

## Global Locking

The purpose of the Global Locking feature is to prevent conflicts when two or more users attempt to change the same file on different Nasuni Filers. If you enable the Global Locking feature for a directory and its descendants, any files in that directory or its descendants can only be changed by one user at a time. Any other users cannot change the same file at the same time.

Typically, when User X opens a file to change it, the application locks the file, preventing access by User Y. Applications and platforms differ on specific behavior. User Y might receive the option of opening a Read-Only copy of the file, opening a copy of the file with a different name, or receiving a notice when User X closes the file. When User X does close the file, User Y can then access the file.

***Tip:** Enabling Global Locking can have an impact on performance, depending on factors that include network congestion, user load, and file sizes. Do not enable Global Locking until after initial data load and after large data migrations. If users do not typically collaborate on the same file at the same time, it is unnecessary to enable Global Locking.*

***Note:** The Nasuni Filer supports the use of byte-range locking for applications that benefit from this feature. However, because of the impact on performance, byte-range locking is disabled by default. If your applications require byte-range locking, contact Nasuni Technical Support to enable byte-range locking.*

***Note:** You cannot enable Global Locking for a volume that has multiple protocols enabled.*

***Caution:** If two Nasuni Filers both have Global Locking enabled for the same folder, and a file is deleted or removed in the folder on one of the Nasuni Filers, the file might still be available on the other Nasuni Filer.*

You can also manually break the locking of a file. This might become necessary if a user leaves a file open and another user needs to open that file.

***Note:** If you enable Global Locking for a folder, synchronization conflicts do not occur unless the lock on a file is broken manually. If a user continues using a file after the lock is manually broken, the file might become locked again.*

***Warning:** If you manually break the locking of a file, this might result in conflicts for the file.*

***Note:** For additional information about the use of Global Locking with Revit, see [Revit Configuration Guide](#).*

## Global Locking and synchronization

On volumes with global locking enabled, global locking provides file synchronization independently of snapshot and synchronization processing. You can also manually initiate snapshots.

*Tip: On volumes with Global Locking enabled, we recommend reducing the normal snapshot and synchronization frequency of the volume, because Global Locking provides file synchronization independently of the snapshot and synchronization frequency. This file synchronization occurs when the file gives up the file lock, and when file locks are degraded to read locks (in Advanced mode only).*

## Managing conflicts

Note that Global Locking is only one way that the Nasuni service avoids or manages conflicts when more than one user tries to access a given file.

For example, if two users on the *same* Nasuni Filer try to access the same file, file locking is handled by traditional SMB processing. Such local locking operates just as on other servers or NAS. There is no need to enable or configure anything special. Note that limitations with Samba might prevent an administrator from breaking such local CIFS locks.

The Global Locking feature comes into play when two or more users attempt to change the same file on *different* Nasuni Filers.

In addition, locally changed data is never overwritten with data from other Nasuni Filers connected to the remote volume. Instead, several different types of conflicts are handled:

- **Name conflict:** For example, files on two different Nasuni Filers are created or renamed with the same name during the same time interval.
- **Metadata conflict:** For example, metadata is changed for the same file on two different Nasuni Filers during the same time interval.
- **Data conflict:** For example, the data is changed for the same file on two different Nasuni Filers during the same time interval.

If a conflict occurs, such as when locks are manually broken or Internet problems prevent contact with Nasuni Filers, the Nasuni Filer performs these actions:

- Creates a conflict log file in the `.nasuni\sync_logs` directory. The file name of the conflict log file is the date in GMT format. The conflict log file contains entries for each conflict. Each entry has details about one specific conflict.
- Creates a conflict message that points to the `.nasuni\sync_logs` directory.
- For name conflicts and data conflicts, changes the name of the conflicting file to include details about the conflict.
- Optionally, sends an email to the administrator, if configured.

## Enabling Global Locking

This procedure is for the Nasuni Filer user interface. The procedure for the Nasuni Management Console is similar.

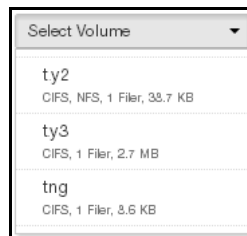
To enable Global Locking for a folder (which can be a volume) and its descendants, follow these steps:

1. Click **File Browser**. The **File System Browser** page appears.



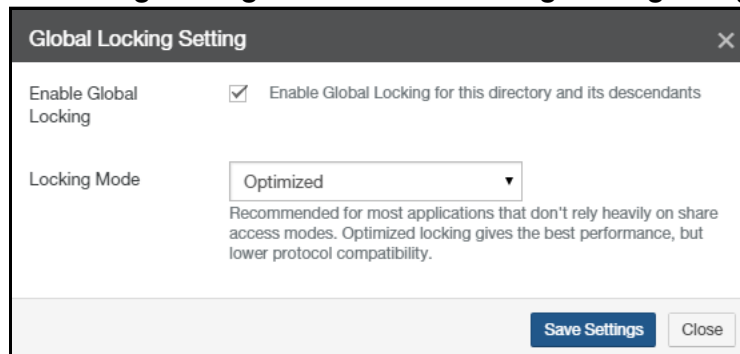
**Figure 1-1: File System Browser page.**

2. From the **Volume** drop-down list, select a volume name.



**Figure 1-2: Volume drop-down list.**

3. Navigate to the desired folder.
4. Click **Edit Global Locking Settings**. The **Global Locking Setting** dialog box appears.



**Figure 1-3: Global Locking Setting dialog box.**

5. Select **Enable Global Locking**.

**Caution:** *If two Nasuni Filers both have Global Locking enabled for the same folder, and a file is deleted or removed in the folder on one of the Nasuni Filers, the file might still be available on the other Nasuni Filer.*



6. From the **Locking Mode** drop-down list, select one of the following locking modes:
  - **Optimized:** Recommended for most applications that don't rely heavily on shared access modes. Optimized locking gives the best performance, but lower protocol compatibility.  
*Note: NFS volumes only support Optimized mode locking.*
  - **Advanced:** Recommended for applications that rely on shared access modes. Advanced locking provides the highest global locking compatibility, but might impact performance.  
*Note: If Advanced locking is set on a directory, then any sub-directories that inherit the Advanced setting do not have the option to "Edit Global Locking Settings".*  
*Tip: If the Advanced Global Locking Mode is enabled for a CIFS folder, then Linux clients might not be able to access all files.*
7. Click **Save Settings**. Your changes are saved.

## Configuring Global Locking using Nasuni Filer user interface

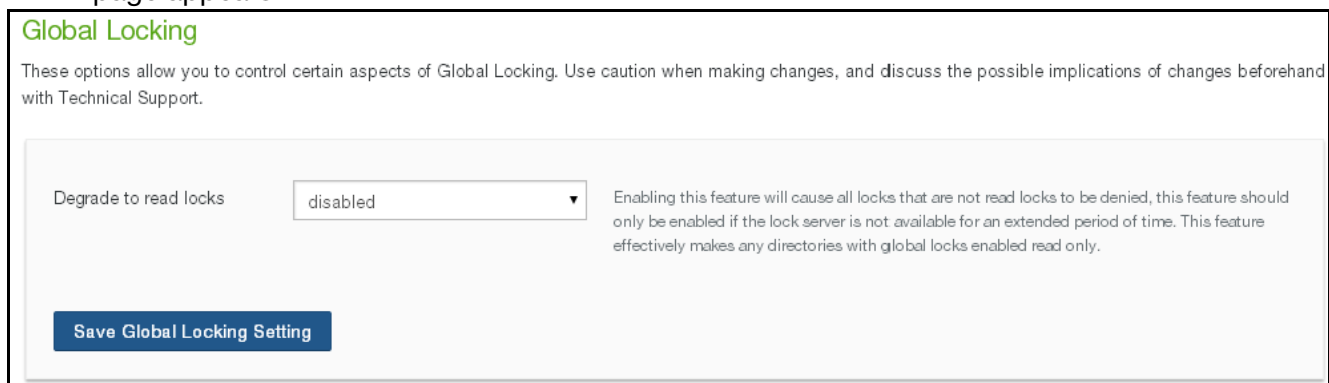
This section enables you to configure certain aspects of global file locking.

*Tip: Use caution when making changes to global file locking, and discuss the possible implications of changes beforehand with Nasuni Technical Support.*

If global file locking is enabled, and Internet connectivity issues prevent a Nasuni Filer from releasing locks on certain files, local users can still read any files that are present in the local cache by degrading the type of lock to a read lock. If a user is trying to access a file that is not present in the local cache, and if the Nasuni Filer does have Internet access, you can also attempt to restore access to the file by degrading the type of lock to a read lock. Enabling this feature causes all locks that are not read locks to be denied. This effectively makes any directories that have global locks enabled into read-only directories. Only enable this feature if file access is affected for an extended period of time.

To degrade global file locking to read locks, follow these steps:

1. Click **Configuration**, then select **Global Locking** from the drop-down list. The **Global Locking** page appears.



**Figure 1-4: Global Locking page.**

*Note: If this Nasuni Filer is under Nasuni Management Console control, and the Nasuni Filer is running a version before 7.5, this page is not available on the Nasuni Filer. Instead, use the Nasuni Management Console to view information or perform actions.*

2. To degrade global file locking to read locks, select **enabled** from the **Degrade to read locks** drop-down list.
3. To accept your selections, click **Save Global Locking Setting**. The global file locking configuration is changed.

## Configuring Global Locking using Nasuni Management Console


This section enables you to configure certain aspects of global file locking.

*Tip: Use caution when making changes to global file locking, and discuss the possible implications of changes beforehand with Nasuni Technical Support.*

If global file locking is enabled, and Internet connectivity issues prevent a Nasuni Filer from releasing locks on certain files, local users can still read any files that are present in the local cache by degrading the type of lock to a read lock. If a user is trying to access a file that is not present in the local cache, and if the Nasuni Filer does have Internet access, you can also attempt to restore access to the file by degrading the type of lock to a read lock. Enabling this feature causes all locks that are not read locks to be denied. This effectively makes any directories that have global locks enabled into read-only directories. Only enable this feature if file access is affected for an extended period of time.

To degrade global file locking to read locks, follow these steps:

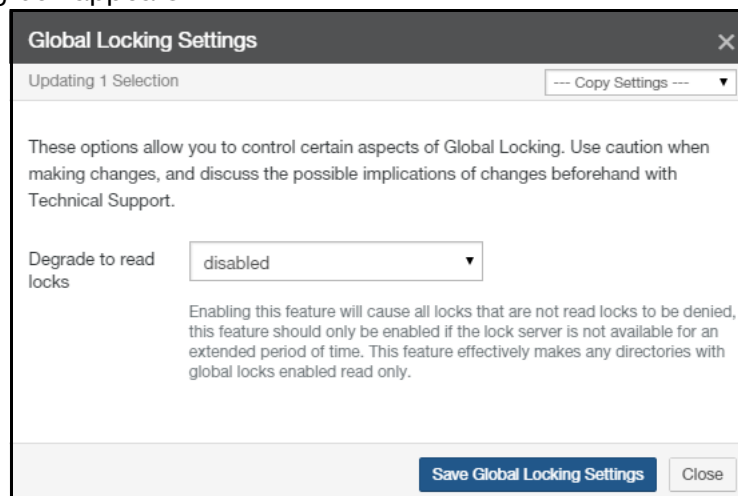
1. Click **Files**, then select **Global Locking**. The **Filer Global Locking Settings** page appears.



Filer Global Locking Settings			Edit Filers
<input type="checkbox"/> DESCRIPTION ▲	DEGRADE TO READ LOCKS ⇅	STATUS	
<input type="checkbox"/> nv-61-a1	No	✓	
<input type="checkbox"/> nv-61-a2	No	✓	

**Figure 1-5: Filer Global Locking Settings page.**

2. Select the Nasuni Filers to degrade to read locks, then click **Edit Filers**. The **Global Locking Settings** dialog box appears.



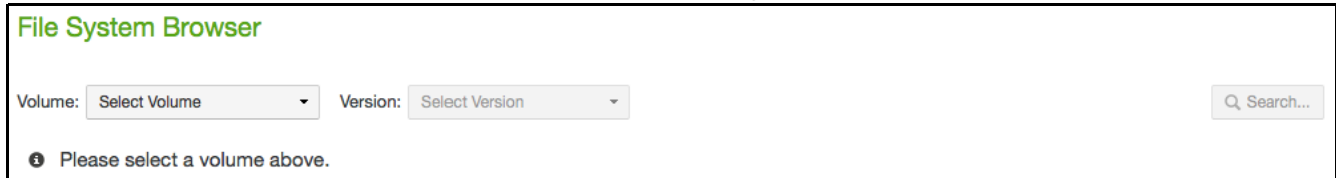
**Figure 1-6: Global Locking Settings dialog box.**

3. To copy the settings from a Nasuni Filer, select the Nasuni Filer from the **Copy Settings** drop-down list. The settings of the selected Nasuni Filer appear in the dialog box.
4. To degrade global file locking to read locks, select **enabled** from the **Degrade to read locks** drop-down list.
5. To accept your selections, click **Save Global Locking Settings**. The global file locking configuration is changed.

## Breaking Global Locking

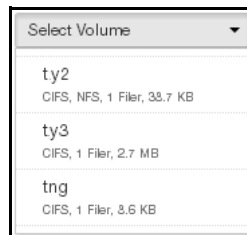
To break Global Locking for a file, follow these steps:

1. Click **File Browser**. The **File System Browser** page appears.



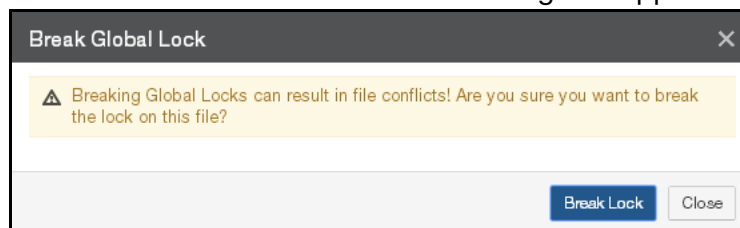
**Figure 1-7: File System Browser page.**

2. From the **Volume** drop-down list, select a volume name.



**Figure 1-8: Volume drop-down list.**

3. Navigate to the desired file.
4. Click **Break Global Lock**. The **Break Global Lock** dialog box appears.



**Figure 1-9: Break Global Lock dialog box.**

5. Click **Break Lock**. The lock for the file is released, allowing other users to open the file. Otherwise, to close the dialog box without making changes, click **Close**.

## Global Locking status

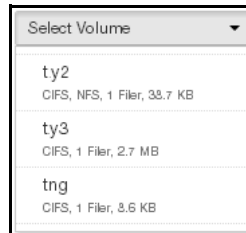
To view the status of Global Locking for folders and files in a volume, follow these steps:

1. Click **File Browser**. The **File System Browser** page appears.



**Figure 1-10: File System Browser page.**

2. From the **Volume** drop-down list, select a volume name.



**Figure 1-11: Volume drop-down list.**

The properties of the selected volume are displayed.

Volume Properties	
Volume:	vol211 on engy38
Content Size:	448.4 MB
Ownership:	Unidentified User (7711) / domain users
Cache Resident:	Yes
Global Locking:	Disabled
Pinning:	Enabled
Auto Cache:	Enabled

**Figure 1-12: Volume properties.**

The volume properties include:

- **Global Locking:** (For folders.) Indicates whether Global Locking is enabled for the volume (Enabled). If this Global Locking status is inherited, includes the word “Inherited”. If the Global Locking mode is Optimized, includes the word “Optimized”.



3. Navigate to the desired file or folder. The selected file or folder is highlighted in the list. The properties of the selected item are displayed.

File Properties	
Location:	\global3255\0p71Bus1itQwTKKM1376
Size:	0 Bytes
Ownership:	nasuni / Filer Users
Cache Resident:	Yes
Lock Status:	Unlocked
Pinning:	Enabled (inherited)
Auto Cache:	Enabled (inherited)

**Figure 1-13: File properties.**

The properties include:

- **Lock Status:** If Global Locking is enabled for the volume, indicates whether the file is Locked or Unlocked. If locked by multiple Nasuni Filers, a list appears.

Lock Status:	Locked by Filer(s): jnv- f2.nasuni.com,jnv-f1.nasuni.com
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**Figure 1-14: Locked by multiple Nasuni Filers.**

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Nasuni Corporation | One Marina Park Drive, Boston, MA 02210 | 1.857.444.8500 | [www.nasuni.com](http://www.nasuni.com)