of the bucket for which you have permissions in the respective field and then click **Apply**.

6 If you have existing data in the bucket, choose the action to be taken on that data:



When pairing the source with an object storage bucket, Wasabi NAS allows you to select what to do with already existing data in the bucket. You can choose between the following options:

- **No action**—No data will be imported on your source. You can import it later, following the steps in "Synchronizing Data on the Source and the Bucket," page 5-3.
- **Import on demand**—Wasabi NAS creates a stub file (nearline file) for each file from the bucket, only when you browse the containing folder on your source. For example, consider that there are two files ("one.xml" and "two.xml") and a folder "bucket folder" containing a file "three.xml" in the bucket. If you choose to import these on demand, once you browse the root of your source, Wasabi NAS will create stub files "one.xml" and "two.xml" as well as "bucket folder." The "bucket folder" will remain empty until you open it on your source at which time Wasabi NAS will create a stub file, "three.xml."

- **Import all metadata**—Your source will be populated with all folders and files from the bucket, but the files will be represented by stub files (nearline files), which you can retrieve either on demand (by attempting to open them) or manually through Wasabi NAS.
- **Restore all data**—Wasabi NAS retrieves on your source all files and folders from the bucket, keeping their hierarchical structure. All retrieved files will be with replicated status.

IMPORTANT: The operation may take time and the free space on your source must be enough to accommodate all data found only on the bucket.

- **Link existing data**—All files with matching metadata (name and size) found both on your source and the bucket are linked and represented as replicated. Any file for which no match is found on your source is imported as a stub file (a nearline file).

7 Click **OK**.

Continue by "Configuring Bucket Settings," page 3-11.

Configuring Bucket Settings

You can configure the following Wasabi bucket settings directly through the Wasabi Cloud NAS Configuration interface:

- Enable/disable versioning in the bucket

Enabling/Disabling Versioning in the Bucket

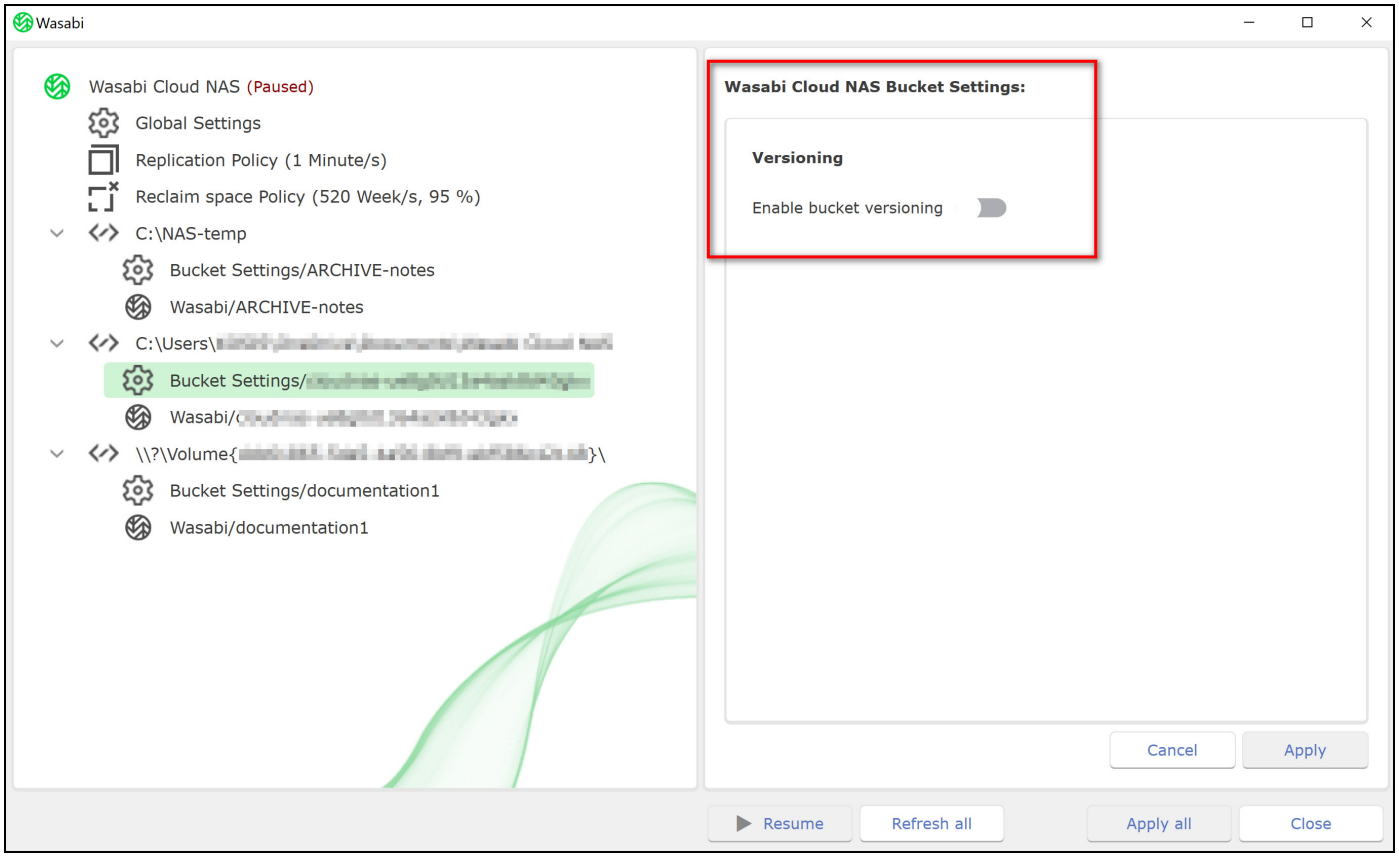
When versioning in the bucket is disabled, if a replicated file is modified on the source and is queued for replication again, the new copy on the bucket overwrites the previous one. When you enable versioning in the bucket, Wasabi Cloud NAS does not overwrite the replica on the bucket and each copy of the file is kept as a separate version.

As long as versioning is enabled, using Wasabi Cloud NAS you can retrieve from the bucket a specific version of a replicated file or restore the contents of a whole folder to the latest submitted version of all files in it by specific time. For more information, refer to "Managing File and Folder Versions," page 5-5.

If you disable versioning after it had been enabled, all versions of a specific replicated file will be kept on the bucket, but you will be able to retrieve them only directly from the bucket. Additionally, any modifications of a file on the source will overwrite only the latest version of the file on the bucket and you will be able to retrieve only this version using Wasabi Cloud NAS.

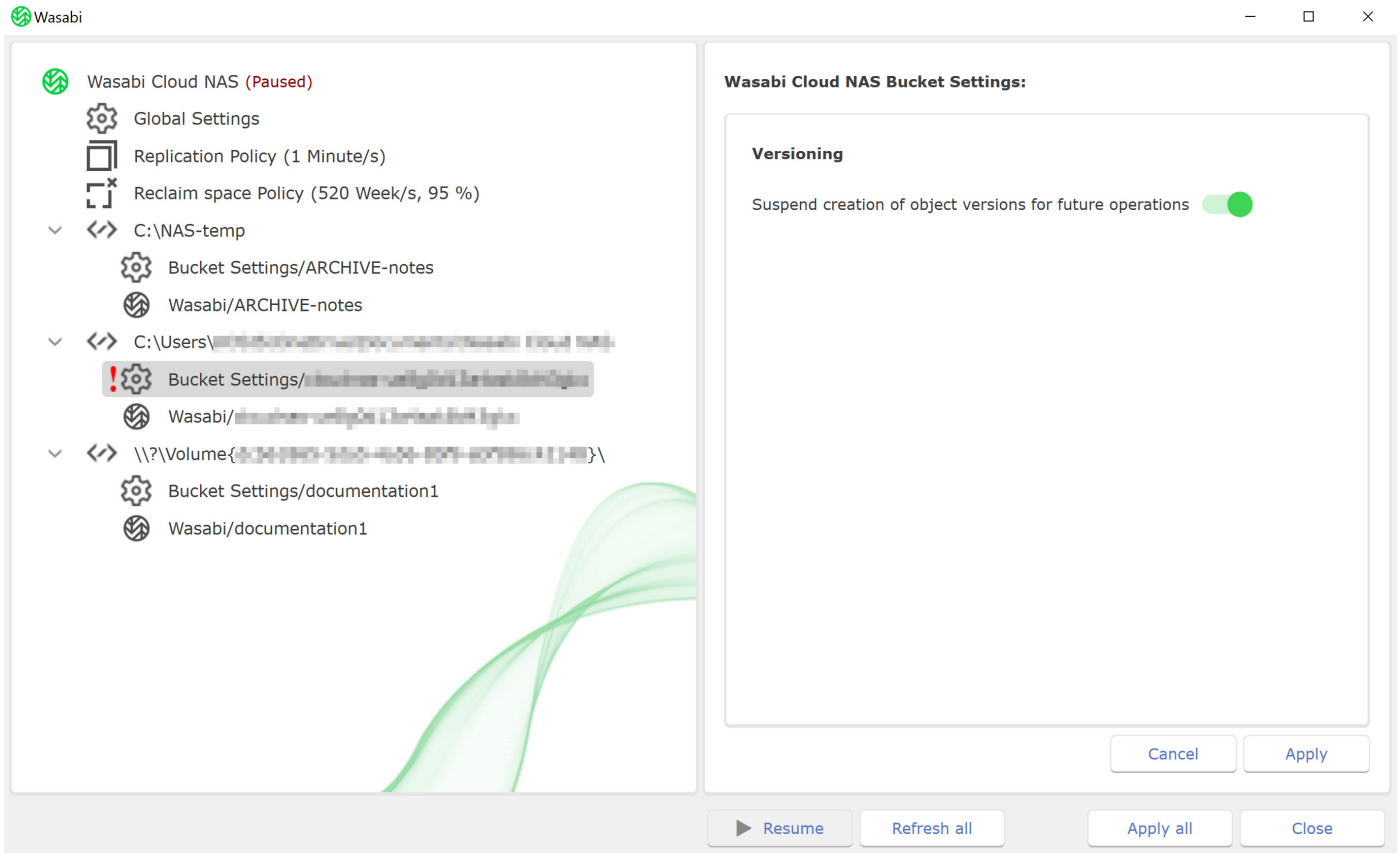
To enable/disable versioning in the bucket:

1 In the left pane, click **Bucket Settings** under a selected source.



2 In the right pane, do one of the following:

- Enable versioning in the bucket by switching the **Versioning** setting to the active position .
- Suspend versioning in the bucket by switching the **Versioning** setting to the inactive position .



3 Click **Apply**.

4 Once you complete adding a new source-target pair and configuring Bucket Settings, click **Resume** (navigate to the left pane, click **Wasabi Cloud NAS**) to allow Wasabi Cloud NAS to resume the operations. See "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33, for instructions on how to resume.

Configuring Automatic Data Replication

To allow Wasabi Cloud NAS to automatically replicate files from the source to the bucket, you should simply specify for how long a file should not have been modified in order Wasabi Cloud NAS to queue it for replication. You can configure the global Data Replication policy, which is valid for all pairs of source and bucket. By default, the global replication policy is set to queue for replication data not modified within the last 1 minute. You can also overwrite the global Data Replication policy by specifying different parameters for a given pair of source and bucket.

IMPORTANT: The time interval in the Data Replication policy also governs when file changes (a file is deleted or renamed) are synchronized on the bucket. If you delete or rename a file on the source, the copy on the bucket is deleted or renamed only after the replication policy time interval elapses.

When configuring the global Data Replication policy, you can also refine the list of automatically managed locations on all sources. For more information, refer to "Refining the List of Automatically Managed Locations," page 3-14.

Refining the List of Automatically Managed Locations

Depending on the interface you used to pair a source with a bucket, Wasabi Cloud NAS assumes that it should automatically manage all data on the source.

You can refine the list of locations on your sources, in which data should be automatically managed, by specifying a list of included and excluded locations, instructing Wasabi Cloud NAS to automatically manage (replicate, reclaim space):

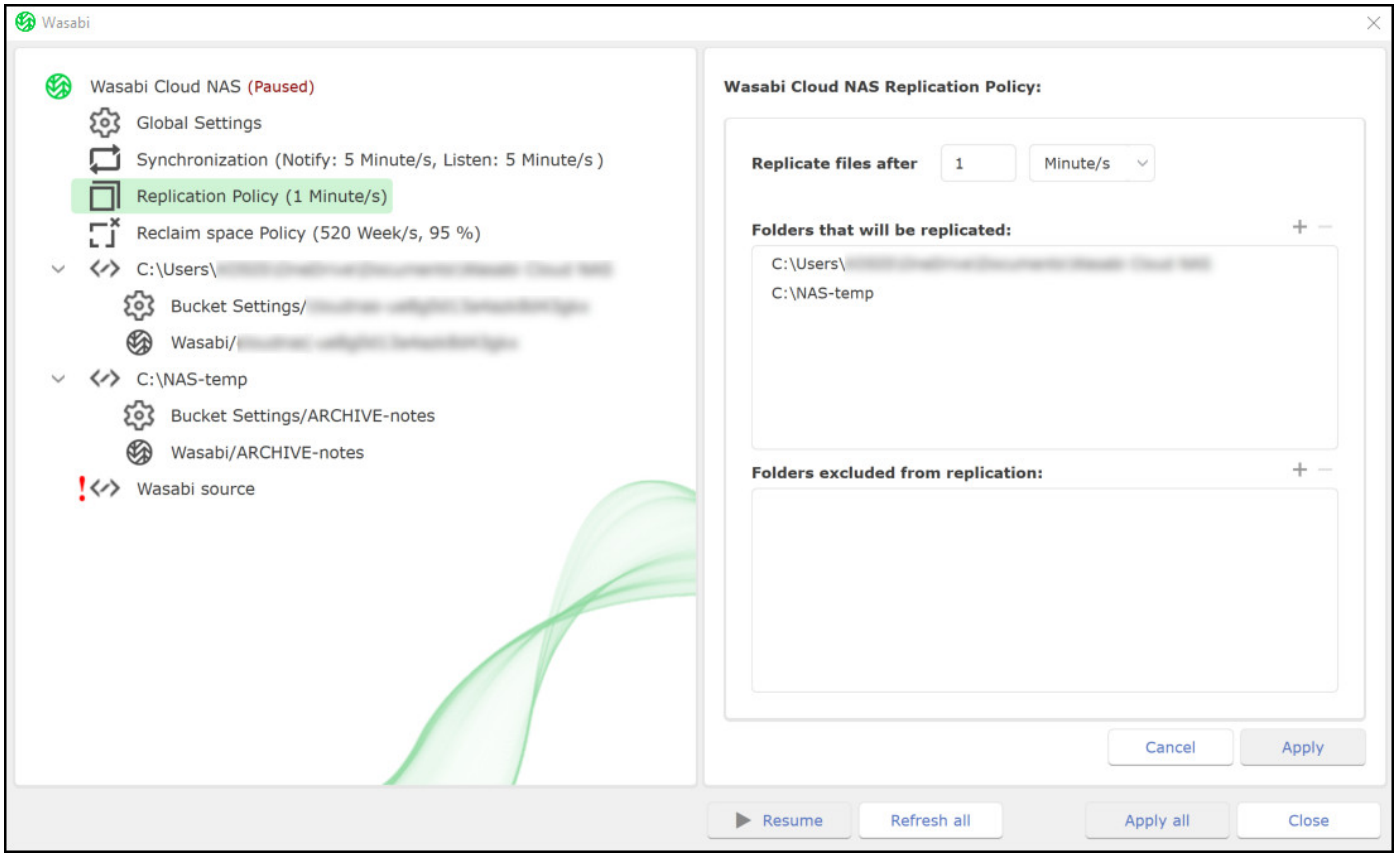
- All data on a source when the root of the source is added as an included location.
- All data on a source, except data in subfolders added as excluded locations, when the root of the source is added as an included location.
- No data on the source, except data in subfolders added as included locations, when the root of the volume is not added as an included location.

NOTE: Although data in the excluded locations is not subject to Wasabi Cloud NAS automatic data management, you can manually perform such operations on files/folders in an excluded location. For more information, see Chapter 5, *Manually Manage Data*.

You can edit the list of included and excluded locations at any time as part of the global Data Replication policy configuration, following the steps below.

To configure global Data Replication policy:

1 Click **Replication Policy** in the left pane.



2 In the right pane, specify the length of time a file should not have been modified for Wasabi Cloud NAS to replicate it. Enter the desired number and select the unit of measure in the drop-down box.

3 (optional) Refine the list of automatically managed locations on all sources, by doing one of the following:

- To add a folder to the list of included or excluded locations, click the + next to the respective list and browse to and select the folder. Then click **OK**.

NOTE: You can also create a new folder in an existing source to add it as an included or excluded location.

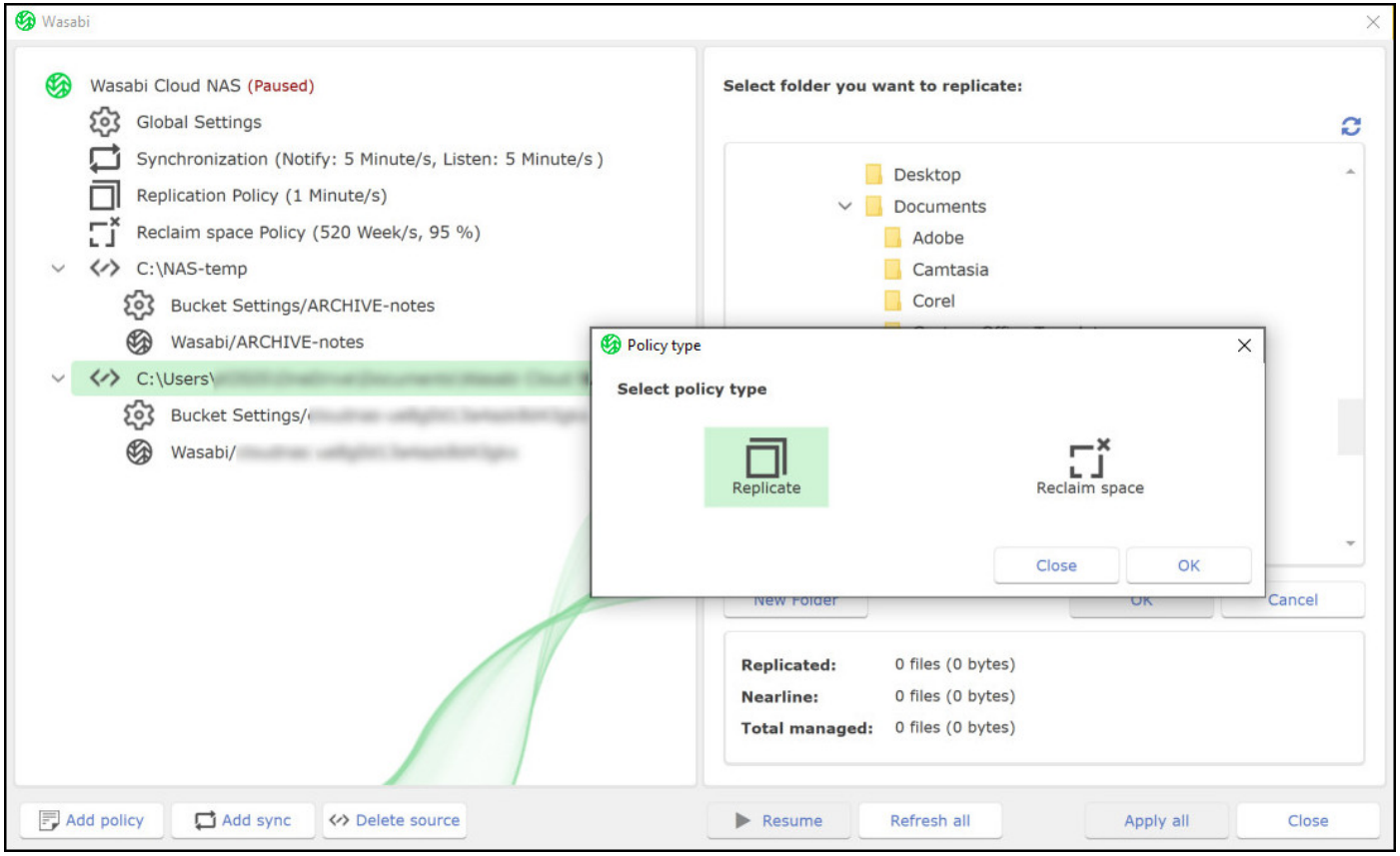
- To remove a folder from the list of included or excluded locations, select the folder in the respective list and click the – button.

4. Click **Apply**.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

To overwrite the global replication policy for a specific pair:

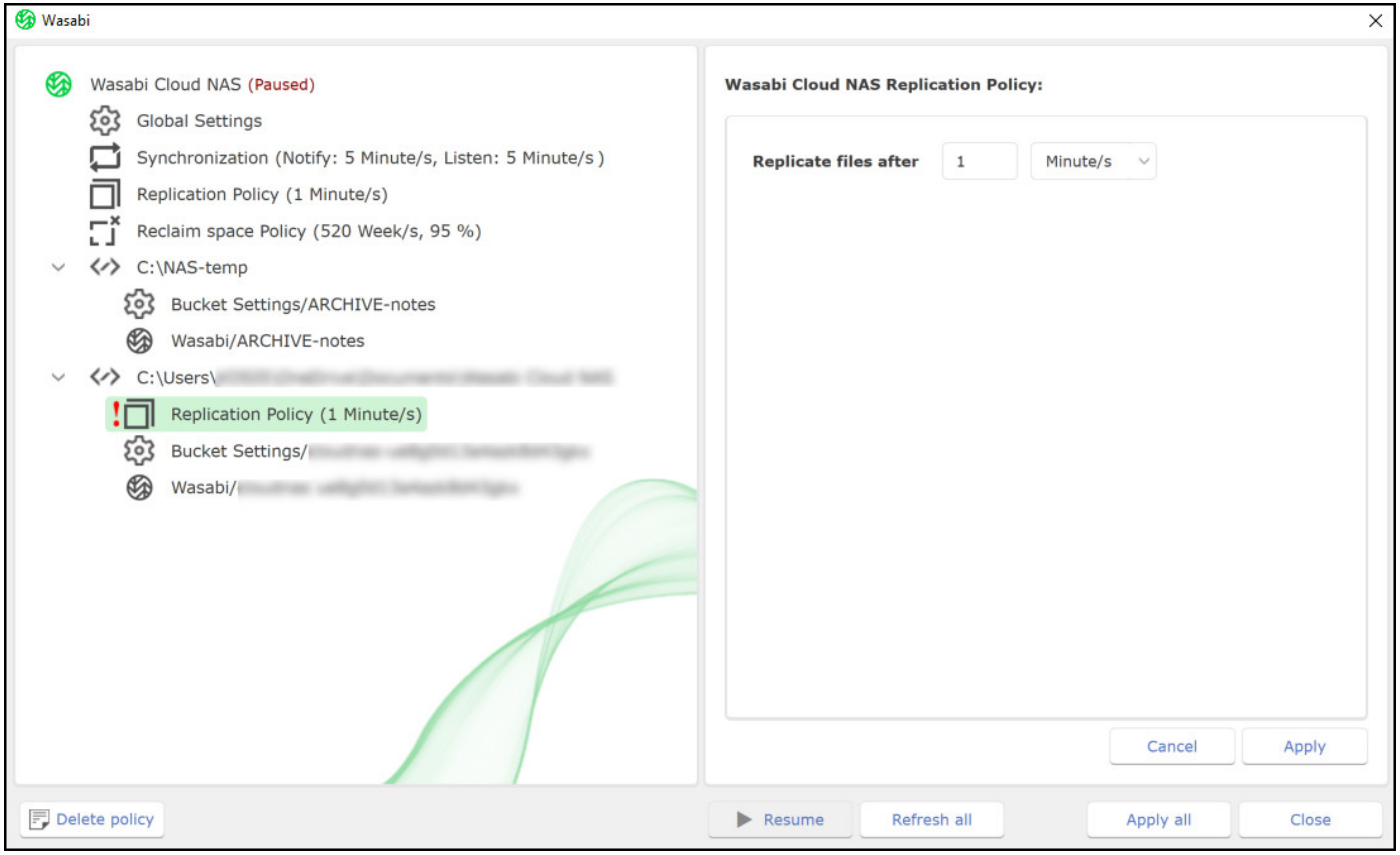
1. Select the source in the left pane.
2. Click the **Add policy** button.
3. In the Policy Type dialog, select **Replicate** and click **OK**.



IMPORTANT: If the selected source already has its own replication policy assigned, you cannot add a new replication policy. You can edit the existing policy, following the steps below.

NOTE: To make the source use the global replication policy set for all pairs, simply delete its policy by selecting it and clicking the **Delete policy** button.

4 In the right pane, specify the length of time a file should not have been modified for Wasabi Cloud NAS to replicate it. Enter the desired number and select the unit of measure in the drop-down box.



5 Click **Apply**.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

Configuring Space Reclaiming

Aside from turning on Space Reclaiming, to instruct Wasabi Cloud NAS on conditions under which it should replace replicated files on the source(s) with nearline files, you must configure the following parameters:

Space Reclaiming policy — Wasabi Cloud NAS decides which replicated files to replace with nearline files on the source volume based on two parameters—minimal file size and time interval for which the file has not been accessed. For example, if you set the file size threshold to 10MB and the time interval to 2 weeks, Wasabi Cloud NAS will replace with nearline files all replicated files with size 10MB or above that have not been accessed for at least 2 weeks, leaving on the source volume replicated files whose size is smaller than 10MB and also replicated files with bigger size that have been accessed by a client computer in less than 2 weeks. By default, Wasabi Cloud NAS is set to replace any file, which has not been accessed for more than 4 weeks, regardless of its size.

Used space thresholds for Space Reclaiming — The default used space threshold is 0% and Space Reclaiming is triggered as soon as any file meets the criteria for replacement with a nearline file. You can increase the used space threshold and let Wasabi Cloud NAS reclaim space only when a given amount of your source is full. You can also specify maximum used space threshold on your source - it specifies when all files subject to replication are queued for replacement with nearline files regardless of their size and last access time. By default, maximum used space value is set to 90% for all source volumes.

NOTE: Wasabi Cloud NAS processes the queue of files scheduled for replacement with nearline files starting from the ones, which are least recently accessed.

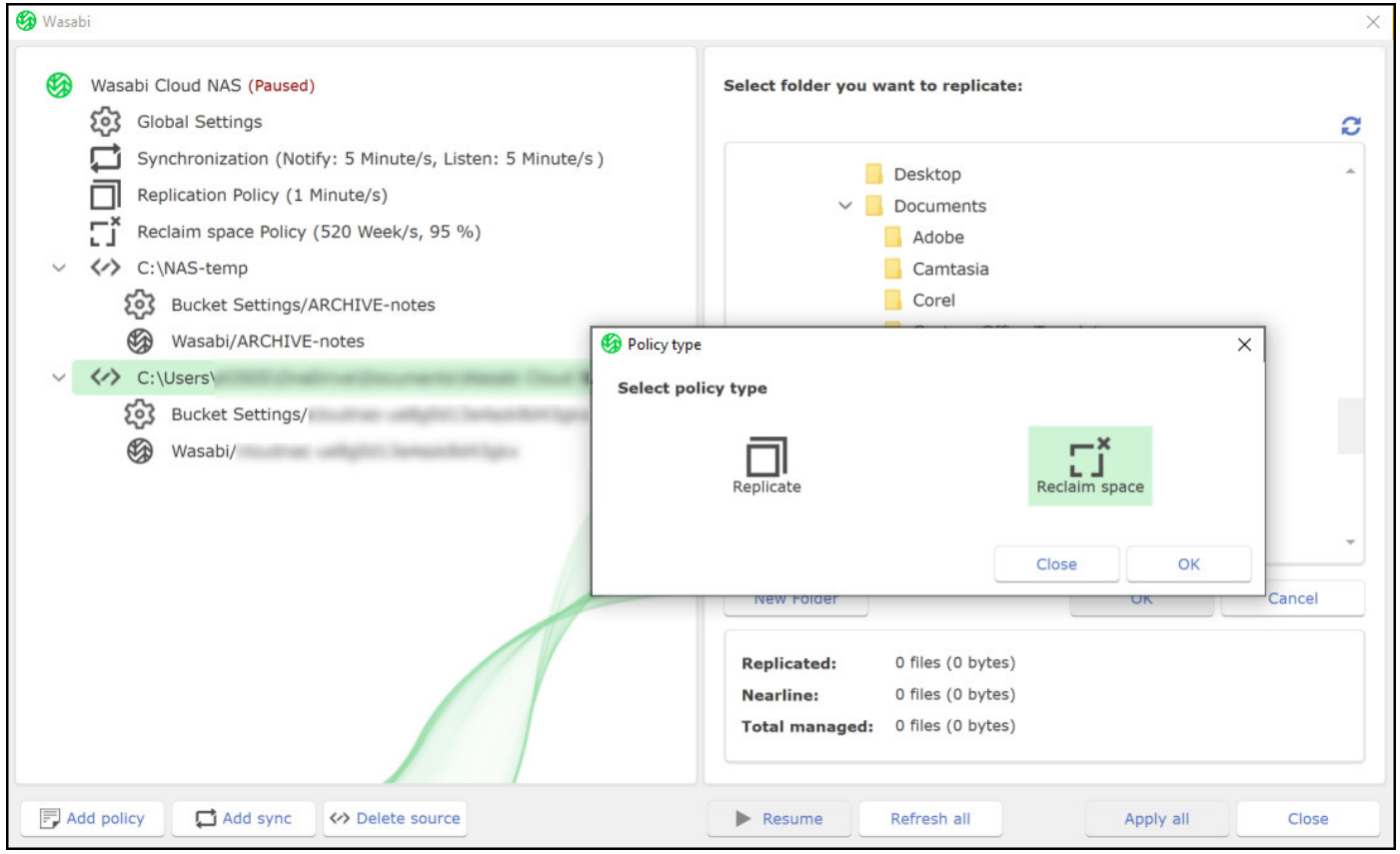
Processes triggering file retrieval — By default, each process, attempting to open a nearline file on the source volume, triggers its retrieval from the bucket. To prevent useless retrieval of nearline files by your antivirus software, for example, you can specify which processes exactly can trigger the file retrieval operation. You can do this by creating either a list of processes allowed to trigger retrieval or by creating a list of processes, which cannot trigger retrieval of nearline files. There is no need to create both lists. In case you create a list of processes allowed to trigger nearline file retrieval from the bucket, any process not included in the list will not trigger the operation when this process attempts to open the file. In case you decide to specify the processes, which are not allowed to trigger file retrieval from the bucket, any process not mentioned in the list will trigger the nearline file retrieval when this process attempts to open that file.

IMPORTANT: With a NAS source, nearline files are located in the shadow copy folder and not on the network share. Still, when retrieving them, actual data is retrieved directly on the NAS source. To learn more about Space Reclaiming on NAS sources, refer to "NAS Source Prerequisites and Setup," page 3-4.

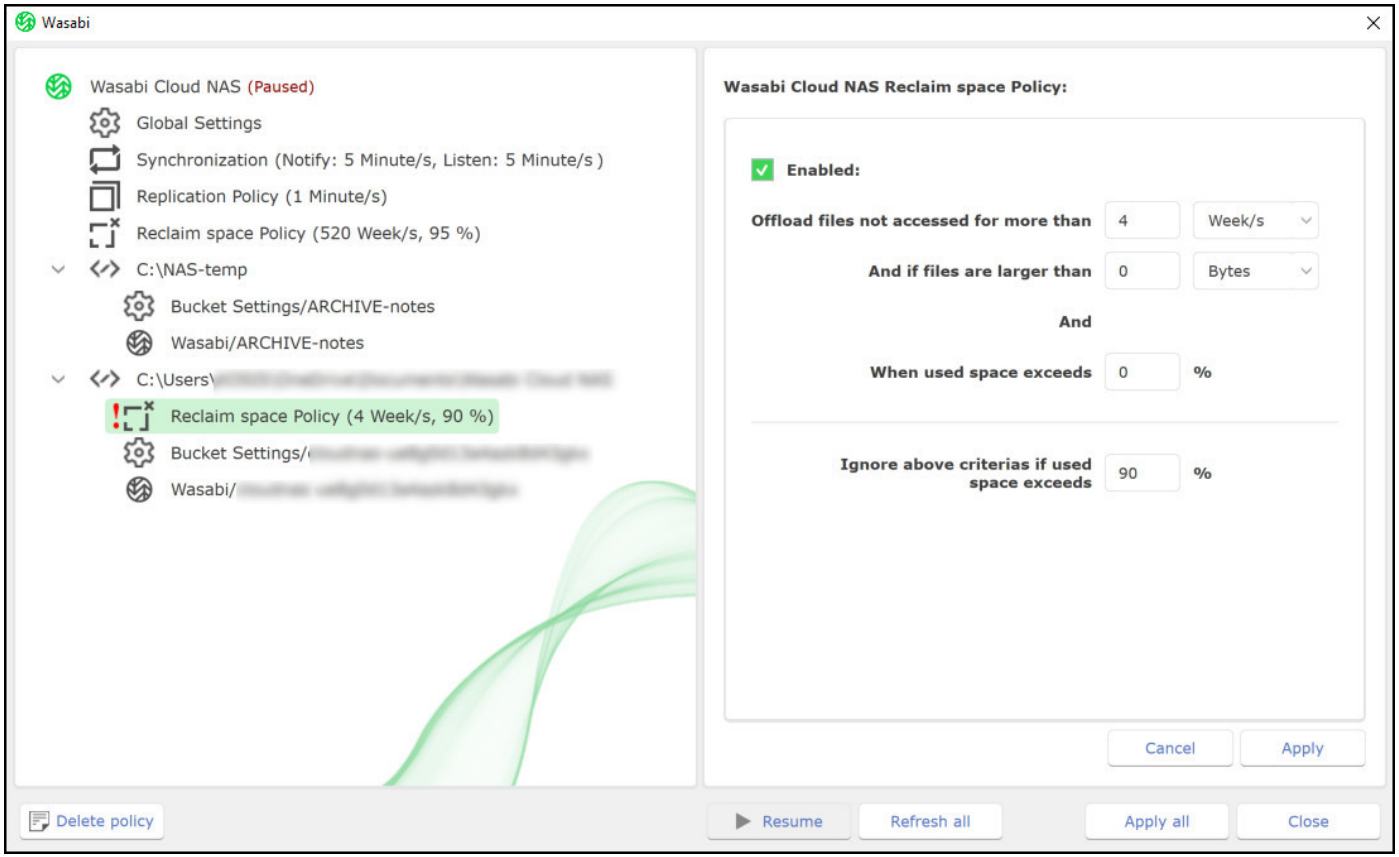
You can configure a global Space Reclaiming policy, valid for each pair of source and bucket, which does not have its own Space Reclaiming policy assigned. You can overwrite the global Space Reclaiming policy for a given pair of source and bucket or disable Space Reclaiming for that pair only. When any local policy is DELETED the source is inheriting the global policy. When the reclaim space policy is DISABLED it instructs Wasabi Cloud NAS to NEVER reclaim. This allows you to set up a global policy for all your sources but make sure that one particular source does not reclaim at all.

To configure global Space Reclaiming policy:

1. Select **Wasabi Cloud NAS** in the left pane.
2. Click the **Add policy** button.
3. In the Policy Type dialog, select **Reclaim space** and click **OK**.


Wasabi
Wasabi Cloud NAS (Paused)
Global Settings
Synchronization (Notify: 5 Minute/s, Listen: 5 Minute/s)
Replication Policy (1 Minute/s)
Reclaim space Policy (520 Week/s, 95 %)
C:\NAS-temp
Bucket Settings/ARCHIVE-notes
Wasabi/ARCHIVE-notes
C:\Users\
Bucket Settings/
Wasabi/
Select folder you want to replicate:
Desktop
Documents
Adobe
Camtasia
Corel
Policy type
Select policy type
Replicate
Reclaim space
Close
OK
New Folder
OK
Cancel
Replicated: 0 files (0 bytes)
Nearline: 0 files (0 bytes)
Total managed: 0 files (0 bytes)
Add policy
Add sync
Delete source
Resume
Refresh all
Apply all
Close

4 In the right pane, specify the parameters for file access time and size as well as for used space thresholds.



5 Click **Apply**.

The global Space Reclaiming policy is valid for all sources that do not have their own policy assigned. To edit the global policy, simply select it in the left pane, edit the desired parameter and click **Apply**. To delete the global policy, select it in the left pane and click the **Delete policy** button.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

To overwrite the global Space Reclaiming policy for a specific source:

1. Select the source in the left pane.
2. Click the **Add policy** button.
3. In the Policy Type dialog, select **Reclaim space** and click **OK**.

IMPORTANT: If the selected source already has its own Space Reclaiming policy assigned, you cannot add a new Space Reclaiming policy. You can edit the existing policy, following the steps below.

4. In the right pane, make sure the Enabled check box is selected and specify the parameters for file access time and size as well as for used space thresholds.
5. Click **Apply**.

TIP: To make the source use the global Space Reclaiming policy set for all sources, delete the Space Reclaiming policy by selecting it in the left pane and clicking the **Delete Policy** button. If you do not want the source space reclaiming at all, disable the policy by clearing the **Enabled** check box in the right pane.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

To configure the processes, which can or cannot trigger retrieval of files from the bucket:

1. In the left pane, click **Global Settings**.
2. Click the **Process filtering** button toward the bottom of the right pane.

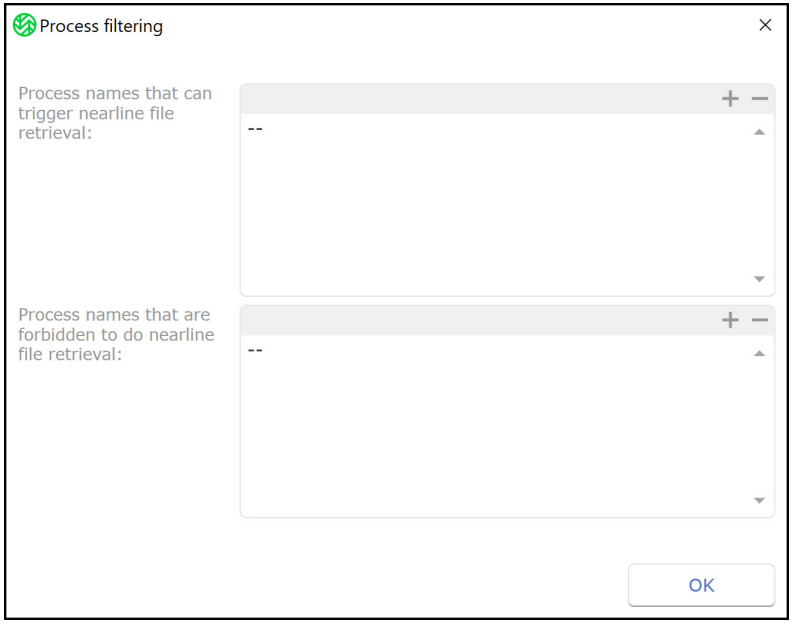
3 In the Process Filtering dialog, do one of the following:

- Enter the name of a process in either the list of processes allowed to trigger the retrieving of nearline files or in the list of processes forbidden to trigger the retrieving of nearline files. Then, click **OK**.

TIP: Click the + button on top of each list to place the cursor at the end of each respective list.

- Delete a process from either list. Then, click **OK**.

TIP: Click the – button on top of each list to remove the last process of the respective list.



4 Click **Apply**.

Configuring Active Sync

Wasabi Cloud NAS Active Sync allows you to synchronize the contents of two or more sources, each on a separate computer, through a common bucket. You must pair all sources with the same bucket and configure the Active Sync policy. The Active Sync mechanism operates using two parameters—the time interval at which a source sends notifications to other sources about changes to its content on the bucket, and the time interval at which a source checks for notifications from other sources about modified content (new replicated data available, deleted content, etc.) on the bucket.

After a source receives a notification for updated contents from other sources, Wasabi Cloud NAS automatically creates a nearline file for each new file replicated from other sources. Nearline files are created on the source on demand, only upon receiving a request (by a user or application) for access to the directory, which

should contain them, and each nearline file can then be retrieved manually or automatically if a user or application attempts to open it.

You can also set Wasabi Cloud NAS to begin retrieving new nearline files immediately after it finishes the synchronization. This can be useful when you are synchronizing the contents of a NAS source, as data from other sources will otherwise appear as nearline files in the NAS source's shadow copy folder.

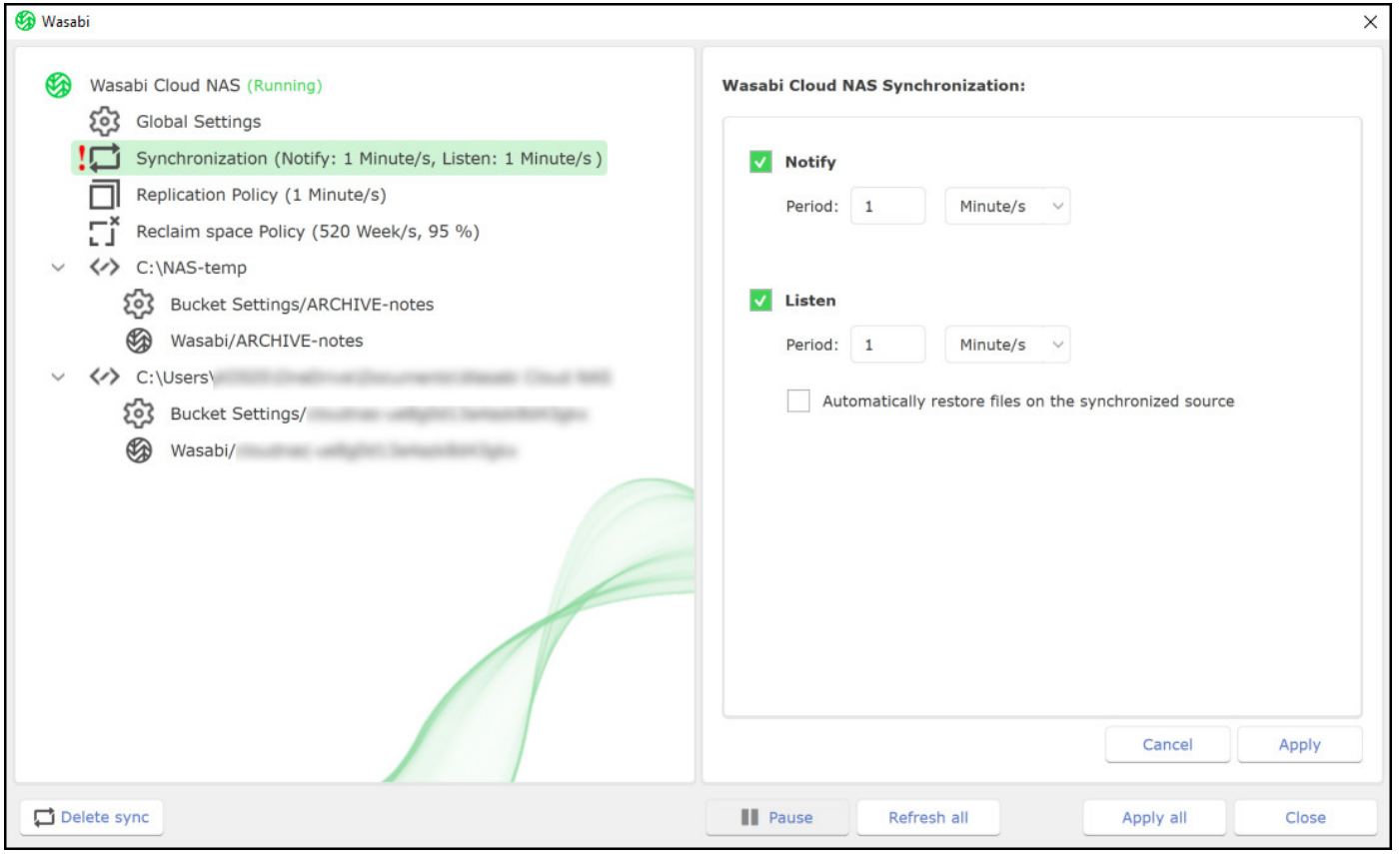
You can use a global Active Sync policy, valid for all sources paired with the same bucket. Or, you can create a separate policy, valid only for the source to which it is assigned. You can choose to enable just one of the parameters on specific computers. In this case, one computer can be set to just send notifications about changes introduced on its source, letting sources on other computers synchronize their contents with these changes. And, you can disable notifications from other sources paired with the same bucket, thus not synchronizing its content with the changes introduced on other sources.

Additionally, you can set Wasabi Cloud NAS to keep a file's security descriptor when it is being retrieved on other sources. It is advisable to enable this option only if all sources are in the same Active Directory domain.

To allow for the proper contents synchronization, it is advisable on all sources to set up Wasabi Cloud NAS operation mode parameters in such a way that a file on the bucket is not deleted when it is retrieved on one of the sources and also not to delete the file from the bucket, if it is deleted on any of the sources. Otherwise, other sources may fail to retrieve the respective file, even though the retrieve mode and delete mode on them are set to keep the replica. For more information, refer to "Configuring Operation Mode," page 3-31.

To configure global Active Sync policy:

1. Select **Wasabi Cloud NAS** in the left pane.
2. Click the **Add sync** button.



3 In the **Notify** section in the right pane, enter the time interval at which the computer should send notifications to other computers about changes to its source contents. Select the unit of measure in the drop-down box.

4 In the **Listen** section, enter the time interval at which the computer should check for notifications from other computers about changes in the contents of their sources. Select the unit of measure in the drop-down box.

NOTE: It is advisable to leave both the **Notify** and the **Listen** check boxes selected when specifying the global Active Sync policy.

5 Select the **Automatically restore file on the synchronized source** check box if you want Wasabi Cloud NAS to begin retrieving the files immediately after content is synchronized.

6 Click **Apply**.

The global Active Sync policy is valid for all sources that do not have their own policy assigned. To edit the global policy, simply select it in the left pane, edit the desired parameter, and click **Apply**.

To delete the global, select it in the left pane and then click the **Delete sync** button.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

To overwrite the global Active Sync policy for a specific source:

1 Select the source in the left pane.

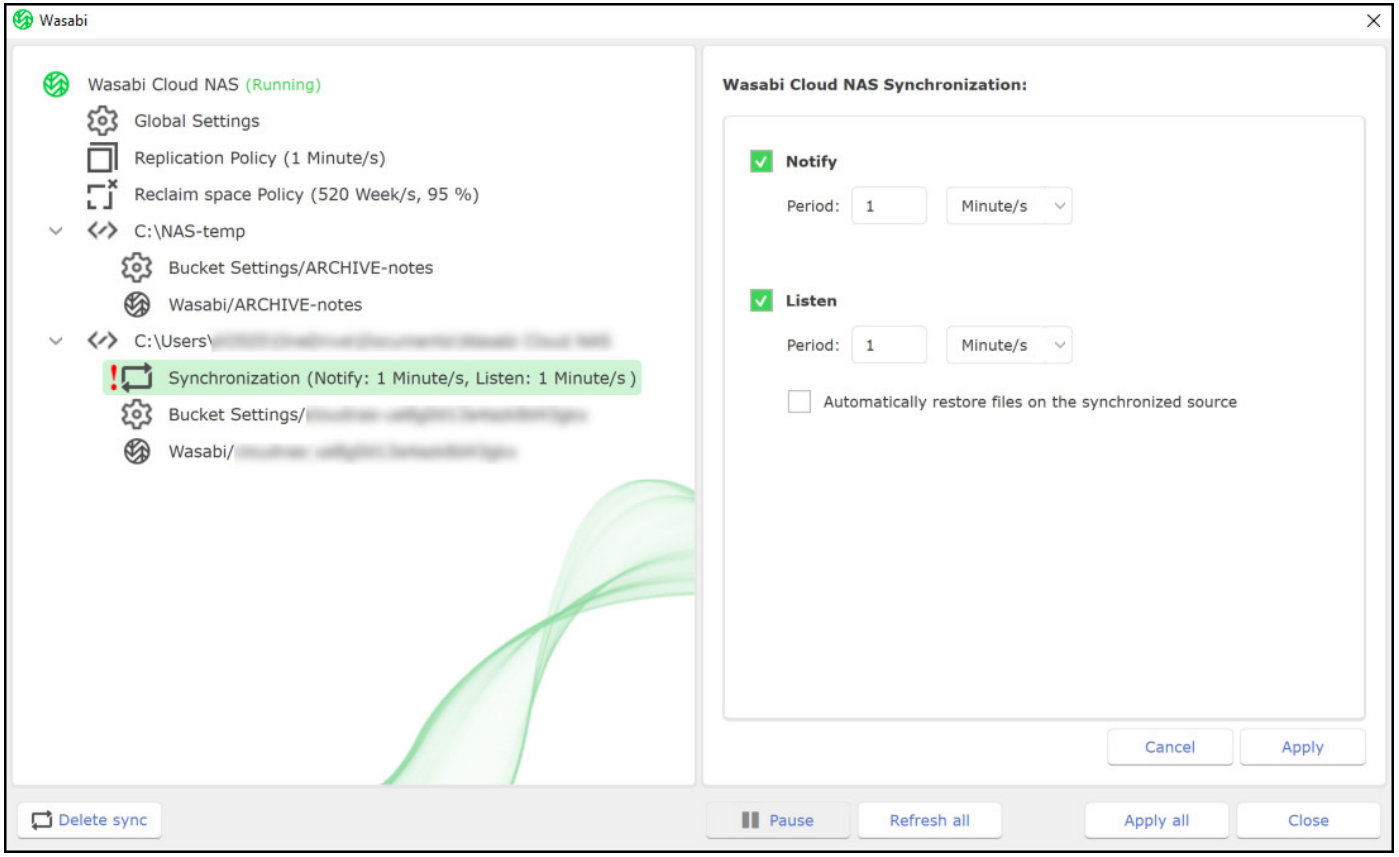
2 Click the **Add sync** button.

- In the **Notify** section in the right pane, enter the time interval at which the computer should send notifications to other computers about changes to its source contents. Select the unit of measure in the drop-down box.
- In the **Listen** section, enter the time interval at which the computer should check for notifications from other computers about changes in the contents of their sources. Select the unit of measure in the drop-down box.

NOTE: You can disable either the **Notify** check box or the **Listen** check box for a selected source, thus configuring this computer to only send notifications about changes to the contents at its source side, but not letting it synchronize its source contents with changes from other sources and vice versa.

NOTE: To disable Active Sync for this pair of source and bucket, disable both the **Notify** and **Listen** check boxes.

3 Select the **Automatically restore file on the synchronized source** check box if you want Wasabi Cloud NAS to begin retrieving the files immediately after content is synchronized.



4 Click **Apply**.

To edit the Active Sync policy for this source, simply select it in the left pane, edit the desired parameter and click **Apply**.

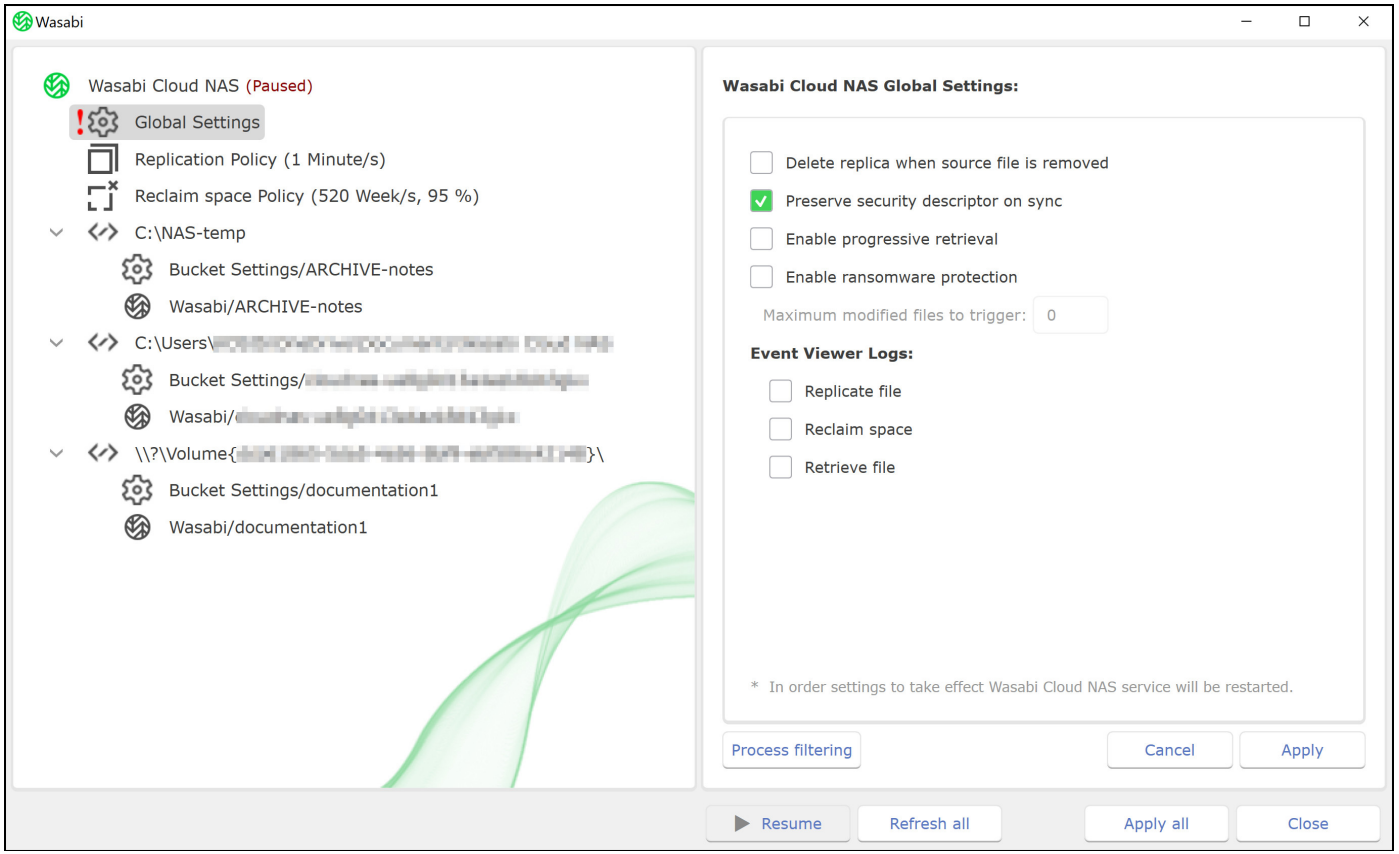
To delete the policy and let the source use the global Active Sync policy, select it in the left pane and then click the **Delete sync** button.

NOTE: By default, all automatic Wasabi Cloud NAS operations are initially paused. To resume them, follow the steps in "Pausing/Resuming Automatic Wasabi Cloud NAS Operations," page 3-33.

To set Wasabi Cloud NAS to preserve the files security descriptor on all sources:

1. In the left pane, select **Global Settings**.
2. Select the **Preserve security descriptor on sync** check box to keep the security of all files on each source after content synchronization.

   Or, clear the **Preserve security descriptor on sync** check box to retrieve all files without security on each source after content synchronization.



3. Click **Apply**.

Configuring Operation Mode

By default, when a file is deleted from the source, Wasabi Cloud NAS automatically deletes its replica from the bucket as well. You can set Wasabi Cloud NAS to delete just the instance of the file on the source, but keep the copy on the bucket. In this case, to retrieve a file deleted only from the source, you have to manually synchronize the contents of the source and the bucket (see "Synchronizing Data on the Source and the Bucket," page 5-31).

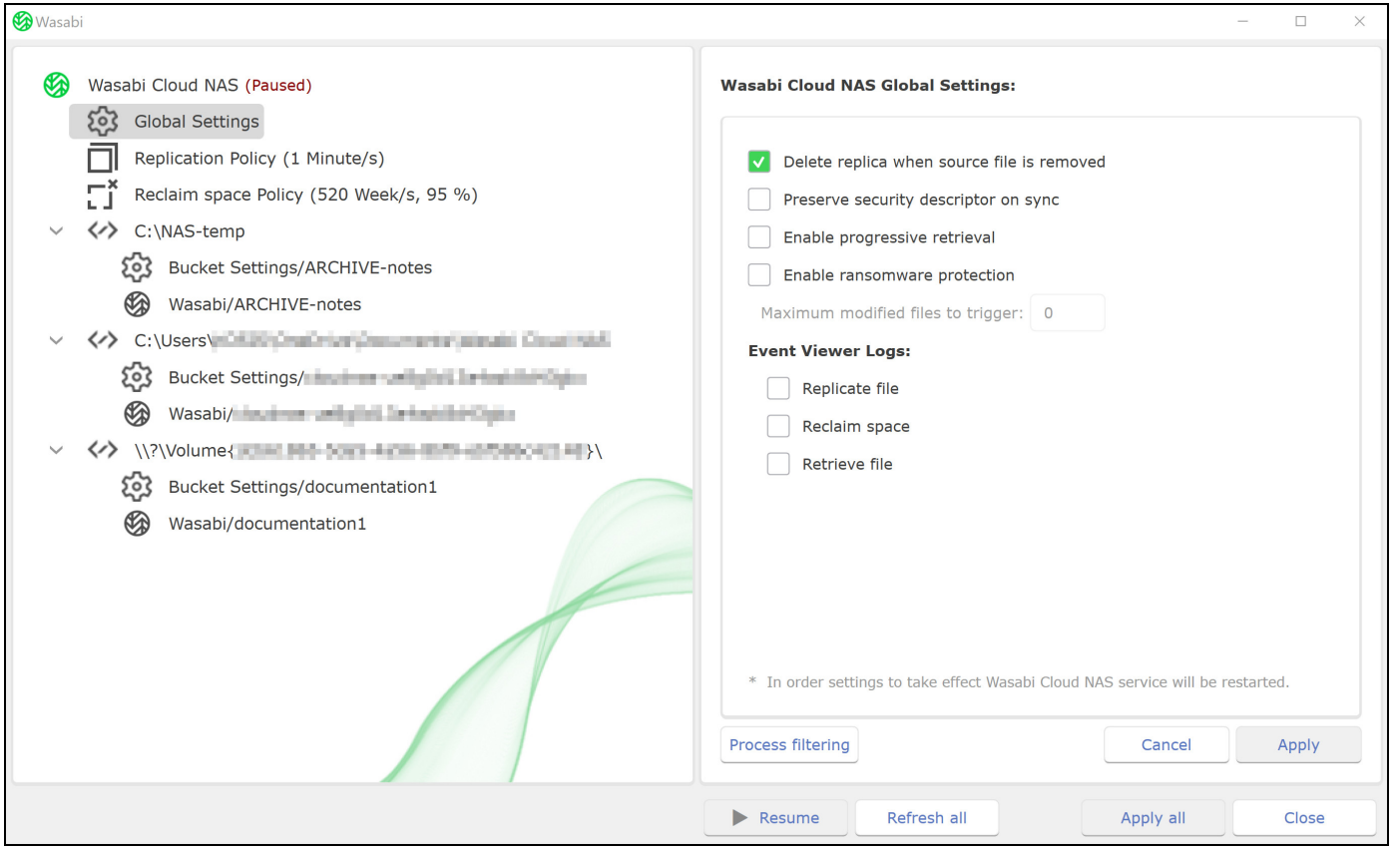
NOTE: When you set Wasabi Cloud NAS to delete just the instance of the file on the source, to delete it from the bucket as well you should access the bucket and manually delete the file.

IMPORTANT: When using the default delete mode, keep in mind that the copy of the file on the bucket is deleted only after the specified time interval in the Data Replication policy elapses.

To configure delete mode setting:

1. In the left pane, select **Global Settings**.
2. Select the **Delete replica when source file is removed** check box to let Wasabi Cloud NAS remove the replica from the bucket upon deleting the file from the source volume.

   Or, clear the **Delete replica when source file is removed** check box to let Wasabi Cloud NAS keep the replica on the bucket upon deleting the file from the source volume.

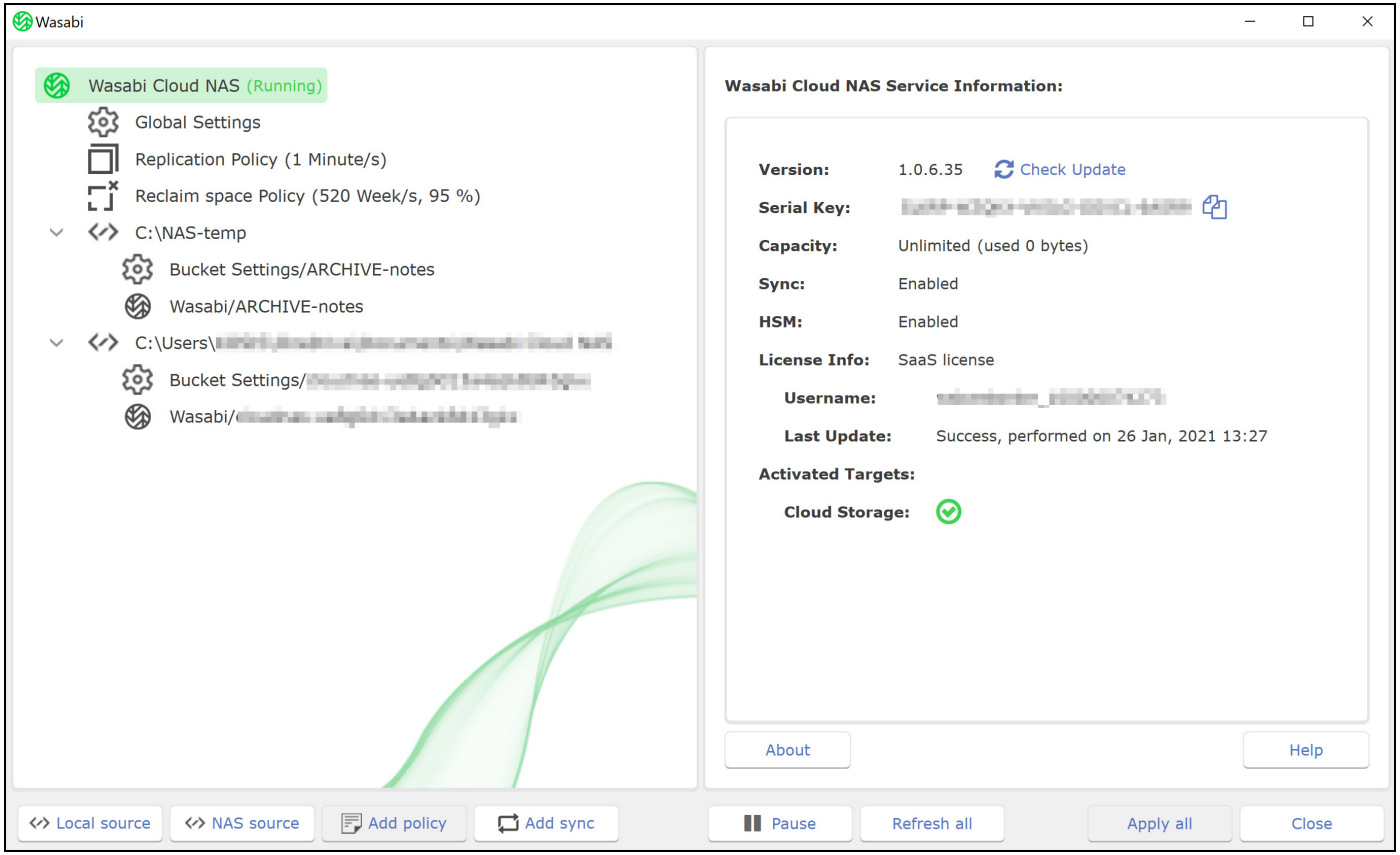


3 Click **Apply**.

Pausing/Resuming Automatic Wasabi Cloud NAS Operations

By default, all automatic data operations are initially paused and, even though you may have configured the policies for Data Replication and Space Reclaiming, Wasabi Cloud NAS does not manage any data until you resume the operations. You can pause and resume all automatic Wasabi Cloud NAS operations at any time, following the steps below.

1 In the left pane, click **Wasabi Cloud NAS**.

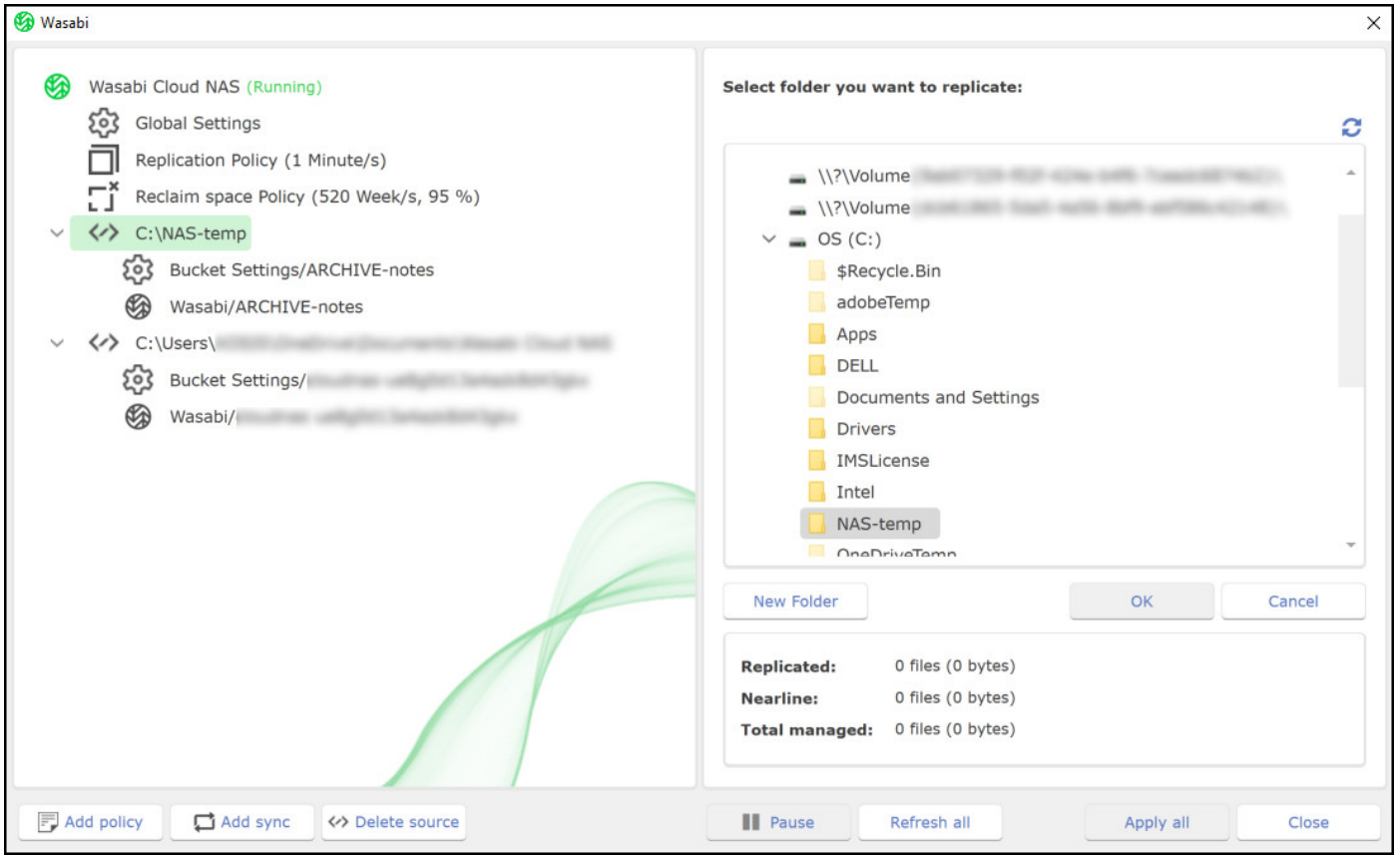


2 Click the **Pause** button to pause all automatic Wasabi Cloud NAS operations.

Or, click the **Resume** button to resume all automatic Wasabi Cloud NAS operations.

Monitoring Data Management Statistics

You can view per-source statistics about the number of files managed by Wasabi Cloud NAS and their overall size. To do so, select a source in the left pane of the Wasabi Cloud NAS Configuration interface. For example:



The statistics area at the bottom of the right pane gives you the following information about data on the selected source:

Replicated — The number and overall size of files, which have copies both on the source and bucket.

Nearline — The number and overall size of files, which have copies only on the nearline tier of the bucket (i.e., nearline stub files).

Total managed — The number and overall size of files Wasabi Cloud NAS has already managed and files potentially manageable by Wasabi Cloud NAS, with the exception of files in excluded locations. You can use information in this field to calculate what part of the total storage capacity associated with your Wasabi Cloud NAS license is used on the selected source.

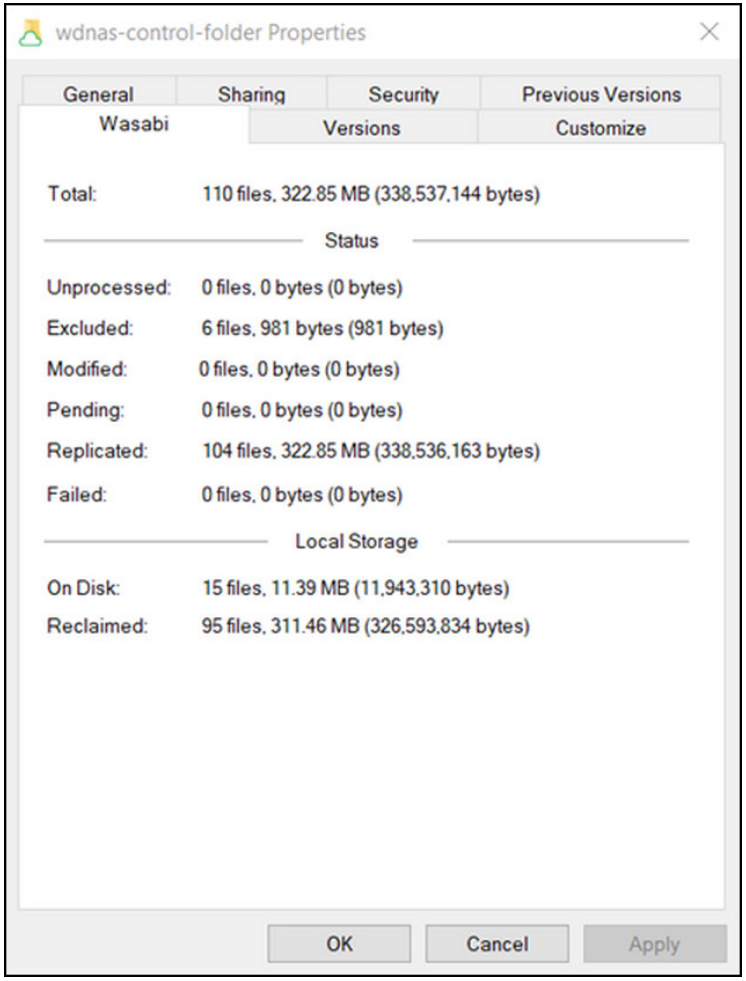
NOTE: As long as the Wasabi Cloud NAS shell extension is installed, you can keep track of the status of individual files and folders in Windows Explorer. For more information, see Chapter 5, *Manually Manage Data*.

The Wasabi Cloud NAS shell extension also gives you statistics about files or a folder on the source:

- total number of files and their size
- size and number of unprocessed, excluded, pending, replicated, and failed files
- number of files and their size on the disk of the source
- number of files and their size, which have been reclaimed on the source

To view the Wasabi Cloud NAS shell extension statistics:

1. Right-click the source or a folder (through the Windows File Explorer).
2. Select **Properties**.
3. Go to the **Wasabi** tab:



NOTE: The following file types are excluded from replication:

- Folders that are explicitly excluded by the global replication policy.
- Files that reside in the following folders:

  TemporaryItems
  Trashes

Spotlight-V100

Recycled

$RECYCLE.BIN

RECYCLER

DS_Store file

- Regular files that have an OFFLINE flag and are not Wasabi files.
- Files and folders that are encrypted (right-click Properties->General->Advanced…->Encrypt contents to secure data).

4 Manage Advanced Settings

To fine-tune your work flow with Wasabi Cloud NAS, you can manage the following advanced settings:

General Advanced Settings

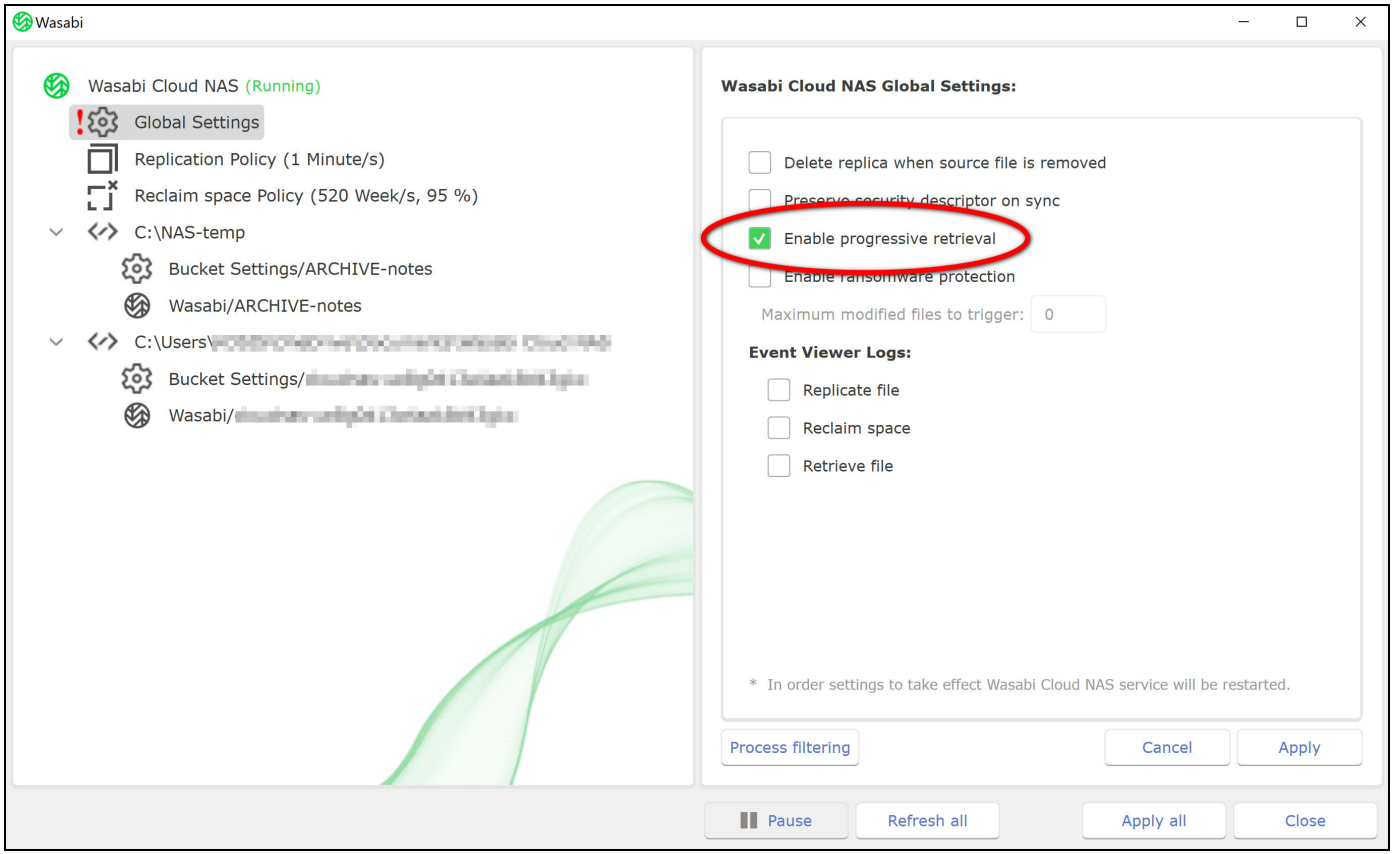
Enabling Progressive File Retrieval

By default, when retrieving a file from the bucket on demand (when an application attempts to open its stub counterpart on the source), Wasabi Cloud NAS starts retrieving data from the offset requested by the application (with most applications this is the beginning of the file) and consecutively retrieves the rest, unless you close the file before reading it to its end. You can disable the progressive retrieval of data and configure Wasabi Cloud NAS to retrieve only the portion of the file that is currently being read by the application as long as the respective application supports reading only portions of a file.

To enable/disable progressive file retrieval:

1. In the left pane of the Wasabi Cloud NAS Configuration interface, click **Global Settings**.
2. In the right pane, select **Enable progressive retrieval** to let Wasabi Cloud NAS retrieve the whole file.

NOTE: Uncheck the **Enable progressive retrieval** option to let Wasabi Cloud NAS retrieve just the portion of the file that is currently being read.



NOTE: A red exclamation mark appears to the left of Global Settings to indicate that a setting has been changed, though not yet applied:

3 Click **Apply**.

Enabling and Configuring Ransomware Protection

To prevent replication of files, which have been encrypted on your source due to ransomware attack, Wasabi Cloud NAS provides you with a fail-safe setting that automatically pauses replication once specific conditions are present. As ransomware attacks usually result in encryption of as many files as possible, Wasabi Cloud NAS lets you specify the maximum number of already replicated files, queued for replication, because they have been modified on the source. If Wasabi Cloud NAS detects more files in the queue than the number you have specified, it perceives that as abnormal and prevents their replication. You can delete the encrypted files, retrieve from the bucket their unencrypted copies, and then resume normal operations. This setting protects only already replicated data and prevents Wasabi Cloud NAS from overwriting a healthy copy on the bucket with an encrypted version. Wasabi Cloud NAS cannot prevent a ransomware attack on your source.

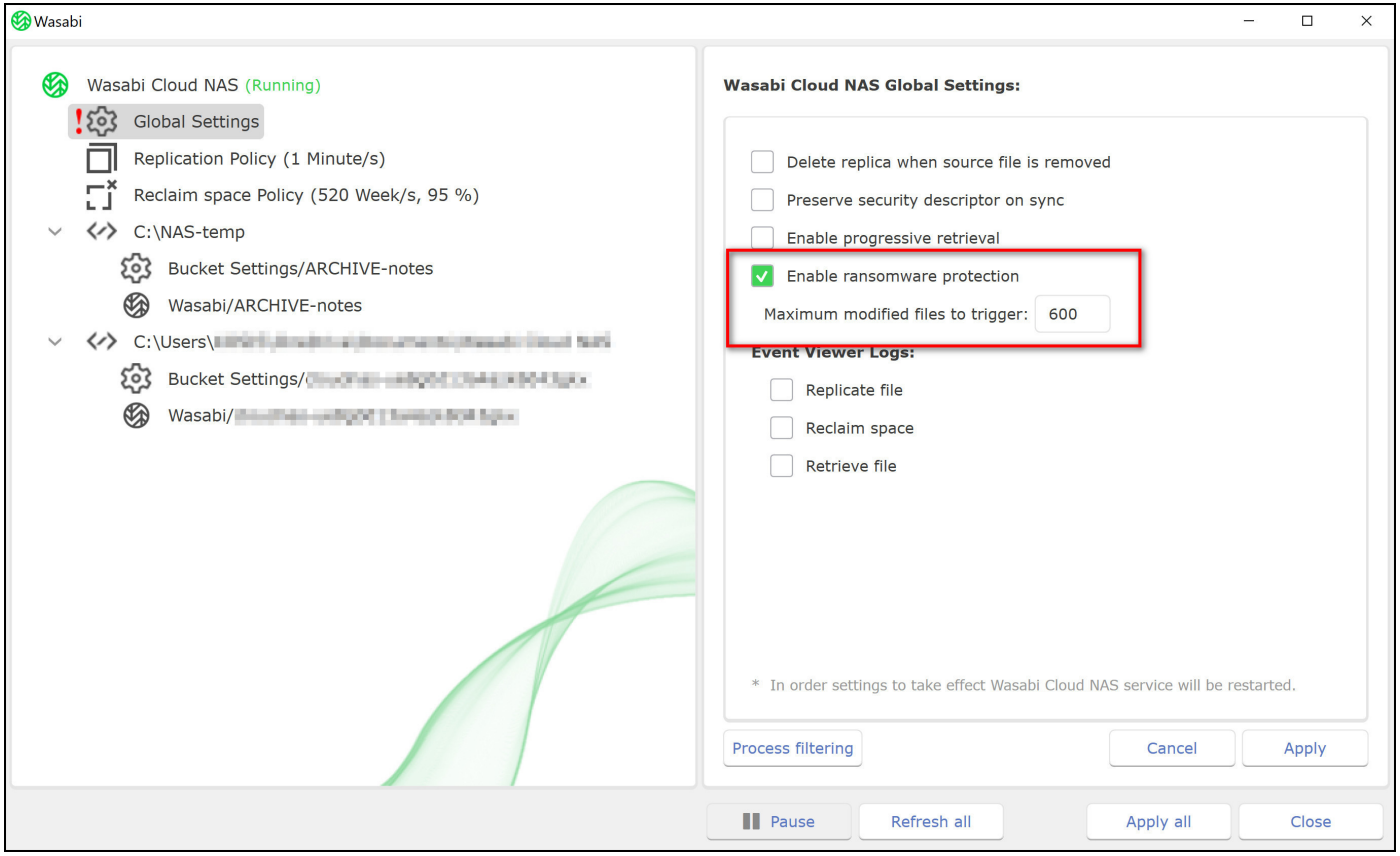
By default, when you enable Wasabi Cloud NAS ransomware protection, the maximum number of files triggering the protection mechanism is 600. You can change this number depending on your specific workload calculations. You can use the statistics about data managed by Wasabi Cloud NAS as a starting point (see "Monitoring Data Management Statistics," page 3-34). You should also keep in mind that:

- The maximum number of files, which triggers the protection mechanism, is valid for each configured source i.e. the workload on one source may differ from that on another.
- A replicated file, which has been modified on the source is replicated again once it meets the replication policy criteria, but is added to the Wasabi Cloud NAS queue immediately after it has been modified on the source (i.e., the longer the time interval in the replication policy, the bigger the chance that healthy files stay in the queue, waiting to be replicated anew).

You can disable the Wasabi Cloud NAS ransomware protection mechanism at any time, thus guaranteeing that no matter how many replicated files are queued to be replicated again, automatic Wasabi Cloud NAS operations are never paused.

To enable and configure the ransomware protection mechanism:

1. In the left pane of the Wasabi Cloud NAS Configuration interface, click **Global Settings**.
2. In the right pane, select **Enable ransomware protection**.
3. Enter the desired number in the **Maximum modified files to trigger** box.



NOTE: A red exclamation mark appears to the left of Global Settings to indicate that a setting has been changed, though not yet applied:

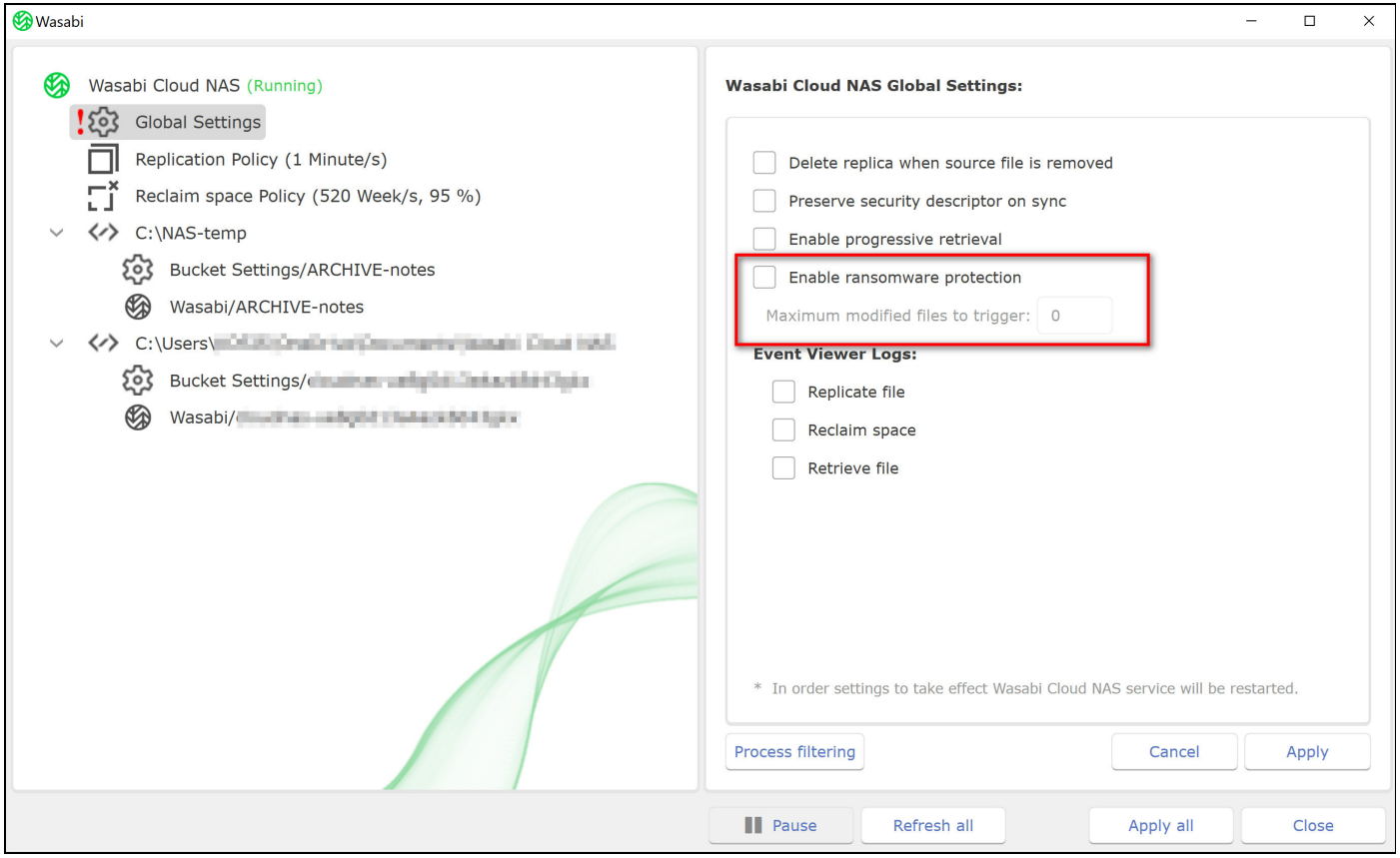
4 Click **Apply**.

5 A message indicates that Wasabi Cloud NAS must be restarted in order for settings changes to take effect. Click **Yes** to restart.

Disabling Ransomware Protection

1 In the left pane of the Wasabi Cloud NAS Configuration interface, click **Global Settings**.

2 In the right pane, clear the **Enable ransomware protection** check box.



NOTE: A red exclamation mark appears to the left of Global Settings to indicate that a setting has been changed.

3 Click **Apply**.

Managing Wasabi Cloud NAS Logs

Wasabi Cloud NAS can log most events related to its operations using a standard Windows output console such as DebugView. You can set Wasabi Cloud NAS to output its logs as files in the Windows Event Viewer. You can find a detailed description of the logs generated by Wasabi Cloud NAS in Chapter 6, *Wasabi Cloud NAS Logs*.

IMPORTANT: It is advisable to keep track of the number of log files generated by Wasabi Cloud NAS in order to avoid running out of disk space.

Wasabi Cloud NAS logs all bucket/source connectivity events. Additionally, you can set it to create logs for the following events:

- File is replicated
- File is replaced with a nearline file
- Nearline file is retrieved from the bucket
- Status of a directory is changed (replicated or nearline)

Managing Wasabi Cloud NAS Logs in the Configuration

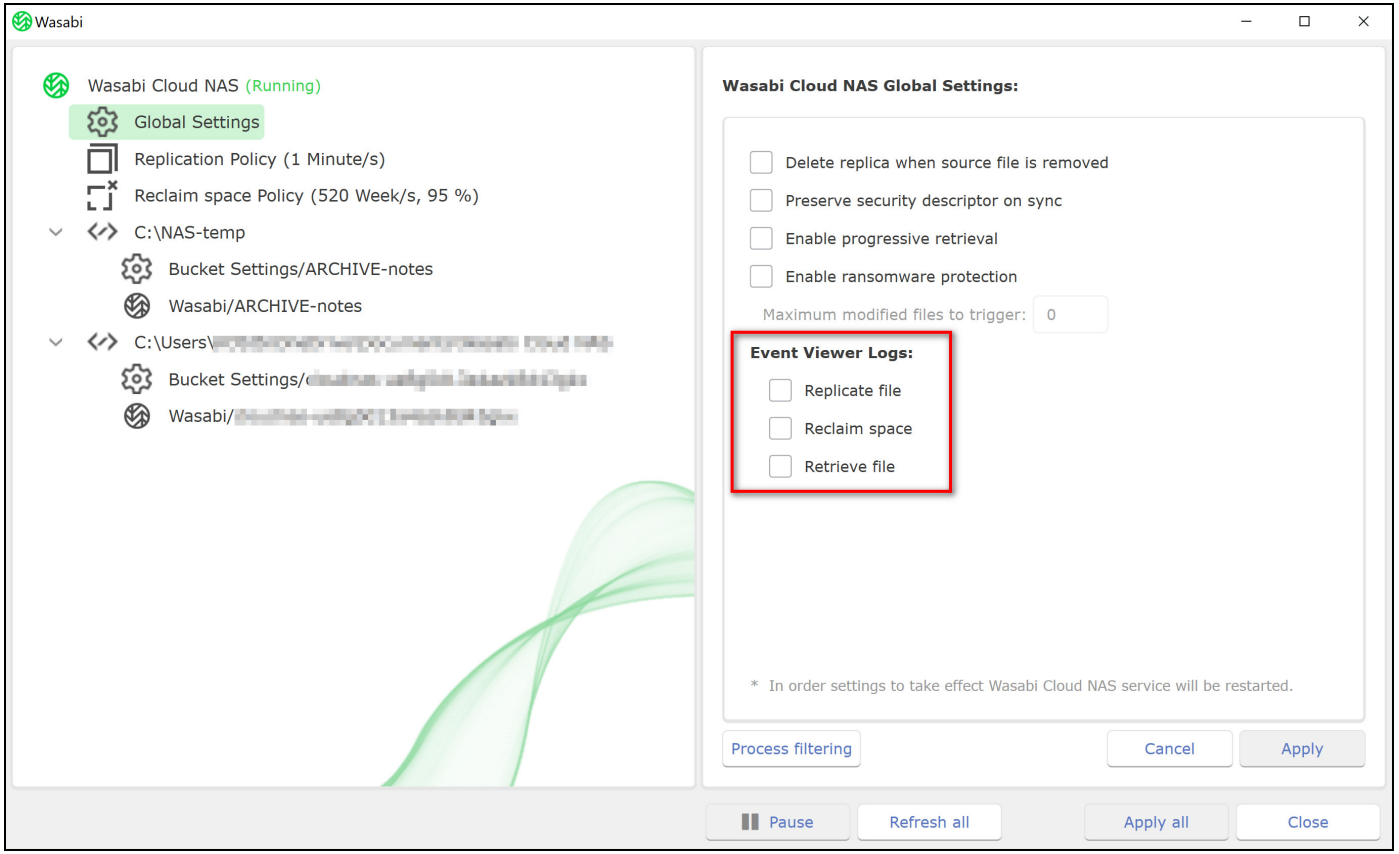
The Wasabi Cloud NAS Configuration interface lets you specify which of the following events should be output as logs in the Windows Event Viewer:

- File is replicated
- File is replaced with a nearline file
- Nearline file is retrieved from the bucket

To configure Wasabi Cloud NAS logs in the Configuration:

1. In the left pane of the Wasabi Cloud NAS Configuration interface, click **Global Settings**.
2. Do one of the following in the right pane:
   - Select the check box of an operation to indicate Wasabi Cloud NAS should output logs for it in the Windows Event Viewer.

- Clear the check box of an operation to prevent Wasabi Cloud NAS from outputting logs for it in Windows Event Viewer.



3 Click Apply.

5 Manually Manage Data

Using the Wasabi Cloud NAS shell extension, you can manually manage data in the following ways:

- "Performing Manual Wasabi Cloud NAS Operations," page 5-2, to perform data management operations on separate files or whole folders
- "Synchronizing Data on the Source and the Bucket," page 5-3, to synchronize the contents of a source or just a folder on it with the contents of the bucket
- "Undeleting Data on the Source," page 5-4
- "Managing File and Folder Versions," page 5-5, to restore a selected version of a replicated file on the source or restore the contents of a whole folder to the last committed version of all files in it by a selected point in time

Performing Manual Wasabi Cloud NAS Operations

Initiating a Wasabi Cloud NAS operation manually always takes precedence over the automatically scheduled tasks. That means that if you choose to manually replicate files through the shell extension, the execution of the operation will begin immediately and will pause the automatic replication queue that is being processed at the moment.

IMPORTANT: With a NAS source, stub files are located in the shadow copy folder and not on the network share. To perform a manual operation on them (retrieve a nearline file), you need to perform the manual operation on the stub file in the shadow copy folder. To learn more about data archiving on NAS sources, refer to "NAS Source Pre-requisites and Setup," page 3-4.

Managing Data Through the Shell Extension

Wasabi Cloud NAS is integrated with Windows Explorer and displays files and folders subject to replication, Space Reclaiming, and/or archiving with separate icons.

Icon	Description
	**Synced Local & Cloud** The file/folder has been successfully replicated to Wasabi.
	**Cloud Only** The file or at least one file in the folder is located on Wasabi only.
	**In Process** The file or at least one file in the folder is in the process of being replicated to Wasabi.
	**Pending** The file or at least one file in the folder is locked (or being used by another application) and cannot be replicated until it is available.

To perform data management operations through the Wasabi Cloud NAS shell extension:

NOTE: The respective commands are available only for files/folders to which they apply (i.e., you cannot issue the "Reclaim space" command for a nearline file, for example).

1. In Windows Explorer, right-click the file/folder you want to manage.
2. In the context menu, do one of the following:
   - Select **Wasabi Cloud NAS | Replicate** to replicate the selected file or all files in the selected folder on the bucket.
   - Select **Wasabi Cloud NAS | Reclaim space** to replace the selected replicated file or all replicated files in the selected folder with nearline file(s), pointing to the actual replicas on the bucket.
   - Select **Wasabi Cloud NAS | Retrieve data** to retrieve from the bucket the selected nearline file or all nearline files in the selected folder.

Synchronizing Data on the Source and the Bucket

As a means of disaster recovery, Wasabi Cloud NAS offers you the ability to synchronize the contents of the source with the bucket. Thus, in case a replicated file has no nearline counterpart on the source volume, Wasabi Cloud NAS automatically creates it as a stub file after synchronizing the contents with the bucket.

NOTE: If versioning is enabled and there is more than one version of a file on the bucket, Wasabi Cloud NAS restores the version, which has been last used on the source (i.e., this may not be the latest version of the file).

You can choose to synchronize the contents of the current directory on the source only or to execute the command recursively, also synchronizing all data in all subfolders.

IMPORTANT: With a NAS source, you need to synchronize the contents of the shadow copy folder and the bucket. When missing files are restored in the shadow copy folder in the form of stub files, you can retrieve them manually on the source.

To synchronize source and bucket contents through the shell extension:

1. In Windows Explorer, right-click the folder whose contents you want to synchronize with the bucket.
2. To synchronize just the contents of the folder with the bucket, select **Wasabi Cloud NAS | Synchronize with Bucket**.

   Or, to synchronize the contents recursively (i.e., the contents of the selected folder and the contents of all its subfolders), select **Wasabi Cloud NAS | Synchronize Recursively**.

Undeleting Data on the Source

NOTE: To benefit from the undelete feature, versioning must be enabled.

Wasabi Cloud NAS provides you with two methods for recovering accidentally deleted data from your source. If you have configured the Wasabi Cloud NAS delete mode to keep the file replica on the bucket, even if it is deleted on the source, you can easily recover the deleted file by synchronizing the contents of its parent folder with the contents on the bucket. Tor more information, refer to "Synchronizing Data on the Source and the Bucket," page 5-3.

If the Wasabi Cloud NAS delete mode is configured to delete the file replica from the bucket as soon as it is deleted from the source, your only means to recover an accidentally deleted file is to undelete it, following the steps below. Once you undelete a file, it appears on your source as a nearline file, which you can then retrieve manually, through Wasabi Cloud NAS or on demand, by attempting to open it.

IMPORTANT: To undelete a file from a NAS source, you need to perform the operation in its shadow copy folder.

To undelete data on the source through the shell extension:

1. In Windows Explorer, right-click the folder containing the file you want to undelete.
2. In the context menu, select **Wasabi Cloud NAS | Undelete**.

   Wasabi Cloud NAS undeletes all deleted files in the selected folder as long as they have a copy on the bucket. The undeleted files appear on your source as nearline files, which you can retrieve manually or on demand.

Managing File and Folder Versions

As long as your versioning is enabled on your cloud storage bucket (see steps about enabling versioning in the bucket in "Configuring Bucket Settings," page 3-11) you can restore on your source any specific version of a replicated file or delete a specific version from the bucket. When providing you with the list of available versions for a file from which to select, Wasabi Cloud NAS gives you information about the modification time of each version.

To help you manage versions more efficiently, Wasabi Cloud NAS allows you to analyze the contents of a whole folder on your source using a selected point in time as a starting point. The analysis gives you information not only about the total number of files with versions in the folder and the overall size of all versions on the bucket, but also about the number and size of versions submitted before the selected date and time, and the number and size of file versions, stored on the bucket after the selected date and time. With this information in mind, Wasabi Cloud NAS then allows you to:

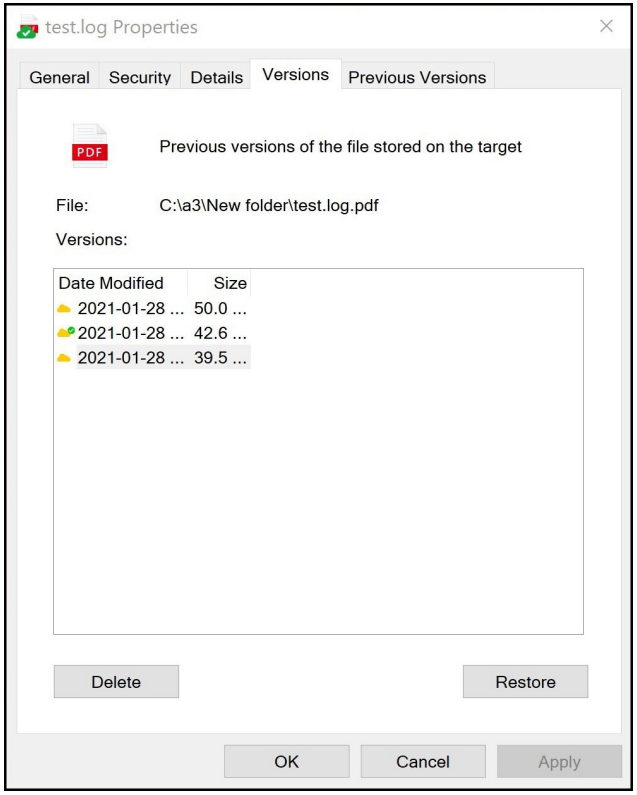
- Delete all older versions of all files from the bucket, discarding them as obsolete and thus freeing space.
- Restore the version of all files in the folder to the last submitted version before the selected date and time. This functionality can be useful when, for example, your on-premises storage has suffered a ransomware attack, allowing you to revert all files to their unencrypted state.

IMPORTANT: You can manage the versions of files/folders on a NAS source in the shadow copy folder.

To restore a specific version of a file:

1. In Windows Explorer, right-click the file and select **Properties**.
2. In the Properties dialog, select the **Versions** tab.

   Wasabi Cloud NAS lists all available versions of the file in descending order, starting with the newest one. The version currently stored on the source is displayed with a check mark.



3 Select a file version in the list and click **Restore**.

To delete a specific version of a file:

1 In Windows Explorer, right-click the file and select **Properties**.

2 In the Properties dialog, select the **Versions** tab.

Wasabi Cloud NAS lists all available versions of the file in descending order, starting with the newest one. The version currently stored on the source is displayed with a check mark.

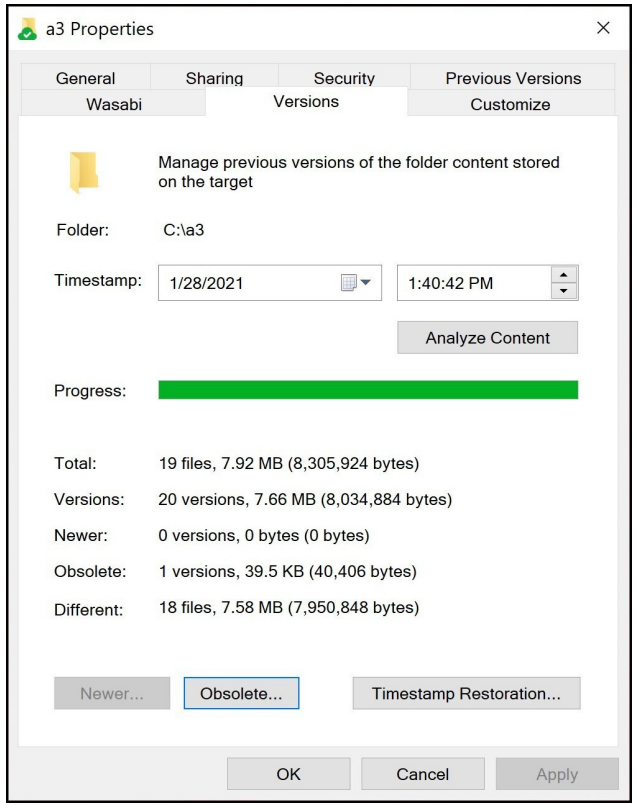
3 Select a file version in the list and click **Delete** to delete it from the bucket.

NOTE: You cannot delete the version that is currently stored on your source (i.e., the one with a check mark in its icon). To delete this version from the bucket, you first need to restore another version of the file on your source.

To analyze the contents of a folder:

1. In Windows Explorer, right-click the folder and select **Properties**.
2. In the Properties dialog, select the **Versions** tab.
3. Select the desired date and time in the **Timestamp** boxes and then click **Analyze Content**.

NOTE: Depending on the number of files in the folder and their size, the analysis may take time. Monitor the progress bar to make sure Wasabi Cloud NAS has gathered complete information.



Wasabi Cloud NAS gives you the following information:

Total — The total number of files on the source and their size.

Versions — The number of overall file versions and their size on the bucket.

Newer — The number of file versions, which were stored on the bucket after the selected date and time, and their size on the bucket.

Obsolete — The number of file versions, which were stored on the bucket before the selected date and time, and their size on the bucket.

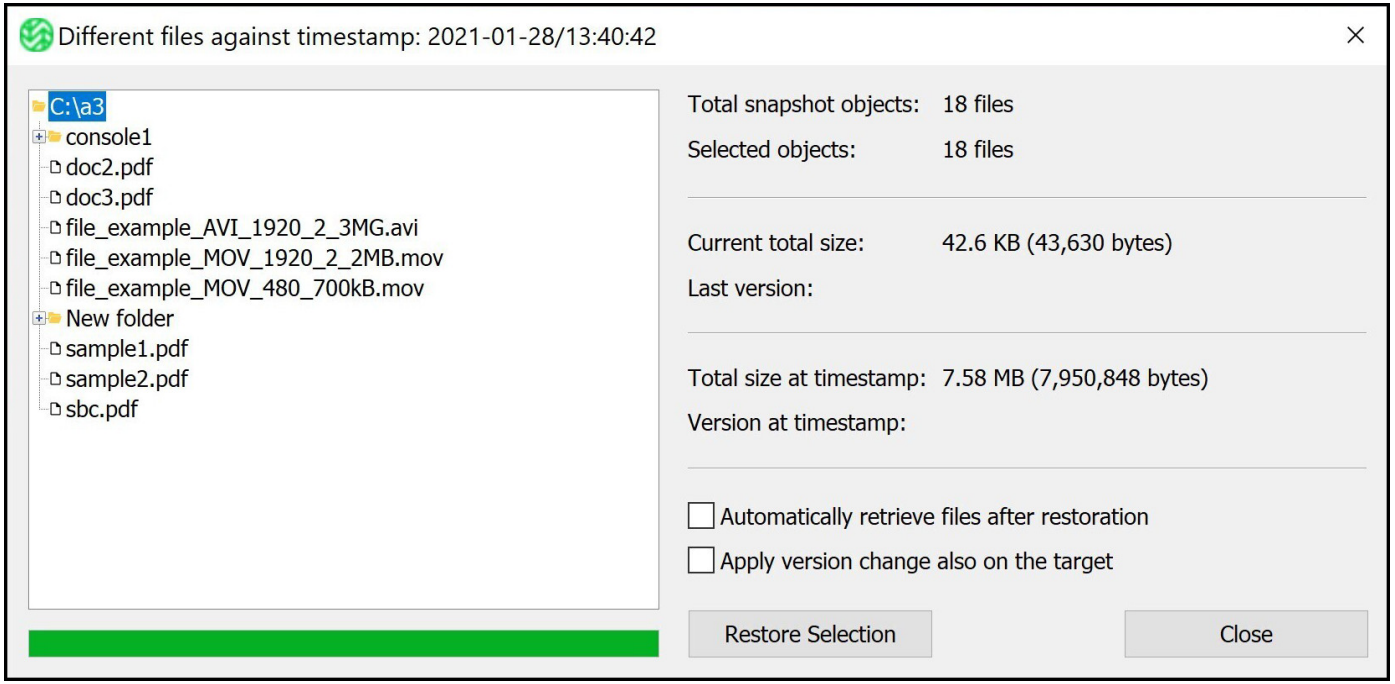
Different — The number of files and their size, which will be changed on the source, if you decide to restore the state of the folder to the state it had on the selected date and time.

To restore files in a folder to their state before selected date and time:

1. In Windows Explorer, right-click the folder and select **Properties**.
2. In the Properties dialog, select the **Versions** tab.
3. Select the desired date and time in the **Timestamp** boxes and then click **Analyze Content**.

NOTE: Depending on the number of files in the folder and their size, the analysis may take time. Monitor the progress bar to make sure Wasabi Cloud NAS has gathered complete information.

4. Click **Restore Timestamp**.
5. You can select files to restore and then click **Restore Selection**.

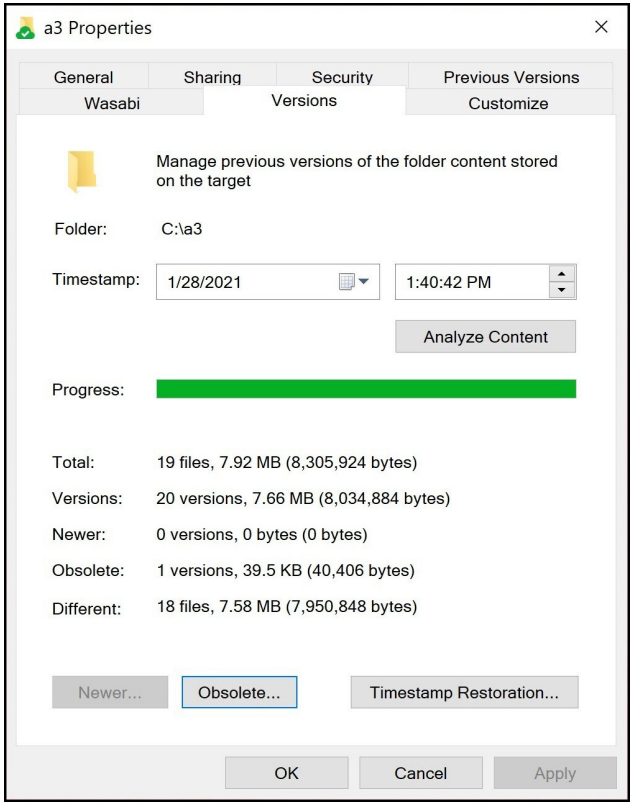


Wasabi Cloud NAS replaces all files (their exact number is listed in the Different field) with the latest version submitted to the bucket before the selected date and time with either nearline files on your source. You can trigger their retrieval manually, through Wasabi Cloud NAS or on demand, by opening them on your source.

To delete obsolete versions of files in a folder:

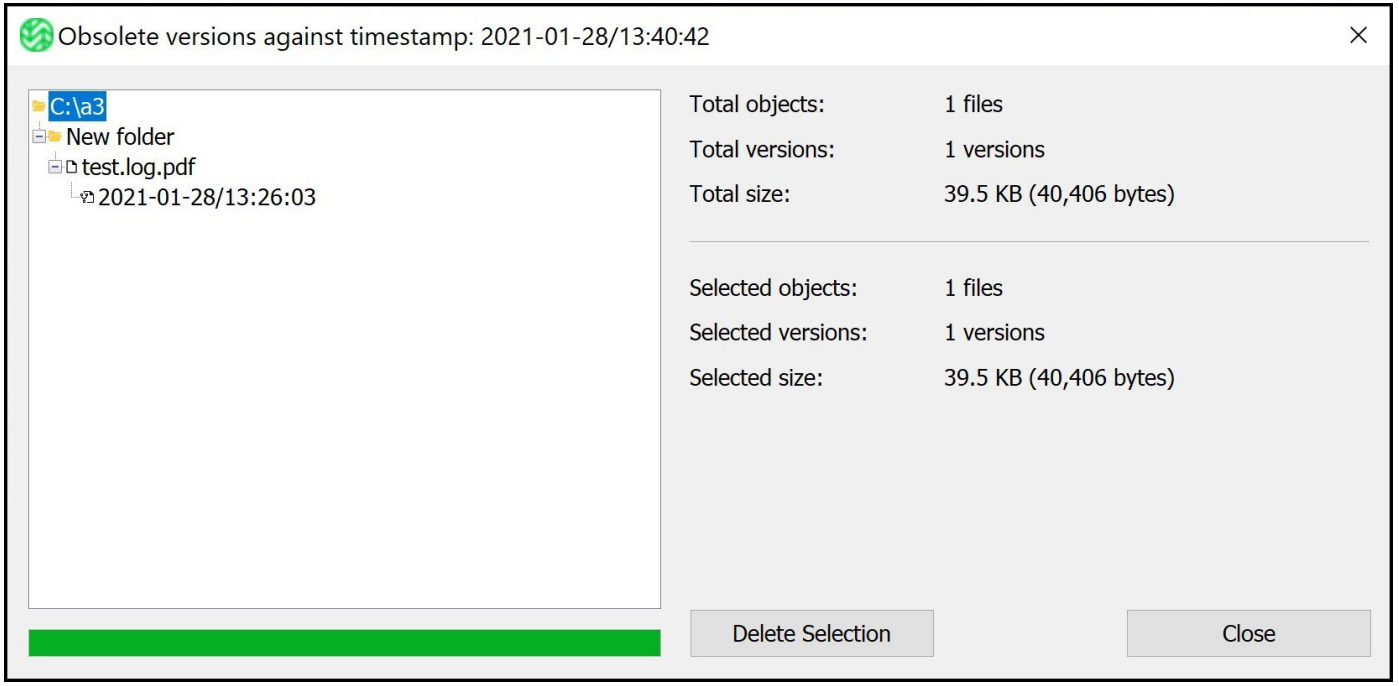
1. In Windows Explorer, right-click the folder and select **Properties**.
2. In the Properties dialog, select the **Versions** tab.
3. Select the desired date and time in the **Timestamp** boxes and then click **Analyze Content**.

NOTE: Depending on the number of files in the folder and their size, the analysis may take time. Monitor the progress bar to make sure Wasabi Cloud NAS has gathered complete information.



4 Click **Obsolete**.

5 You can select files to delete and then click **Delete Selection**.



Wasabi Cloud NAS deletes from the bucket all versions of the files, which have been submitted to the bucket before the selected date and time.

6 Wasabi Cloud NAS Logs

Wasabi Cloud NAS logs three types of events:

"Information Logs," page 6-2 — logs information about successfully performed operation.

"Warning Logs," page 6-3 — logs an unsuccessful attempt to perform an operation.

"Error Logs," page 6-5 — logs failure to perform an operation.

IMPORTANT: Unlike warning messages, which signify a temporary problem, error messages notify you that Wasabi Cloud NAS has reached its threshold of scheduled attempts to accomplish the operation. To make Wasabi Cloud NAS attempt to accomplish such operations anew, you must restart the computer running Wasabi Cloud NAS.

Information Logs

Information Log Message	Description
Source <source path> connected to <bucket type> bucket.	Wasabi Cloud NAS successfully connected the specified source to its bucket.
Replication bucket for source <source path> is online now.	This is displayed after an unsuccessful attempt(s) to connect the specified source to the bucket, once the bucket is accessible to Wasabi Cloud NAS and it can perform data management operations on it.
File <path to file on source> is successfully replicated on the bucket.	The specified file has been successfully replicated on the bucket by the automatic or manual Data Replication mechanism.
Replication of file <path to file on source> has been aborted due to requested write access to it.	The replication of the specified file has been aborted because a user or application opened it on the source. If the file has been scheduled for automatic Data Replication, once it is no longer in use, it will be queued for replication anew.
File <path to file on source> is replaced with a stub file on the source.	The specified replicated file has been successfully replaced by a nearline file on the source by the automatic or manual Space Reclaiming mechanism.
File <path to file on source> <process name> is successfully retrieved on the source.	The specified nearline file on the source has been successfully retrieved from the bucket. If the nearline file has been retrieved manually through the shell extension, the process name is “user operation.” If the nearline file has been retrieved by attempting to open it on the source, the message displays the name of the process.

Warning Logs

Warning Log Message	Description
Source <path to source> failed to connect to <bucket type> bucket.	The bucket of the specified source is currently inaccessible. The reason for the problem may be a lost connection or changed credentials for access to the bucket. Wasabi Cloud NAS attempts to connect to the bucket and displays an error message if it fails to do so within a specified time period.
Replication bucket for source <path to source> is not accessible.	The specified source has been disconnected from its bucket, because it is currently inaccessible. The reason for the problem may be lost a connection or changed credentials for access to the bucket. Wasabi Cloud NAS attempts to reconnect to the bucket and displays an error message if it fails to do so within a specified time period.
Replication of file <path to file on source> failed.	A Wasabi Cloud NAS attempt failed to replicate the specified file to the bucket. The reason for the failed operation may be temporary inaccessibility of the bucket, for example. The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.
Replacing file <path to file on source> with a stub file on the source failed.	A Wasabi Cloud NAS attempt failed to automatically reclaim space on the source by replacing the specified file with a nearline file. The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.
Adding file <file name> failed.	A Wasabi Cloud NAS attempt failed to synchronize the contents of two sources through a common bucket by creating a nearline file in the source of one computer upon receiving notification for replicated file from another computer. The reason for the failed operation may be temporary inaccessibility of the bucket, for example. The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.

Warning Log Message	Description
Removing file <file name> failed.	A Wasabi Cloud NAS attempt failed to synchronize the contents of two sources through a common bucket by removing a nearline file in the source of one computer upon receiving notification for removed file from another computer. The reason for the failed operation may be temporary inaccessibility of the bucket, for example. The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.
Renaming file <current file name> to <updated file name> failed.	A Wasabi Cloud NAS attempt failed to synchronize the contents of two sources through a common bucket by renaming a nearline file in the source of one computer upon receiving notification for file rename on another computer. The reason for the failed operation may be temporary inaccessibility of the bucket, for example. The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.
Failed to parse sync notification <notification ID>.	A Wasabi Cloud NAS attempt failed to parse a notification for updated contents on one computer when synchronizing it with the contents of another computer through a common bucket (Active Sync). The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.
Failed to process notification <notification ID>.	A Wasabi Cloud NAS attempt failed to process a notification for updated contents on one computer when synchronizing it with the contents of another computer through a common bucket (Active Sync). The message is displayed until the operation succeeds or until Wasabi Cloud NAS reaches the maximum number of attempts in which case it displays an error message.

Error Logs

Error Log Message	Description
Source location is missing. Volume with guid <volume GUID> is not mounted.	Wasabi Cloud NAS failed to load a source because the GUID of the volume on which it is stored does not match the GUID of any volume accessible to Wasabi Cloud NAS.
Source location <path to source> is missing.	Wasabi Cloud NAS managed to load the volume on which the specified source is stored, but failed to load the source itself because the path to it has changed (a folder is renamed, for example) or is missing (the folder added as a source has been deleted).
Source <path to source> cannot be loaded.	Wasabi Cloud NAS failed to load a source because its file system is not supported. For example, a Wasabi Store-managed volume added as a source is now mounted as a Wasabi Client.
Replication of file <path to file on source> failed.	All attempts to replicate the specified file on the bucket have failed, for example, because the bucket is inaccessible. To let Wasabi Cloud NAS attempt to replicate the file again, you must restart Wasabi Cloud NAS.
Retrieving file <path to file on source> <process name> from the bucket failed.	All attempts to retrieve the specified file from the bucket have failed because, for example, the bucket is inaccessible. To let Wasabi Cloud NAS attempt to retrieve the file again, you must restart Wasabi Cloud NAS.

About This Guide

The *Wasabi Cloud NAS Administration Guide* provides details about Wasabi features with procedures for new and experienced users.

Content

Technical Support

The Wasabi web site has the latest product information. Use this resource to review product information, download software updates, contact technical support, access the Wasabi knowledge base, or provide feedback on Wasabi documentation and online help:

https://wasabi.com/help

Use this email address to contact a Wasabi Customer Support representative:

support@wasabi.com