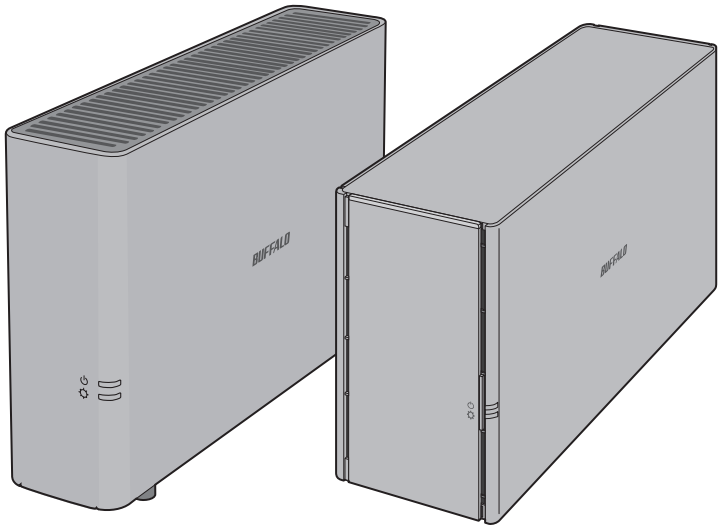
Network Attached Storage

## LinkStation 500

# User Manual



Please make sure to read this manual before using and follow the instructions. If you have any inquiries about the product, contact the number on the warranty statement or the packing box. Do not discard this manual, the warranty statement, or the packing box.

***Europe: www.buffalo-technology.com***

***Asia Pacific: www.buffalo-asia.com***

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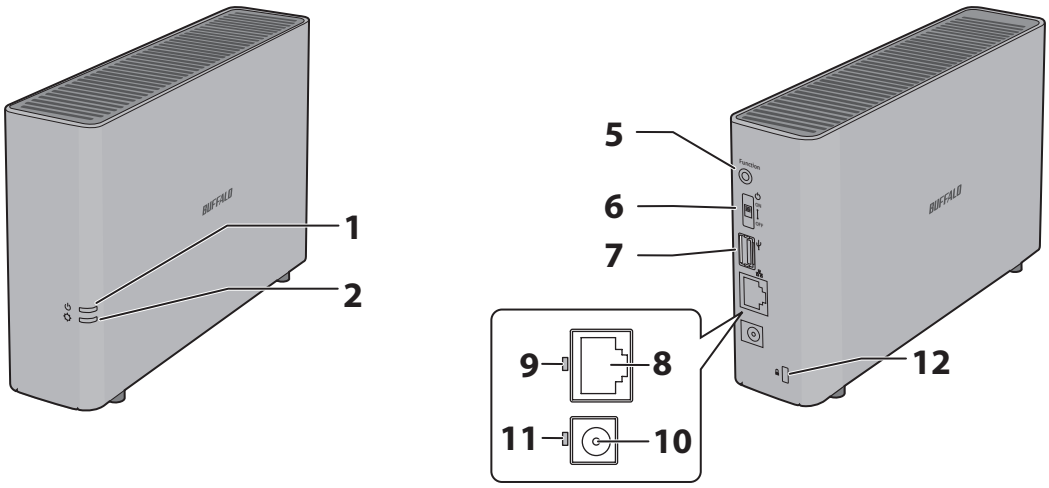
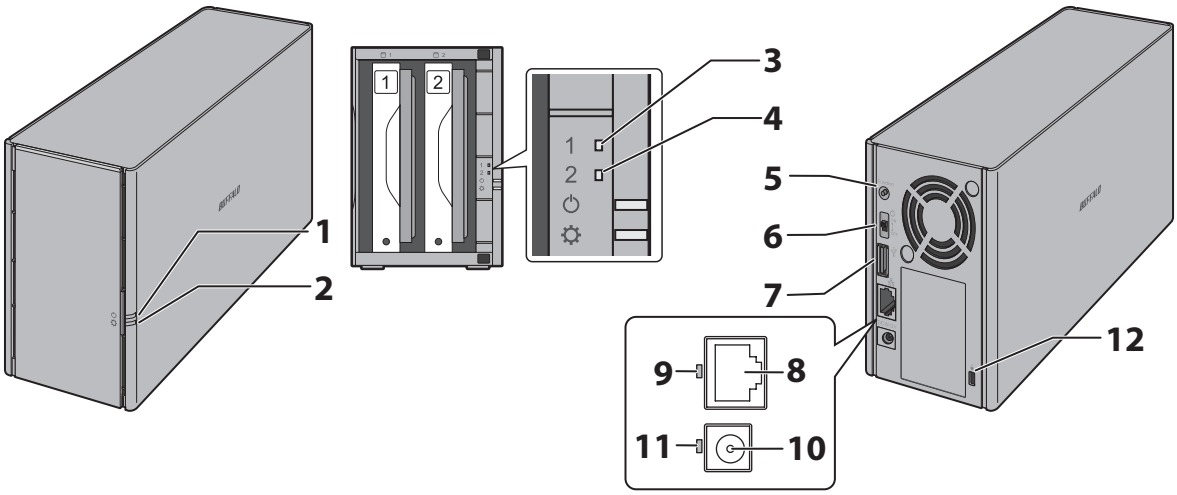
# Chapter 1 Getting Started

## Diagrams

### LS510D




### LS520D, LS520DE




**1** Power LED ( ⏻ )

The white power LED will light up while the LinkStation is on.
The white power LED blinks while booting or shutting down.
The red power LED blinks when an error occurs.
If there is a status message, the power LED blinks amber.
If there is new firmware available, the power LED glows amber.

**2** Function LED ( )

This LED glows white while the USB device is connected, and blinks white dismounting USB devices and during Direct Copy.

**3** Drive 1 Error LED

If there is an error on drive 1, this LED will light.

**4** Drive 2 Error LED

If there is an error on drive 2, this LED will light.

**5** Function Button

Use this button for Direct Copy and initializing settings.

**6** Power Switch ( )

Move the switch up and down to power on and off.

**7** USB 3.0 Port ( )

Compatible Buffalo USB 3.0 hard drives and USB flash drives can be connected. USB hubs are not supported.

**8** LAN Port ( )

Connect to a router, hub, or switch on your Ethernet network with the included Ethernet cable.

**9** Link and Activity LED

This LED shows network activity. It blinks green when the LinkStation is accessed over the network.

**10** Power Connector

Use the included power cable to connect to a surge protector or outlet.

**11** Power Status LED

The LED glows green when the power cable is connected.

**12** Anti-Theft Security Slot ( )

Use this slot to secure your LinkStation with a cable lock (not included).

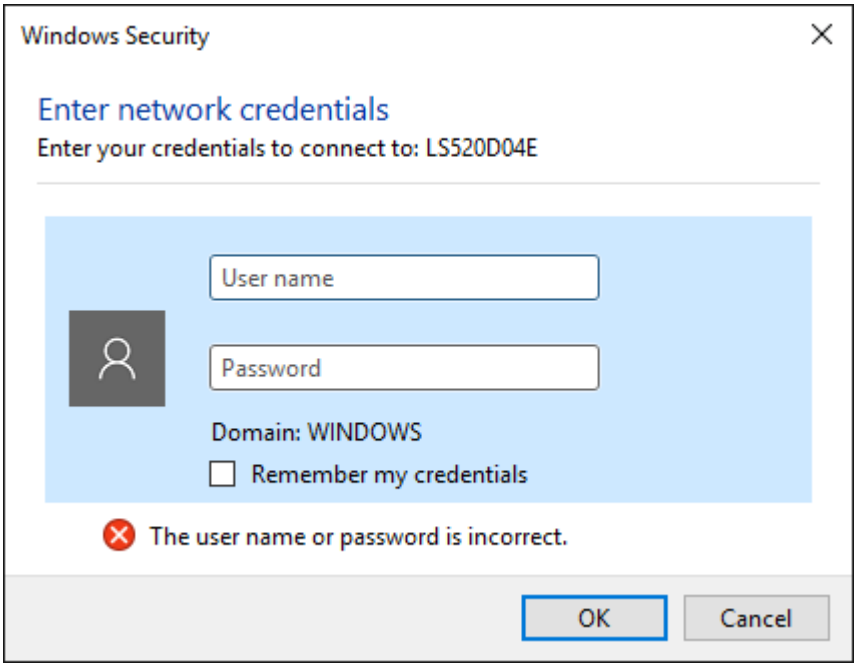
# Accessing Shared Folders

## Accessing from a Computer

**1** Double-click the icon to start NAS Navigator2.

**2** In NAS Navigator2, double-click your LinkStation's icon.

**3** When the following screen is displayed, enter the username and password.




**4** The Explorer will open with a list of shared folders. For Mac OS, the LinkStation is mounted as a drive icon on the desktop or it is displayed in the sidebar of the Finder.

**Note:** 15 GB in each RAID array have been reserved for the system area in the LinkStation, so they cannot be used when accessing via SMB connection.

## Accessing from a Mobile Device

To access shared folders from a mobile device with the following steps, you must configure WebAccess settings first. To configure WebAccess, see the "WebAccess" section in chapter 6.

**1** Open SmartPhone Navigator.

**2** Tap your LinkStation from the NAS list.

**3** Tap *Browse*.

**Note:** Alternatively, you can access shared folders from the WebAccess app. Open the application and tap your LinkStation in the NAS list.

# Turning the LinkStation On and Off

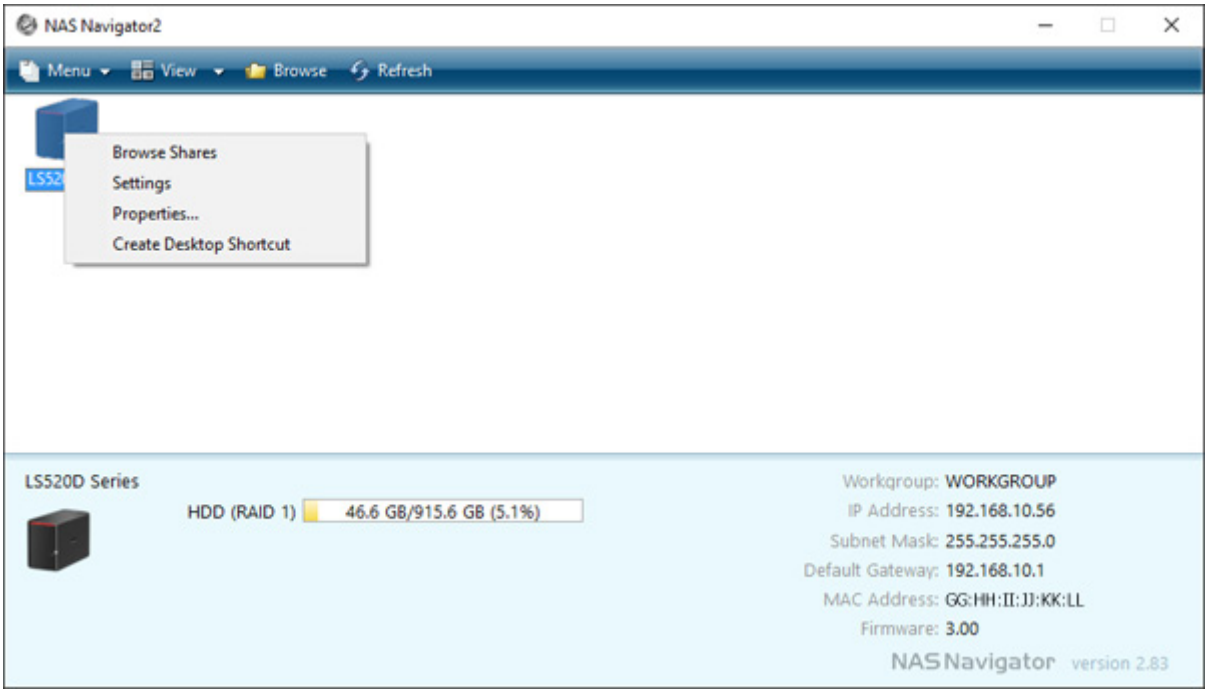
Move the power switch on the back of the LinkStation to the "on" position to turn it on. To turn it off, move the switch to the "off" position and wait for the unit to fully shut down before unplugging it. Never unplug the AC adapter without properly shutting down the LinkStation first.
When all the LEDs on the front of the LinkStation turn off, the shutdown process is complete.

### Restarting from Settings

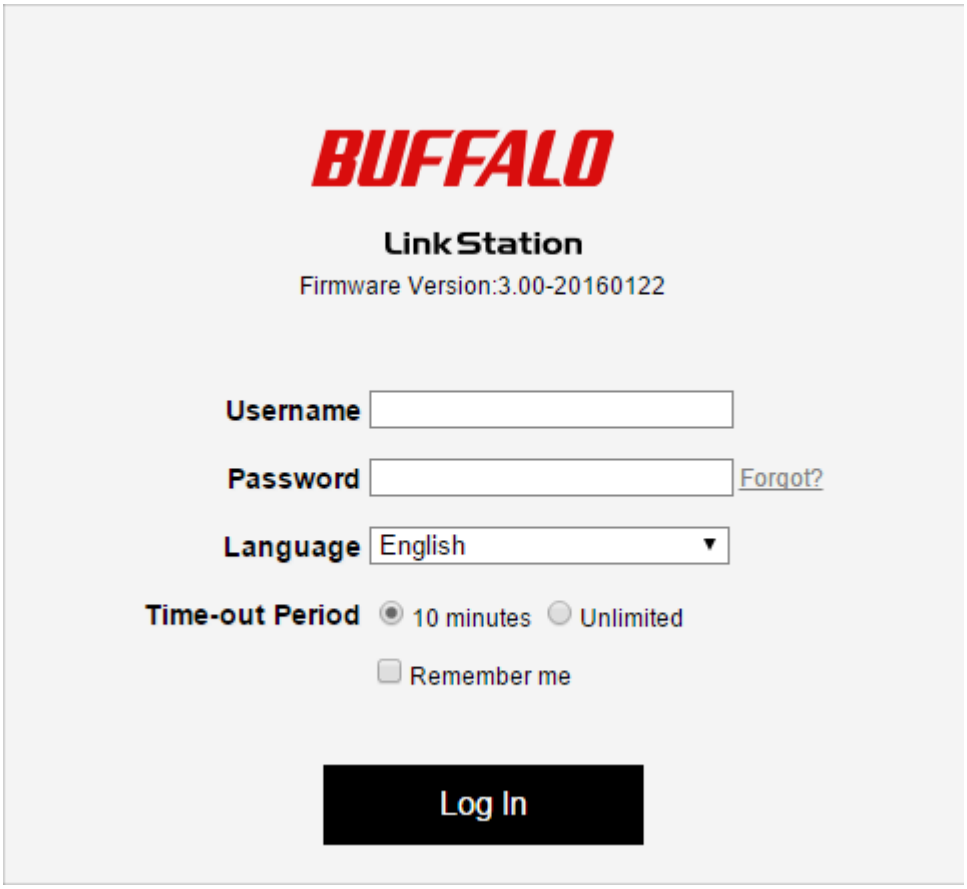
You can also restart the LinkStation remotely from Settings. To restarting from Settings, follow the procedure below.

**1** Double-click the icon to start NAS Navigator2.

**2** Right-click on your LinkStation's icon and choose *Settings*. For Mac OS, click your LinkStation's icon while holding down the control key, then select *Settings*.

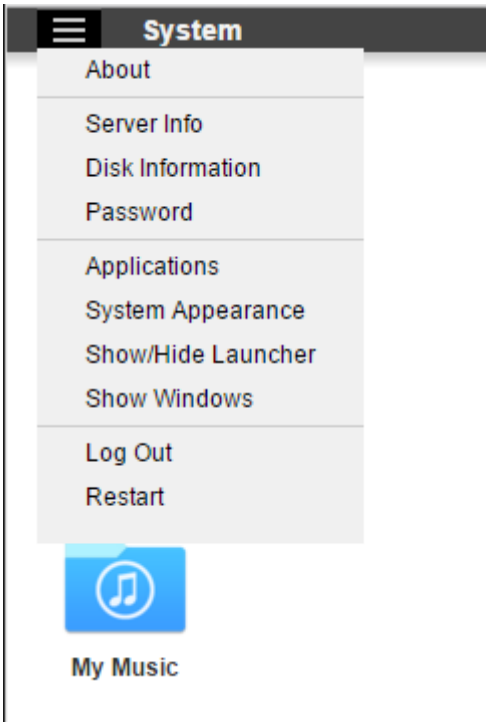



**3** Enter a username and password, then press the Enter key or click *Log In*.

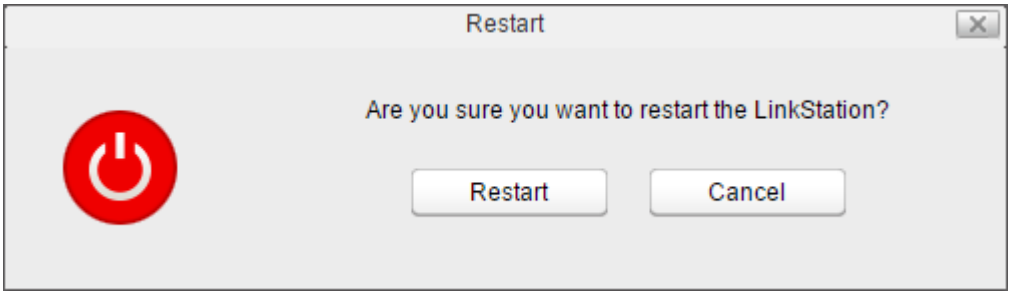


**4** Settings will open.

**5** Click ☰ at the top-left of Settings and choose *Restart*.



**6** Click *Restart* again.




When the power LED stops flashing and glows white, the restart process is complete.

# Chapter 2 Configuration

Configure and manage your LinkStation using the Settings interface, accessible from a browser window. Open the interface using the procedure below or type the LinkStation's IP address in the URL field of your browser.

## Opening Settings

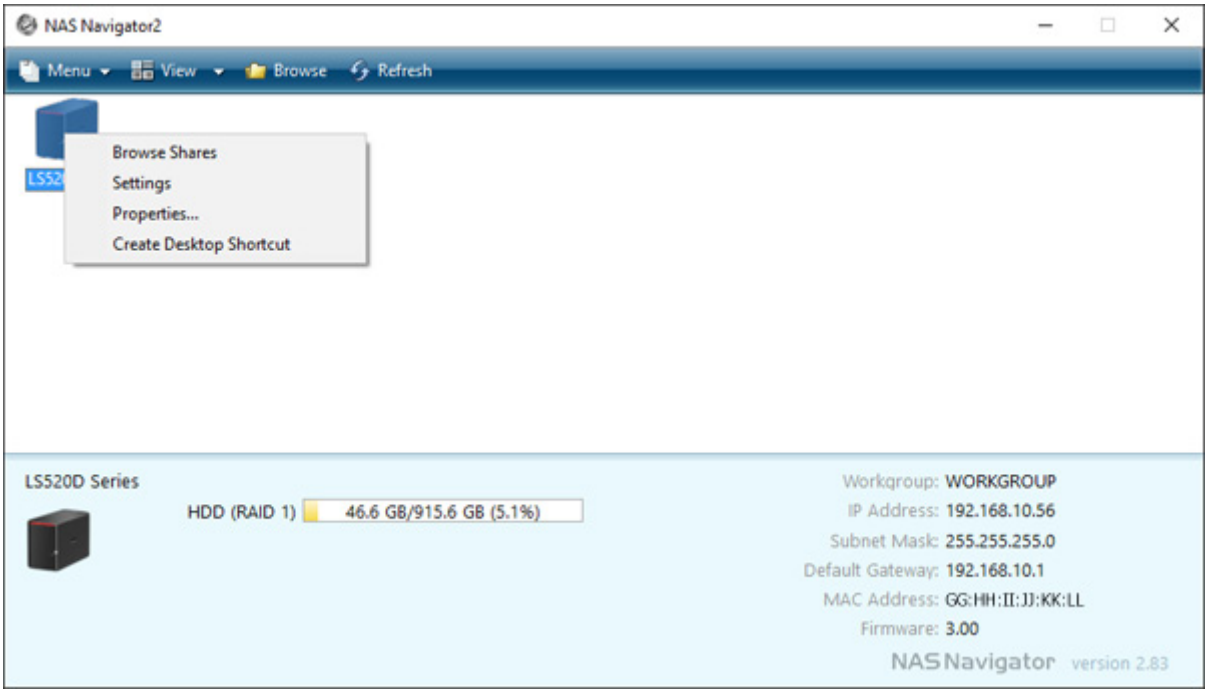
### Opening from a Computer

**Note:** Internet Explorer 9, Microsoft Edge, Firefox 18, Google Chrome 24, Safari 8, and later are supported. If you have difficulty viewing Settings, check the following:

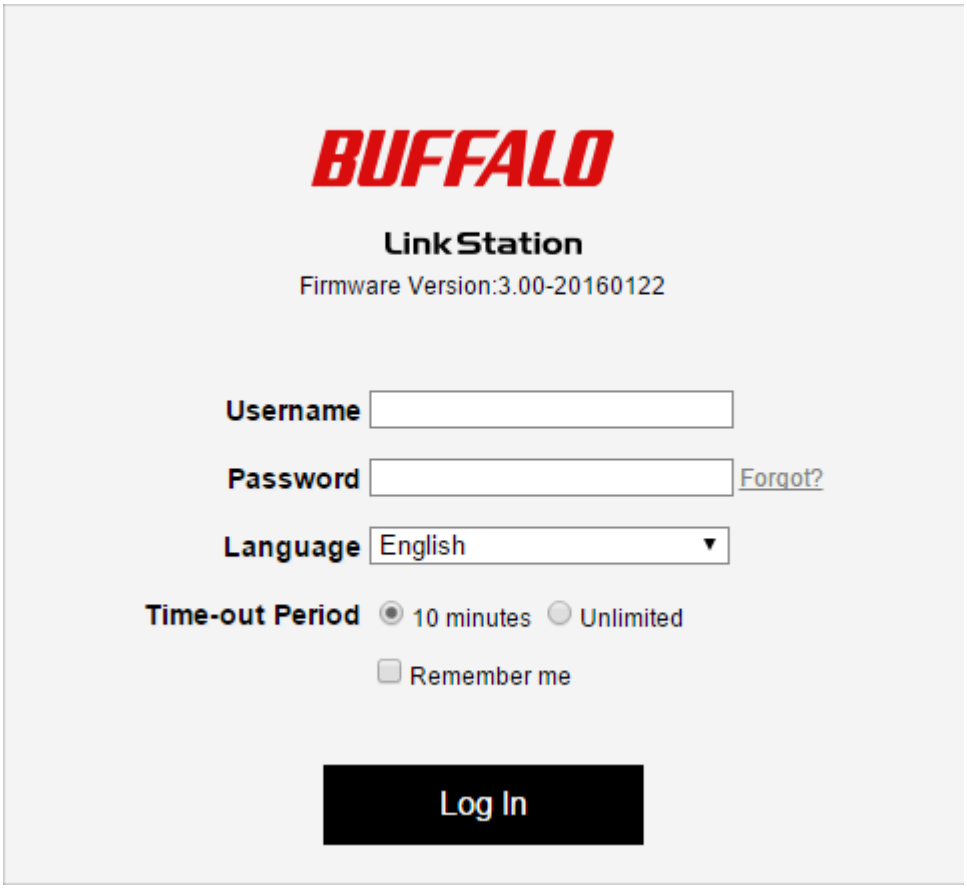
- If you have a proxy server enabled in the browser settings, disable the proxy server.

**1** Double-click the icon to start NAS Navigator2.

**2** Right-click on your LinkStation's icon and choose *Settings*. For Mac OS, click your LinkStation's icon while holding down the control key, then select *Settings*.



**3** The Settings login screen will open.




**4** Enter a username and password, then press the Enter key or click *Log In*.

**Notes:**

- To log out from Settings, close the browser.
- If the time-out period is set to "10 minutes", you will be logged out of Settings after 10 minutes of inactivity.

## Opening from a Mobile Device

You can access your LinkStation's Settings from your iOS or Android device. Download and install "SmartPhone Navigator" from the App Store or Google Play.

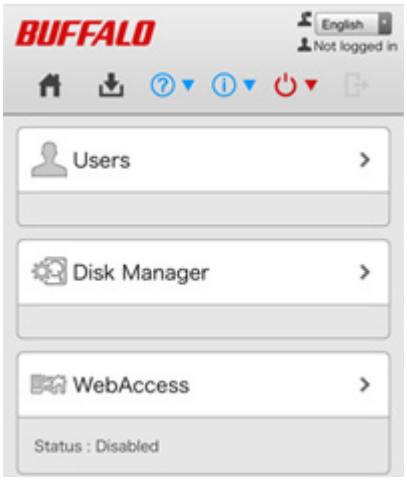
**Notes:**

- If you have an older version of SmartPhone Navigator installed on your device, update to the latest version. Your icons and software may be slightly different from the examples in this manual.
- You must be logged in as the "admin" user to change settings.
- Mobile devices that support mobile-optimized Settings display are listed below:
  iPhone, iPad, and iPod touch*
  Android smartphones and tablets**
  * iOS 7.0 or later
  ** Android 4.1 or later

**1** Open SmartPhone Navigator on your mobile device.

**2** Tap *Open Settings*.

**3** Settings will be displayed.




**Notes:**

- The first time you go through setup, you'll be given a chance to change the default password, create a user, select the RAID mode, and correct the time zone settings.
- If you tap any buttons, you will need to enter a username and password.

## Resetting Administrator Password

If you forget the admin password and cannot log in to Settings, you can initialize it with the function button. Follow the procedure below to initialize the password.

1 Turn off the LinkStation.

2 Turn the LinkStation on while holding down the function button until the power LED flashes amber.

3 Initialization will start. Do not power down the LinkStation while the power LED is blinking.

4 When the power LED glows a steady white, initialization is finished.

# Navigating the Main Menu

When you log in to Settings, you will see the following screen first.

## The Home Screen

The home screen acts like a typical computer desktop. Default shortcuts are listed below:

| Item | Description |
|---|---|
| My LinkStation | Accesses all stored files and folders and all LinkStation functions, including creating new shared folders. |
| My Photos | Shortcuts of folders that are in My LinkStation. |
| My Music | |
| My Videos | |
| Applications | Contains programs built in to the LinkStation, as well as default shortcuts to system settings. |
| Recycle Bin | Stores deleted files. If a file is accidentally deleted, you can restore it from this folder. To empty the recycle bin, right-click the recycle bin icon, then select *Clear*.<br>**Note:** The recycle bin will only store files deleted from Settings. |

## Launcher

The launcher provides instant access to applications and settings of your choice. Even with other windows open in the LinkStation, the launcher will always stay on top for easy access. You can adjust the launcher size, screen position, orientation, or even hide it completely, depending on what is convenient for you.
Default launcher shortcuts are listed below:

| Item | Description |
|---|---|
| My LinkStation | The same as My LinkStation. |
| Media Player | Plays audio or video files stored in the LinkStation. |
| Disk Manager | Manages internal and external drives connected to the LinkStation. |
| Preferences | Configures optional advanced settings. |

# Customizing the Home Screen

You can customize the home screen desktop to your specifications.

## Adding New Shortcuts

To add a new desktop shortcut for an application, drag the application from the "Applications" folder to the desktop.
To add a desktop shortcut for a file or folder, drag the file or folder from its location to the desktop.

## Deleting Shortcuts

To delete a shortcut, you can either right-click on the shortcut and select *Delete*.
Alternatively, you can drag and drop the shortcut into the recycle bin, then click *OK* from the dialog window.

## Restoring Shortcuts

To restore desktop shortcuts to the default ones, right-click anywhere on the desktop and select *Restore Desktop Icons*.

## Arranging and Sorting Icons

To re-arrange the icons, simply drag them to your preferred location on the desktop. To sort desktop shortcuts, right-click anywhere on the desktop and select *Sort Desktop Icons*. All the shortcuts will be re-arranged starting from the top-left corner.

## Changing Icons

You can change replace an icon image with an image file on your LinkStation.

**1** Right-click on a shortcut icon and select *Change Icon*.

**2** Click *Change* and select the image you want.

**3** Click *Close*.

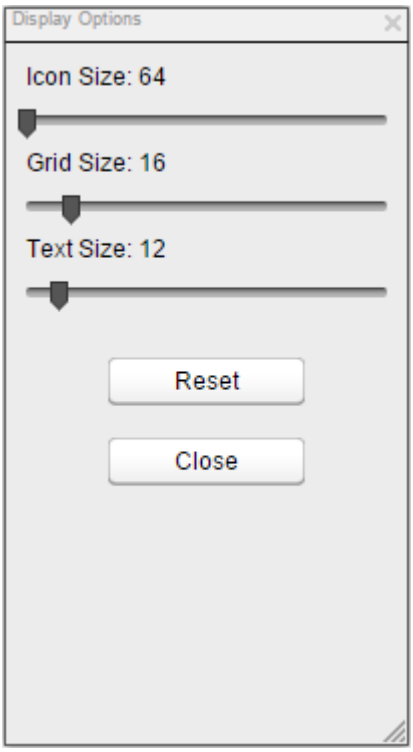
## Launcher Options

You can remove or restore launcher shortcuts just as you would with desktop shortcuts.
In addition to removing applications, you can also change the location and size of the launcher.

- Click and drag on the gray handle to re-position the launcher.
- Click on the double arrows in the gray handle to minimize the launcher.
- Click on the single arrow in the gray handle to flip the orientation from vertical to horizontal or vise versa.
- Click and drag the triangle in the corner of the launcher to resize it.

## Display Options

Right-click anywhere on the desktop and select *Display Options*. You can adjust the sliders to change the item display sizes. To revert back to the factory default setting, click *Reset*.



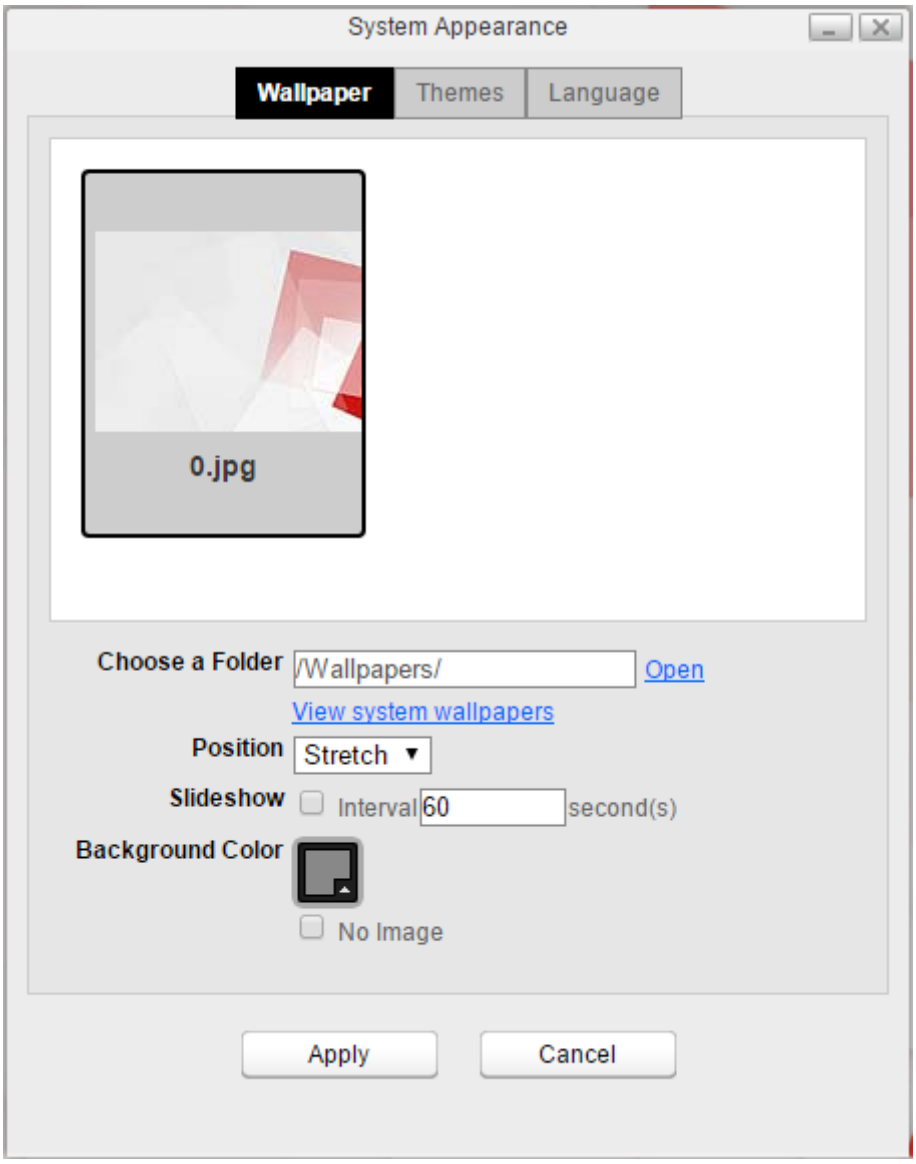

- Icon Size: Toggle between icon display sizes.
- Grid Size: Toggle between icon grid display sizes.
- Text Size: Toggle between text display sizes.

## Wallpaper Options

You can replace the default wallpaper to match your own personal preferences. You can set any image stored on the LinkStation as the wallpaper. You can also enable the slideshow function to cycle through your images and display a new image at a preset interval.

**1** Right-click on the background and select *System Appearance*.

**2** Click the *Wallpaper* tab, then *Open*. Select the folder where your images are stored, or click *View system wallpapers* to view stock images included on your LinkStation. Click on the image you want to set as your wallpaper.




**3** From the "Position" drop-down, select how the image will be displayed.

- Stretch: Stretch the wallpaper to desktop size.
- Center: Places the wallpaper in the center of the desktop.
- Tile: Displays the wallpaper in a tile-like pattern.
- Fill: Make the wallpaper fill the desktop and cut any overflow.
- Fit: Make the wallpaper fit the desktop without overflow.

**4** If you enable "Slideshow", you can set an interval in seconds to cycle through images in the selected folder as the background.

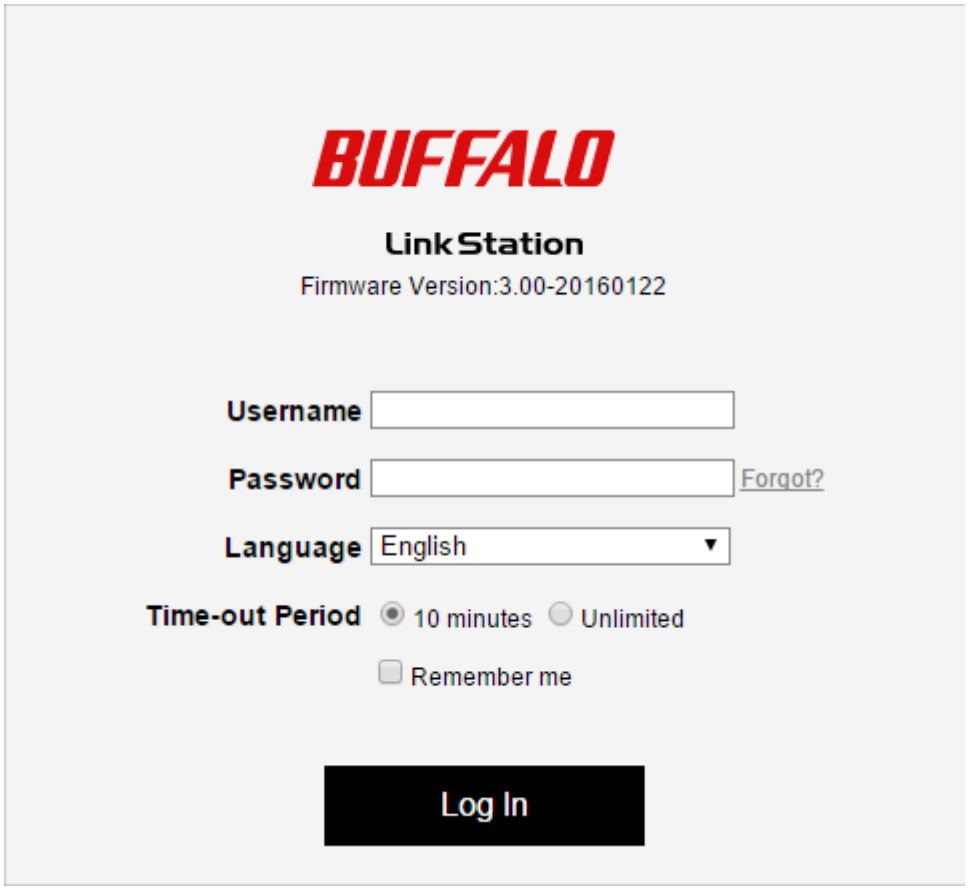
**5** If you don't want to use an image as the wallpaper, you can set the background as a solid color and enable the "No Image" option.

## Changing Display Languages

You can change the display language before or after you log in to Settings.

## Changing from Login Page

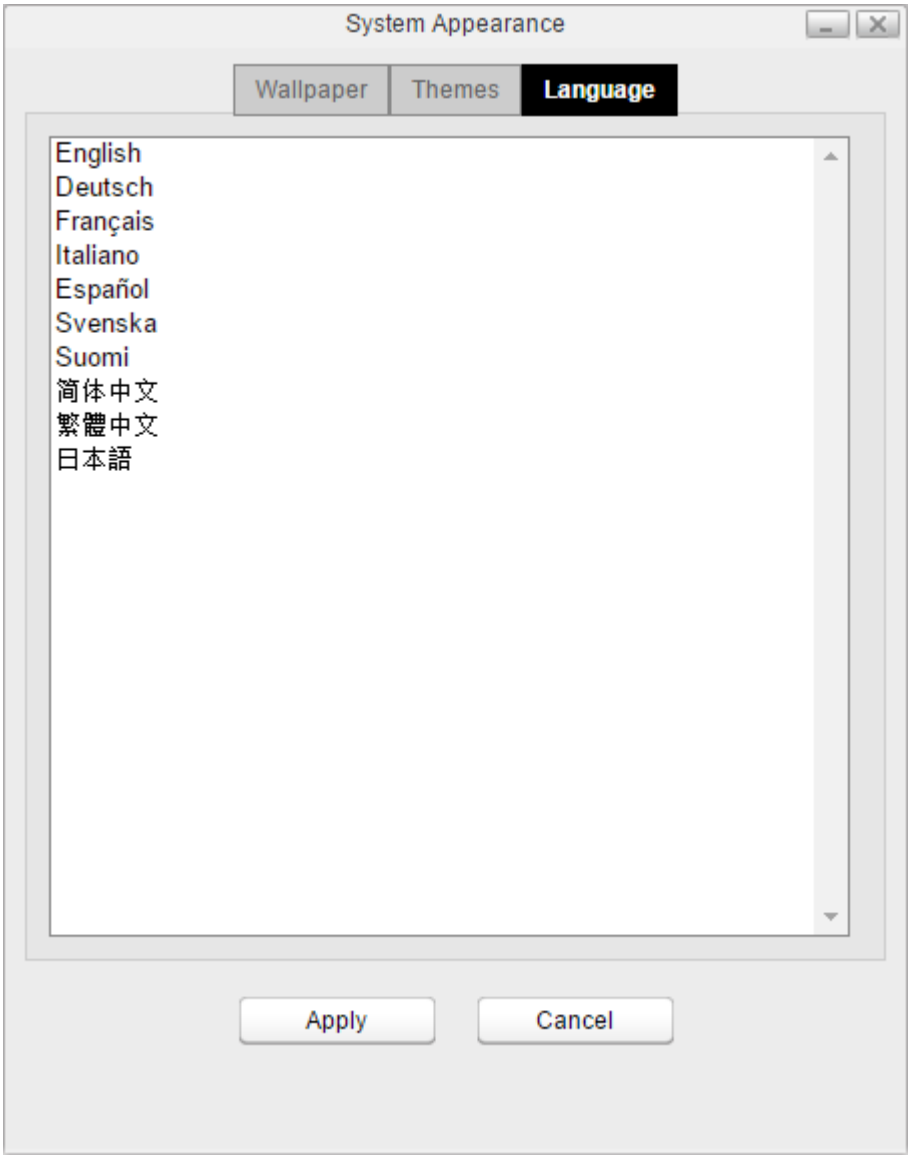
Open Settings and select the language from the drop-down menu. The display language will be changed after you log in.




## Changing from Desktop

**1** Right-click anywhere on the desktop and select *System Appearance*.

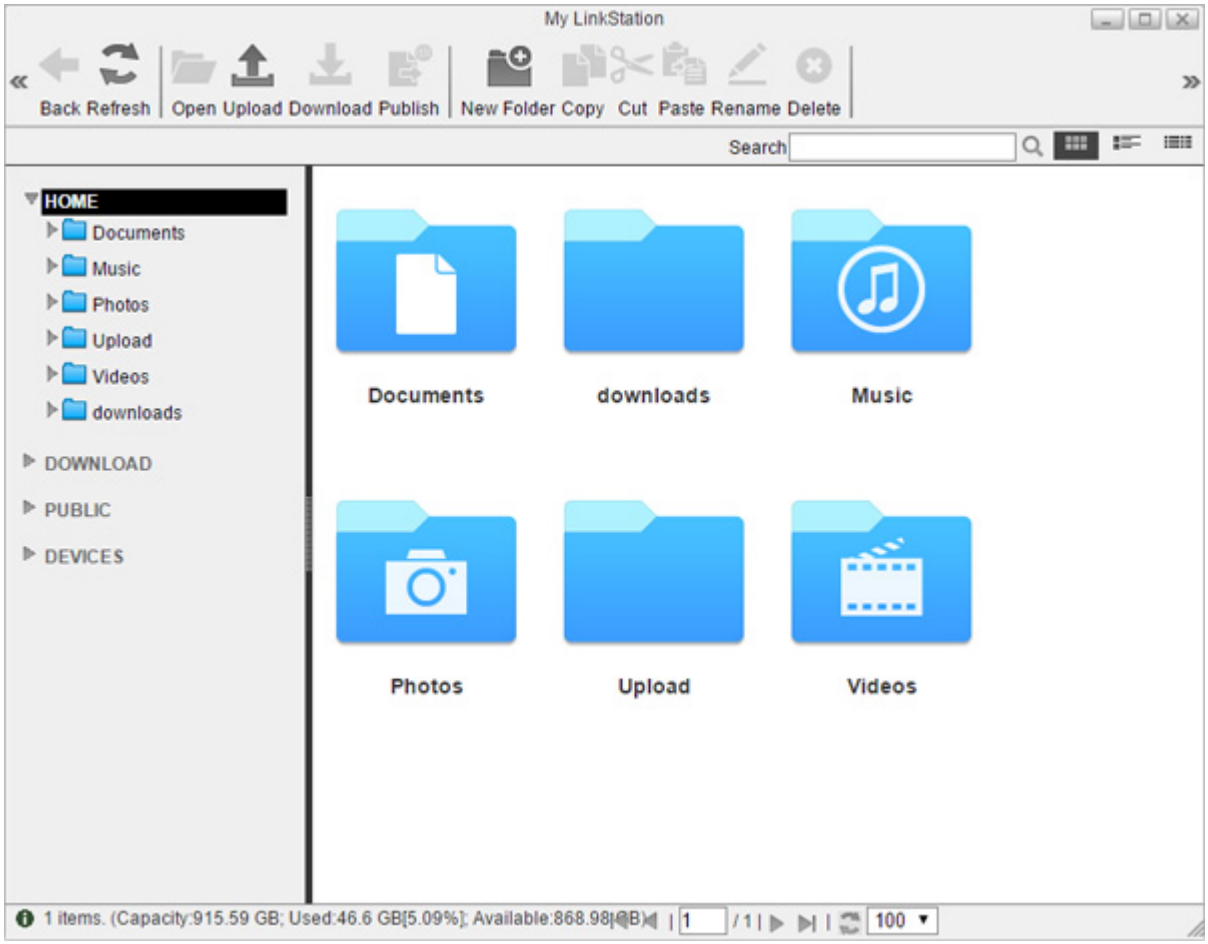
**2** Click the *Language* tab and select the desired display language from the list.




**3** Click *Apply*.

# Chapter 3 My LinkStation

My LinkStation is an application that manages files and folders stored on the LinkStation. To open My LinkStation, double-click the icon from the home screen.




In the My LinkStation window, the following tabs will be displayed on the left as a directory:

- HOME: This shows subfolders in the user area that will be automatically created when creating a user. If you log in to Settings as the administrator, this will display all folders in the "admin" folder.
- DOWNLOAD: This is a folder that stores downloaded files.
- PUBLIC: This is a folder that any user can access.
- DEVICES: All shared and subfolders that are created in the LinkStation will be displayed.

**Note:** "Download" and "Devices" folders can only be accessed by the administrator user.

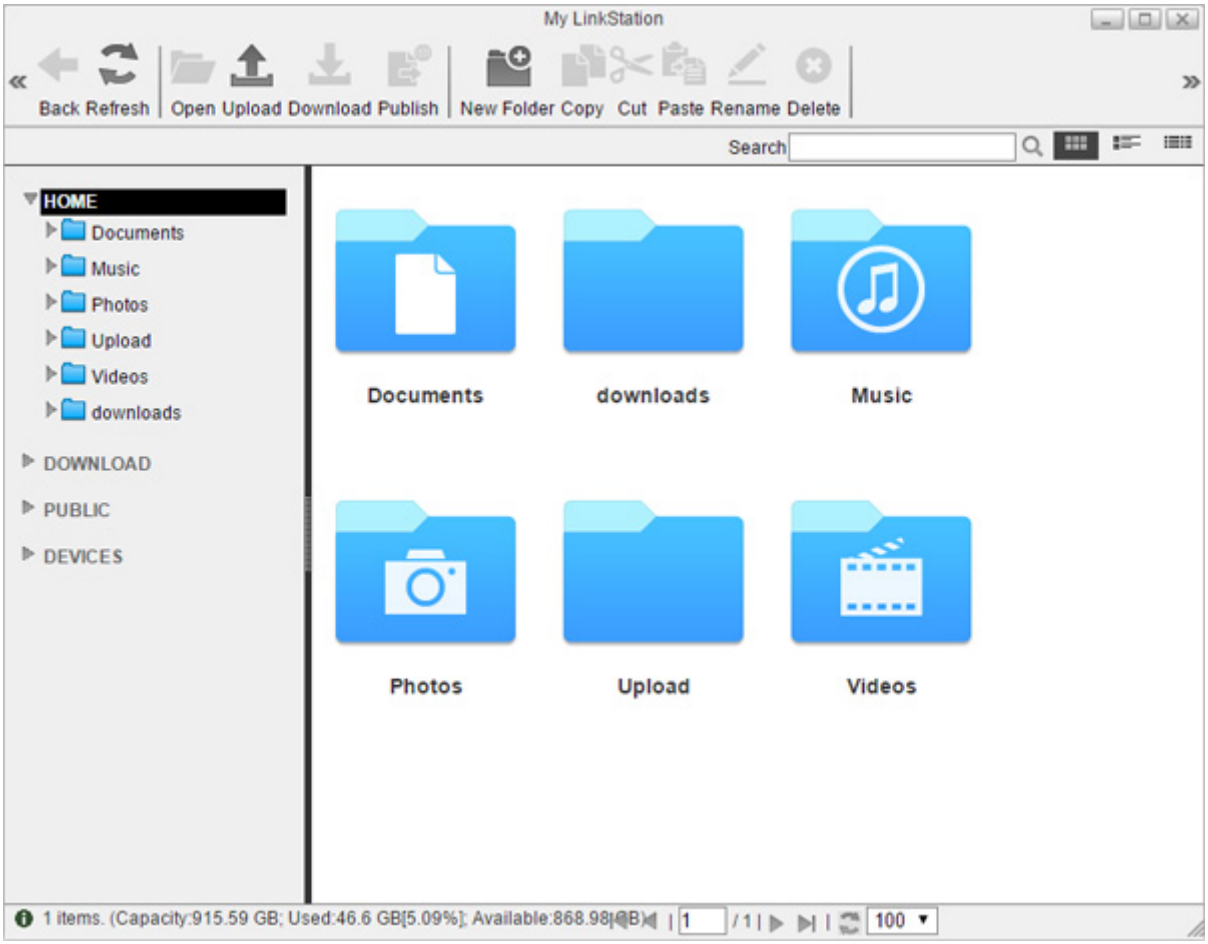
| Icons | Name | Descriptions |
|---|---|---|
| | Back | Return to the previous screen. |
| | Refresh | Refresh the screen. |

| Icons | Name | Descriptions |
|---|---|---|
| | Open | Open a file or folder. |
| | Upload | Upload a file from your local computer to the LinkStation. |
| | Download | Download a selected file to your local computer. |
| | Publish | Share the selected folders or files with a link. |
| | New Folder | Create a new folder. |
| | Copy | Create a copy of the selected file or folder, either on the current directory or another that is available to the user. |
| | Cut | Cut the selected file or folder. |
| | Paste | Paste the selected file or folder to the new location. |
| | Rename | Change the name of a file or folder. |
| | Delete | Delete the selected file or folder. |

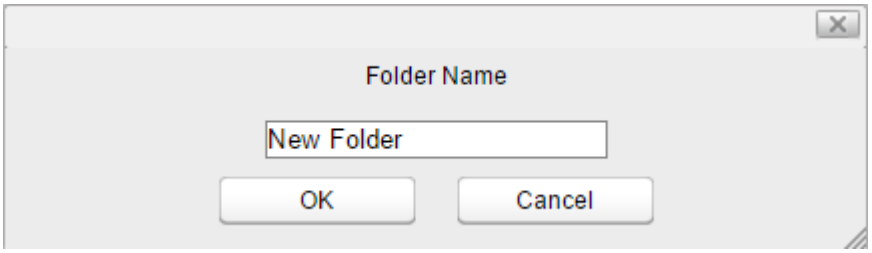
## Adding Folders

**1** Select a shared folder to add a subfolder from the directory list at the left.

**2** Click *New Folder*.




**3** Enter a desired folder name and click *OK*.

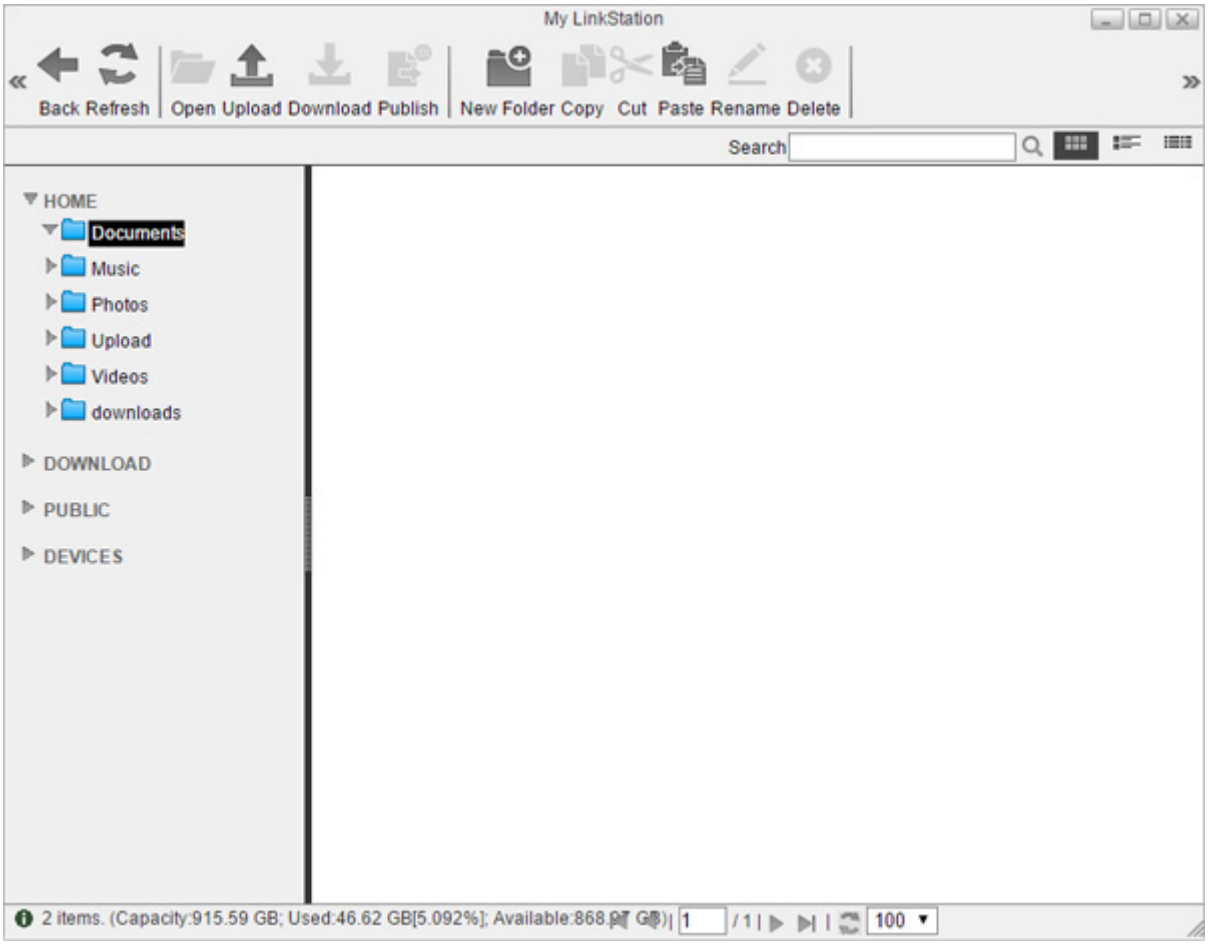



The folder will be created in the selected shared folder. If you want to share the created folder via the file sharing protocols in the local network, see the "SHARED" section in chapter 7.

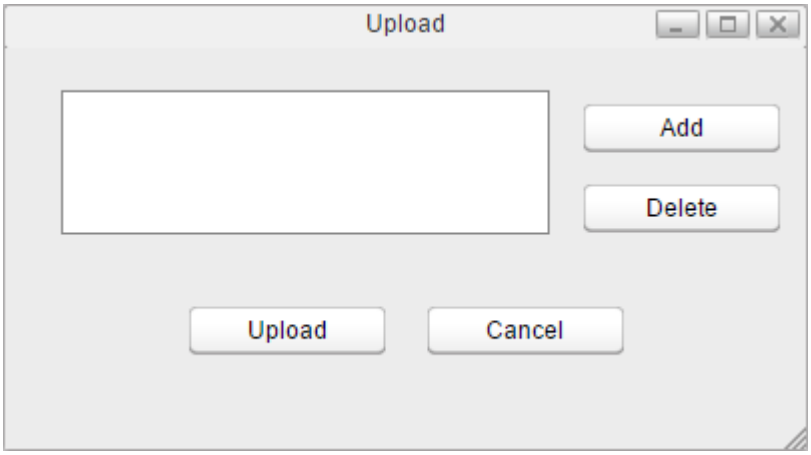
# Uploading and Downloading Files

## Uploading from a Computer

**1** Select a folder to upload a file to and click *Upload*.




**2** Click *Add* and select a file.

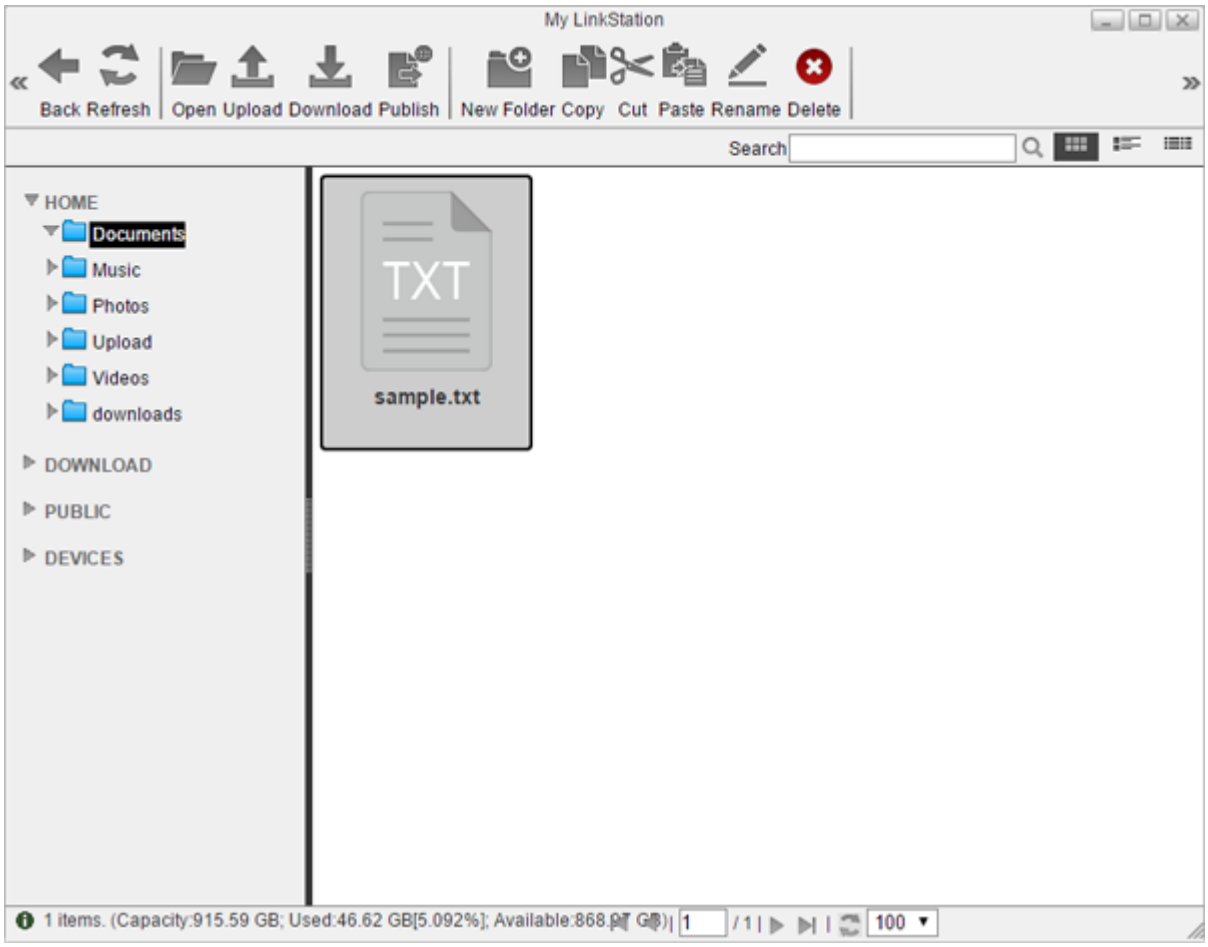



**3** The selected file is added to the list. Click *Upload*.

The file will be uploaded to the LinkStation.

## Downloading Files to a Computer

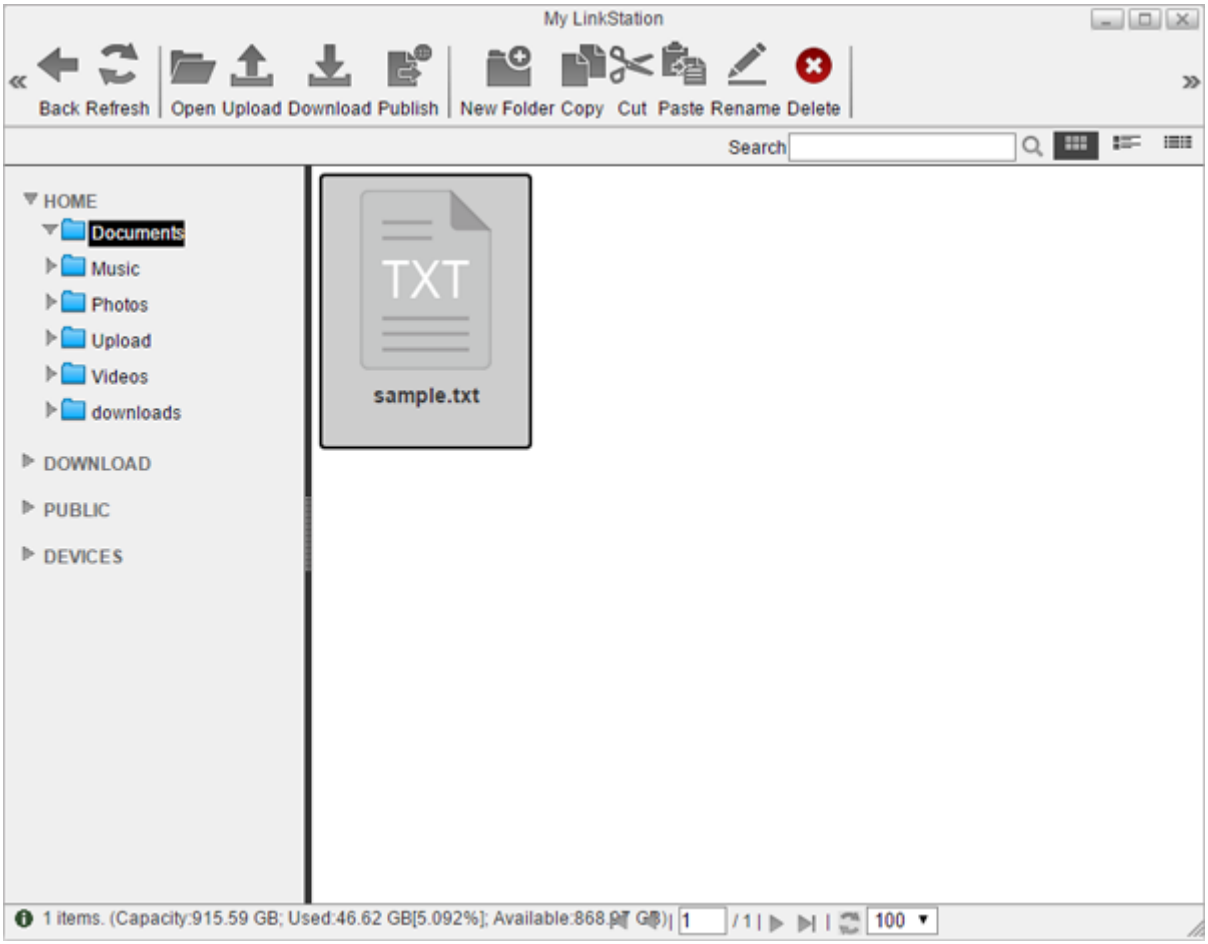
Select a file to download to your computer and click *Download*. The selected file will be downloaded to your computer.



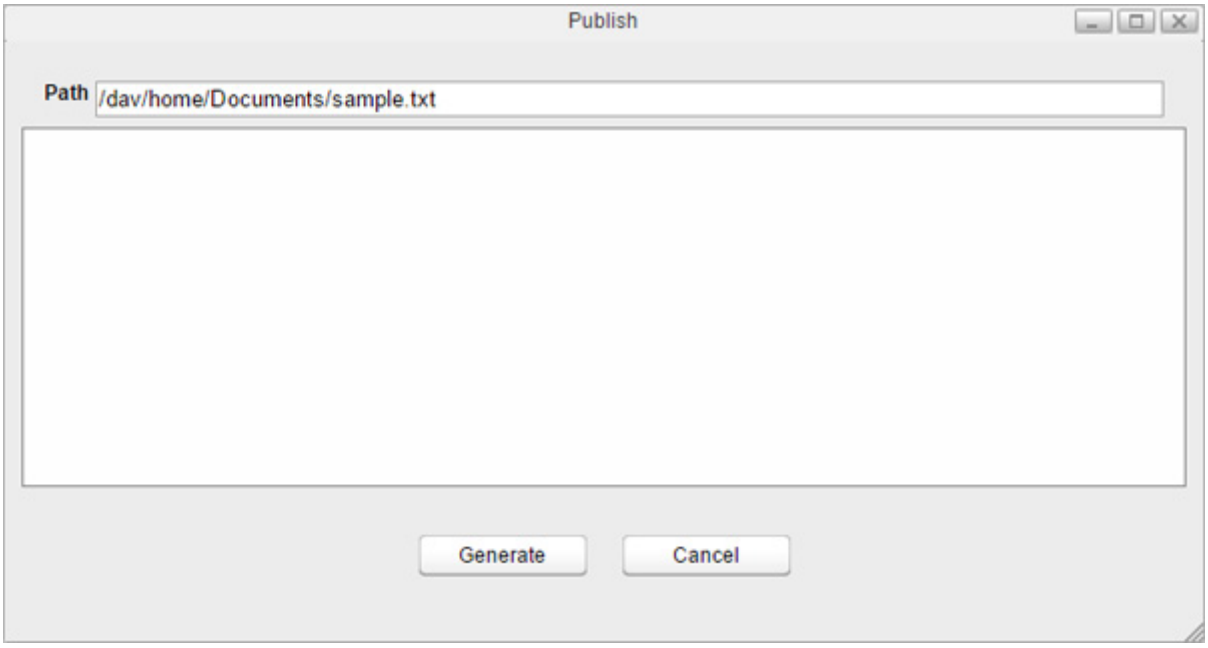

# Sharing Files and Folders Using Shared Links

You can create a temporary shared link to share files or folders with other users on the local network or via the Internet. To enable the access from outside the network, you should configure WebAccess settings before creating the shared link. For more detailed information about WebAccess, refer to the "WebAccess" section in chapter 7.

**1** Select a folder or file from the main window and click *Publish*.




**2** Click *Generate*. The temporary shared link will be generated.




**3** The shared link will be created. You can send the link by copying and pasting it into an email or messaging application.

The expiry date is set as to a month from the date when the link is generated. To change the date, click *Edit* and specify a date. After you finish editing, click *OK* to apply changes.

**Notes:**

- No other folder or file on the LinkStation can be accessed from the shared link.
- Expired links cannot be accessed.

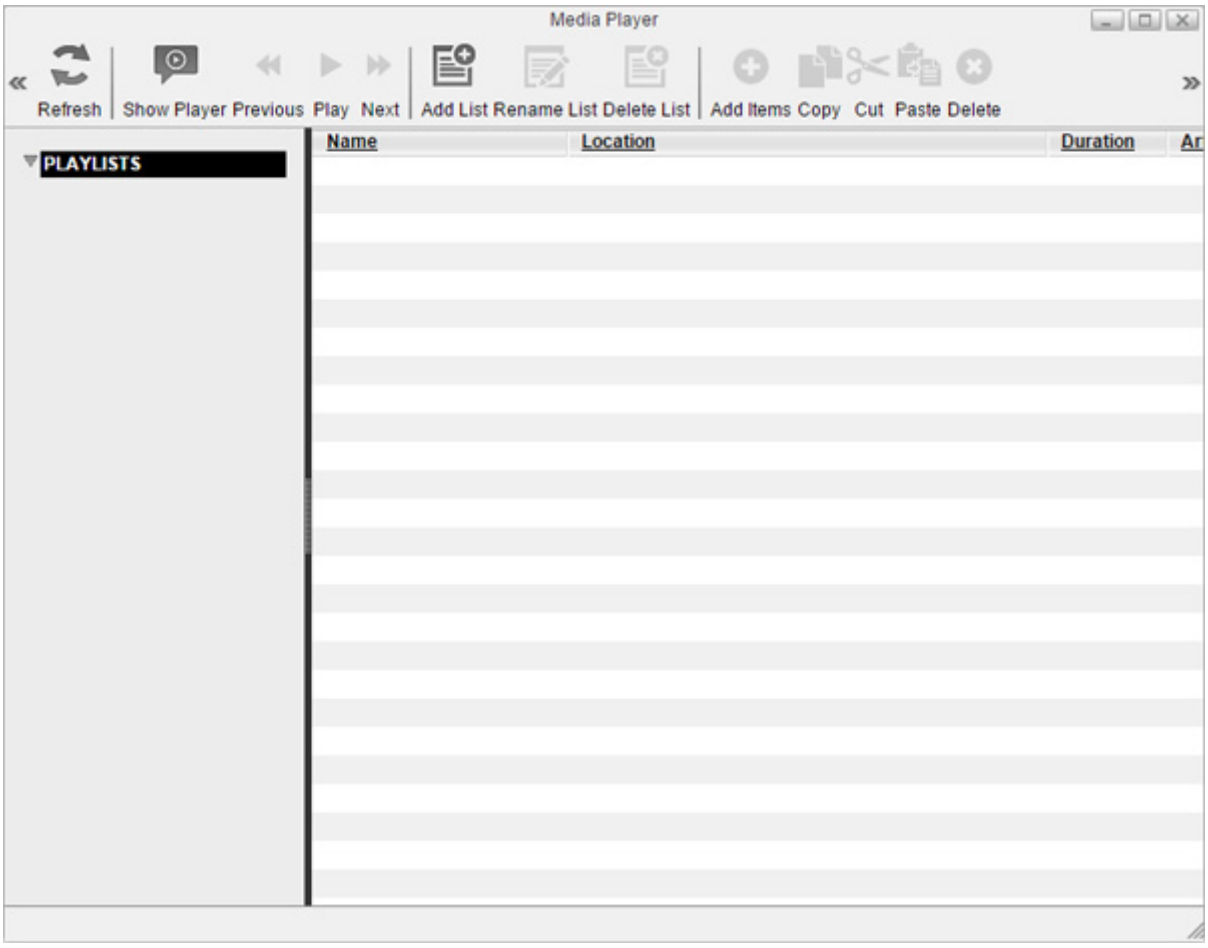
# Chapter 4 Media Player

Media Player is an application that can play media files on the LinkStation and create original playlists with the media files. To open Media Player, click the icon from the home screen.

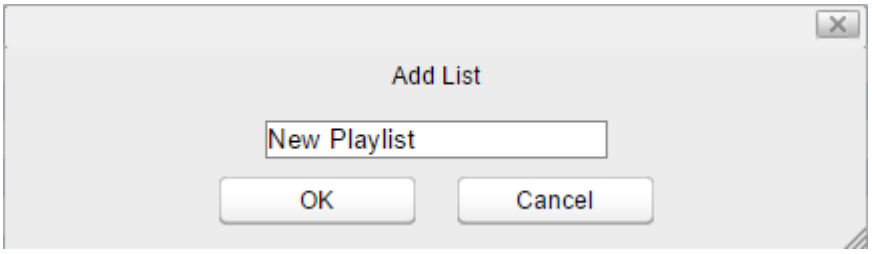
| Icons | Name | Descriptions |
|---|---|---|
| | Refresh | Refresh the screen. |
| | Show Player | Displays the media player. |
| | Previous | Return to the previous media file. |
| | Play | Opens the media player and play media files in the playlist. |
| | Next | Skip to the next media file. |
| | Add List | Add a new playlist. |
| | Rename List | Change the name of a playlist. |
| | Delete List | Delete a selected playlist. |
| | Add Items | Add a media file to the playlist. |
| | Copy | Create a copy of the selected media file, either on the current directory or another that is available to the user. |
| | Cut | Cut the selected media file. |
| | Paste | Paste the selected media file to the new location. |
| | Delete | Delete the selected media file. |

# Creating Playlists

**1** Select "PLAYLISTS" at the left of the window and click *Add List*.



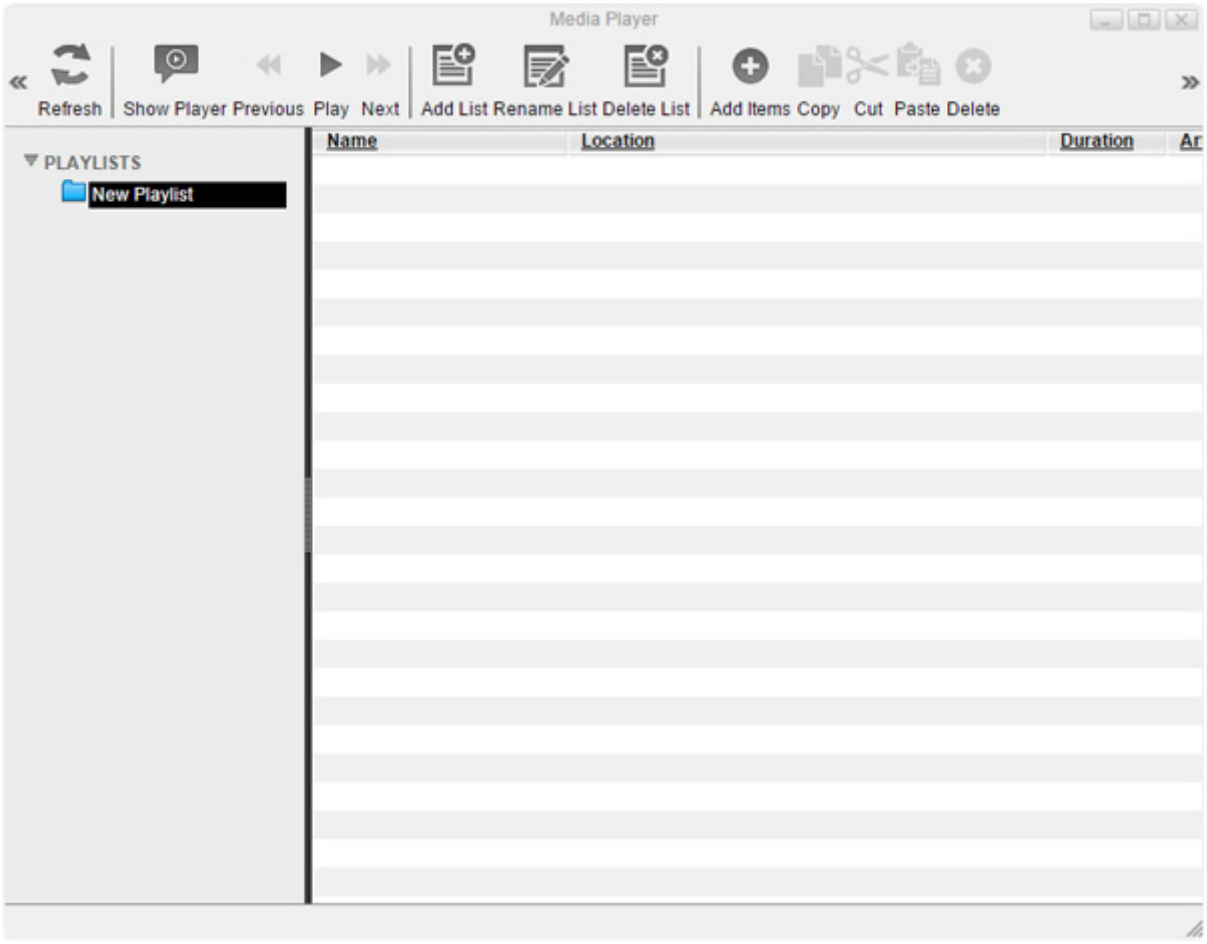

**2** Enter a desired playlist name and click *OK*.



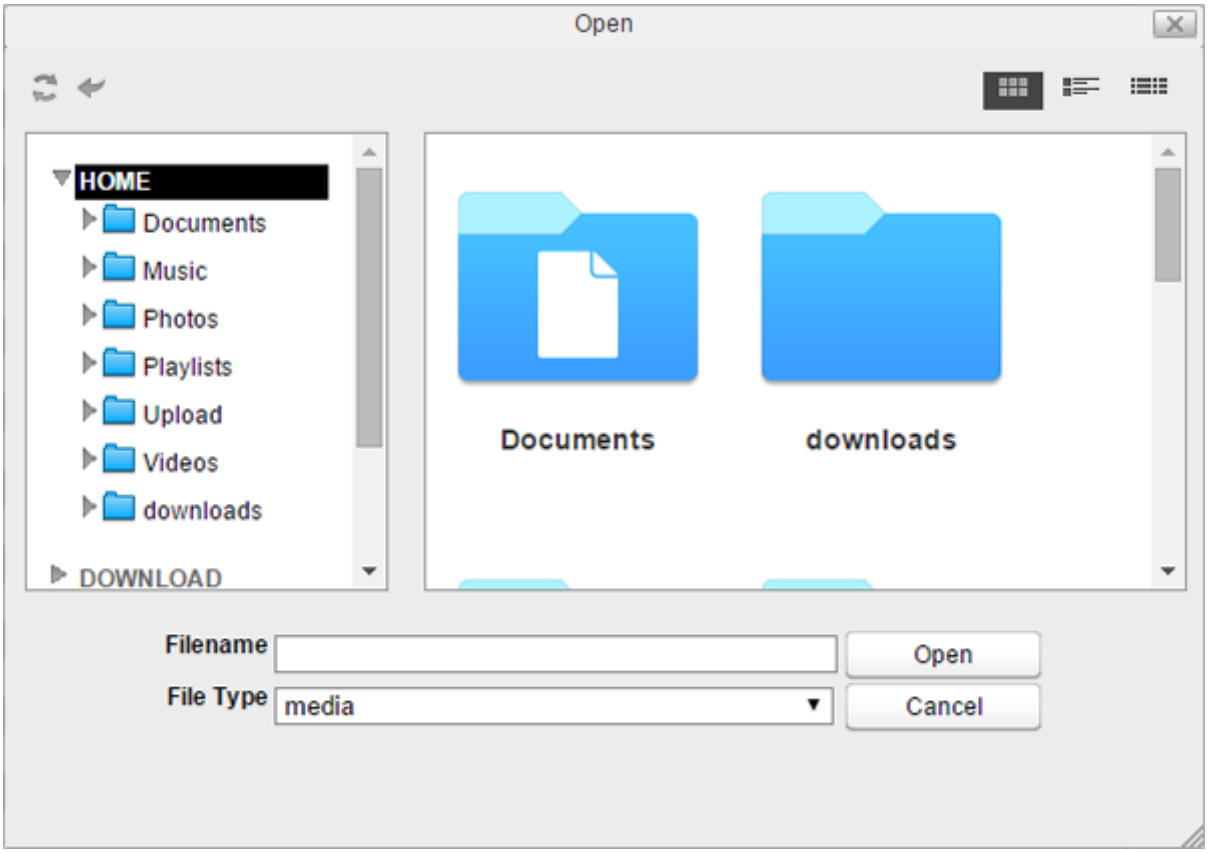

New playlist will be created.

# Adding Media Files

**1** Select the playlist at the left of the window and click *Add Items*.



**2** The dialog box will open. Select a media file to add and click *Open*.

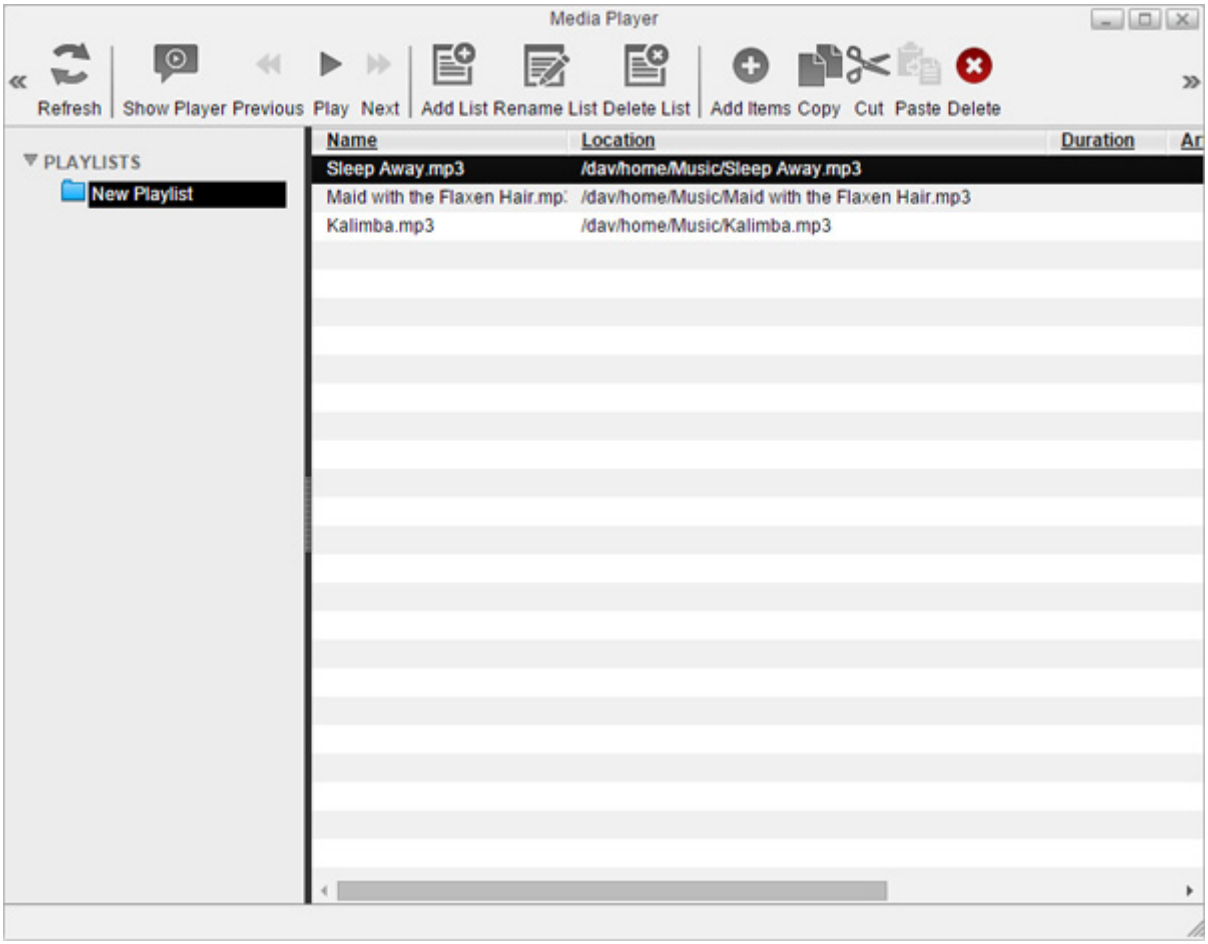



The media file is now added to the playlist.

## Playing Files

Media Player supports MP3 or MP4 files (some specific MP4 files may not be compatible) on the browser. Other file types will be downloaded to the desired location in your computer.

**1** Select the playlist at the left of the window and click *Play*.




**2** Media Player will open and start playing media files. To return to the playlist, click *Show Player*.

# Chapter 5 Disk Manager

Disk Manager is an application that manages RAID arrays and partitions of internal or external drives. To open Disk Manager, click the icon from the home screen.

## RAID Arrays

The default RAID mode for LS520D is RAID 1.

### RAID 1

Combines 2 drives from hard drives into a mirrored RAID array. The available space in the array is the capacity of a single drive. Identical data is written to each drive. If a drive becomes damaged, data can be recovered by replacing the damaged drive. As long as one drive in the array remains undamaged, all data in the array can be recovered.

### RAID 0

Combines 2 drives into a single RAID array. The available space is the total space of all drives used. This simple RAID mode offers faster performance than RAID modes that include parity. If a single drive in the array fails, then all data in the array is lost.

### Linear

Combines all drives from hard drives into a single virtual drive. For this virtual drive, data will be written onto the first drive, then to the next drive when the first drive becomes full, and so on. The available space is the total capacity of all drives. Linear mode offers no redundancy. If any drive becomes damaged, data on the drive will be lost.

### JBOD

This mode uses the hard drives inside the LinkStation as individual drives. The available space is the total of all drives in the LinkStation. If any drive becomes damaged, then the data on that drive is lost.

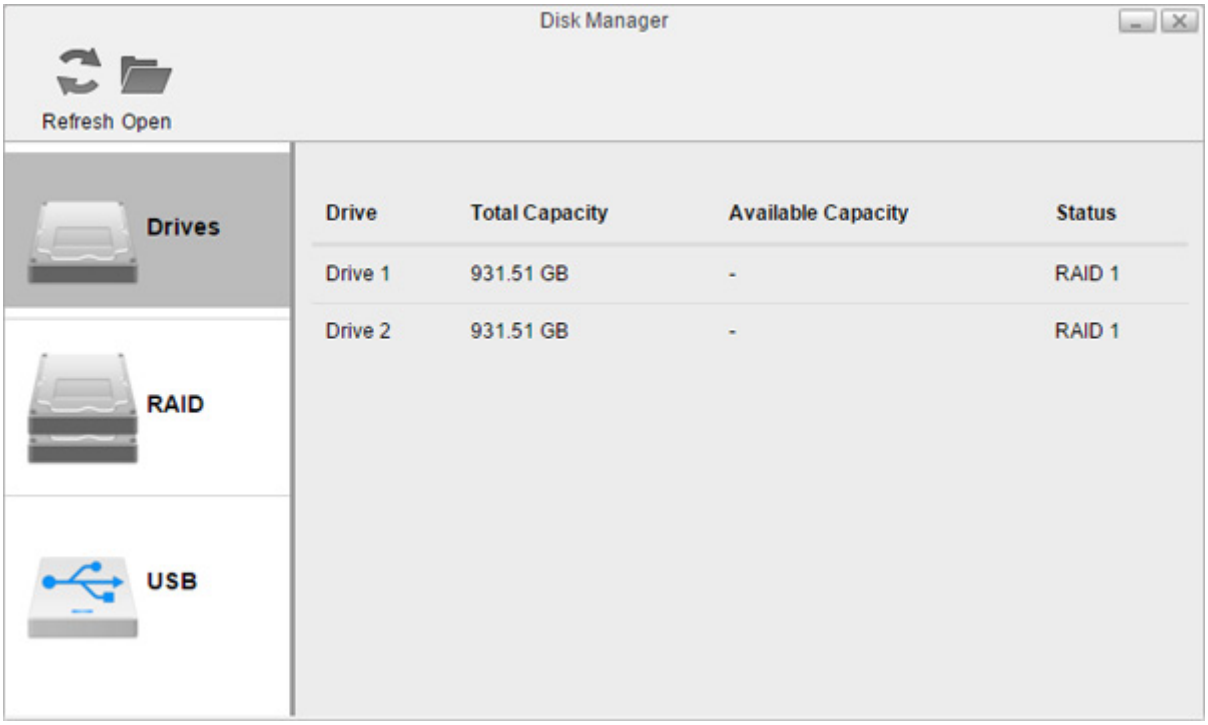
## Working with RAID Arrays

> **Note:** If you change the RAID mode, all data on the array is deleted. This is true for every procedure in this chapter. Always back up any important data before performing actions that affect your RAID array.

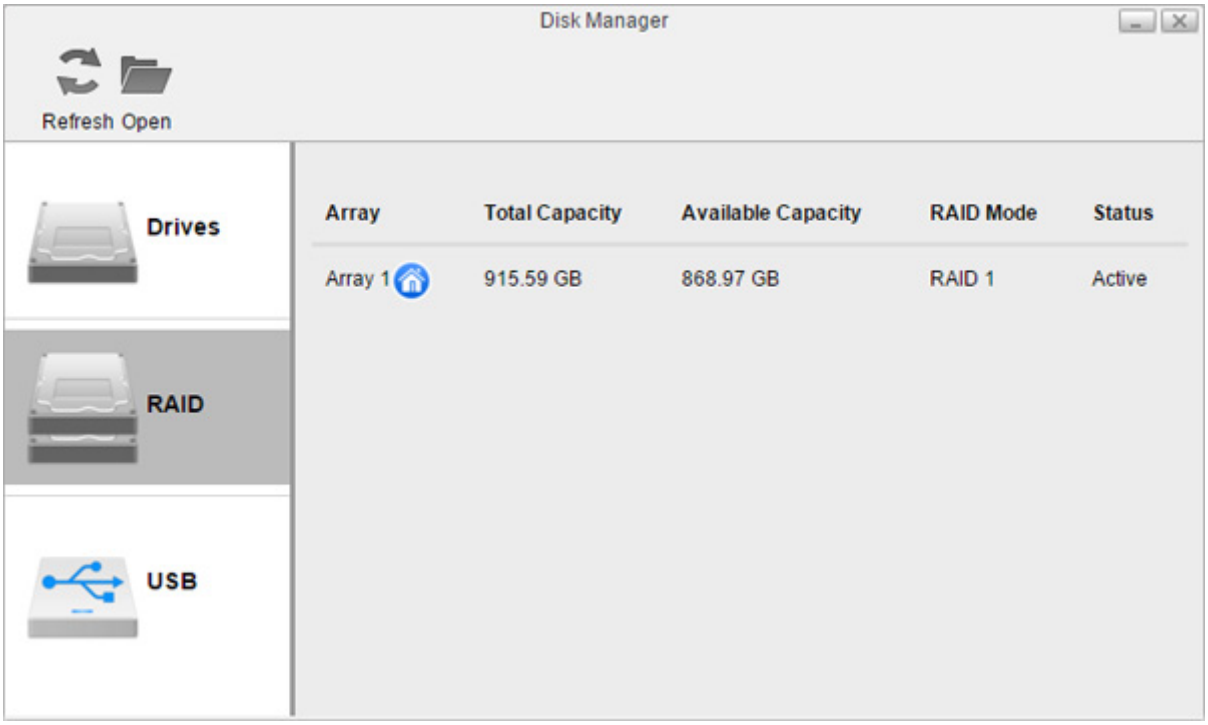
### Using JBOD

With JBOD, each hard drive in the LinkStation is addressed separately. To put drives from an array into JBOD mode, follow the steps below.

**1** In Disk Manager, click the *RAID* tab.



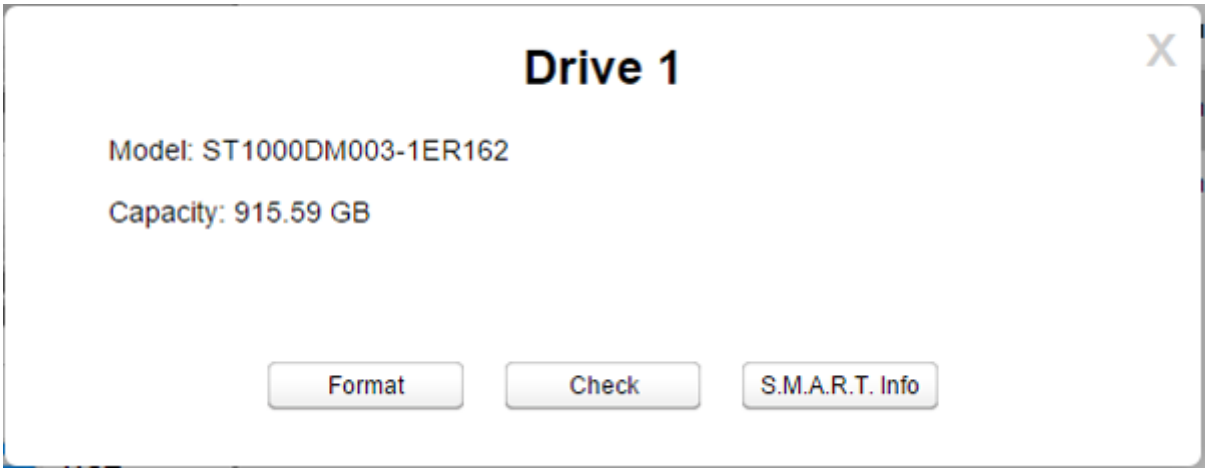

**2** Click the array to delete.



**3** Click *Delete*.

**4** Two different warnings will be displayed. Read them carefully and click *Yes* for both.

**5** From the *Drives* tab, select the drive and click *Format*.




**6** Select the file system from the drop-down menu and click *Format*.

**7** When the format is finished, click *OK*, then *Close*.

**8** To format another drive, repeat steps 5 to 7.

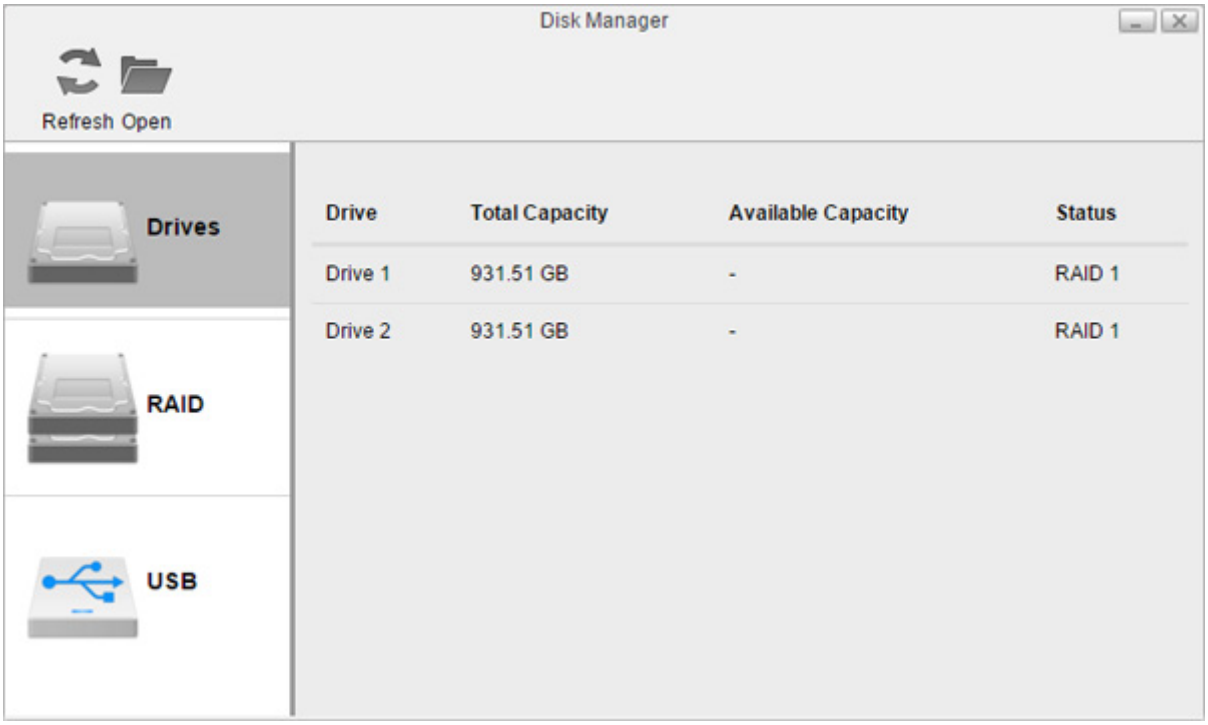
Once JBOD is configured, the default shared folders will automatically be created only on the drive that is initially formatted. Create shared folders on the other drives, referring to the "SHARED" section in chapter 7 for the instructions.

# Changing RAID Mode

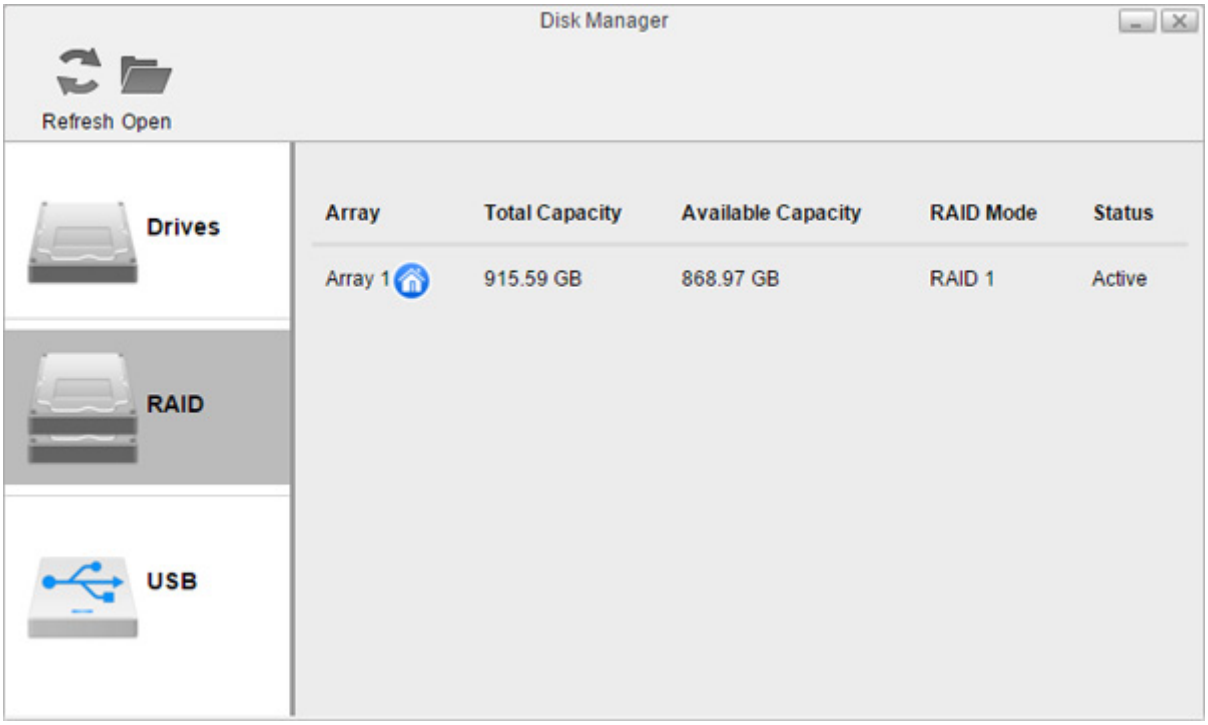
To change the RAID mode, first delete the current RAID array. Follow the procedure below.

**Note:** You can also configure the RAID settings, including changing the RAID mode, using the initial setup wizard, but you will lose all settings on the LinkStation.
To launch the initial setup wizard, initialize the LinkStation settings from *Preferences* - *Reset*, then follow the instructions on the screen to finish changing the RAID mode.

**1** In Disk Manager, click the *RAID* tab.



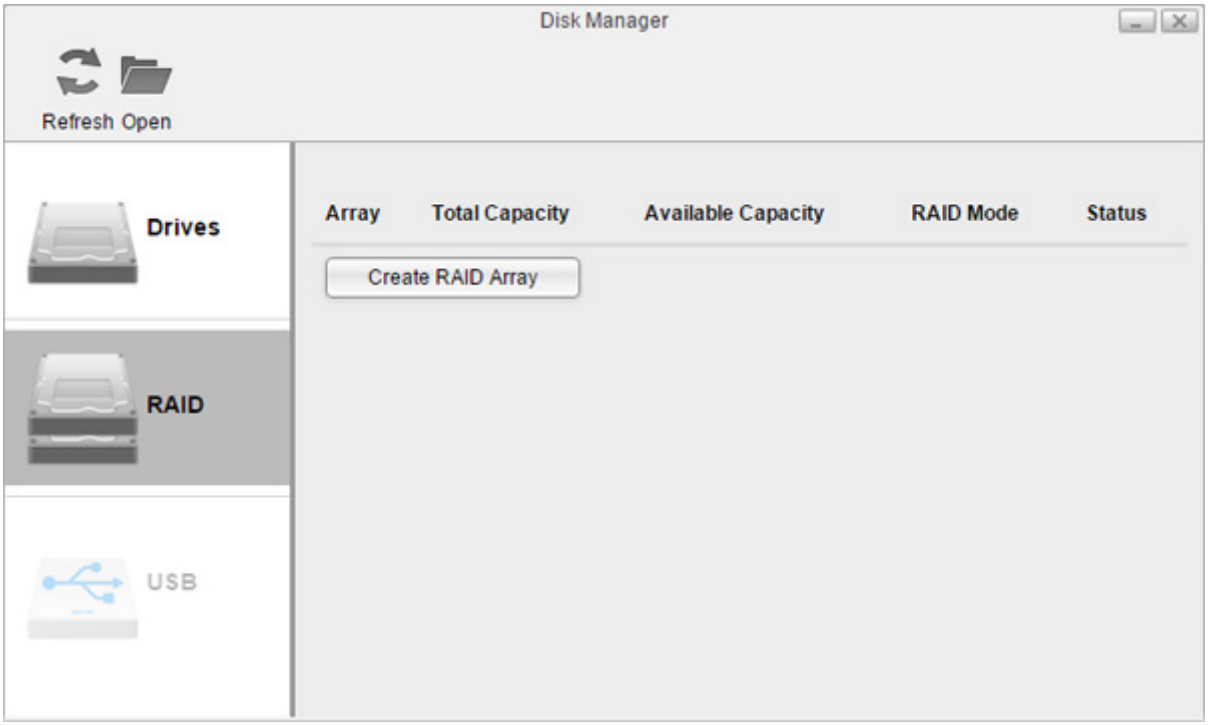

**2** Click the array to delete. If no array is listed, the array has already been deleted. Skip to step 5.



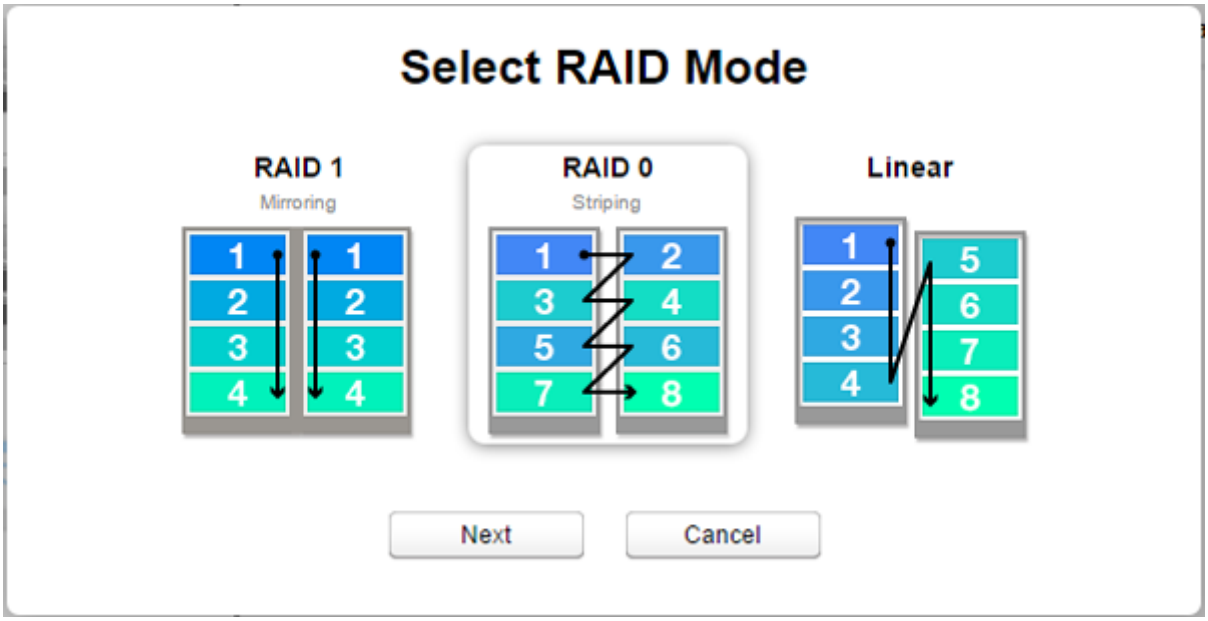
**3** Click *Delete*.

**4** Two different warnings will be displayed. Read them carefully and click *Yes* for both.

**5** Click *Create RAID Array*.



**6** Select a RAID mode and click *Next*.




**7** Click *Yes*.

**8** RAID array creation will start. Wait until it's done. When it's finished, click *OK*, then *Close*.

Once the RAID array is configured, create shared folders on the array to use them. Refer to the "SHARED" section in chapter 7 for the instructions.

## Expanding RAID Array Capacity

If the hard drives in your LinkStation are in a RAID 1 array with two drives or they are in degraded mode, you can expand the RAID array capacity without erasing the data on the drives. To expand the capacity, you should have two new drives with larger capacity than the remaining drive.

After you expand the RAID array capacity, the file sharing settings on "SHARED" will be restored to the factory defaults but data will be kept. Please reconfigure the settings to access the shared folders by referring to the "SHARED" section in chapter 7. This behavior will be corrected in a future firmware update.

**1** Shut down the LinkStation and remove one of the drives. Do not remove both drives at the same time.

**2** Insert a new drive (larger capacity than remaining drive) and turn on the LinkStation.

**3** Power LED will blink amber. Hold down the function button on the back of the LinkStation for 5 seconds.

**4** The LinkStation will start rebuilding the RAID array. After a few minutes, the I18 message will be displayed in NAS Navigator2. Wait until the drive finishes rebuilding; the I18 message will be extinguished.

**5** After the RAID array is rebuilt, shut down the LinkStation again and remove another drive.

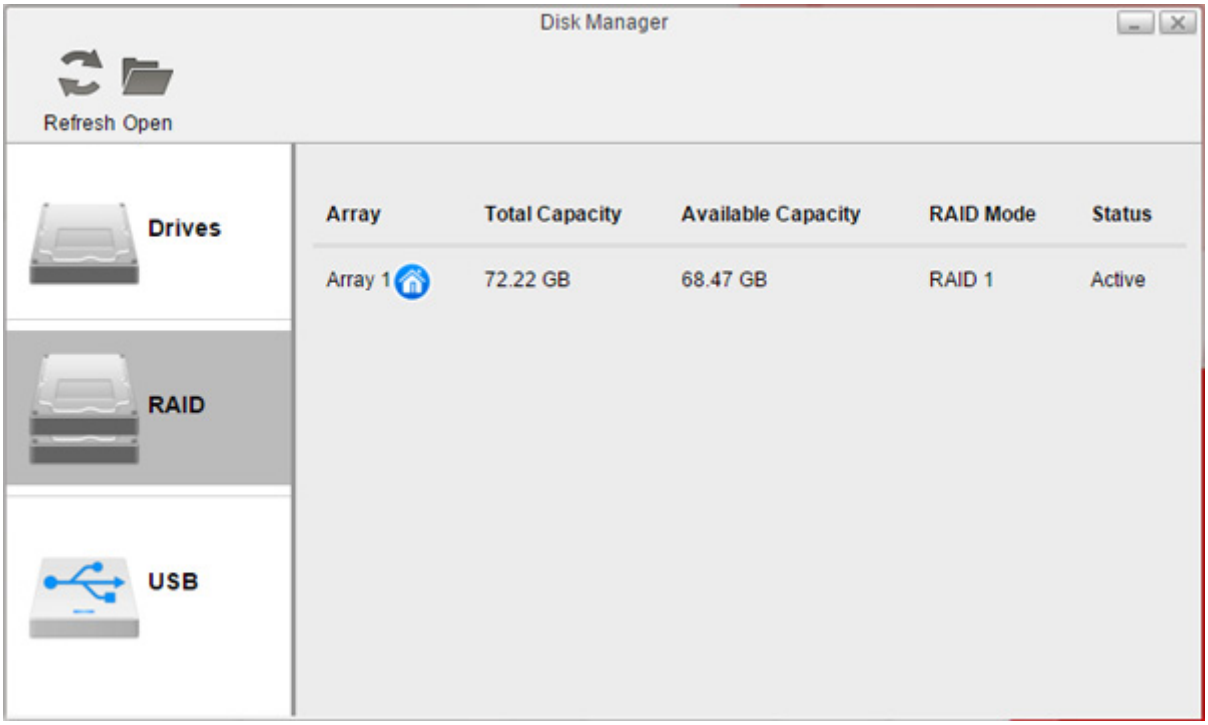
**6** Insert another new drive and turn it on.

**7** Power LED will blink amber. Hold down the function button on the back of the LinkStation for 5 seconds.

**8** The LinkStation will start rebuilding the RAID array again. Wait until the I18 message will be extinguish as the same as step 4.

**9** After the I18 message disappears, open Settings and click *Disk Manager*.

**10** Click the *RAID* tab and the RAID array to make the capacity larger.




**11** Click *Expand*.

**12** Read the warning message carefully and click *Yes*.

**13** The RAID array will be rebuilt and its capacity will expand. The power LED will blink amber and I18 and I46 messages will be displayed. Wait until those messages disappear and the power LED returns to a steady white.

# Adding an External Hard Drive

The LinkStation includes a USB port and you can connect an external drive or USB storage device to this port. For external drives, Buffalo USB drives are recommended. The following file systems for external drives are supported: ext2, ext3, ext4, FAT32, exFAT, NTFS, HFS Plus

Connect only one device to a USB port. Some external drives with automatic power-on doesn't turn on automatically when connected to the LinkStation. Use their manual switch to turn them on. Be sure to connect only one bus-powered drive at a time. If there is insufficient bus power for your USB drive, connect its AC adapter.

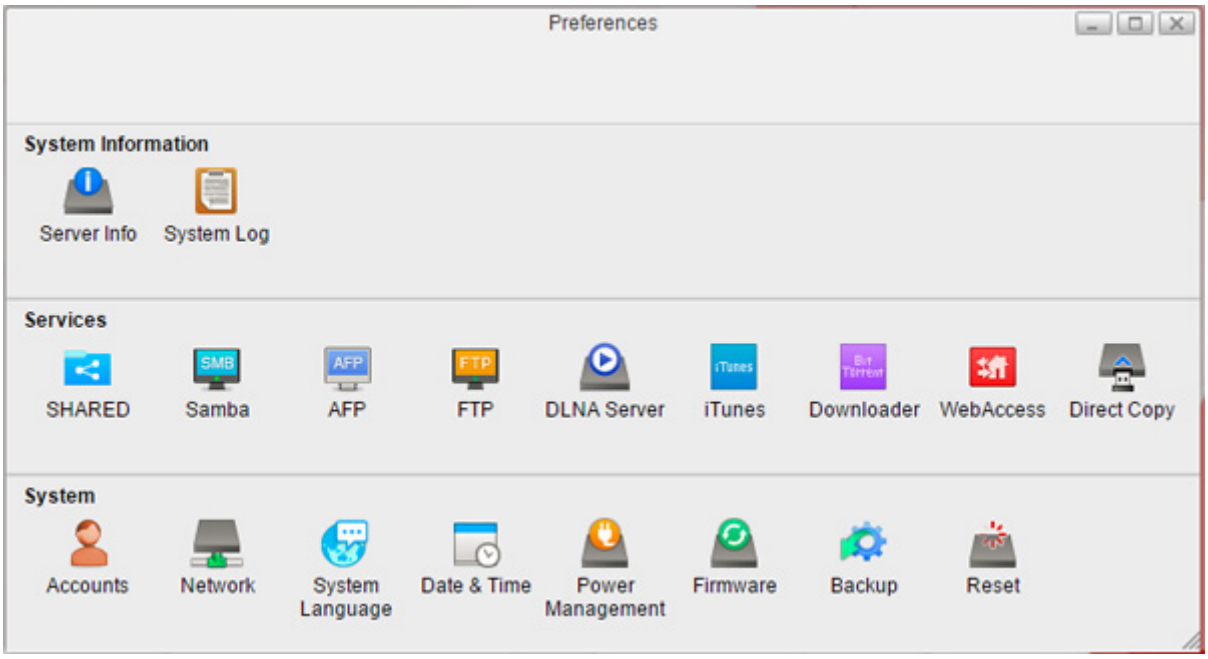
# Enabling External Drive Access

After connecting the USB drive to the LinkStation, enable access to the drive. Follow the procedure below.

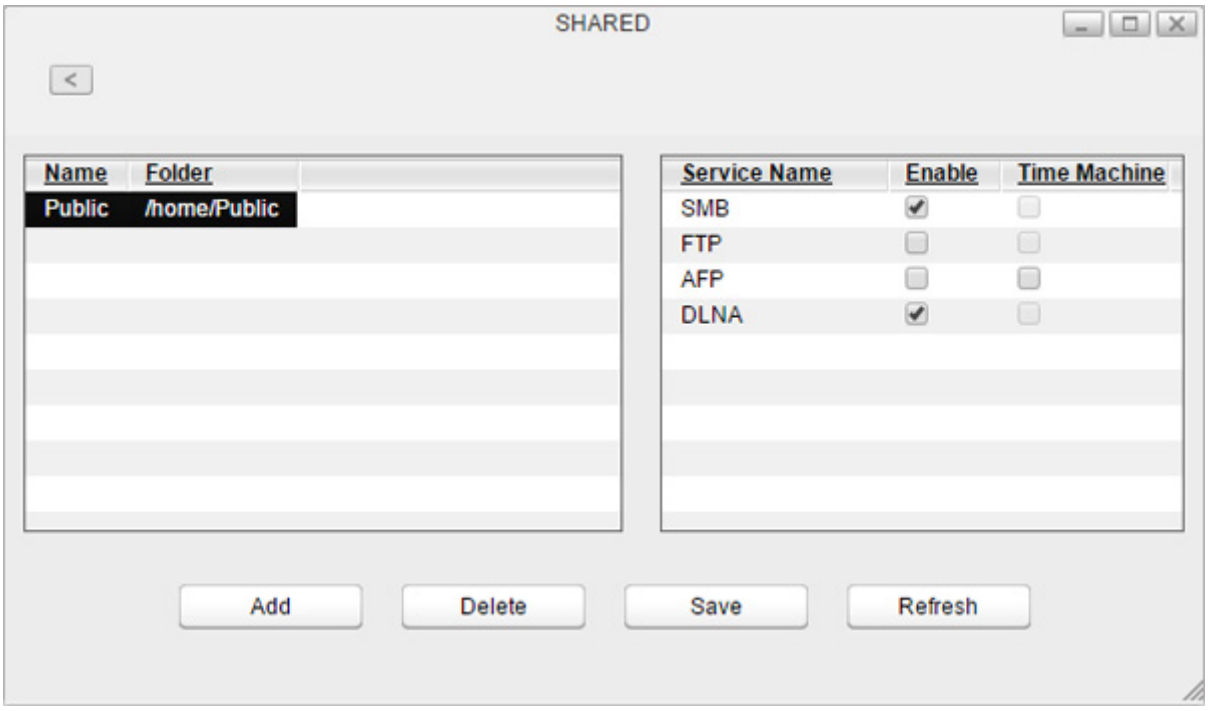
**1** Connect the external drive to the USB port on the LinkStation.

**2** In Settings, click *Preferences*.

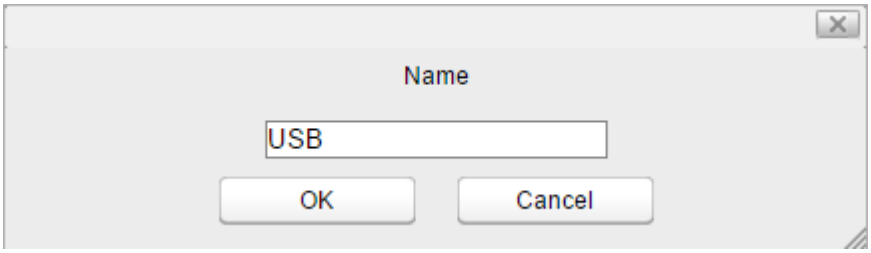
**3** Click *SHARED*.



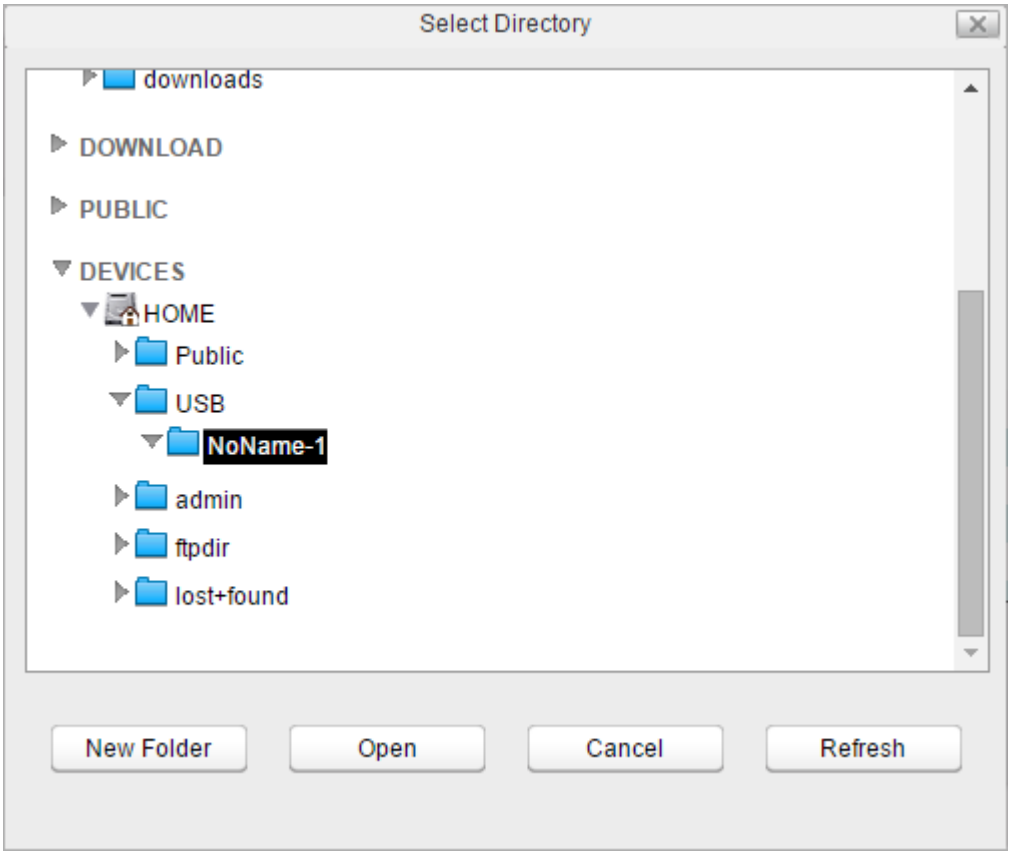

**4** Click *Add*.



**5** Enter a folder name and click *OK*.

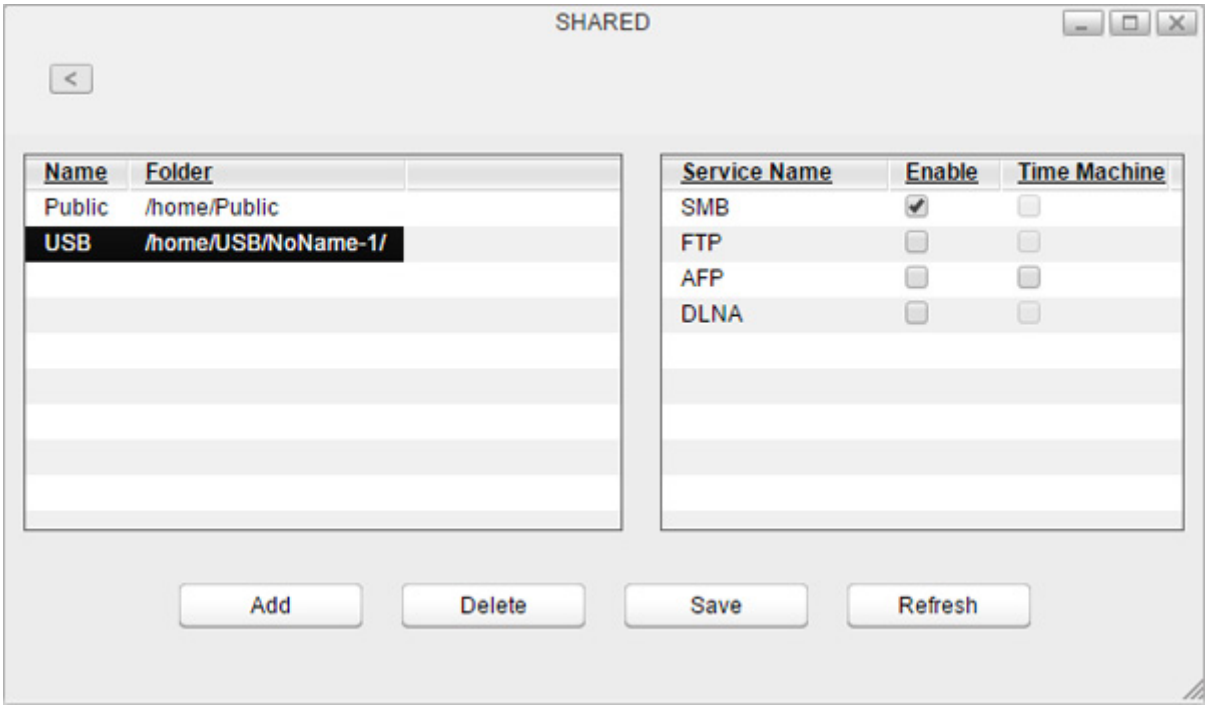



**6** Navigate to *DEVICES* - *home* - *USB* and select your external drive.




**7** Click *Open*.

**8** The connected USB drive is assigned as a shared folder. Enable "SMB" and other services, then click *Save*.



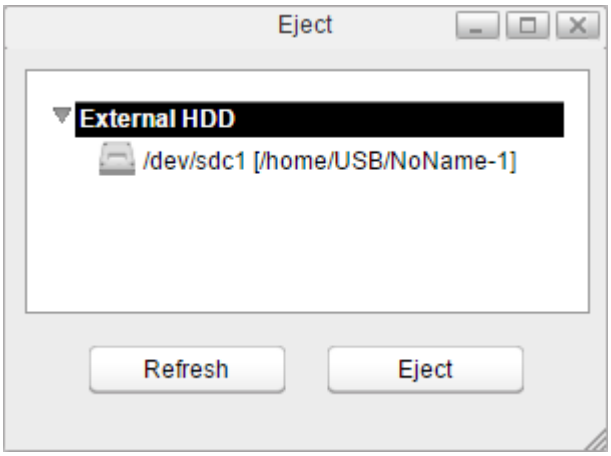

# Dismounting an External Drive

If the LinkStation is powered on, dismount an external drive before unplugging it. You may dismount the external drive from Settings. If the LinkStation is off, then the external drive is already dismounted and may be unplugged safely.

## Dismounting Using the Eject Button

**1** Click the icon at the upper right corner of the home screen toolbar.

**2** Select the device to dismount and click *Eject*.

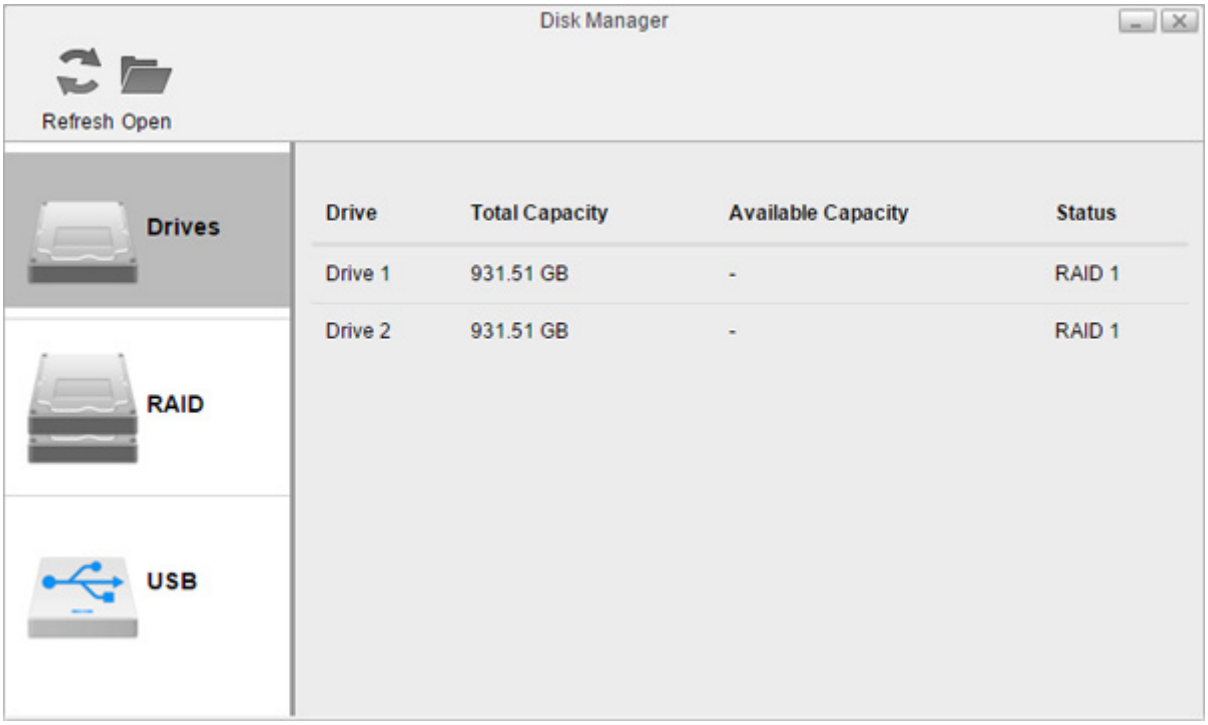



**3** The external drive will be dismounted.

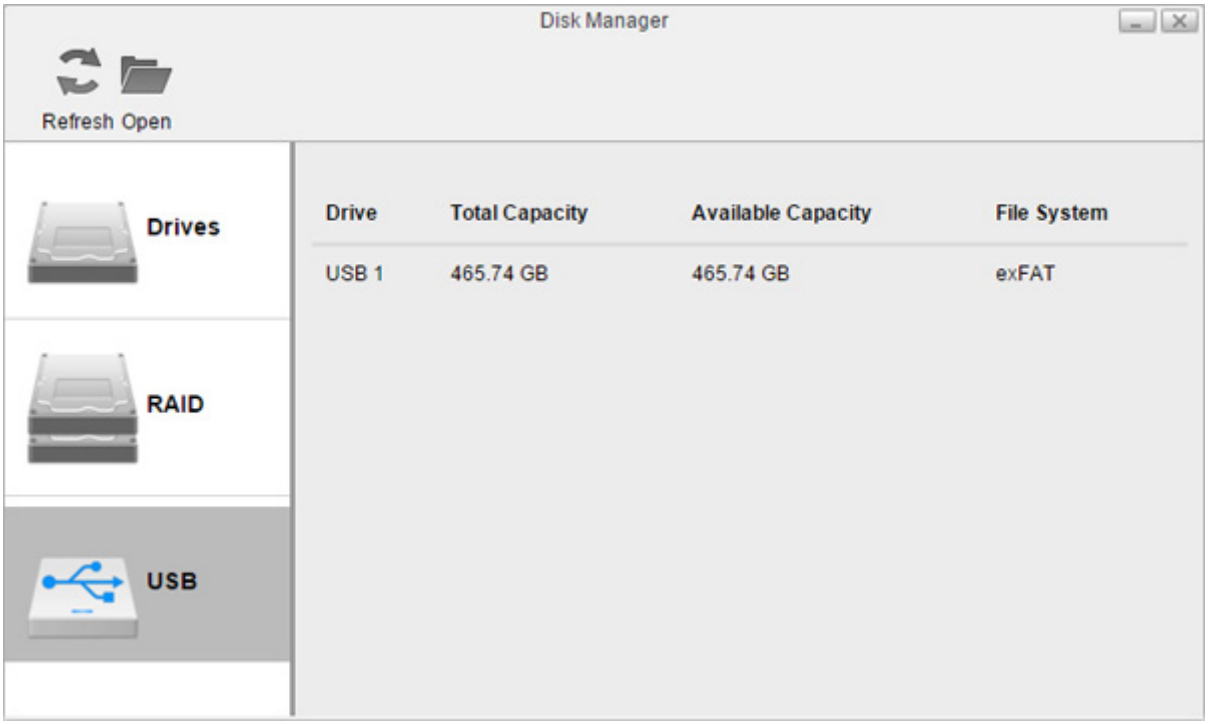
Once the drive is dismounted, unplug it from the LinkStation.

## Dismounting Using Disk Manager

**1** In Disk Manager, click the *USB* tab.




**2** The drive information will be displayed. Click the external drive to be dismounted.



**3** Click *Eject*.

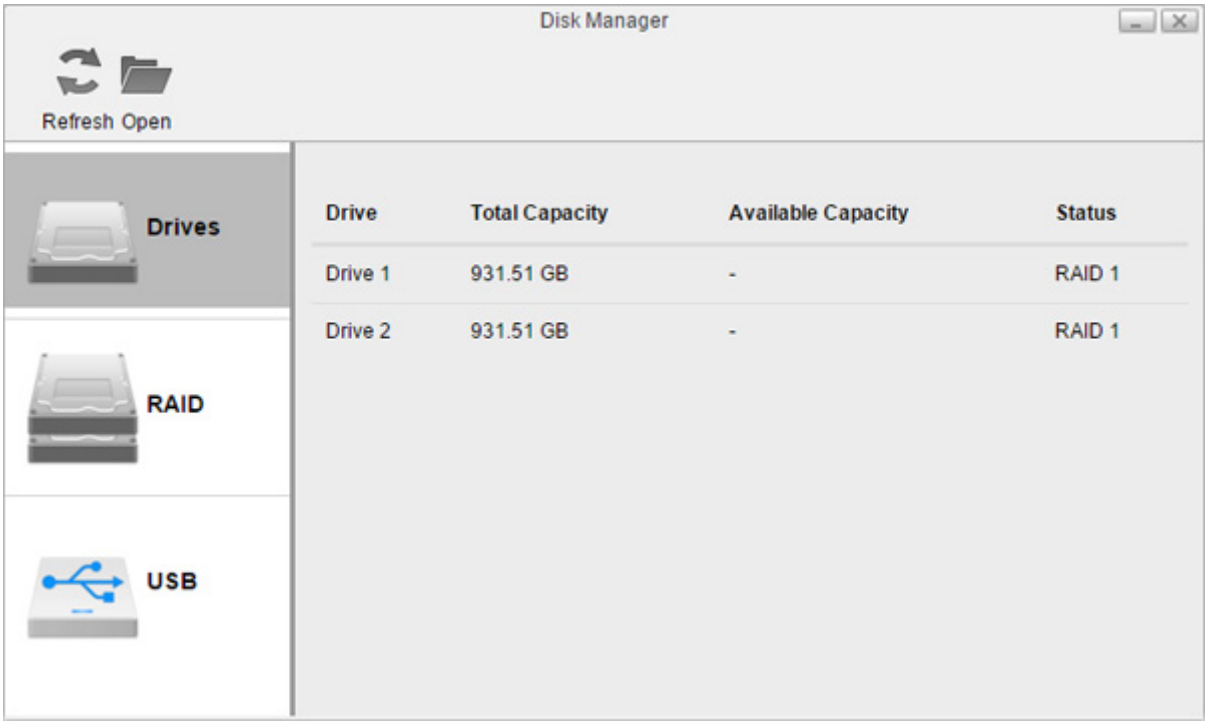
**4** The external drive will be dismounted.

Once the drive is dismounted, unplug it from the LinkStation.

## Formatting Drives

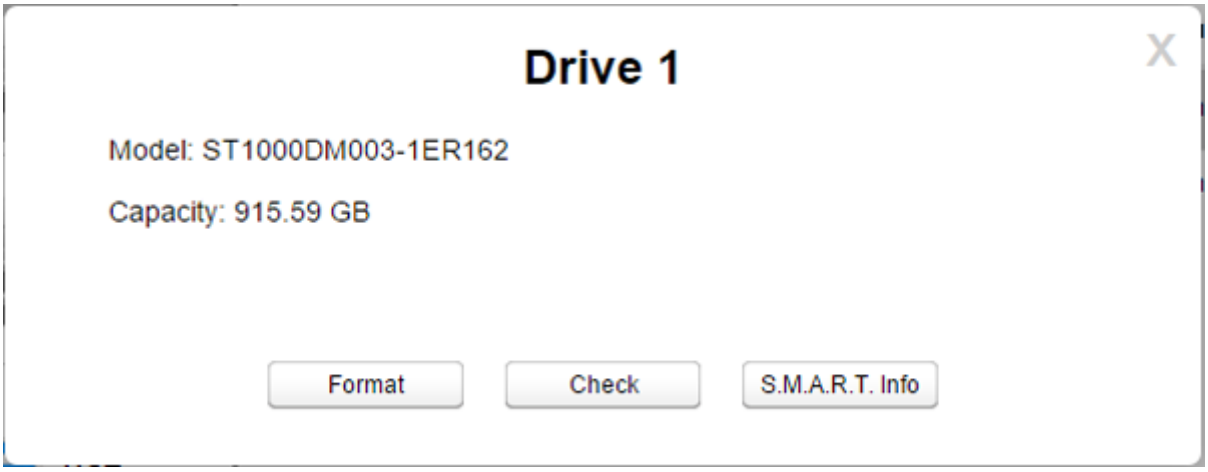
**Note:** Since the firmware version 3.00, the hard drive that used to be used on the different LS500 series is necessary to format when it's inserted.

**1** In Disk Manager, click the *RAID* tab (the *Drives* tab if no RAID array is configured) to format an internal drive or the *USB* tab to format an external drive.



**2** Click the array or drive to format.

**3** Click *Format*.




**4** Select a file system from the drop-down menu and click *Format*.

**5** When formatting is finished, click *OK*, then *Close*.

**Notes:**

- Do not turn off the LinkStation or disconnect a hard drive while formatting.
- The following file systems can be formatted from Settings.

| | |
|---|---|
| Internal Hard Drive | ext4 |
| External Hard Drive | ext3, ext4, exFAT |

# Hard Drive Replacement

If a drive fails, NAS Navigator2 and Settings will show an error message. The hard drive will need to be replaced for the unit to function properly. After the drive is replaced, you will need to rebuild the RAID array.

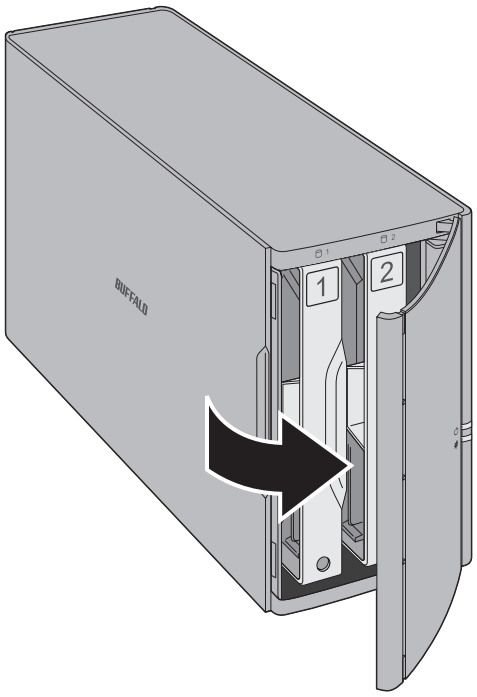
**Notes:**

- While the LinkStation is powered on, never unplug or remove drives without dismounting them first, and never replace a running drive. Power down the LinkStation before changing the drive.
- For the replacement drive, use a Buffalo OP-HDBST series drive. The new drive should be the same size or larger as the replaced drive. If a larger drive is used, the extra space will not be usable in a RAID 0 array. However with RAID 1, you can expand current RAID array capacity if you replace a drive with a larger-sized hard drive. To expand the capacity, refer to the "Expanding the RAID Array Capacity" section above for the instructions.
- If there is existing data on the replacement drive, back it up as all data on the drive will be lost during the replacement process.
- If sending a defective drive to Buffalo for replacement, please keep the cartridge as Buffalo will only replace the hard drive and not the cartridge.
- To avoid damaging the LinkStation with static electricity, ground yourself by touching something made of metal before handling any sensitive electronic parts.
- Do not change the order of the hard drives in the LinkStation. For example, pulling out drive 1 and replacing it with drive 2 may cause data to be corrupted or lost.

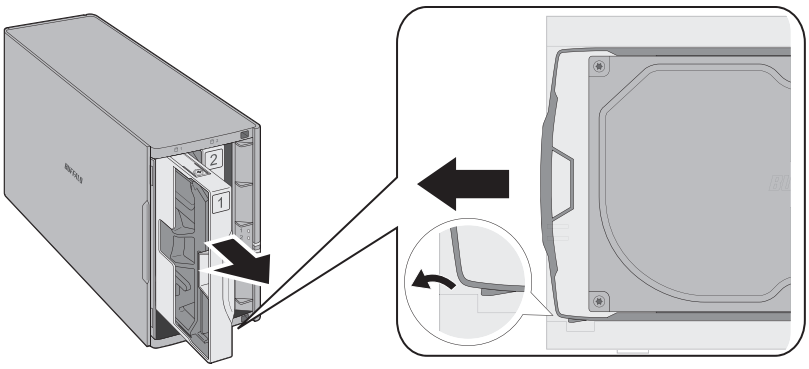
## Step 1 - Replacing a Hard Drive

**1** Turn the LinkStation off and remove all cables.

**2** Squeeze the left side of the front panel and swing it open.



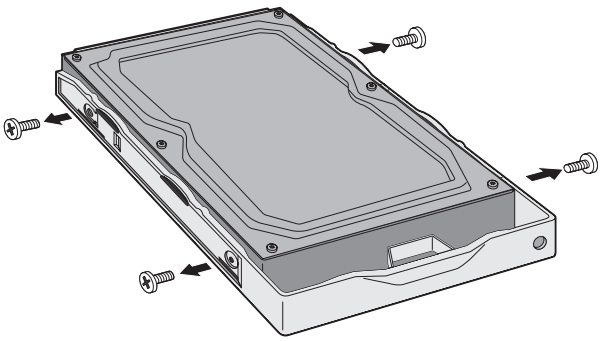

**3** Push the failed drive's cartridge up and remove it from the LinkStation.



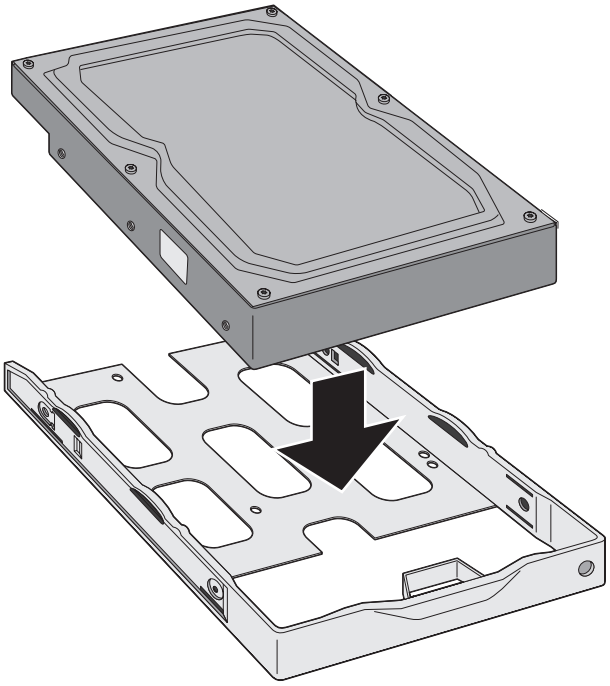

**Notes:**

- Do not press hard on the top of the LinkStation.
- Pull the drive straight out the front of the chassis.

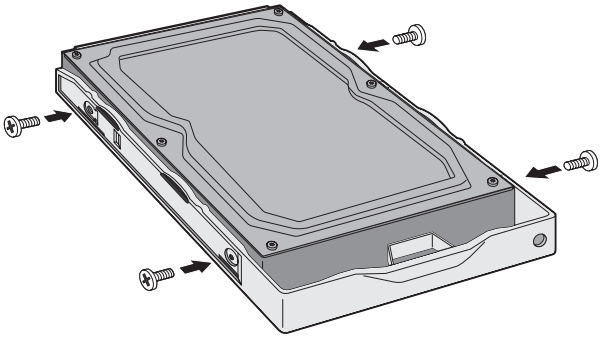
**4** Remove the drive from the cartridge.



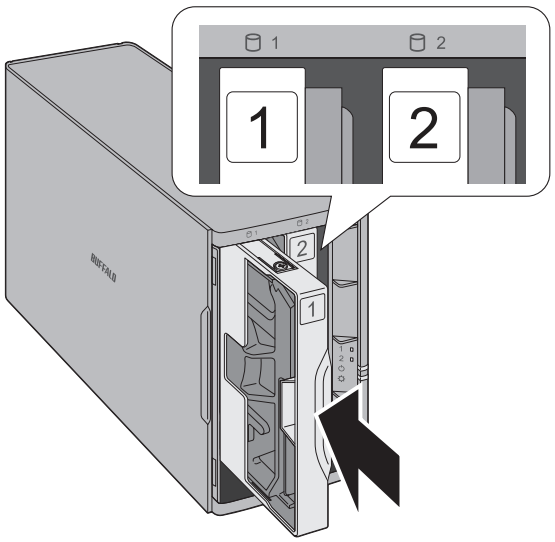
**5** Install a new Buffalo OP-HDBST series drive in the cartridge.



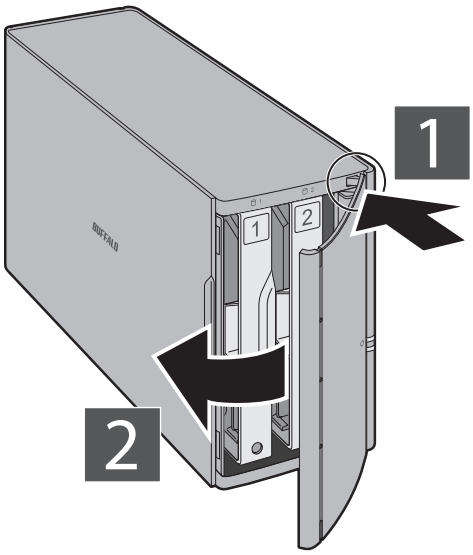
**6** Replace the four screws.



**7** Insert the new drive into the empty slot.



**8** Close the front panel.




**9** Connect all cables, then turn on the LinkStation.

## Step 2 - Rebuilding the RAID Array

Depending on your RAID mode, the rebuilding procedure will be different. Follow the corresponding procedure below that matches your RAID mode.

### Using RAID 1

**1** Follow the drive replacement procedure described above and replace the failed drive with a new drive.

**2** Hold down the function button on the back of the LinkStation for 5 seconds.

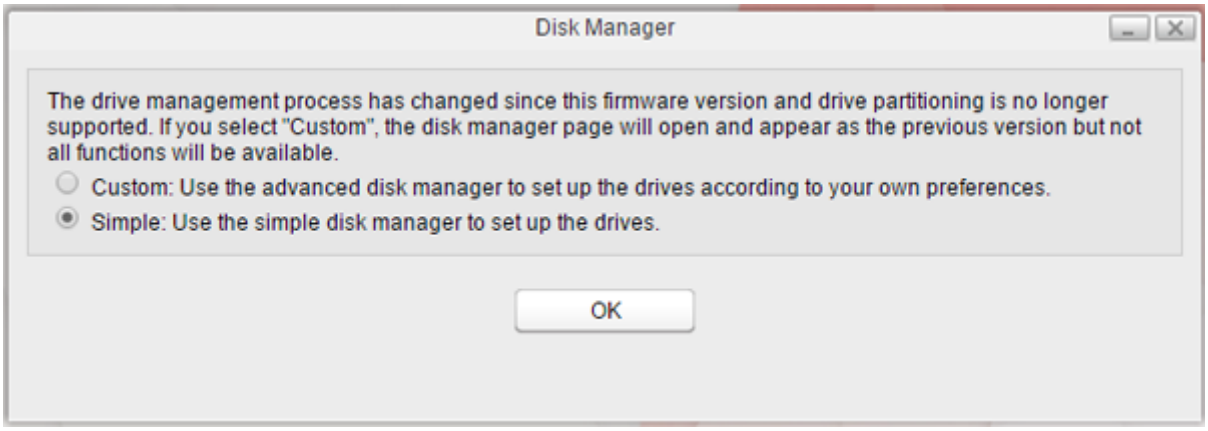
**3** The LinkStation will start rebuilding the RAID array. After a few minutes, the I18 message will be displayed in NAS Navigator2. Wait until the drive finishes rebuilding; the I18 message will be extinguished.

### Using RAID 0 or Linear

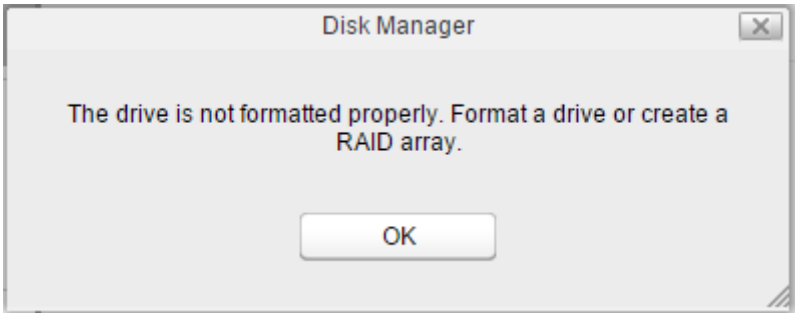
**1** Follow the drive replacement procedure described above and replace the failed drive with a new drive.

**2** Open Settings and click *Disk Manager*.

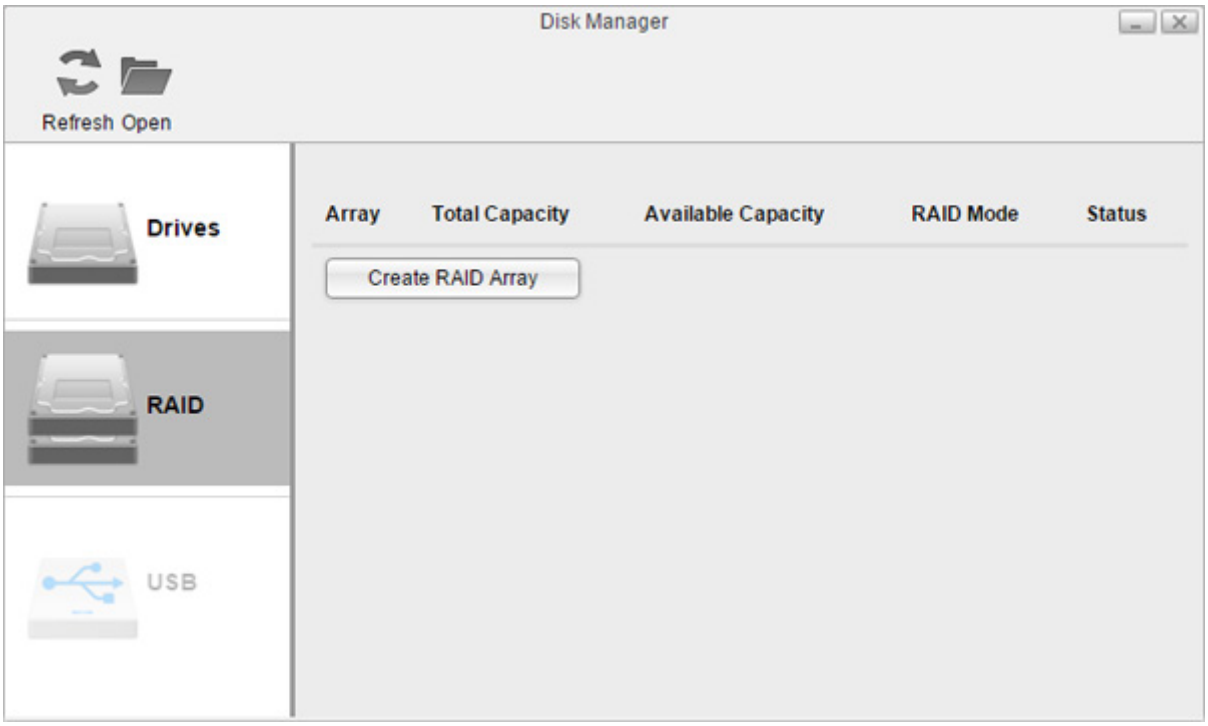
**3** When the following window prompts, select "Simple" and click *OK*.



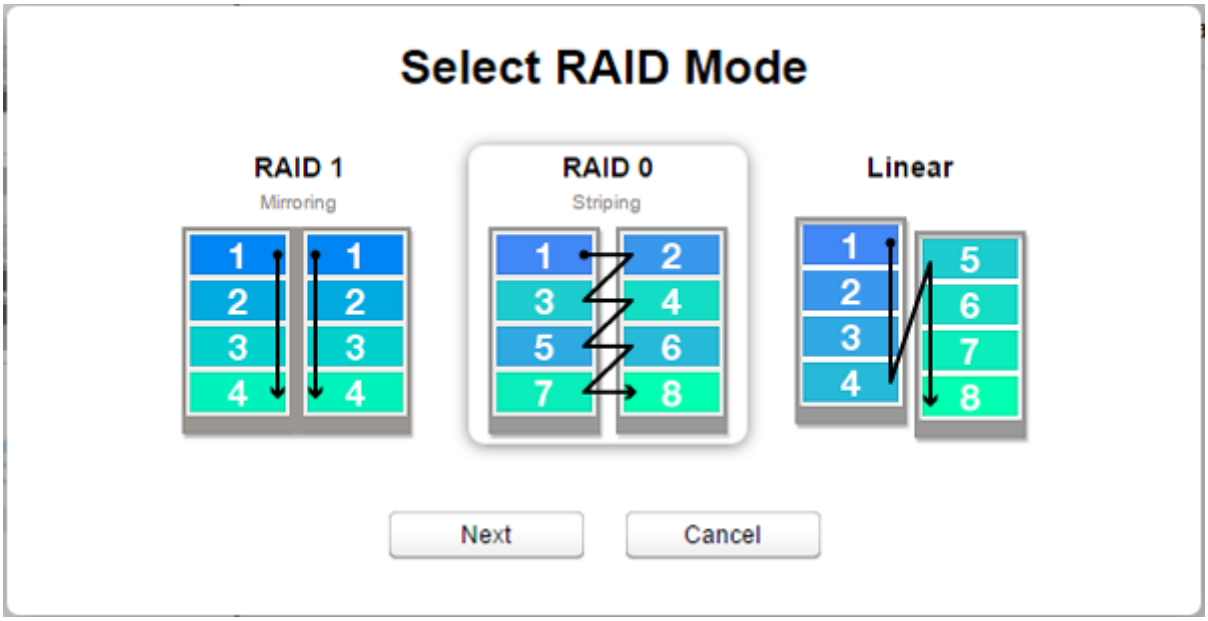

**4** The error message below will be displayed due to a new drive being inserted. Click *OK*.




**5** Click the *RAID* tab, then *Create RAID Array*.



**6** Select a RAID mode and click *Next*.




**7** Click *Yes*.

**8** RAID array creation will start. Wait until it's done. When it's finished, click *OK*, then *Close*.

Once the RAID array is configured, create shared folders on the array to use them. Refer to the "SHARED" section in chapter 7 for the instructions.

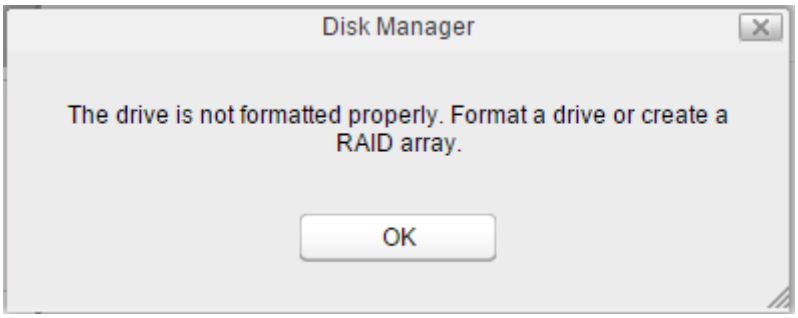
## Using JBOD

If the drive that was initially formatted fails, the LinkStation will not be accessible unless the drive is replaced.

**1** Follow the drive replacement procedure described above and replace the failed drive with a new drive.

**2** Open Settings and click *Disk Manager*.

**3** The error message below will be displayed due to a new drive being inserted. Click *OK*.



**4** Select a drive that shows "Unformatted" and click *Format*.

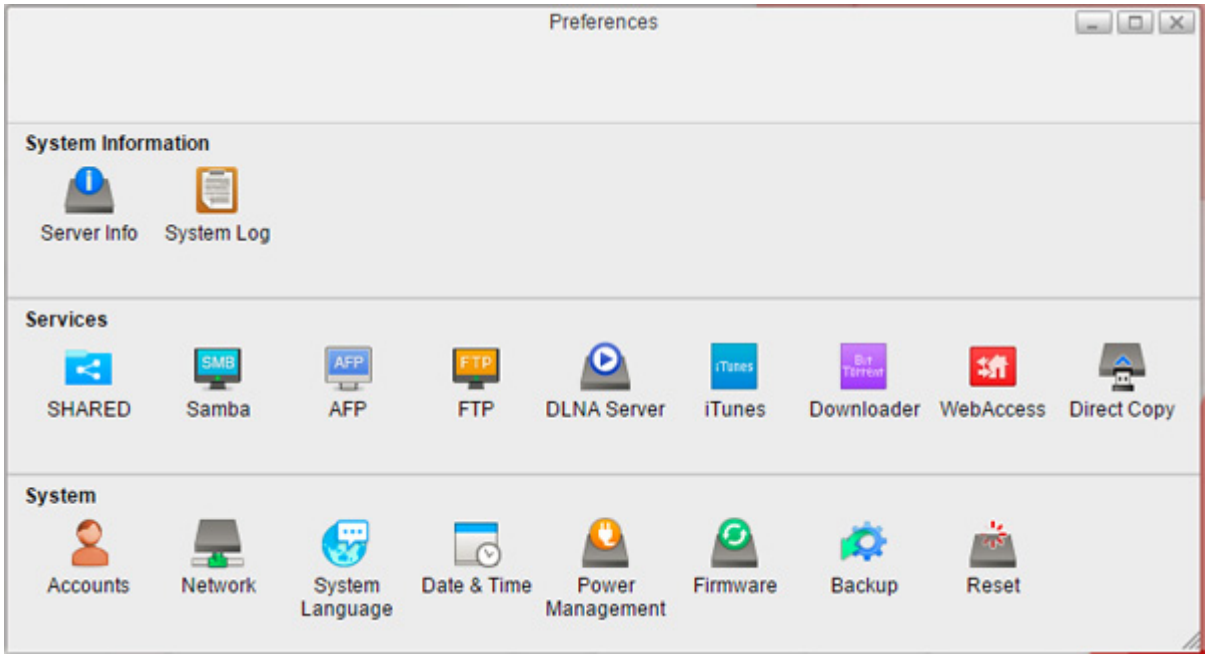
**5** Select a file system from the drop-down menu and click *Format*.

**6** When the format is finished, click *OK*, then *Close*.

Once the drive is formatted, create shared folders on the drive to use them. Refer to the "SHARED" section in chapter 7 for the instructions.

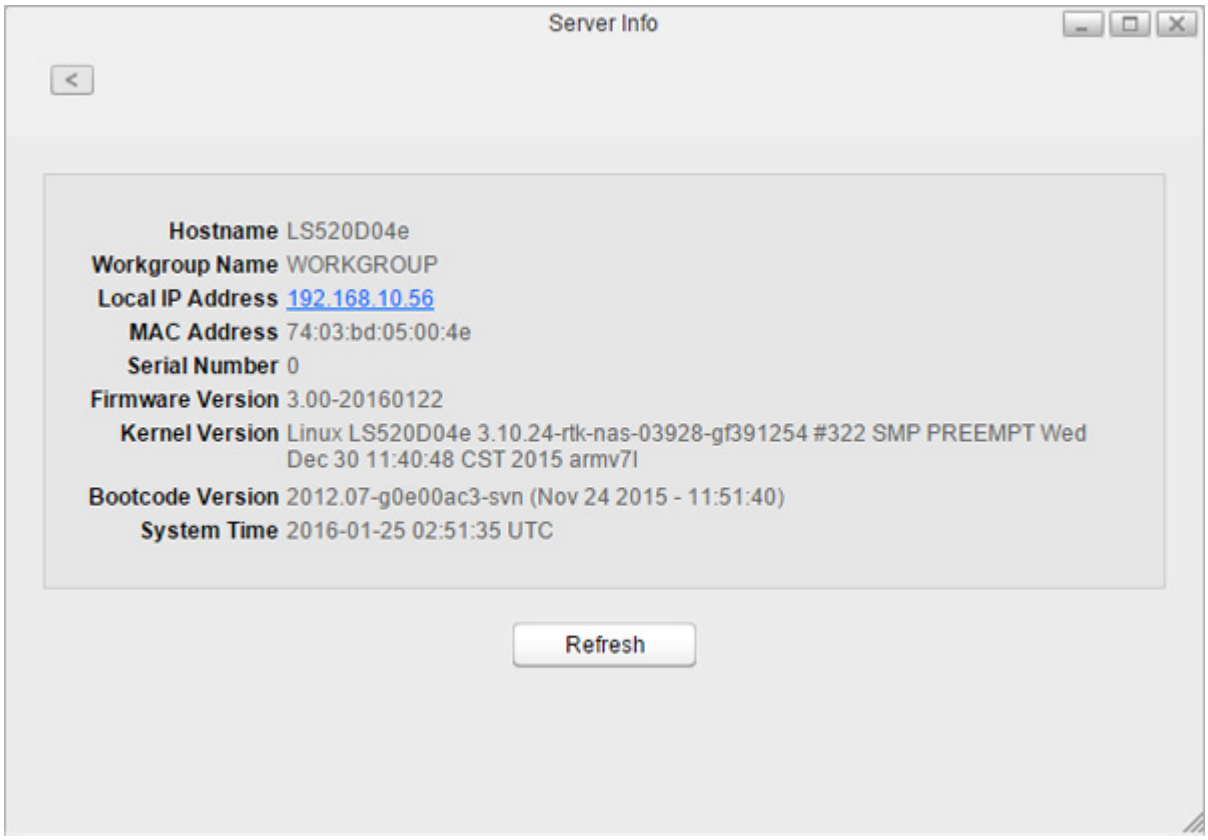
# Chapter 6 System Information

Click the icon in the main menu to open "Preferences".




## Server Info

Displays the registered name, hostname, workgroup name, IP address, MAC address, firmware version, time, and other minor system information.

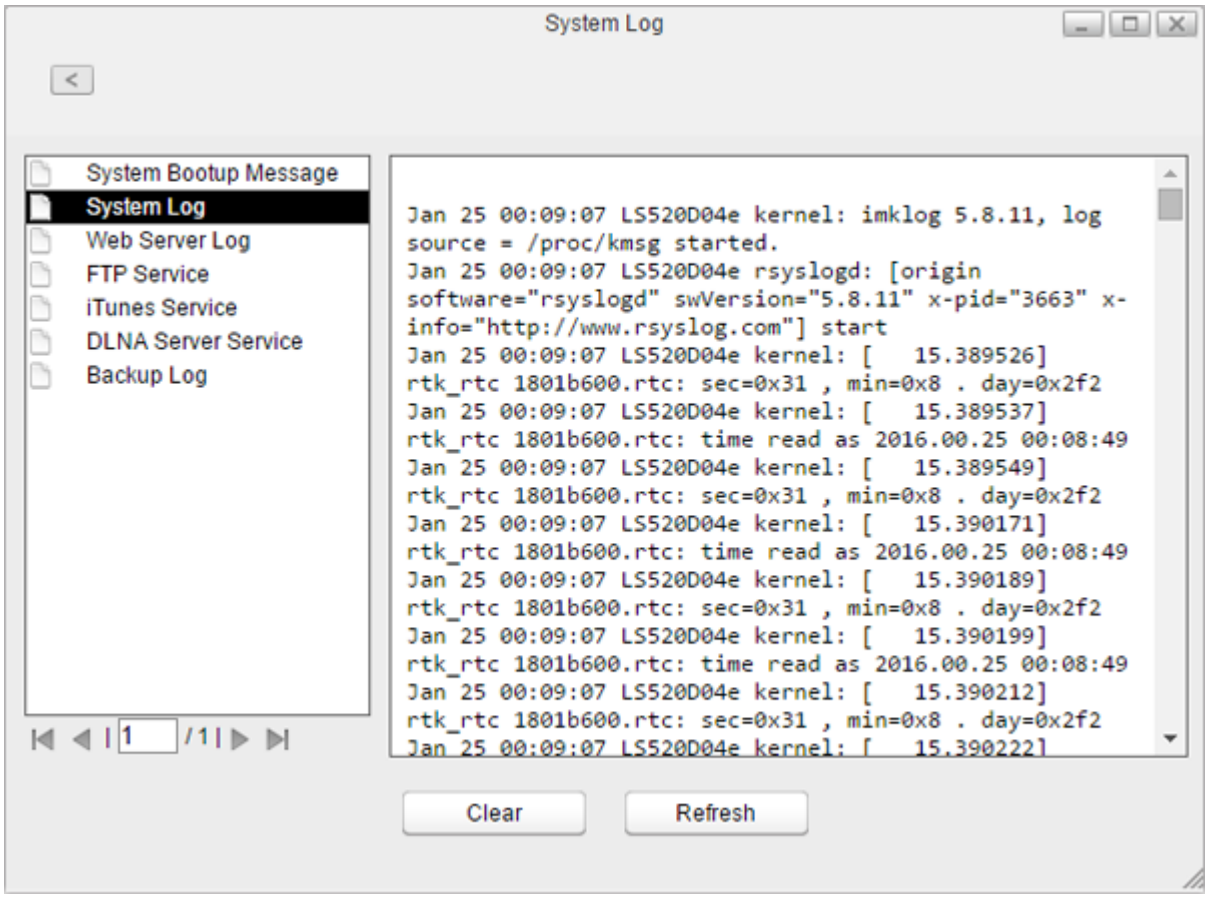



To open the Server Info window, click *Server Info* in Preferences.

## System Log

Displays multiple logs of the LinkStation.

To open the System Log window, click *System Log* in Preferences.




**Note:** Up to 10 latest logs will be kept in the LinkStation.

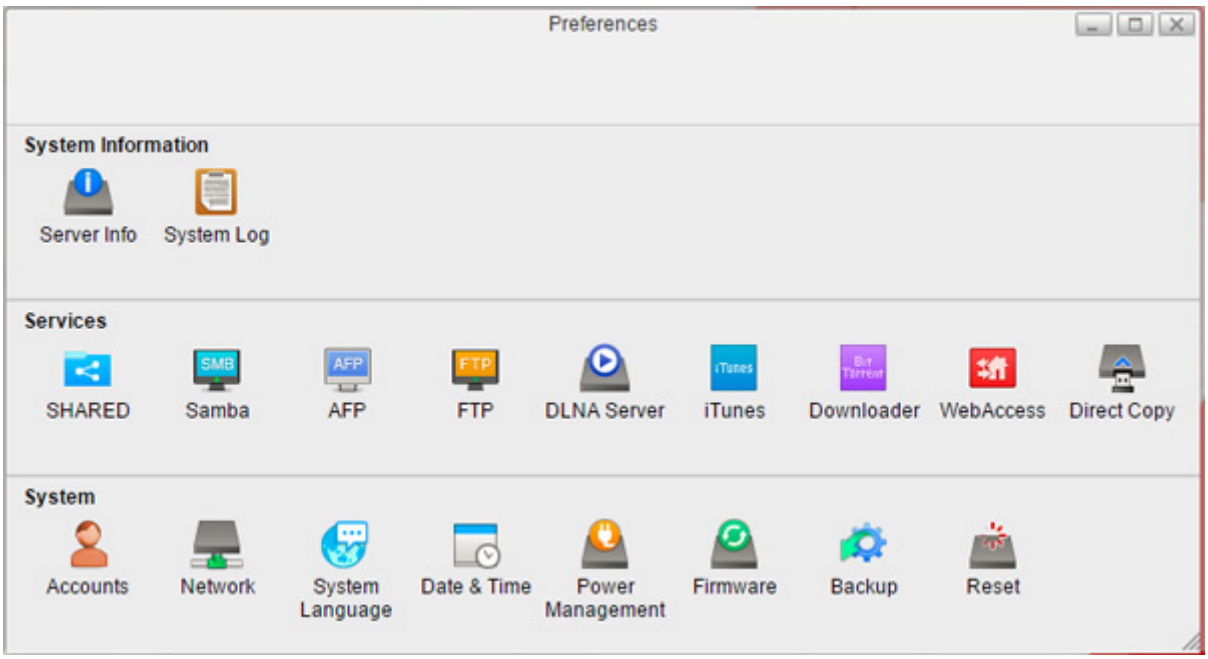
# Chapter 7 Services

## SHARED

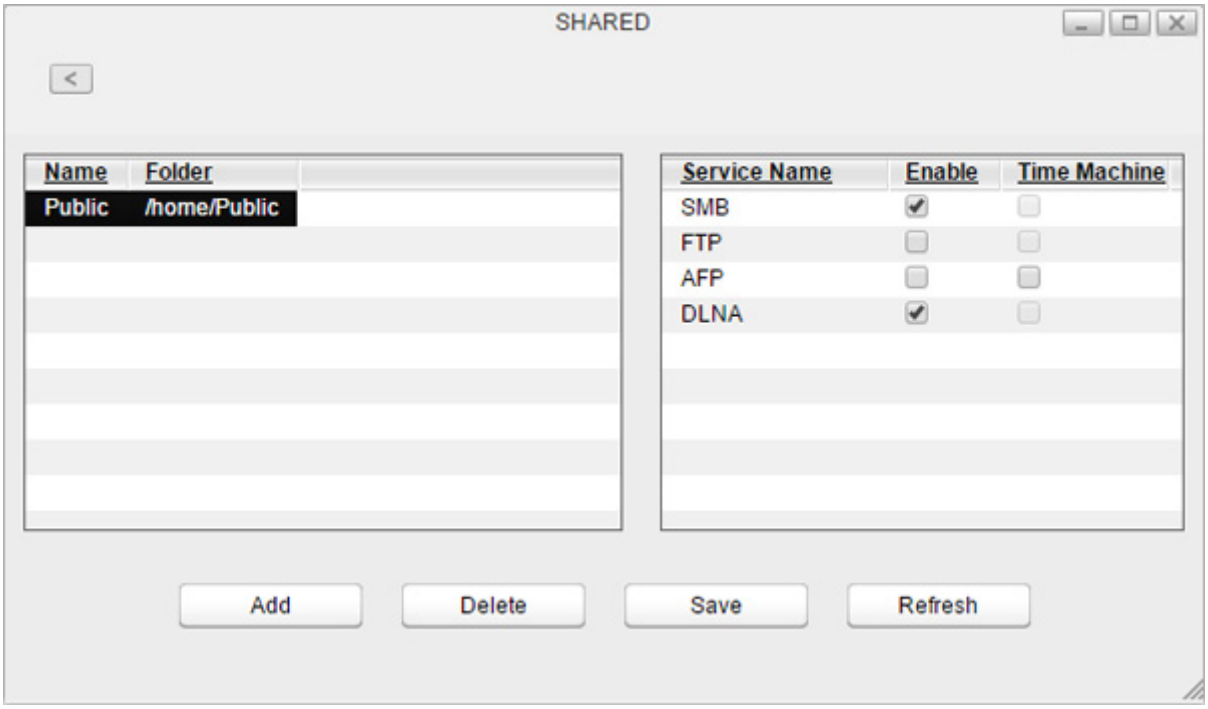
Create or delete shared folders in the LinkStation and enable or disable protocol services.

### Adding Shared Folders

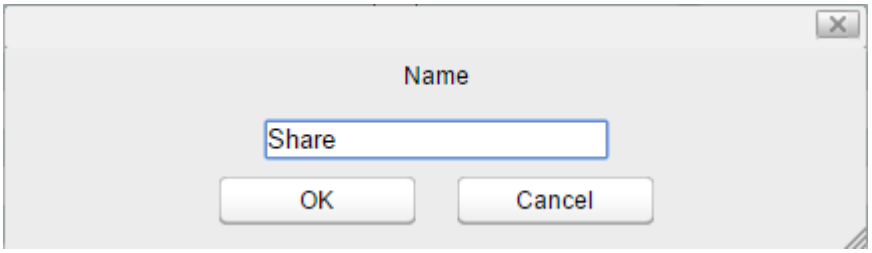
**1** In Preferences, click *SHARED*.



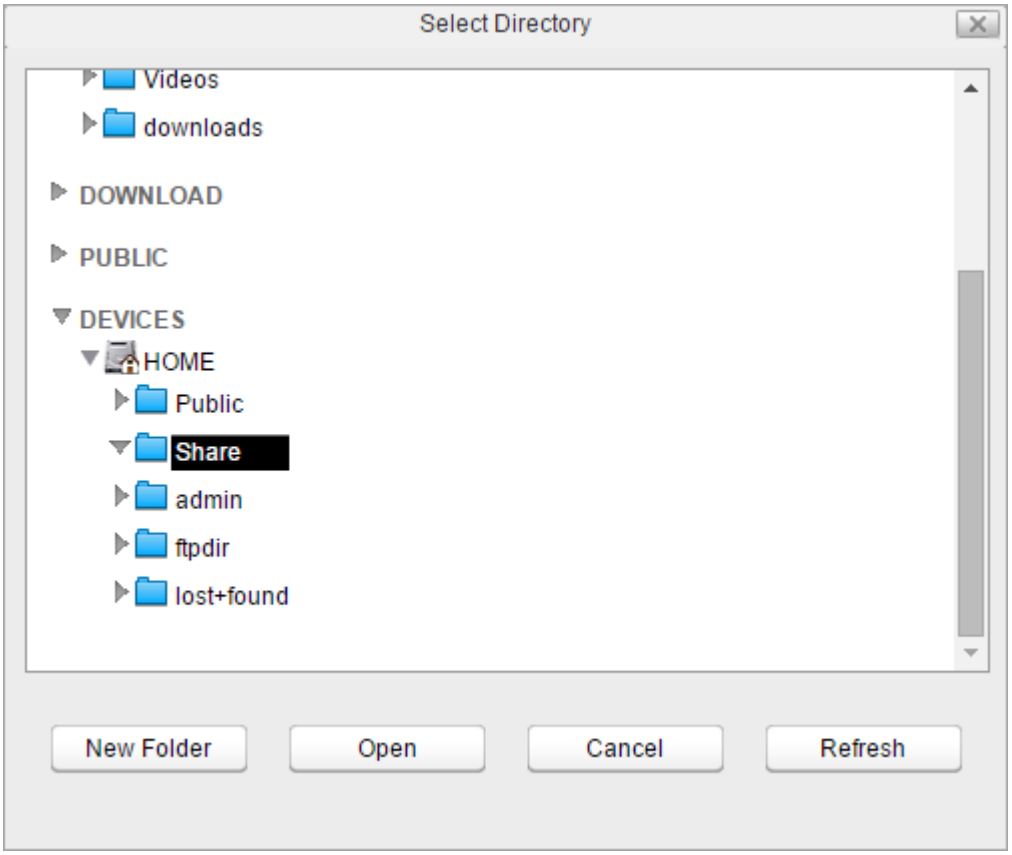
**2** Click *Add*.




**3** Enter a folder name and click *OK*.



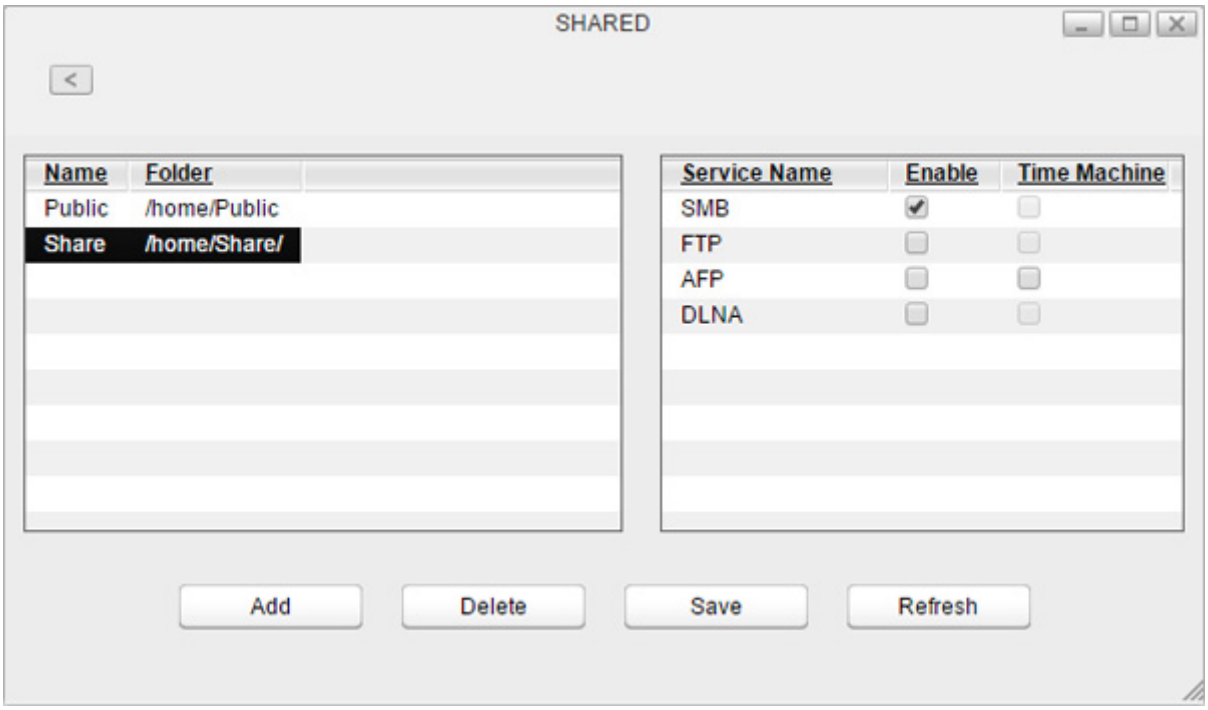
**4** Navigate to *DEVICES - home* and select the shared folder.




If you want to add a new folder to the list, click *New Folder*, enter a desired folder name, and click *OK*.

**5** Click *Open*.

**6** The shared folder is added to the list. From this screen, you can enable or disable services such as SMB, FTP, AFP, and DLNA protocols. Check in the checkbox under "Enable". If the file sharing services are not enabled, they will be enabled automatically.



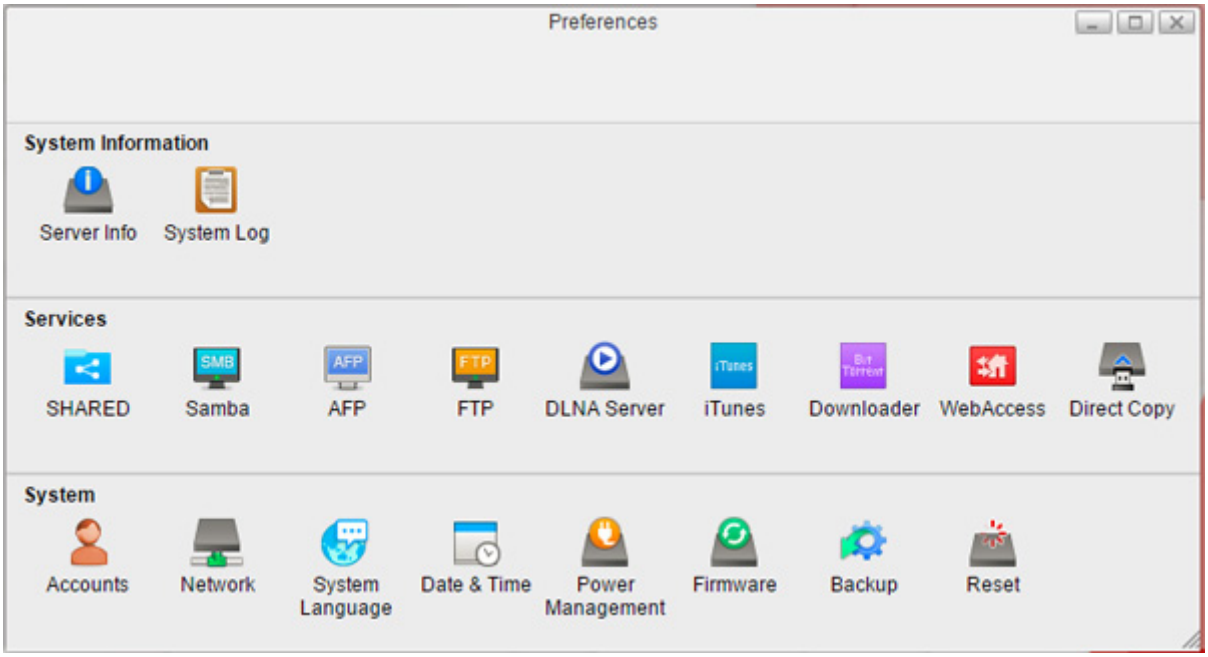

The folder is now configured as a shared folder.

**Note:** Even if you delete the folder name from the list, the folder that exists in the home partition will not be deleted. Remove it from My LinkStation if the folder is not essential.

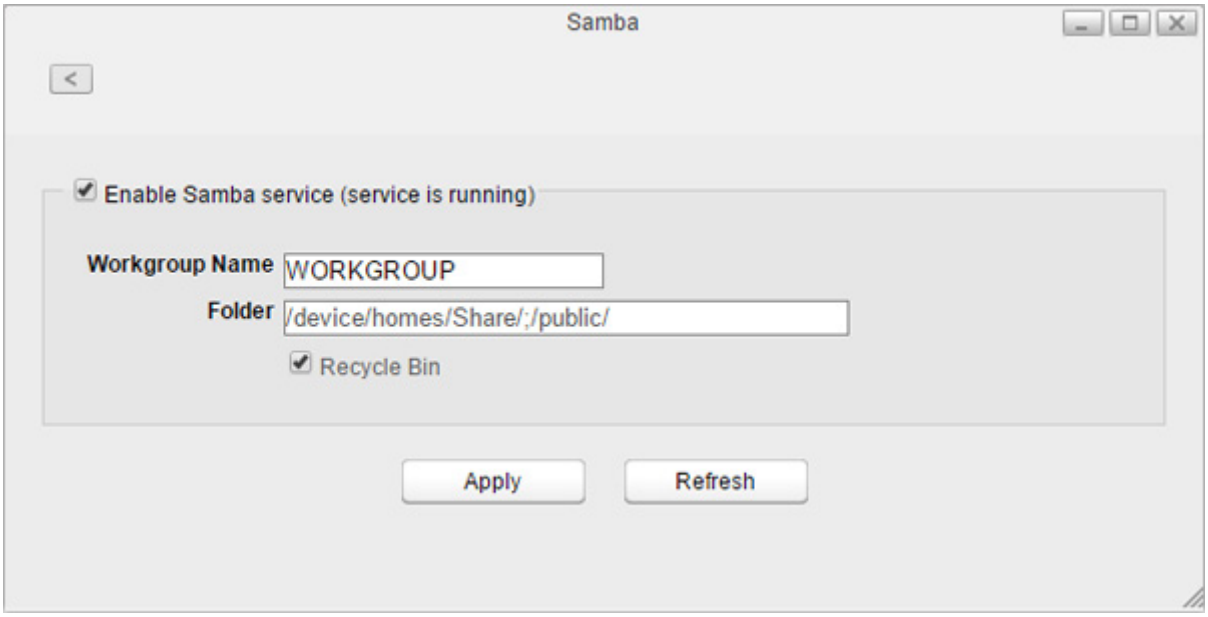
# Samba

Enable or disable SMB connections for the LinkStation. It is enabled by default.

**1** In Preferences, click *Samba*.




**2** Check "Enable Samba service" to enable SMB connections and click *Apply*.




Even if the file sharing service is enabled, it will not be enabled for the folder automatically. Go to "SHARED" and enable the service for the folder.

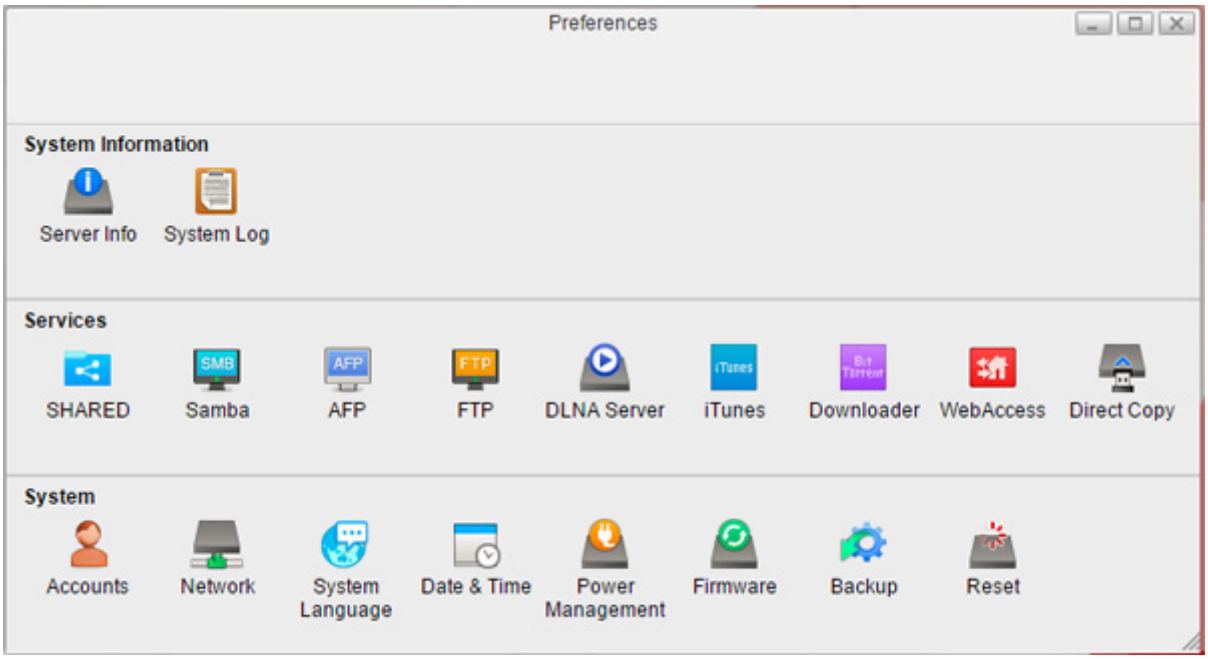
## Recycle Bin

To protect your data from accidental deletion, you may configure your LinkStation to use a recycle bin instead of deleting files immediately. The recycle bin will only work with SMB connections.

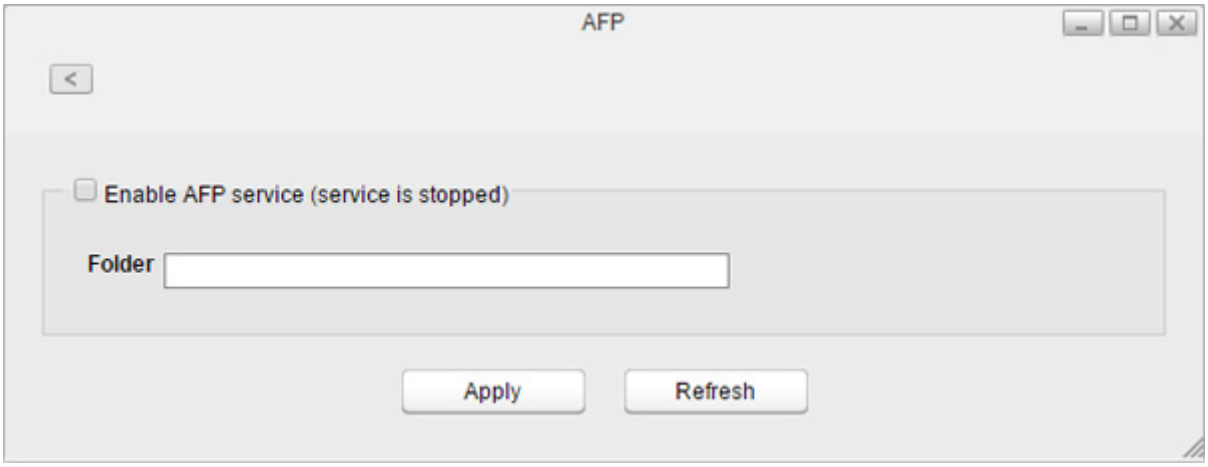
# AFP

Enable or disable AFP connections for the LinkStation. It is disabled by default.

**1** In Preferences, click *AFP*.




**2** Check "Enable AFP service" to enable AFP connections and click *Apply*.

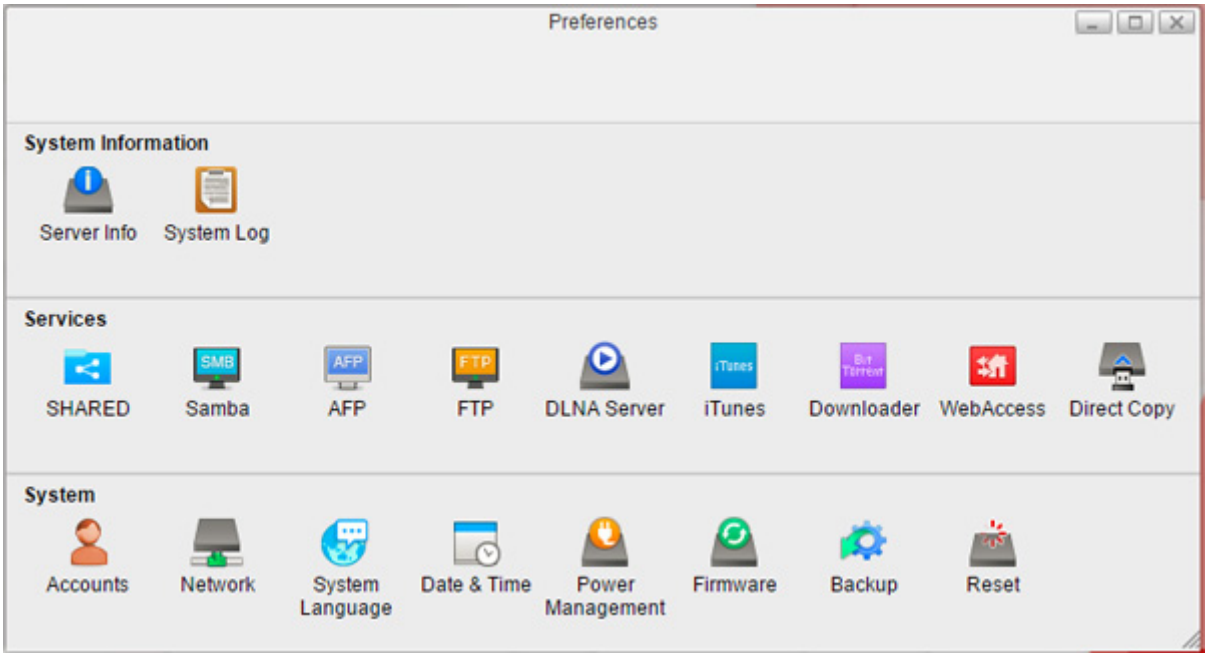



Even if the file sharing service is enabled, it will not be enabled for the folder automatically. Go to "SHARED" and enable the service for the folder.

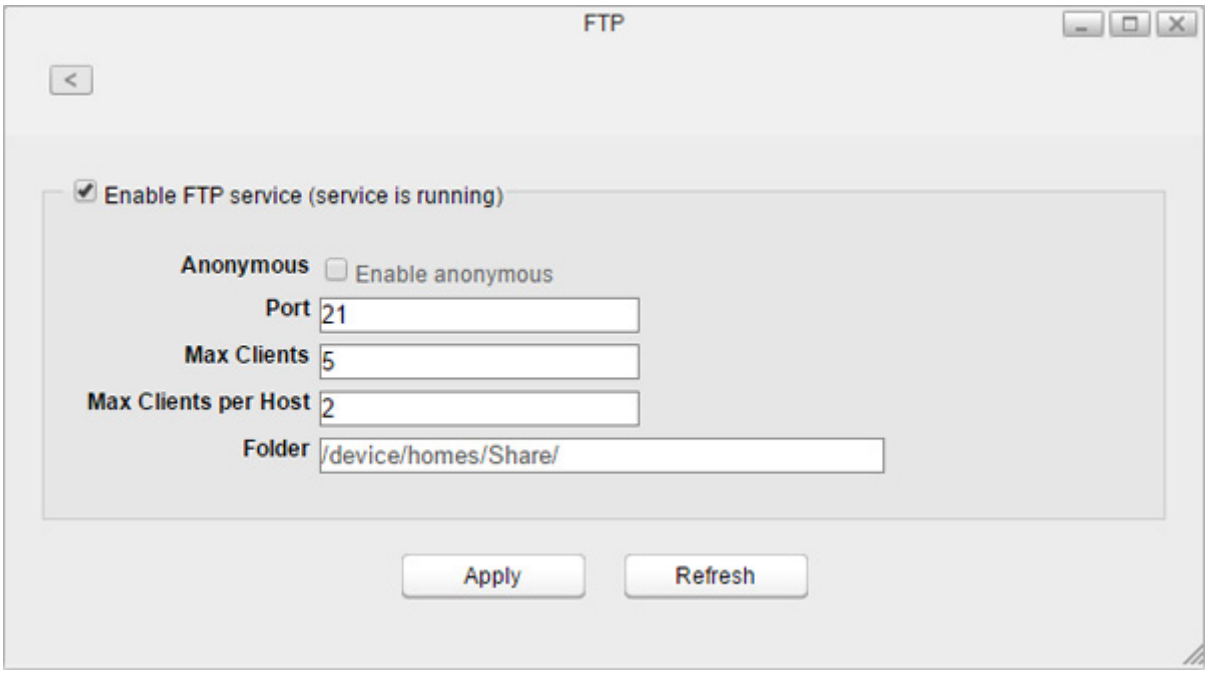
# FTP

Enable or disable FTP connection of the LinkStation. It is disabled by default.

**1** In Preferences, click *FTP*.




**2** Check "Enable FTP service" to enable FTP connections.




**3** Enter a desired port number and other settings. If you want to allow anonymous access, check "Enable anonymous".

**4** Click *Apply*.

Even if the file sharing service is enabled, it will not be enabled for the folder automatically. Go to "SHARED" and enable the service for the folder.

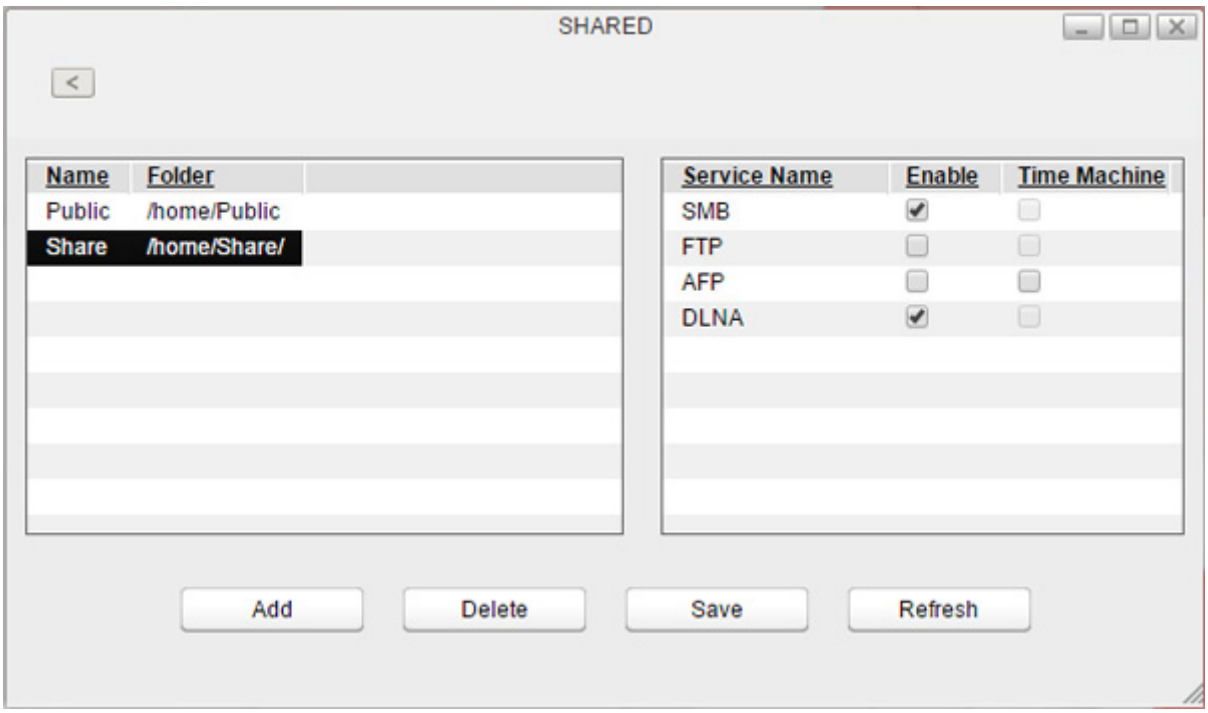
**Note:** If you access the LinkStation as an anonymous user via FTP, it will be read-only access.

# DLNA Server

Enable or disable DLNA. If enabled, you can view or play files stored in the LinkStation from the DLNA-compatible devices. It is enabled by default.
DLNA is a set of guidelines for sharing digital media. The LinkStation includes a DLNA server compliant with DLNA guidelines. Movies, photos, and music saved on the LinkStation can be played on DLNA-compatible TVs, stereo equipment, game consoles, and other devices on the local network.

1 In Preferences, click *SHARED* and select a shared folder for the DLNA server.

2 Make sure that "DLNA" is enabled for the folder. If not, check the checkbox under "Enable" next to "DLNA", then click *Save*.




If DLNA service is not enabled, it will be enabled automatically when enabling the service for shared folder.

## Playing Files on the DLNA Client Device

To play back content from a DLNA-compatible device:

1 Connect the DLNA-compatible device to the same network as the LinkStation and turn it on.

2 Select the LinkStation in the software of the DLNA-compatible device.

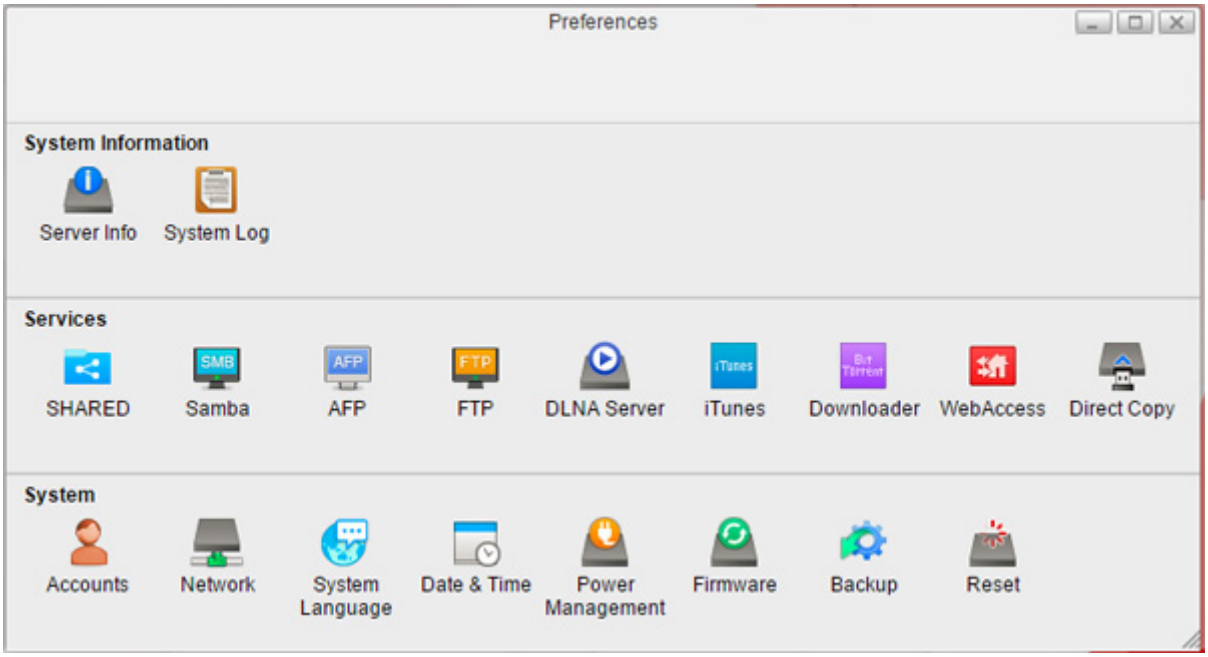
3 Select the content to be played back.

**Note:** For more information on playing files, see the DLNA-compatible devices' manuals.

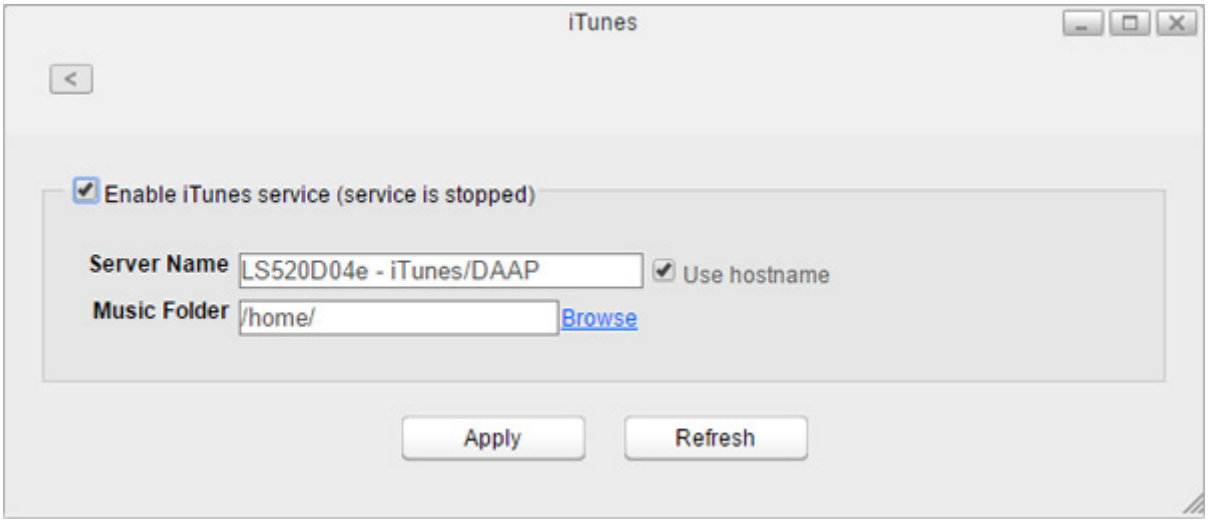
# iTunes

Enable or disable the iTunes server, change the server name, and select the folder for sharing. It is disabled by default. If the iTunes server is enabled, computers on your network with iTunes can play music files stored on the LinkStation and transfer them to your iOS devices.

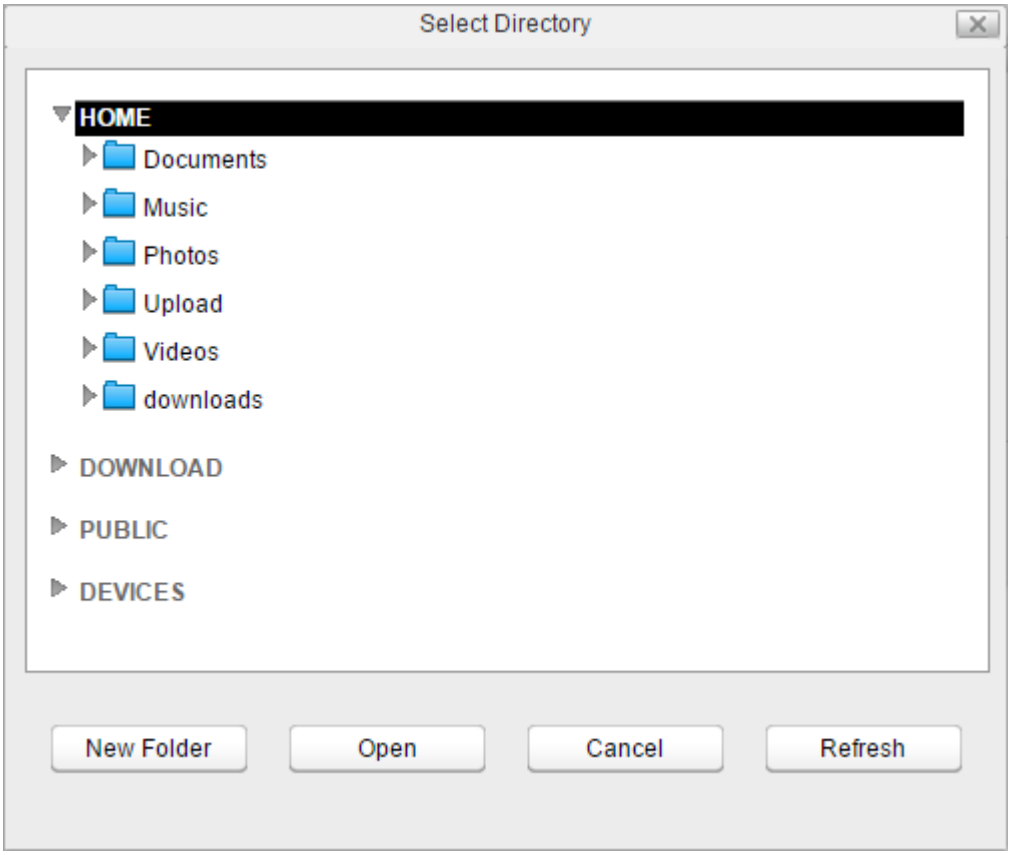
**1** In Preferences, click *iTunes*.




**2** Check "Enable iTunes service" to enable the iTunes server and enter a desired server name. If you prefer to use the LinkStation name as the server name, check "Use hostname".



**3** Click *Browse* and select the folder to use for iTunes, then click *Open*.




**4** Click *Apply*.

**Note:** When you access the iTunes server from a computer or iOS device right after enabling the service on the LinkStation, the file list may not be displayed properly. In such a case, disconnect and reconnect the LinkStation to the computer or iOS device. The file list should be updated.

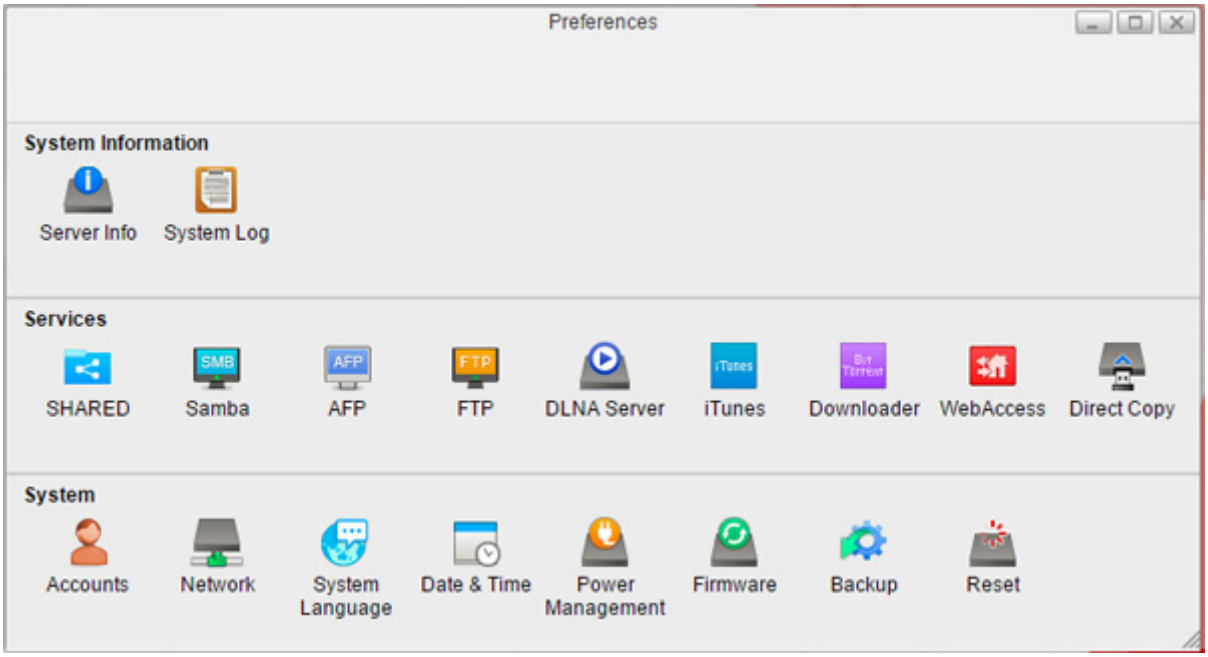
# Downloader

Enable or disable BitTorrent. It is disabled by default.

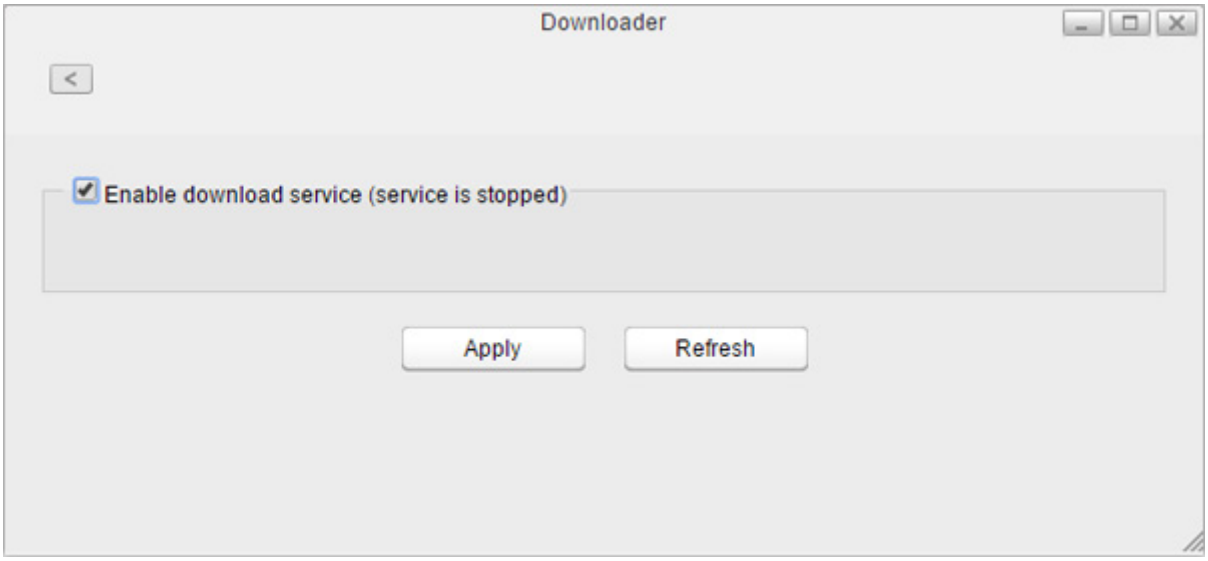
BitTorrent is a protocol for distributing large amounts of data efficiently. The information in this section is for users who are familiar with BitTorrent.

## Enabling Downloader Service

**1** In Preferences, click *Downloader*.

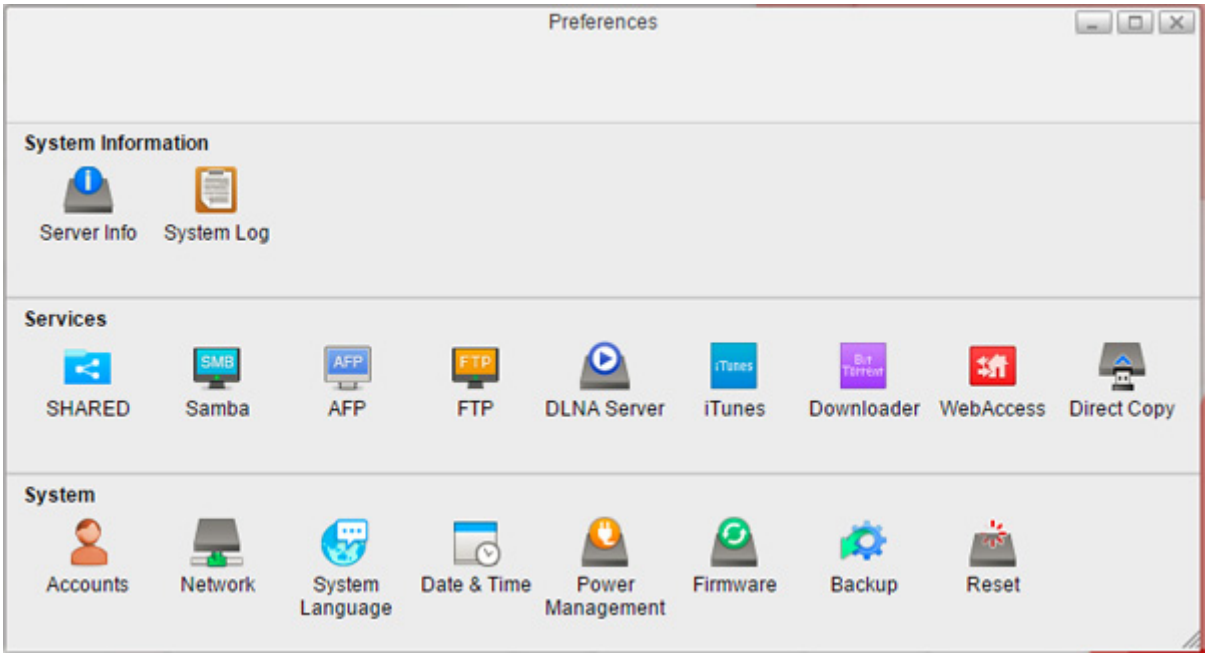



**2** Click "Enable download service" to enable BitTorrent and click *Apply*.

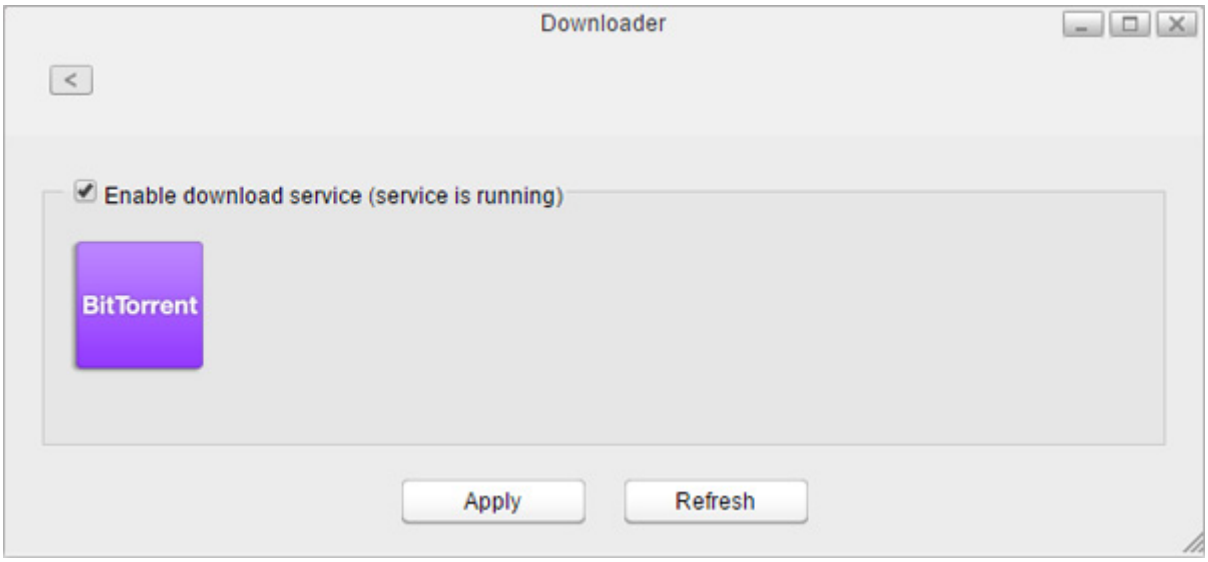


## Opening the Download Manager

**1** In Preferences, click *Downloader*.

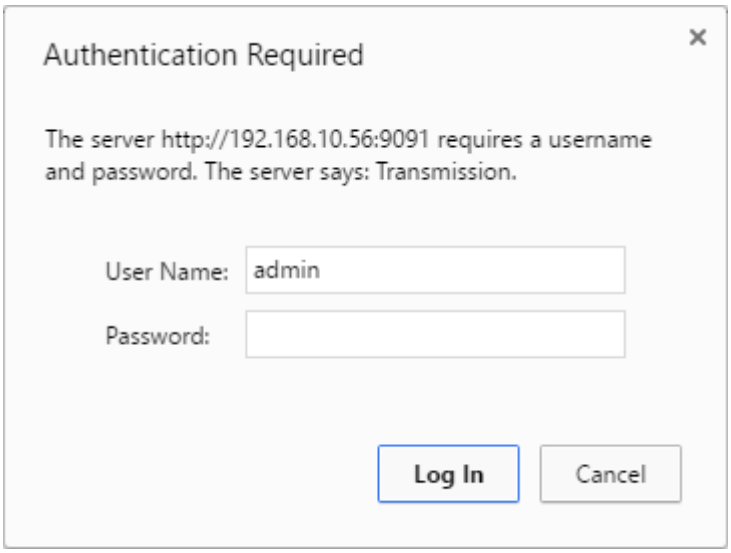



**2** Click the icon displayed in the window. If no icon is displayed like the screen below, you should enable it by following the steps in the "Enabling Downloader Service" section.

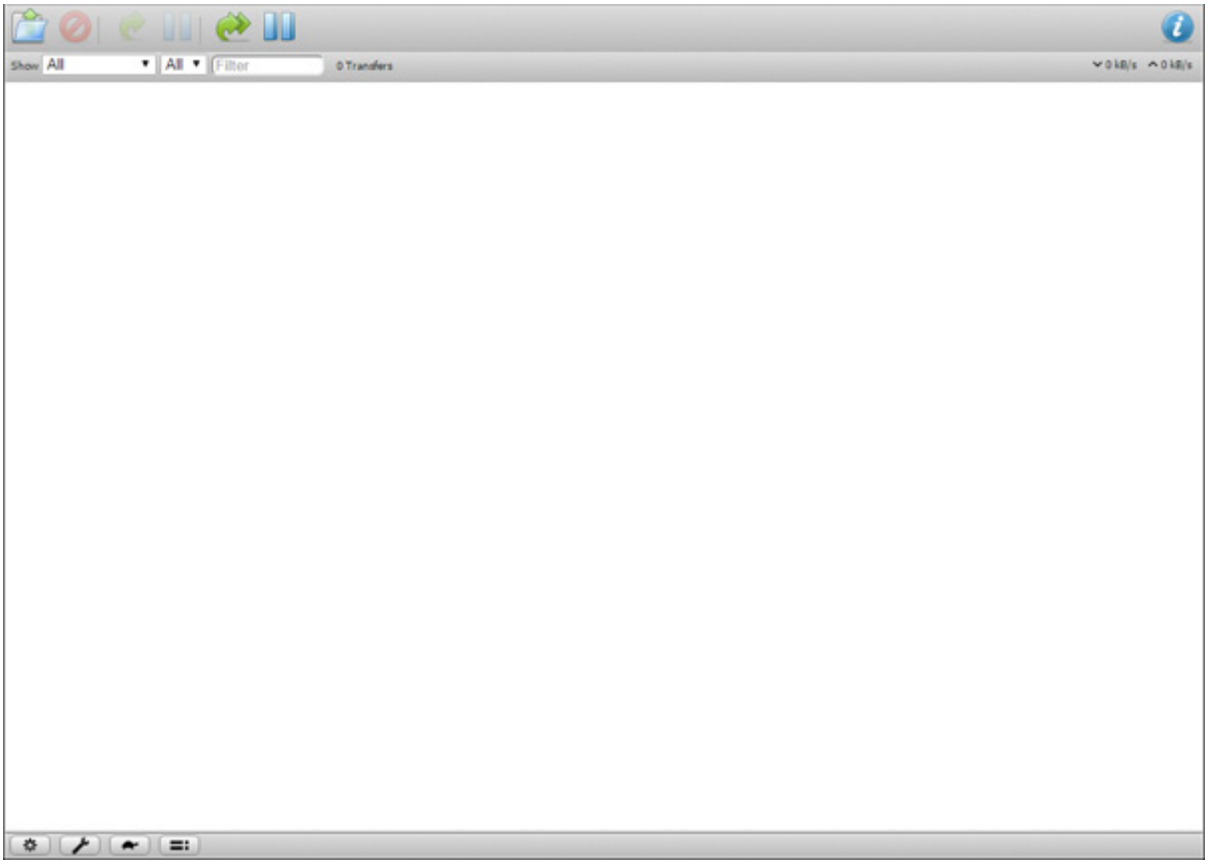



**3** Enter a username and password, then click *Log In*.

The username is "admin" and the password is blank (no password).




**4** The download manager will open.



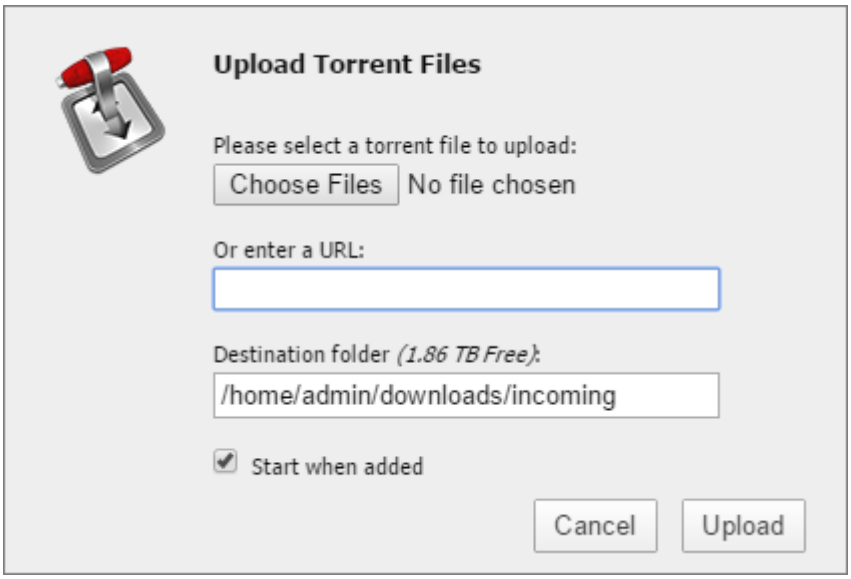
## Downloading Files

**1** Open the download manager.

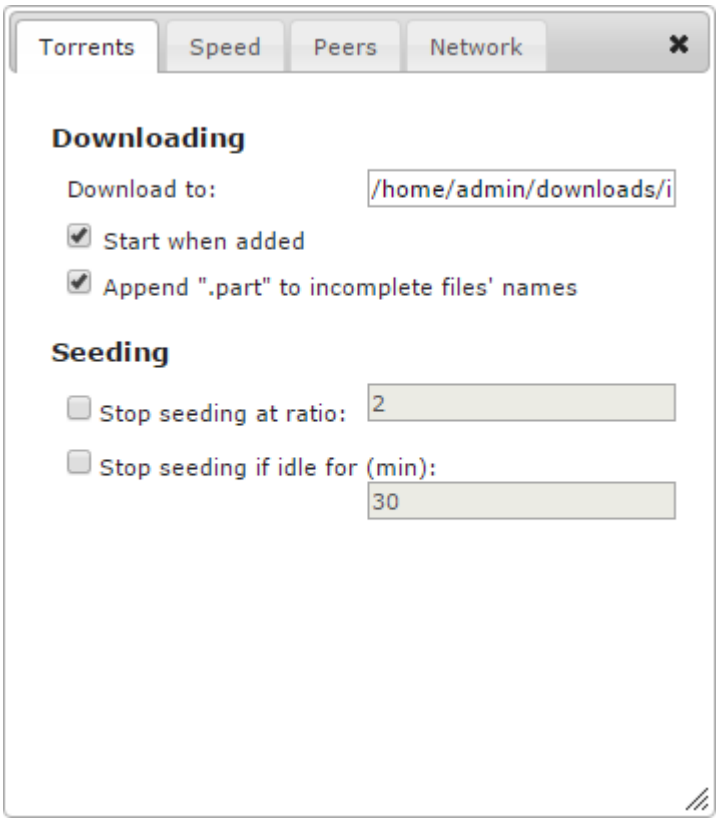
**2** Click the icon.

**3** Select a file to upload or enter the URL into the "Or enter a URL:" field, specify the location to save the downloaded file, then click *Upload*.

Check "Start when added" to start downloading immediately after clicking *Upload*.




**Note:** By default, the downloaded file will be saved in the "incoming" folder in the personal folder. To change the download folder, click the icon at the left bottom corner and change the directory at "Download to:".




**4** The download will start.

To cancel downloading, click , then *Remove*. Click to pause the download. Click or to resume.

# WebAccess

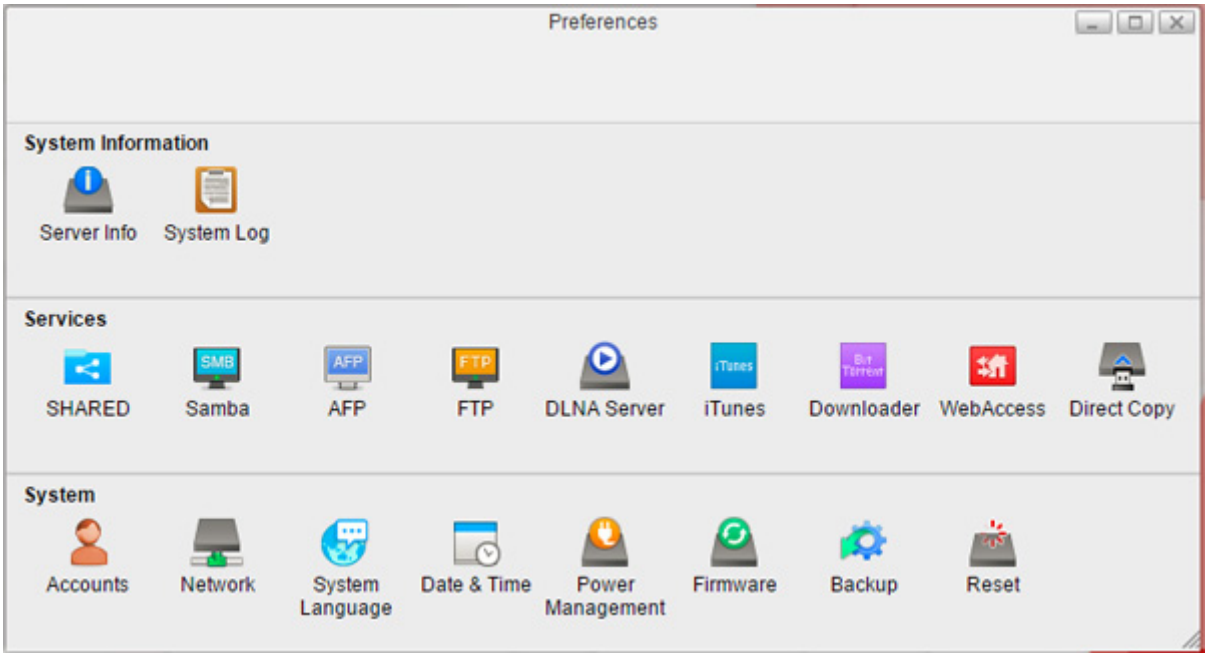
WebAccess is a program that allows you to remotely access files in your LinkStation's shared folder from your computer or mobile device through the Internet.

# Configuring WebAccess

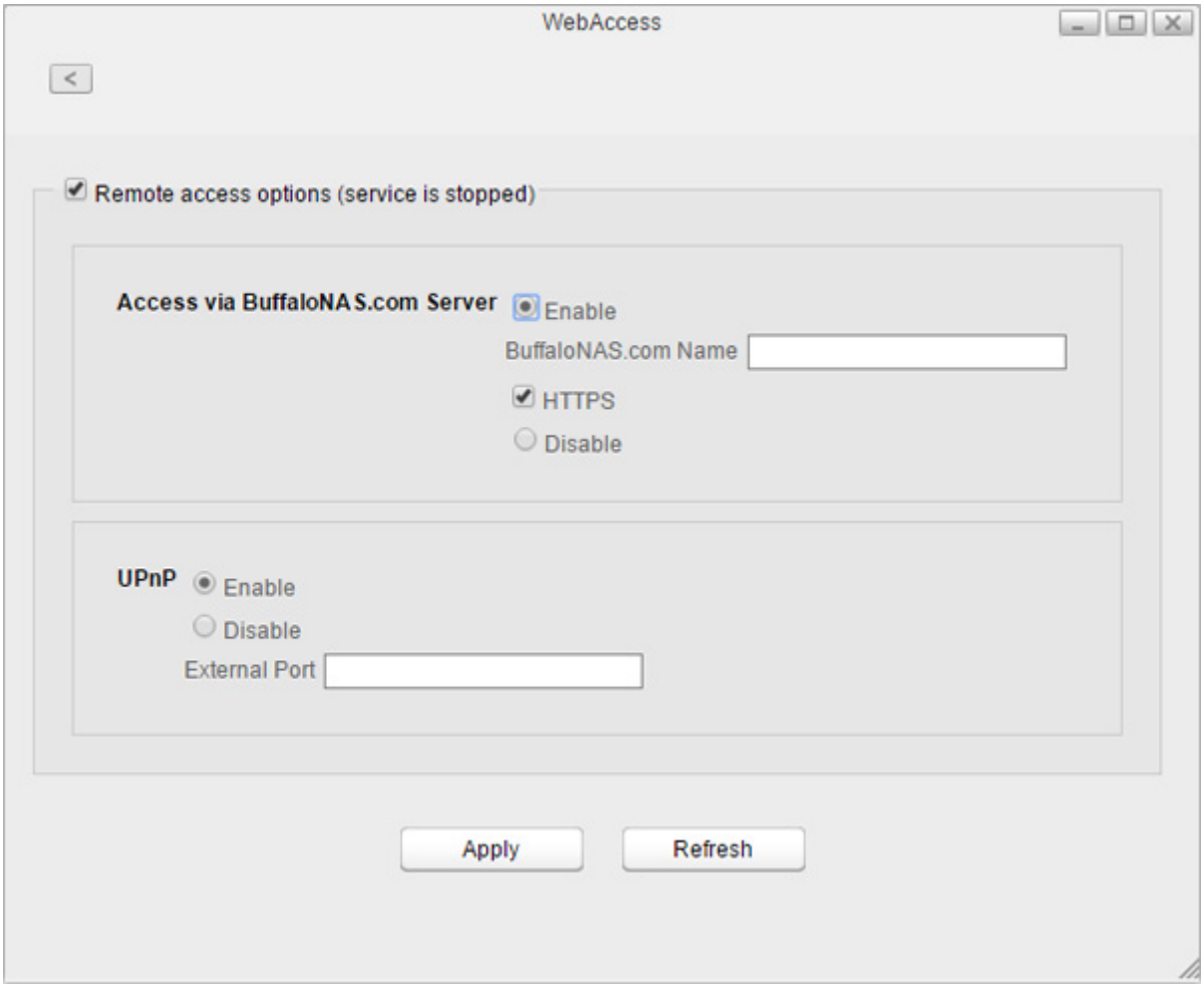
By using remote access options that are allowed in the WebAccess screen, you can configure WebAccess settings using a simpler process.

**If you are using LinkStation version 1.10 or earlier, your admin password may not be changed from the default value. However, WebAccess is always enabled so files on the LinkStation are also published. We highly recommend changing the password from "password", the default value, to increase security.**

**1** In Preferences, click *WebAccess*.



**2** Check "Remote access options" to easily configure WebAccess settings.




**3** Configure the desired settings, then click *Apply*.

- You may use the default BuffaloNAS.com registration, or select "Disable" to use a different DNS server.
- Choose a "BuffaloNAS.com Name" for your WebAccess account. Names may contain 3 to 20 alphanumeric characters, underscores (_), and hyphens (-).
- If your router supports UPnP, enable "UPnP". If UPnP is not supported, disable that setting and enter the router's external port number into the "External Port" field.

## Accessing Remotely

Once settings are configured, you are now ready for remote access from outside the local network. Access attributes for the shared folders on the LinkStation are as below:

| Available User | Username Folder | Folder Created in "My LinkStation"* | Shared Folder Configured in "SHARED"* |
|---|---|---|---|
| admin | R/W | R/W | - |
| Registered user | R/W** | - | - |

R/W: Read and write, -: No access

* For example, if you configure the folder as "share" in SHARED, it will not be accessible via WebAccess, but can be accessed via the configured file sharing protocols such as SMB, FTP, or AFP.

** Registered users are only able to access folders with their usernames. Other users' folders cannot be accessed.

There are many ways to access WebAccess folders depending on your device.

- From a computer, go to BuffaloNAS.com site, then log in with your WebAccess account. Or, access Settings remotely using the URL, http://buffalonas.com/ + your BuffaloNAS.com name. From My LinkStation, you can access the files on the LinkStation.
- To access from an iOS device, install the "WebAccess i" application from the App Store.
  For more instructions: http://buffalonas.com/manual/i/en/
- To access from an Android device, install the "WebAccess A" application from the Google Play.
  For more instructions: http://buffalonas.com/manual/a/en/

# Direct Copy

Use Direct Copy to copy data from a USB mass storage device directly to the LinkStation. To copy using Direct Copy, follow the procedure below.

**Note:** Direct Copy will not work while the backup is running. The prior process will work.

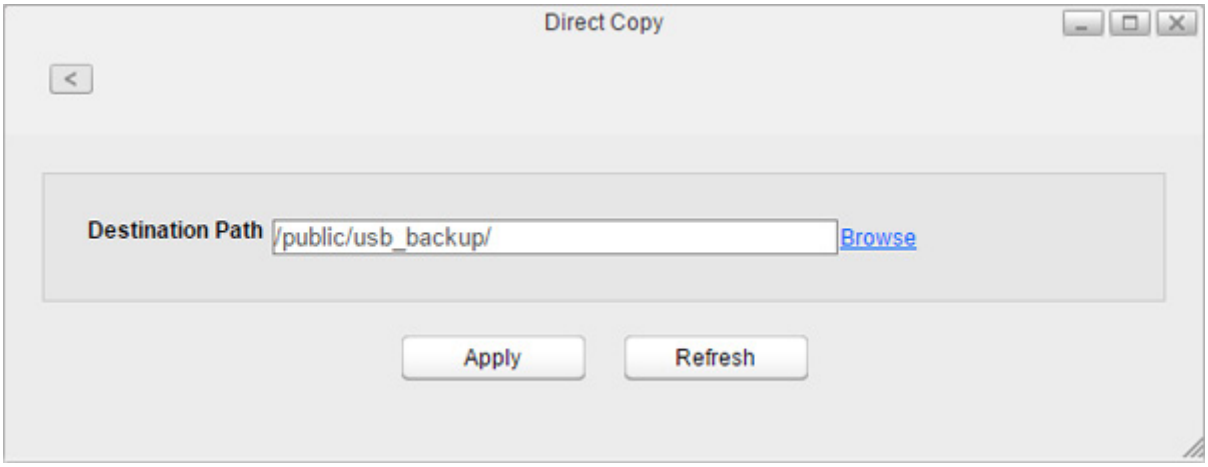
**1** Connect the USB device. When it mounts, the function LED will light up.

**Note:** Unsupported devices will not cause the function LED to light.

**2** You now have 60 seconds to press the function button once. If you do, the function LED will flash as all the files on the USB device are copied to the Direct Copy folder ("usb_backup" under "Public" folder) of the LinkStation.

**Notes:**

- While the function LED is flashing, hold the function button down for 3 seconds to cancel Direct Copy.
- To change the Direct Copy target folder, navigate to *Preferences* - *Direct Copy* - *Browse*, select a new folder, and click *Apply*.




**3** When the copy operation is finished, the access LED of the USB device will stop flashing and the function LED on the LinkStation will be extinguished. Dismount the USB device from the LinkStation referring to the "Dismounting an External Drive" section in chapter 5.

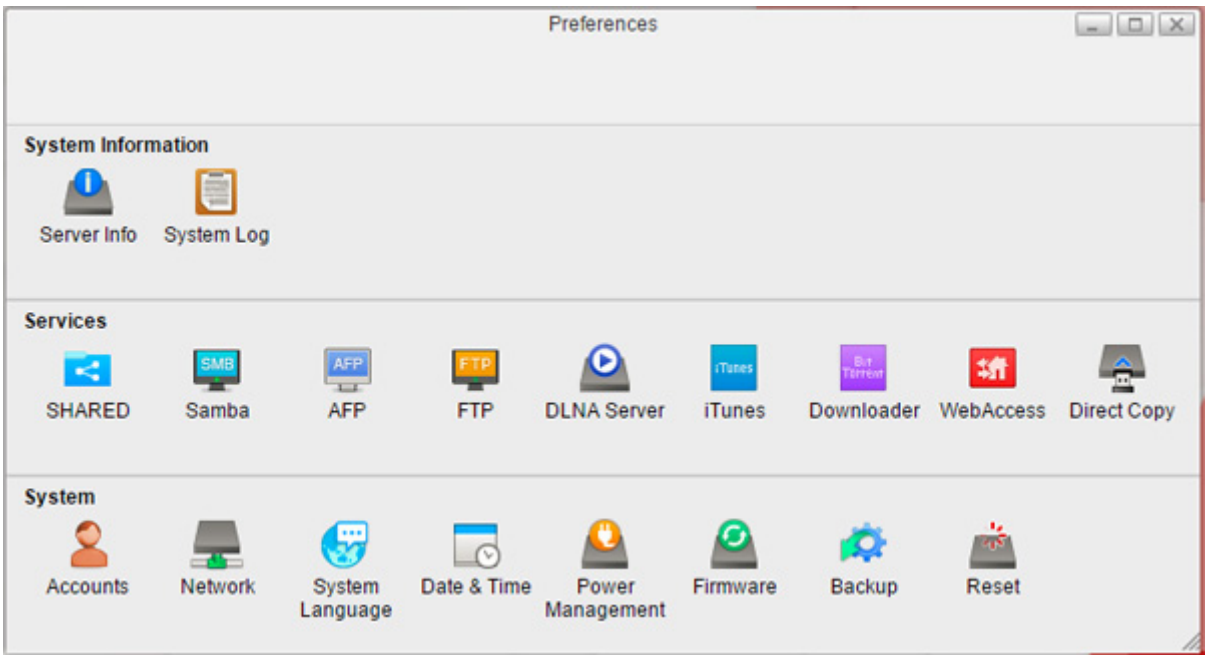
# Chapter 8 System

## Accounts

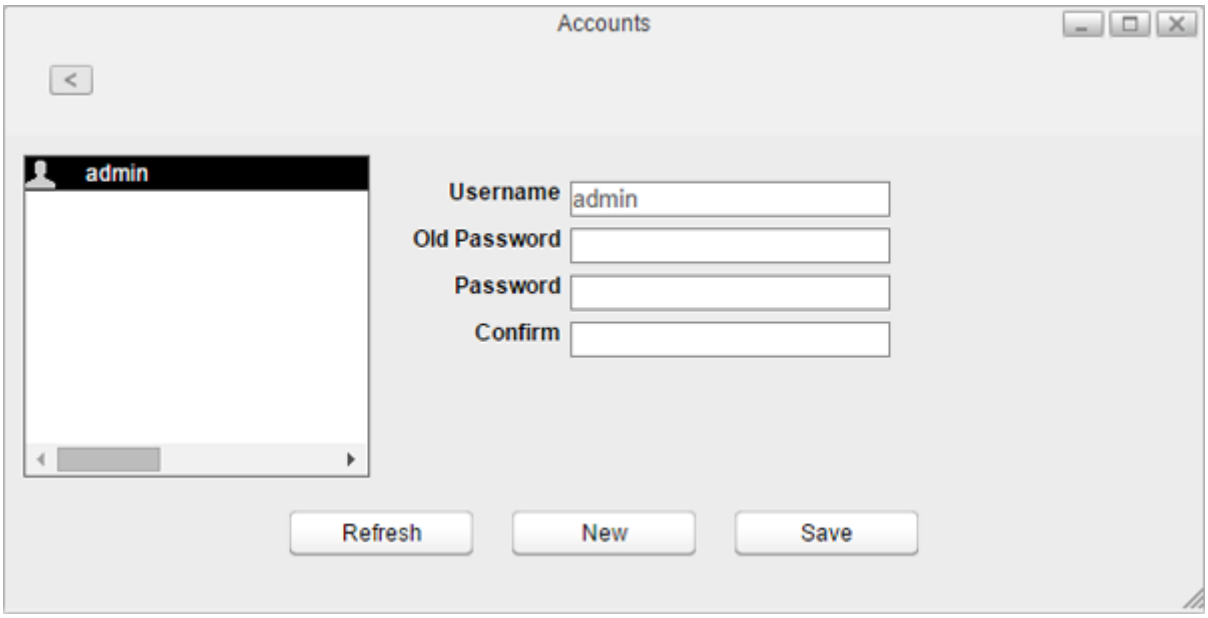
Create or delete users in the LinkStation, or change the administrator password.

### Creating Users

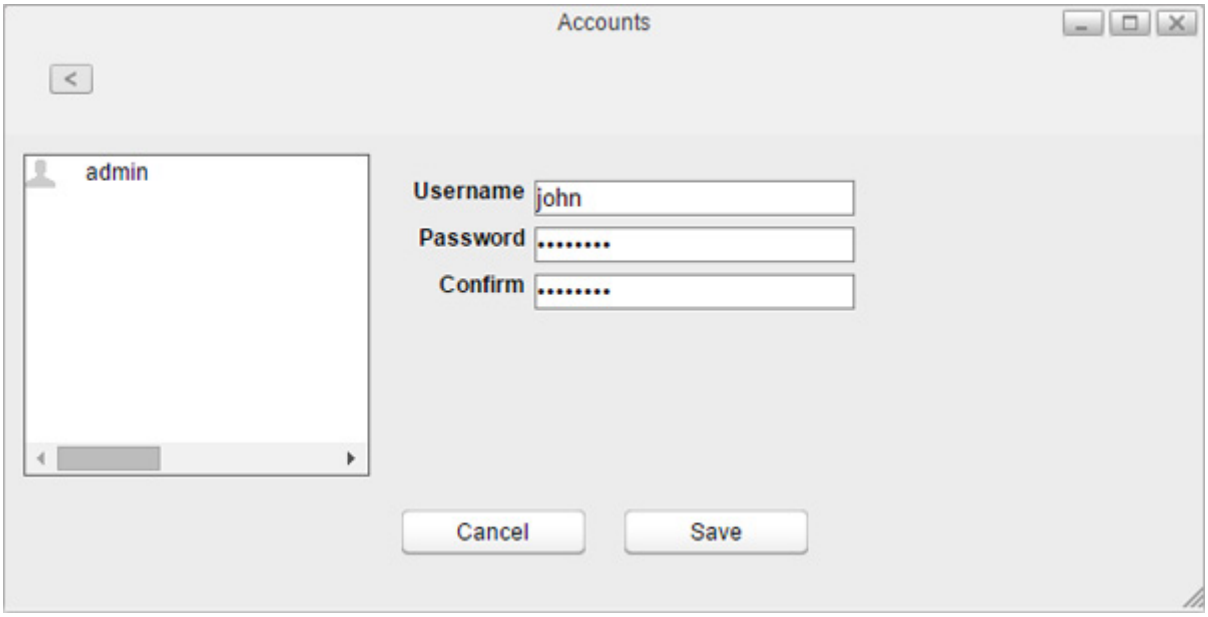
**1** In Preferences, click *Accounts*.




**2** Click *New*.



**3** Enter a username and password, confirm the new password, then click *Save*.




A new user will be added to the list.

**Notes:**

- Usernames may contain up to 32 alphanumeric characters and the following symbols: - _ . ! # + $ ^ %. Do not use a symbol as the first character.
- Passwords may contain up to 20 alphanumeric characters and the following symbols: - _ @ ! # $ % & ' ( ) * + , . / ; < > = ? " [ ] ^ { } | ~. Do not use a symbol other than an underscore (_) as the first character.
- When a new user is created, a shared folder that uses the username as its folder name is also created.

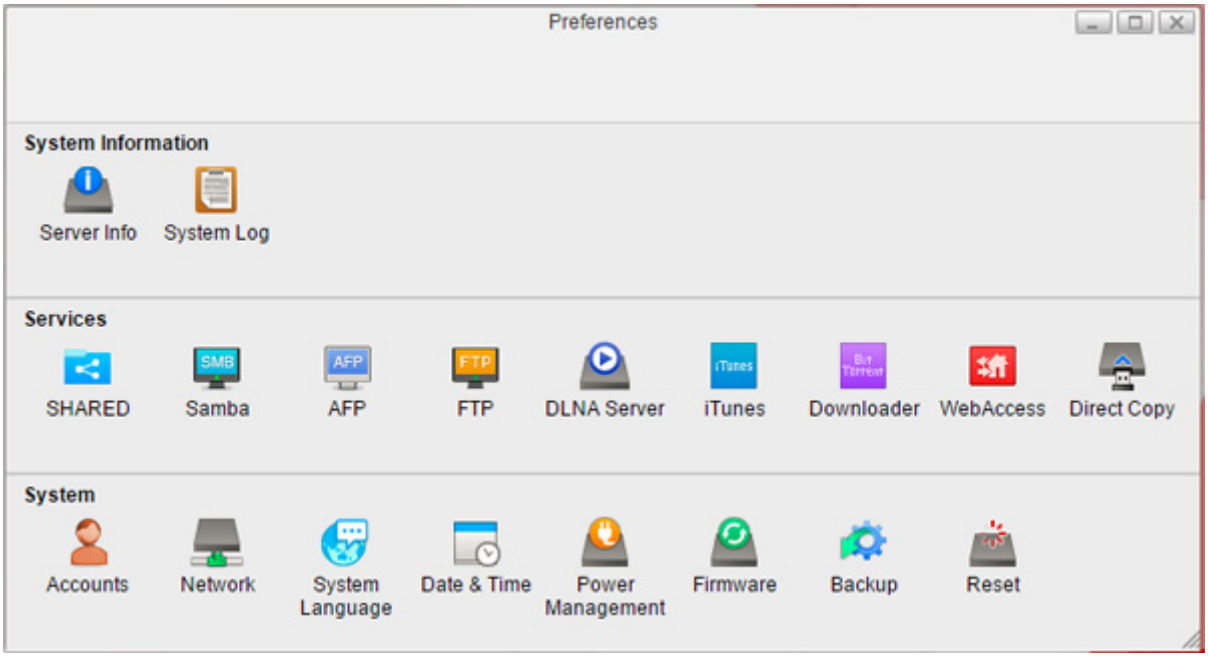
# Changing Passwords

## Administrator Password

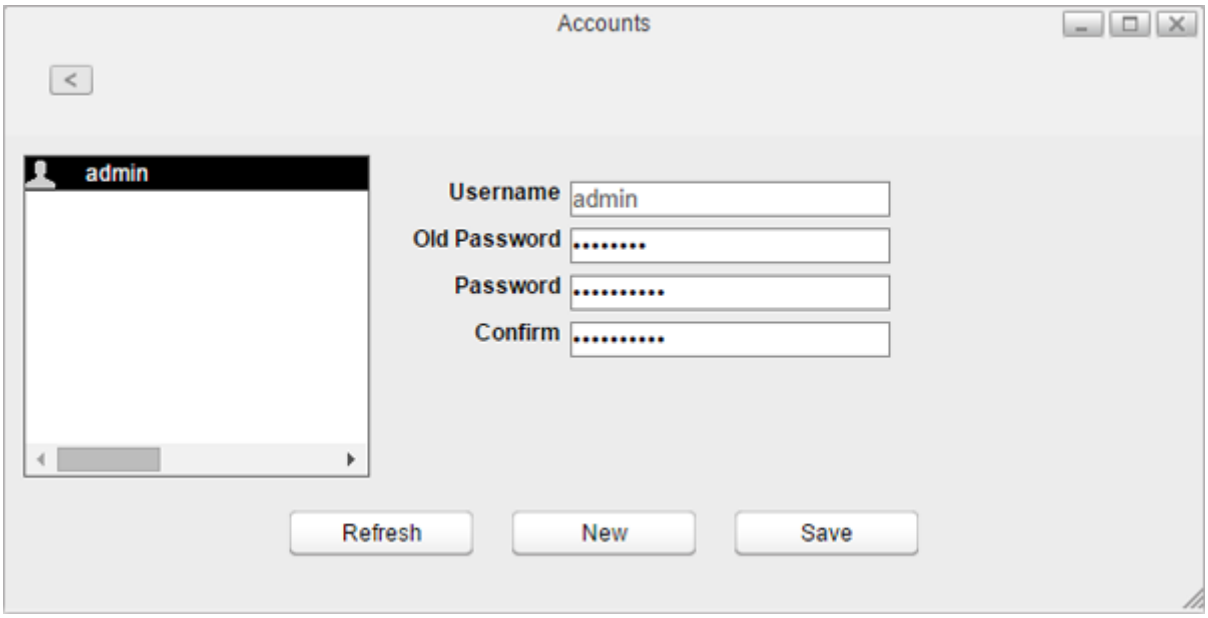
**1** Log in to Settings as the admin user.

**2** In Settings, click *Preferences*.

**3** Click *Accounts*.




**4** Enter the current password and new password, confirm the new password, then click *Save*.




### Other Users' Passwords

**1** Log in to Settings as a user who want to change its password.

**2** In Settings, double-click *Applications* at the desktop.

**3** Double-click *Password*.

**4** Enter the current username and new password, confirm the new password, then click *Apply*.

## Deleting Users

**1** In Preferences, click *Accounts*.

**2** Select a user and click *Delete*.

**3** Click *OK*.

The selected user is deleted.

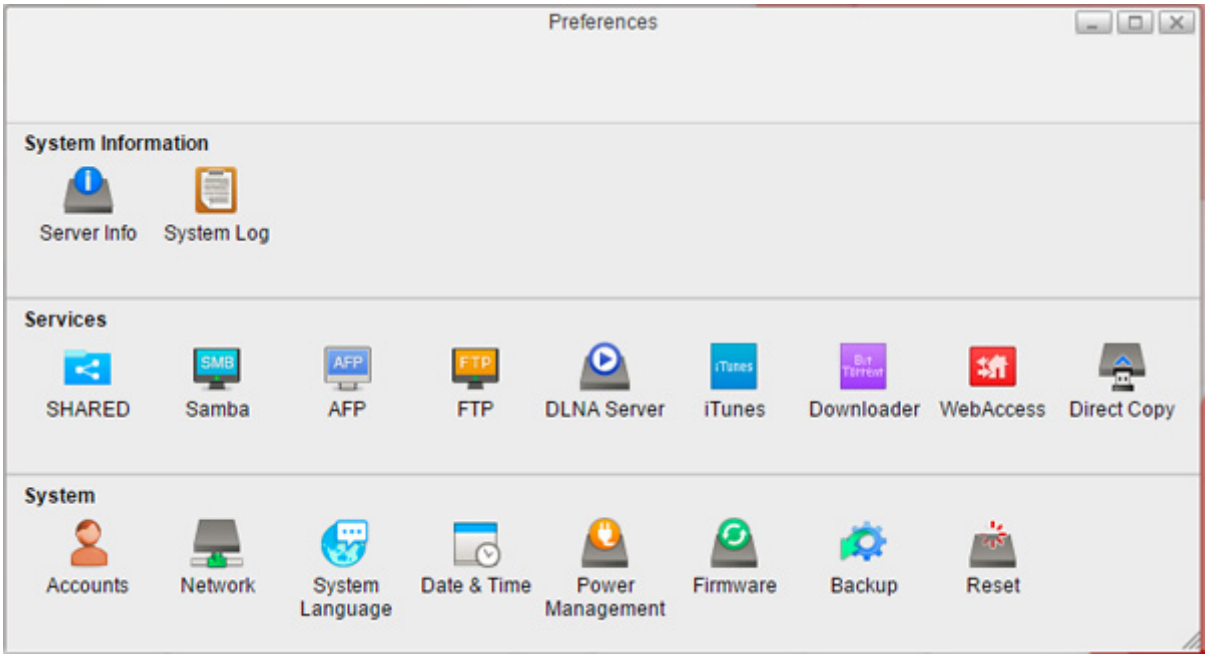
**Note:** Even if the user is deleted, that user's shared folder will remain. Delete it manually.

# Network

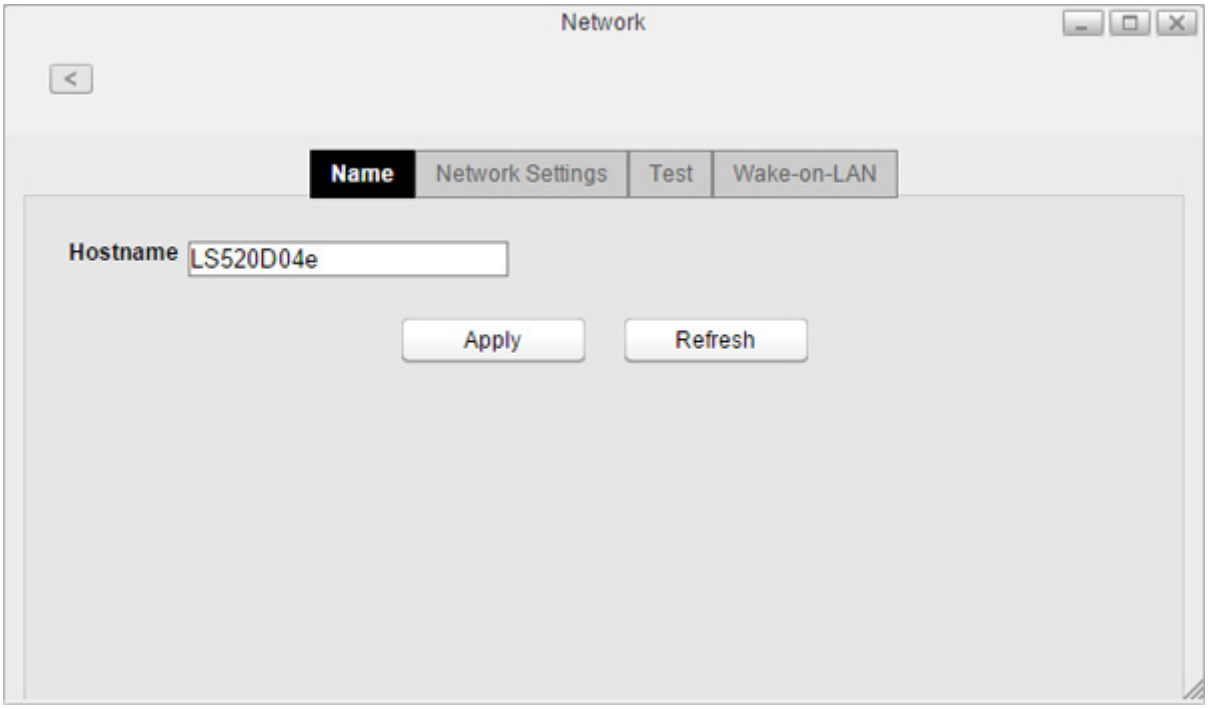
Configure network settings such as a hostname, IP address, or Wake-on-LAN.

## Changing the Hostname

**1** In Preferences, click *Network*.



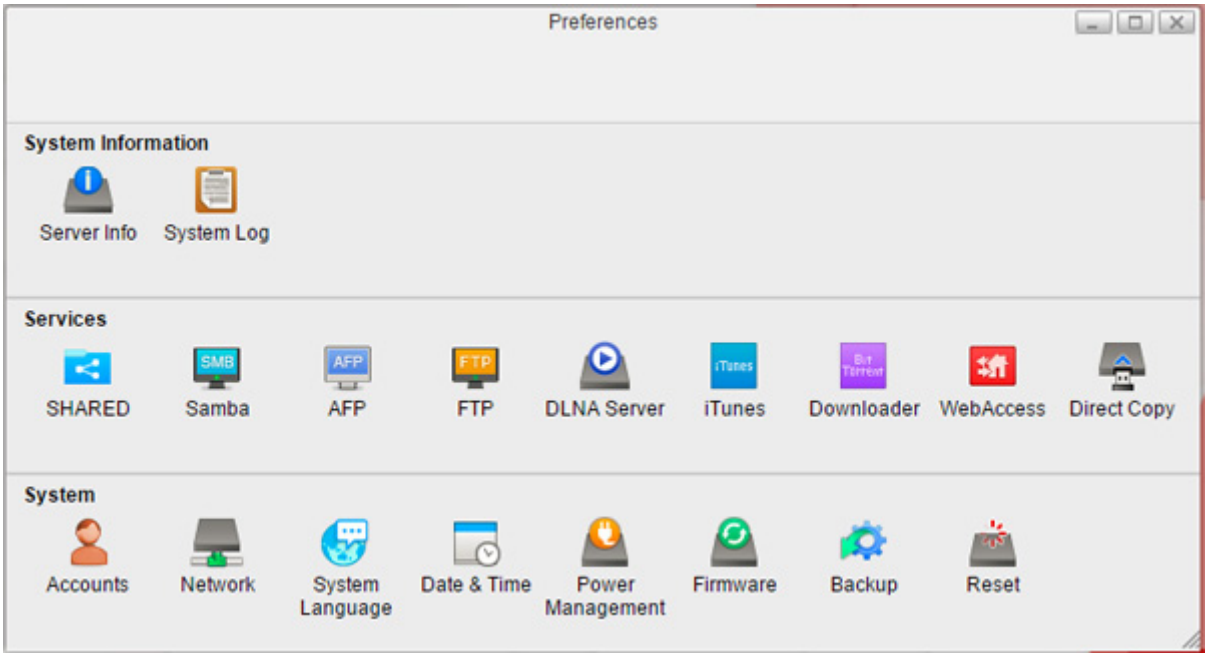
**2** Click the *Name* tab, enter a new LinkStation name, and click *Apply*.




**Note:** A hostname may contain up to 15 alphanumeric characters.

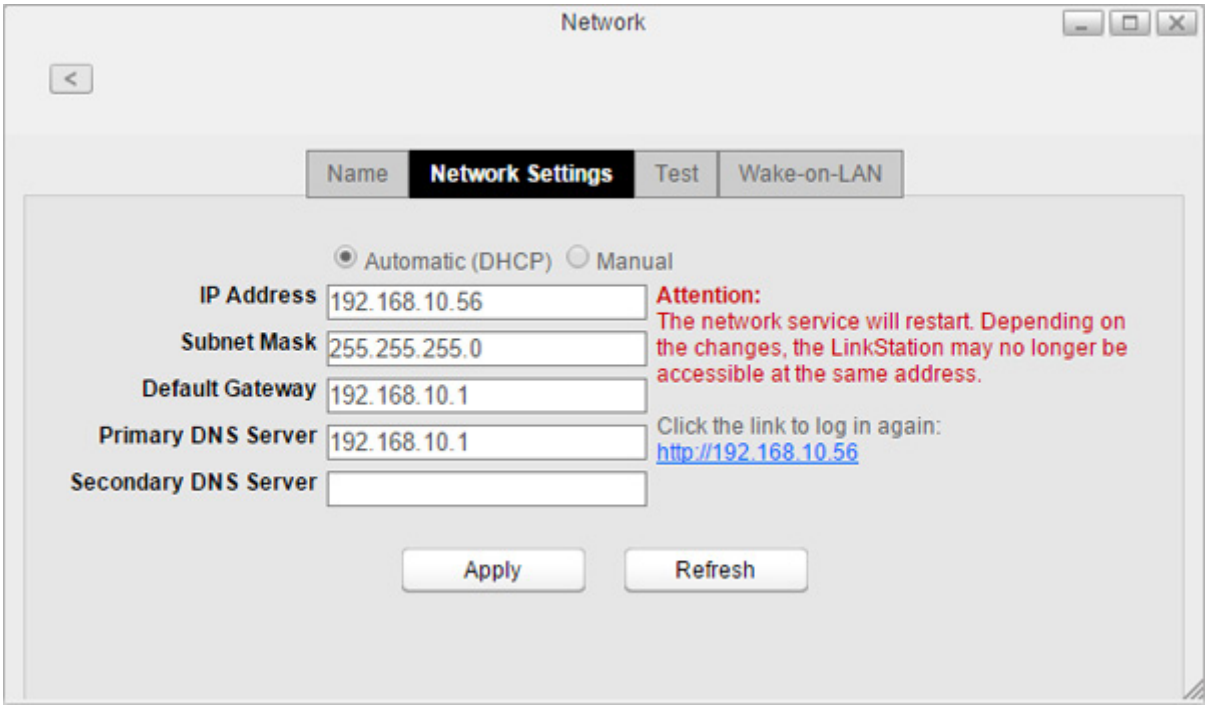
## Changing the IP Address

**1** In Preferences, click *Network*.




**2** Click the *Network Settings* tab.

**3** Select *Manual*, enter the desired network address settings, and click *Apply*.




**Note:** The following IP addresses are reserved and should not be used. If you configure one of them by accident, initialize settings with the function button on the LinkStation.

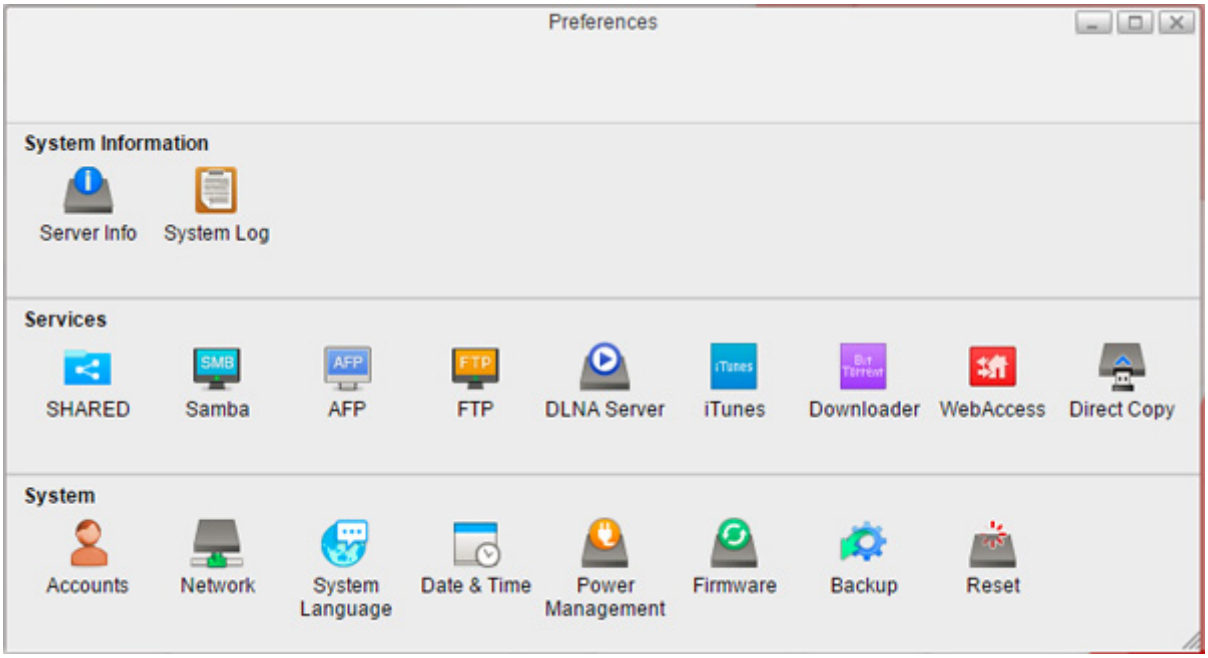
Local loopback address: 127.0.0.1, 255.255.255.0
Network address: 0.0.0.0, 255.255.255.0
Broadcast address: 255.255.255.255, 255.255.255.0
The IP address range from 224.0.0.0 to 255.255.255.0

## Wake-on-LAN

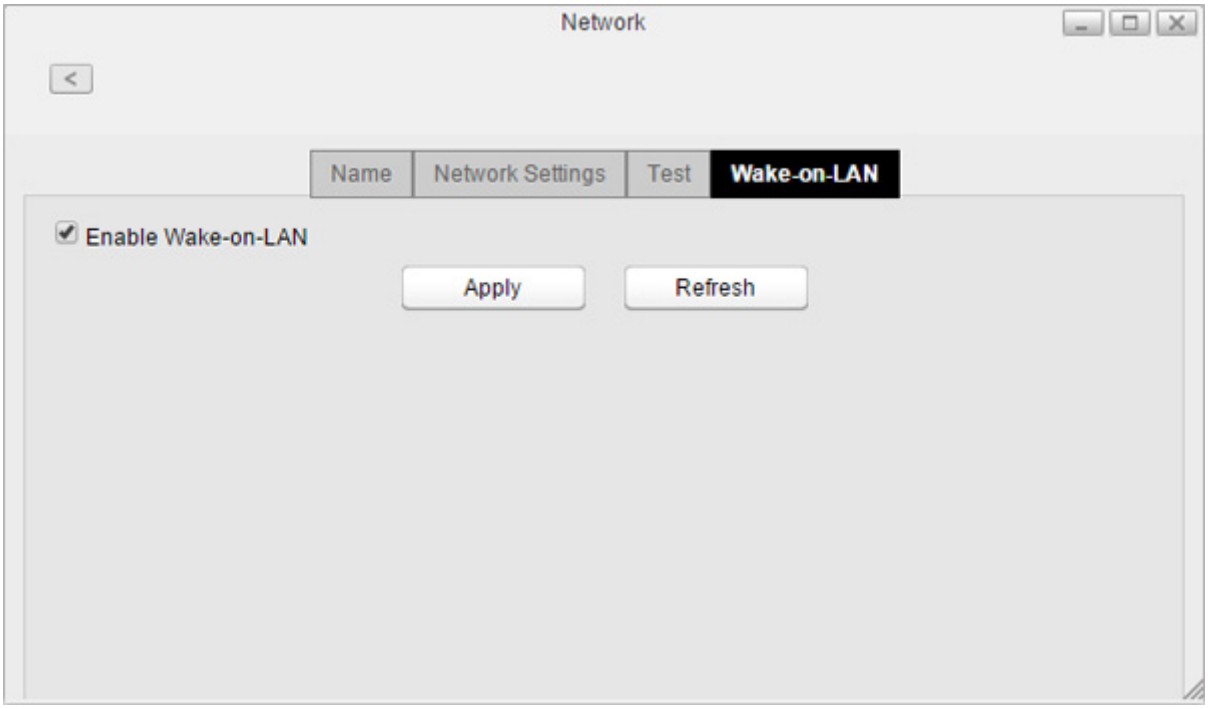
The LinkStation supports Wake-on-LAN, which allows it to be turned on remotely. You can only wake the LinkStation up when the LinkStation is in sleep (standby) mode.

**Note:** To use Wake-on-LAN, you'll need Wake-on-LAN software that sends magic packets. The LinkStation does not include Wake-on-LAN software.

**1** In Preferences, click *Network*.



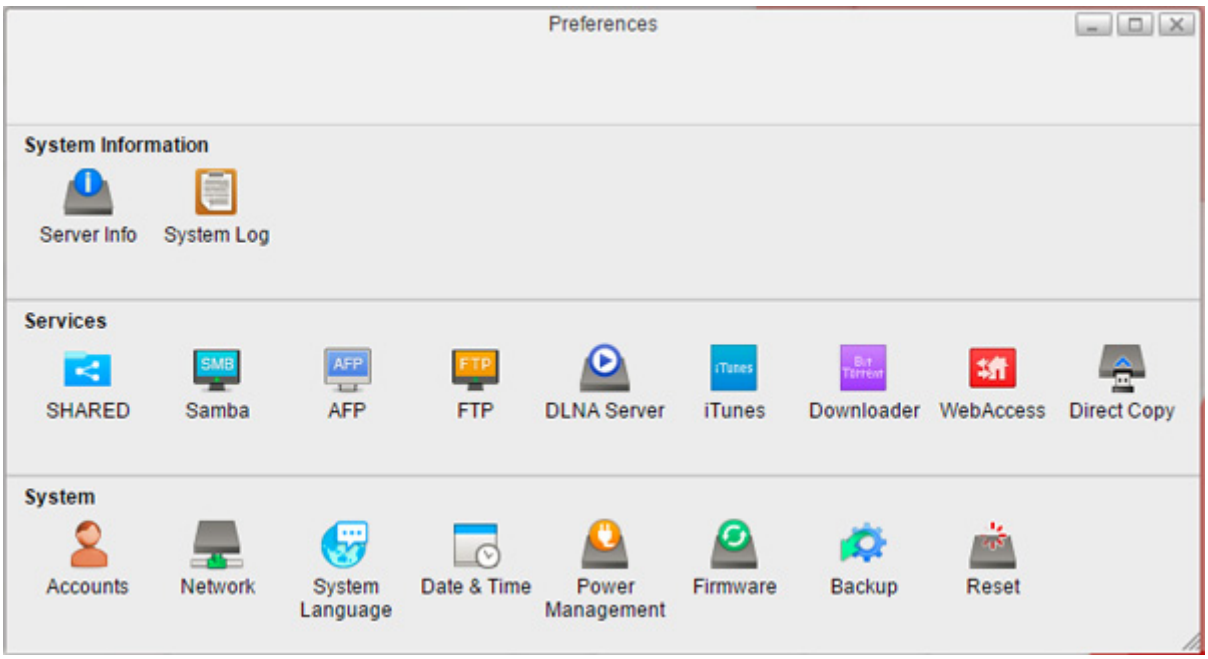
**2** Click the *Wake-on-LAN* tab and check "Enable Wake-on-LAN" to enable Wake-on-LAN.



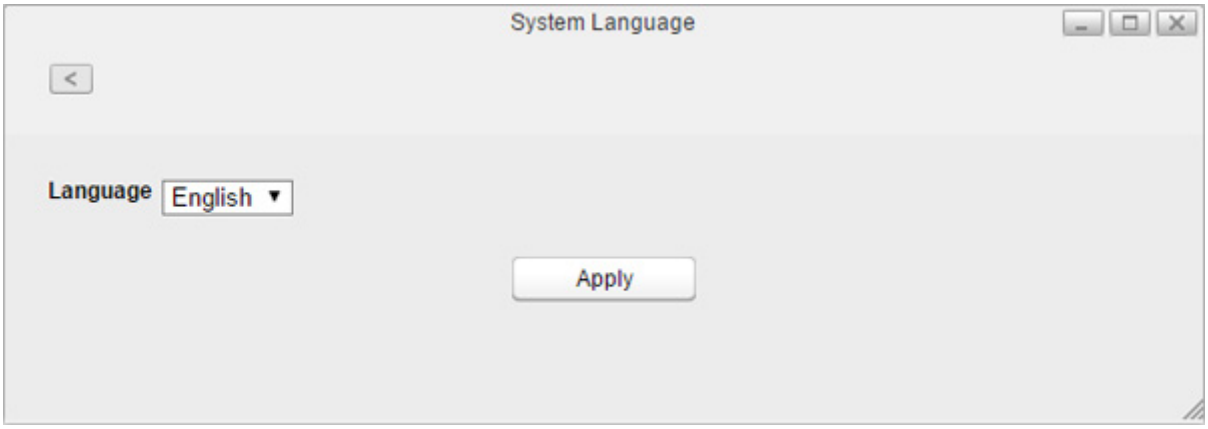

## System Language

This setting changes the language used by the LinkStation for DLNA. To change the language displayed in Settings, refer to the "Changing Display Languages" section in chapter 2.

**1** In Preferences, click *System Language*.



**2** Select the language from the drop-down list and click *Apply*.

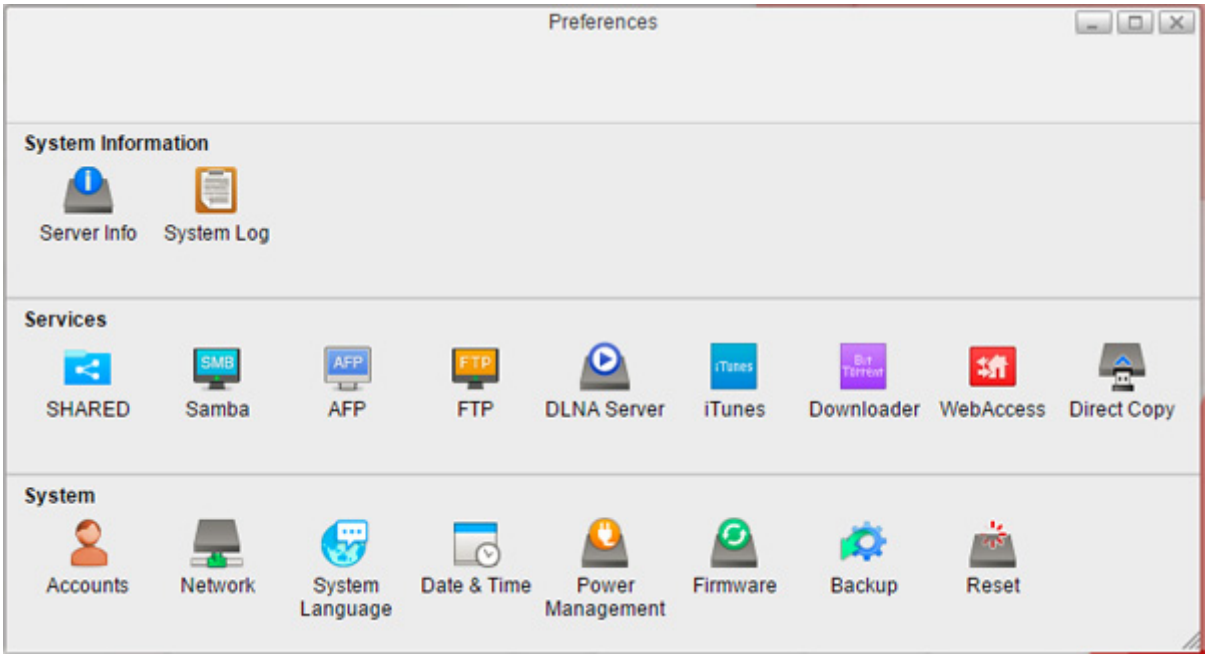



# Date & Time

Configures time settings such as date and time, time zone, or NTP settings.

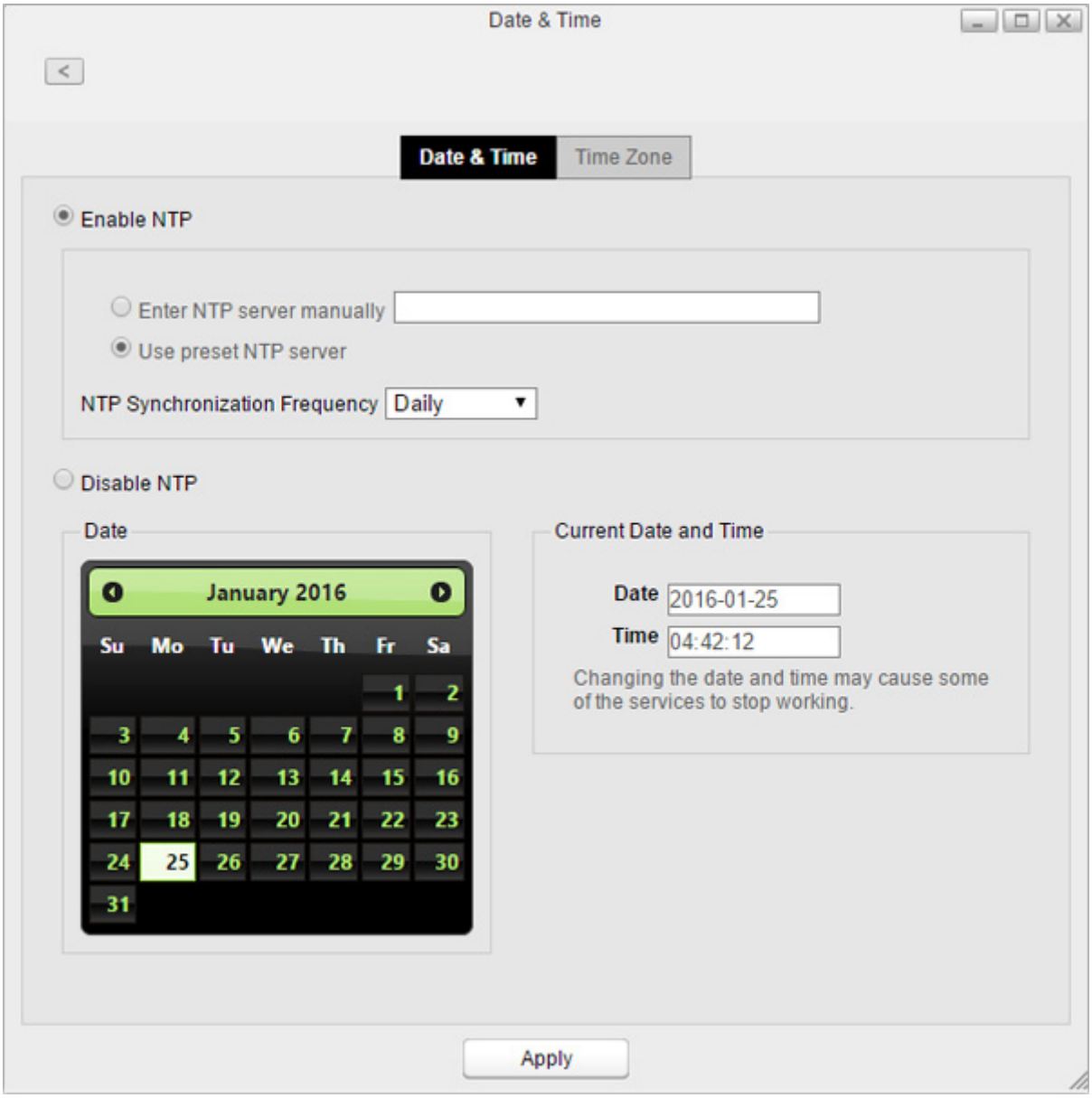
## Changing Date and Time

**1** In Preferences, click *Date & Time*.




**2** Click the *Date & Time* tab.

**3** Select whether to enable NTP or manually set the date and time.

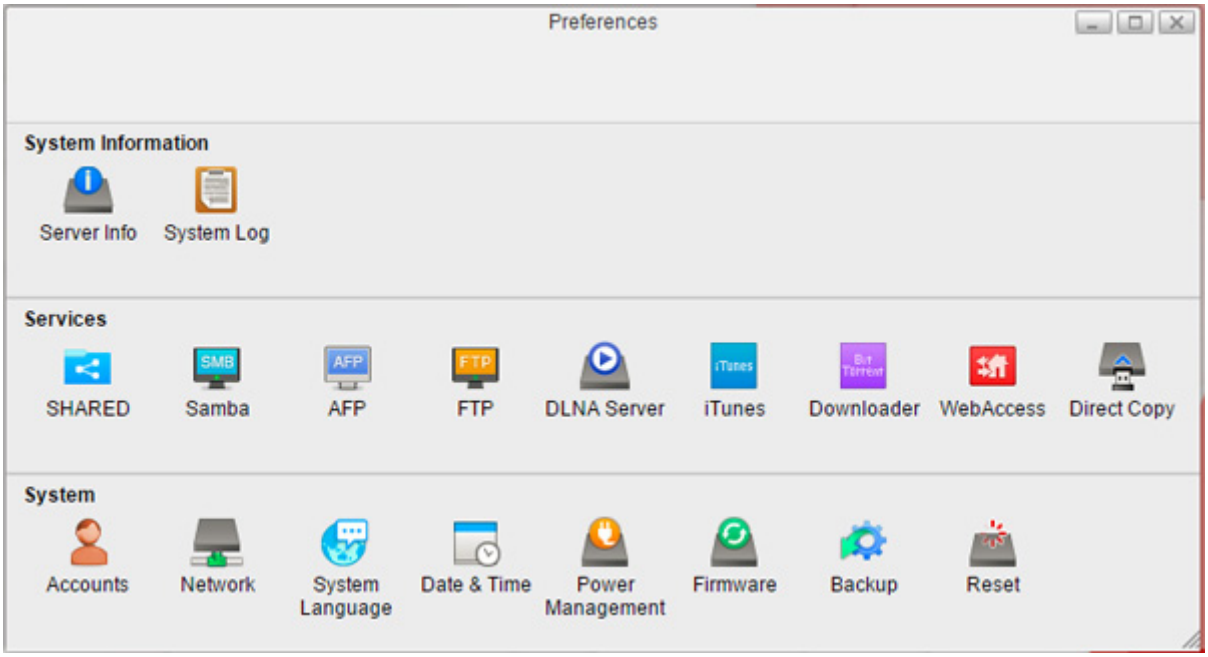



If NTP is enabled, the LinkStation adjusts its clock automatically by using the NTP server. You can either enter the NTP server manually, or use a preset NTP server on the LinkStation and how often to sync with it. If disabled, select the date from the calendar or enter the date into the "Date" field, and enter the time directly into the "Time" fields.

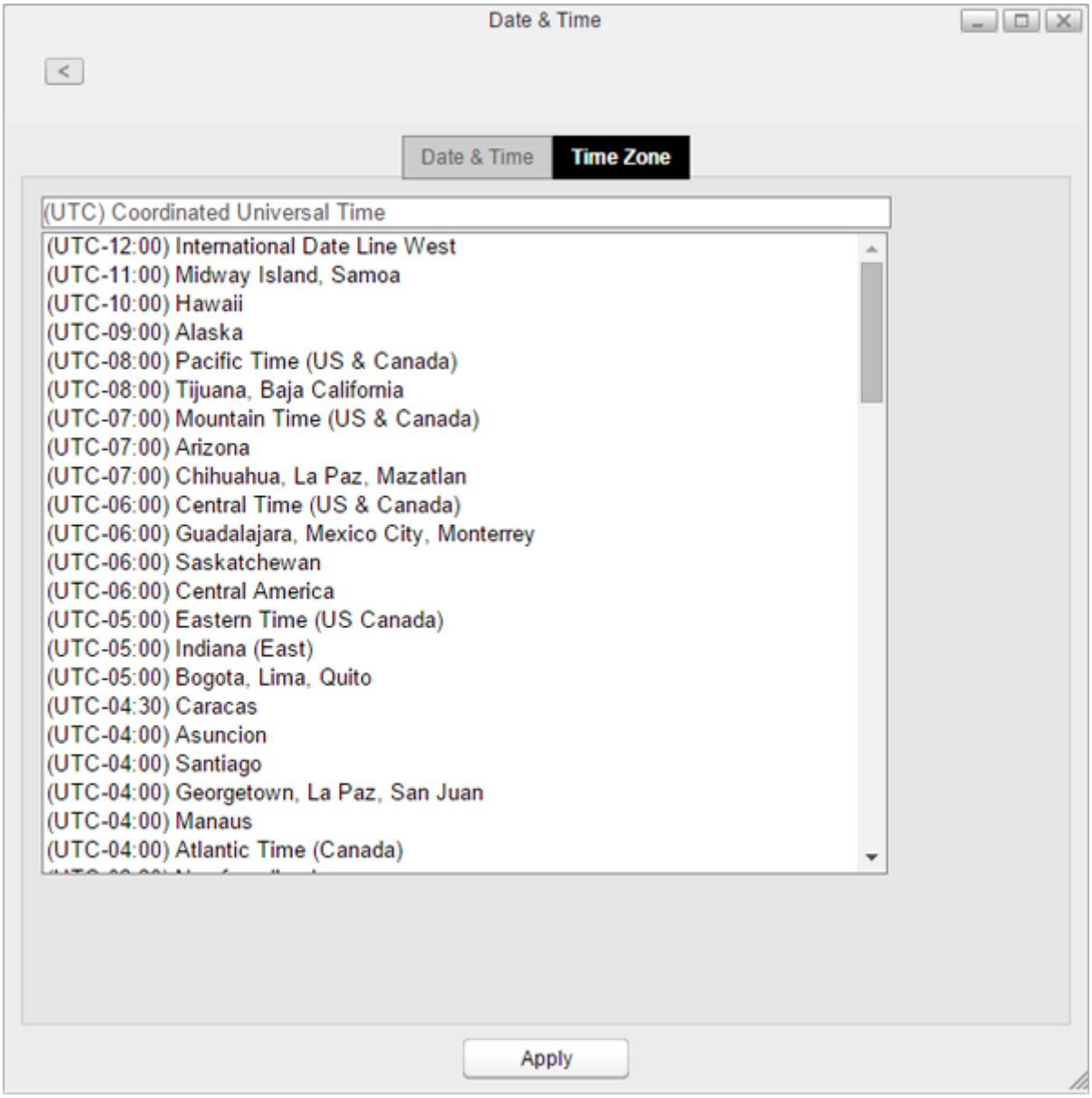
**4** Click *Apply*.

## Changing Time Zone

**1** In Preferences, click *Date & Time*.



**2** Click the *Time Zone* tab and select the desired time zone from the list, then click *Apply*.



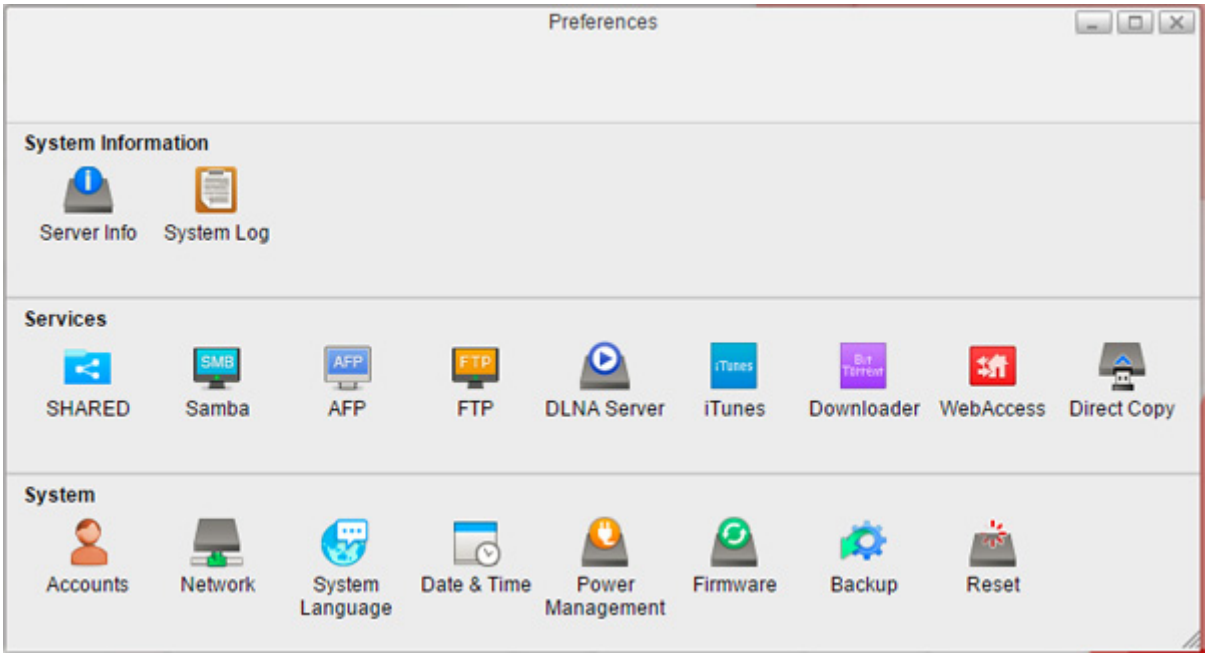

# Power Management

Configures sleep settings for the system or hard drives.

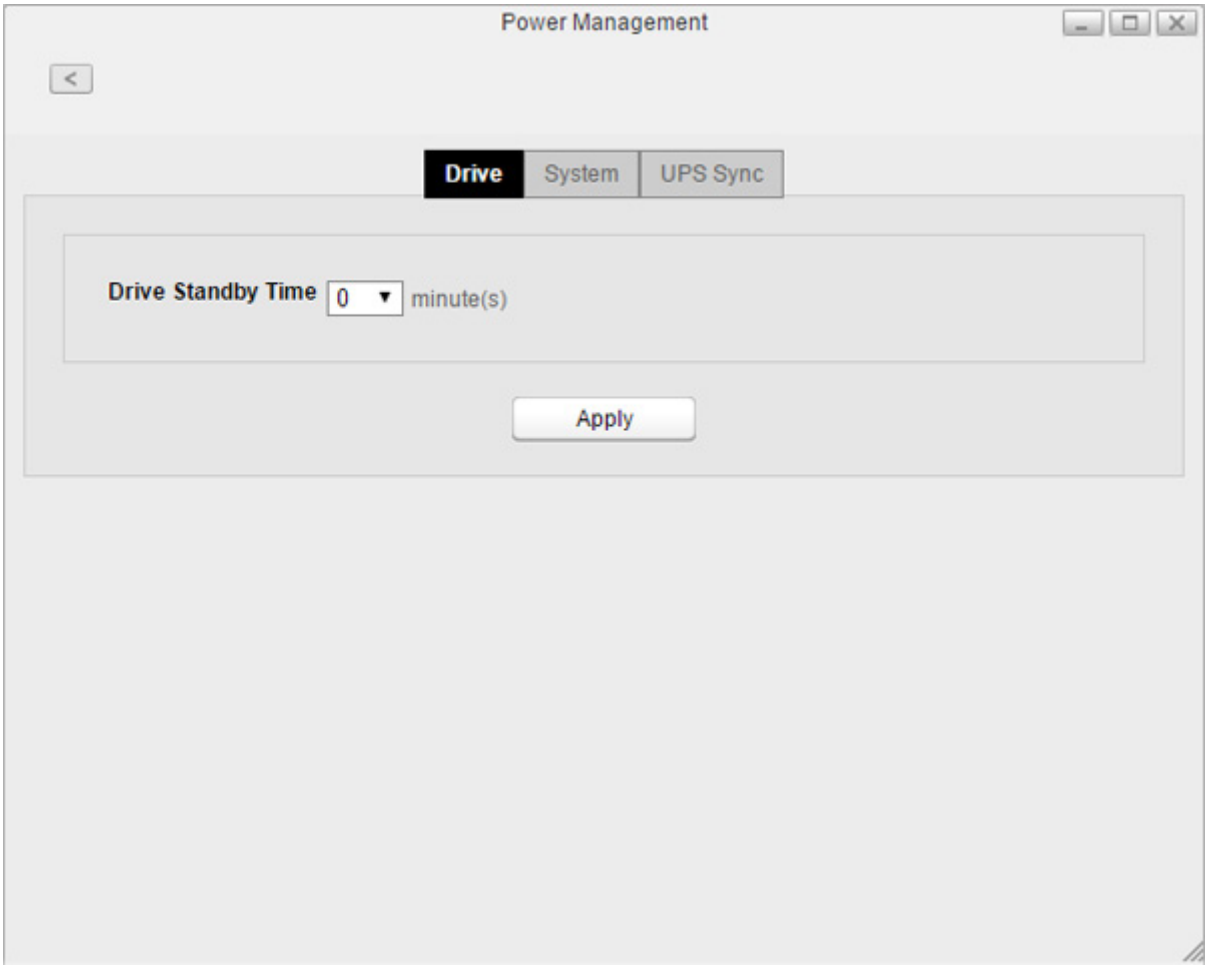
## Drive Spin Down

With this function, only hard drives will enter sleep mode. This may help maintain hard drive longevity. While in spin down, hard drives will start working again once the LinkStation is accessed.

**1** In Preferences, click *Power Management*.




**2** Click the *Drive* tab and configure the time interval when the hard drive will spin down. For example, if you select 5 minutes as the standby time, the hard drive will spin down 5 minutes after no drive access.



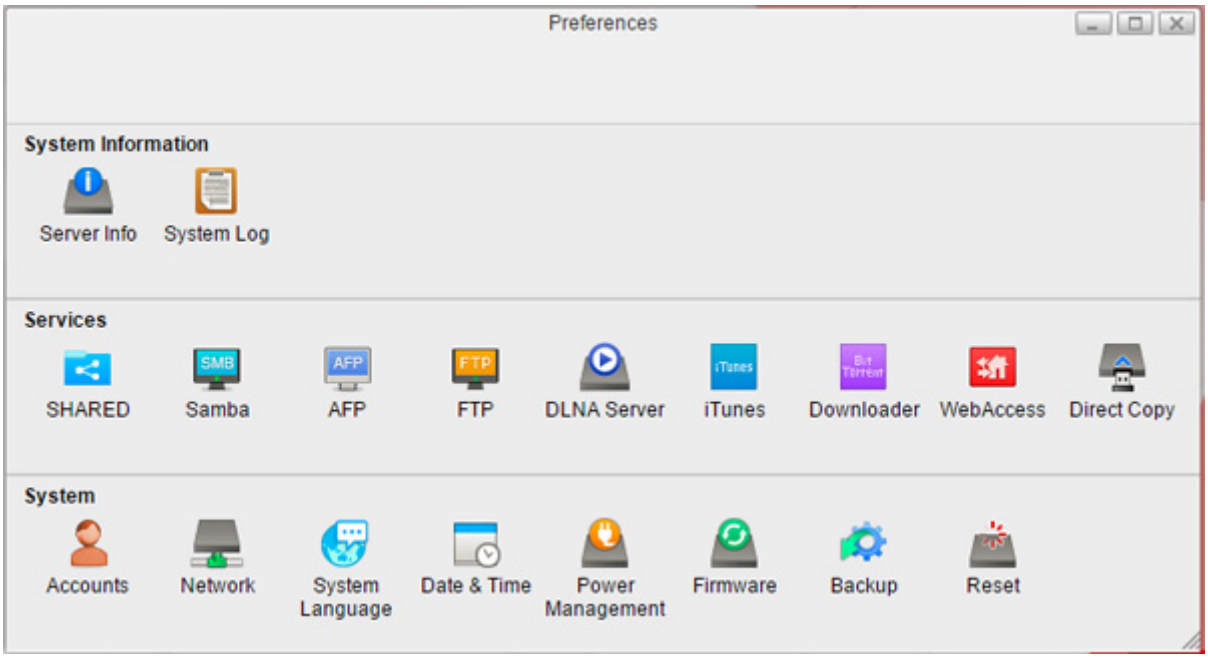

**3** Click *Apply*.

**Note:** If you configure spin down settings after formatting internal drives or creating the RAID array with "Auto" settings from Disk Manager, drive spin down will not occur during specific periods because the formatting process is still working in the background.

## Sleep Mode

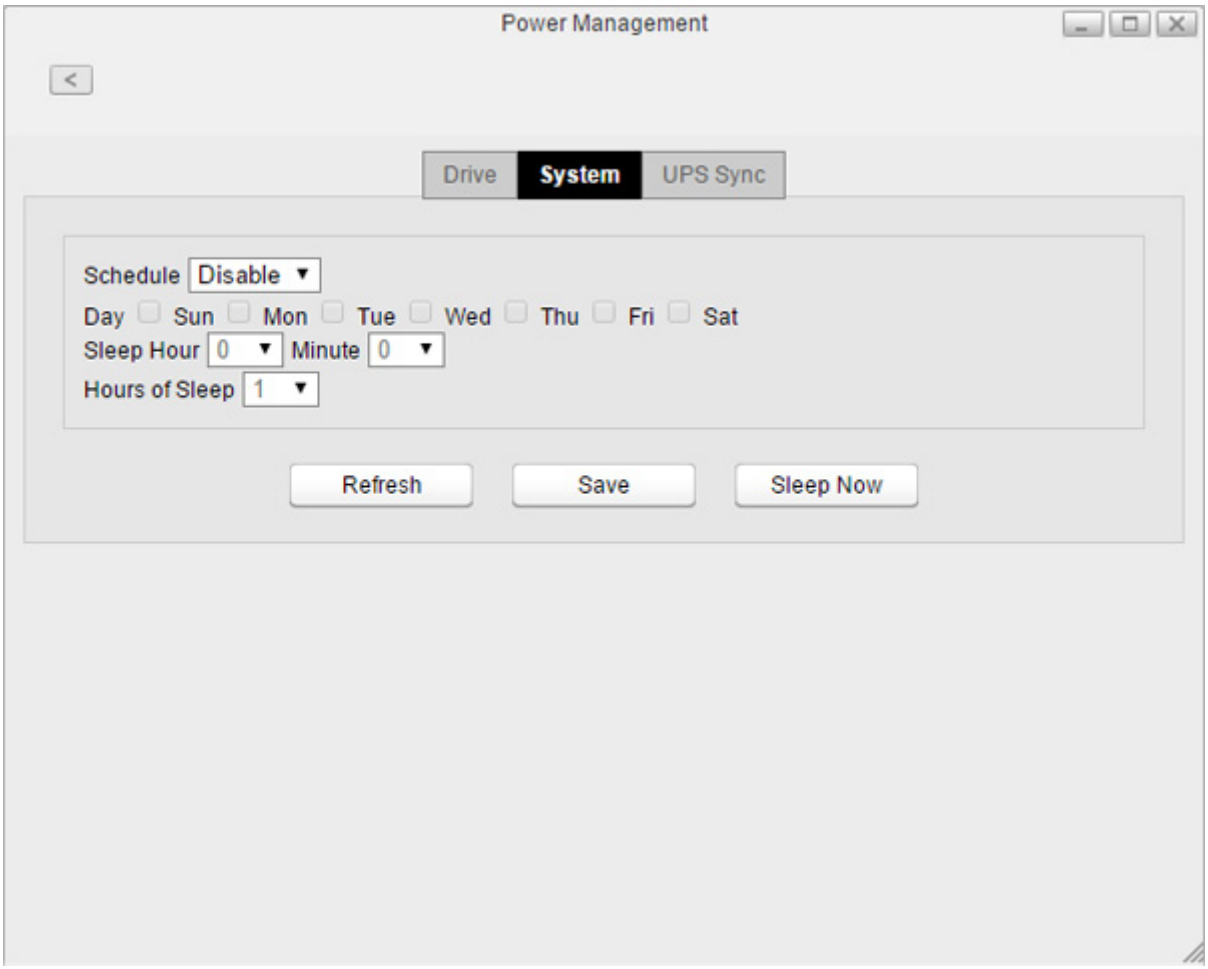
To save energy, you can configure a timer to have the LinkStation enter sleep (standby) mode at a designated time, where all hard drives and LEDs are turned off.

**1** In Preferences, click *Power Management*.




**2** Click the *System* tab.

**3** Select the timer interval from "Daily" or "Weekly", time to go into sleep mode, and how long the LinkStation will be in sleep mode.




**4** Click *Save*. If you want to make the LinkStation enter sleep mode immediately, click *Sleep Now*.

**Notes:**

- Examples of multiple timer settings are shown below.
  **Example 1:**
  If running at a current time of 10:00 Wednesday
  Schedule: Daily
  Sleep Hour: 0:00
  Hours of Sleep: 12
  The unit goes into sleep mode at 0:00 am and wake up after 12 hours, 0:00 pm on Thursday.
  **Example 2:**
  If running at a current time of 10:00 Wednesday
  Schedule: Weekly Wednesday
  Sleep Hour: 20:00
  Hours of Sleep: 12
  On every Wednesday, the unit goes into sleep mode at 8:00 pm and wake up after 12 hours, 8:00 am on Thursday.
- To turn on the LinkStation before the wake-up time when it is in sleep mode, press the function button, use Wake-on-LAN, or turn off, then on the LinkStation.

## UPS Sync

If a UPS (Uninterruptible Power Supply, sold separately) is attached, the LinkStation can be automatically shut down to protect data in the event of a power outage.

**1** Plug the power cable of the UPS wall socket.

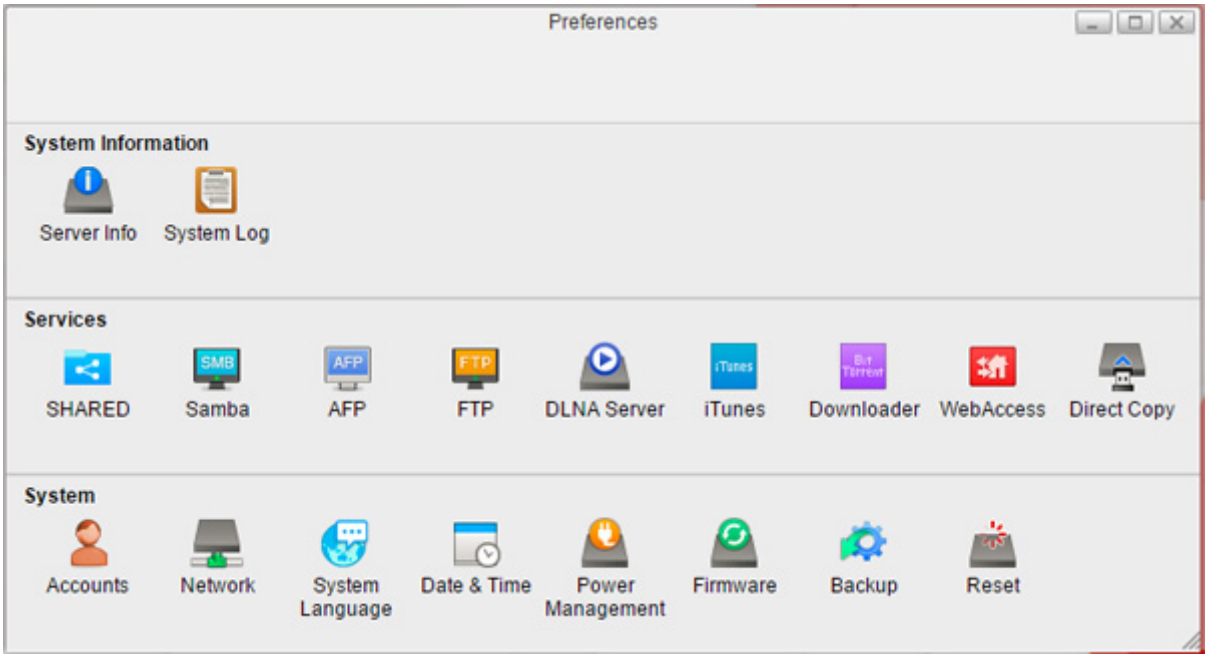
**2** Connect the AC cable of the LinkStation to the UPS.

**3** Connect the UPS and LinkStation using a USB cable.

**4** Turn on the UPS, then the LinkStation.

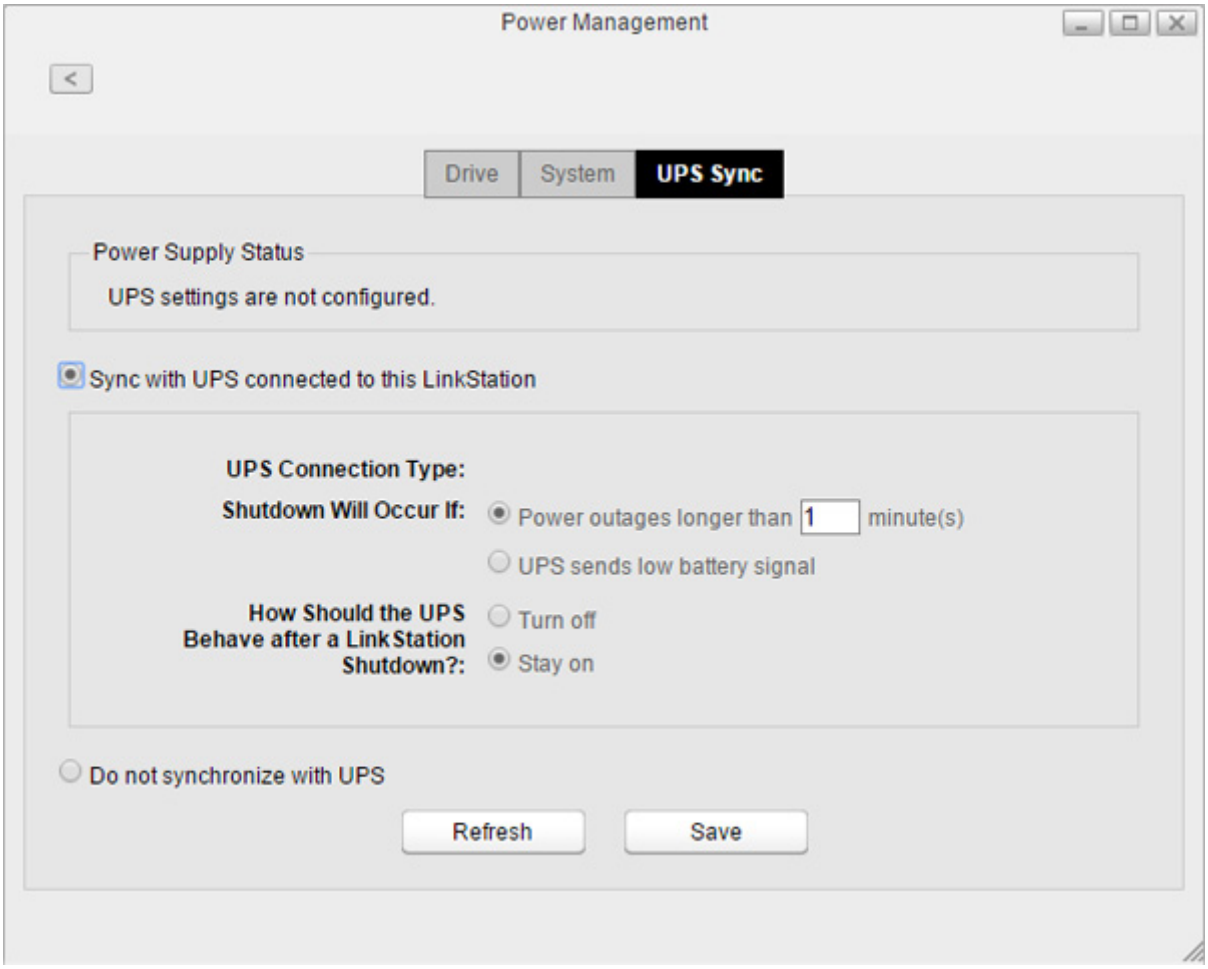
**5** In Settings, click *Preferences*.

**6** Click *Power Management*.




**7** Click the *UPS Sync* tab.

**8** Configure the desired settings, then click *Save*.




**Note:** When the LinkStation restarts after an automatic shutdown (such as from a power outage or power supply problem), verify that the power supply has been restored. If the LinkStation is turned on while it is still running on the UPS and the power supply has not been restored, automatic shutdown will not occur, even after the specified time has elapsed.

# Firmware

Verify the firmware version or update the LinkStation's firmware. There are two ways to update the firmware.

## Online Update

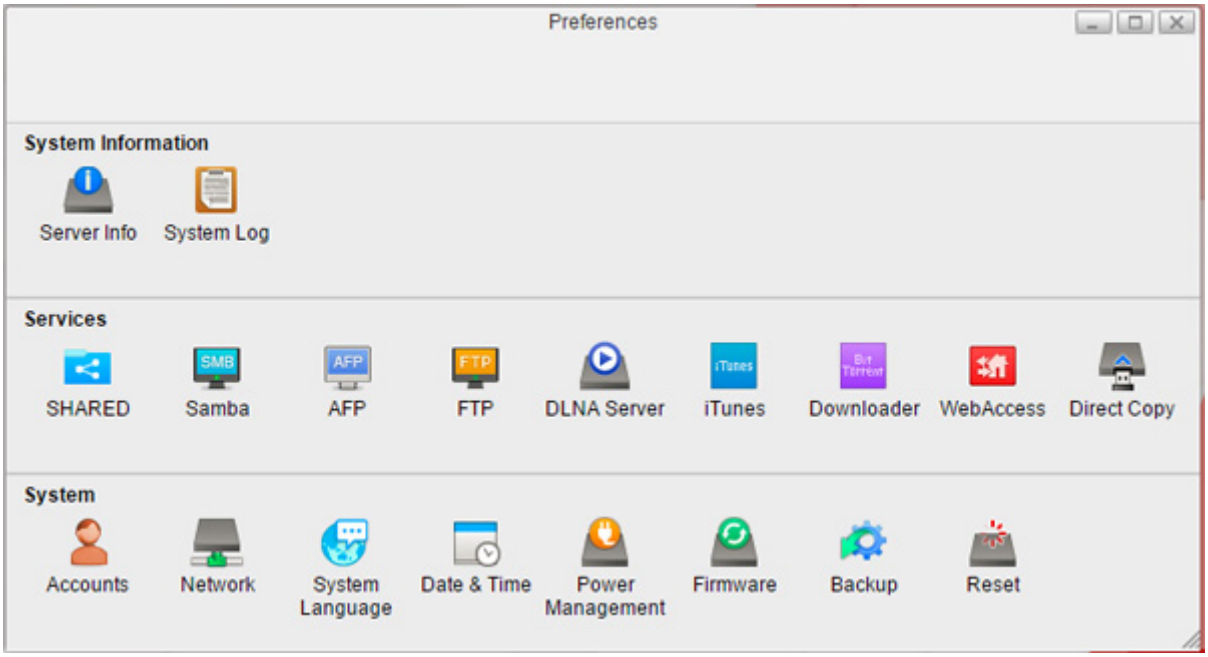
If a new firmware is available, a message and button are displayed in Settings.

## Manual Update

You can update the LinkStation's firmware manually.

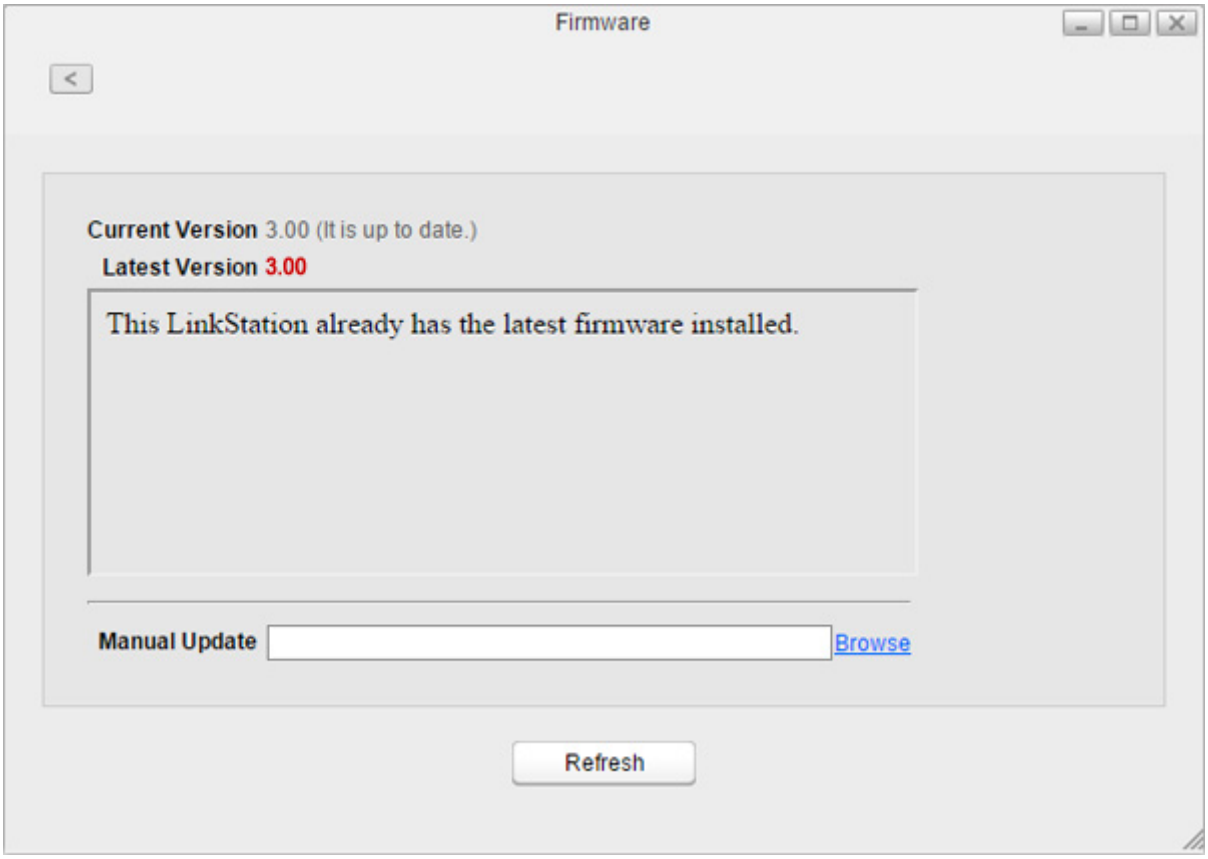
**1** Download the latest firmware image file from the Buffalo website and save the firmware image file to the LinkStation's shared folder.

**2** In Settings, click *Preferences*.

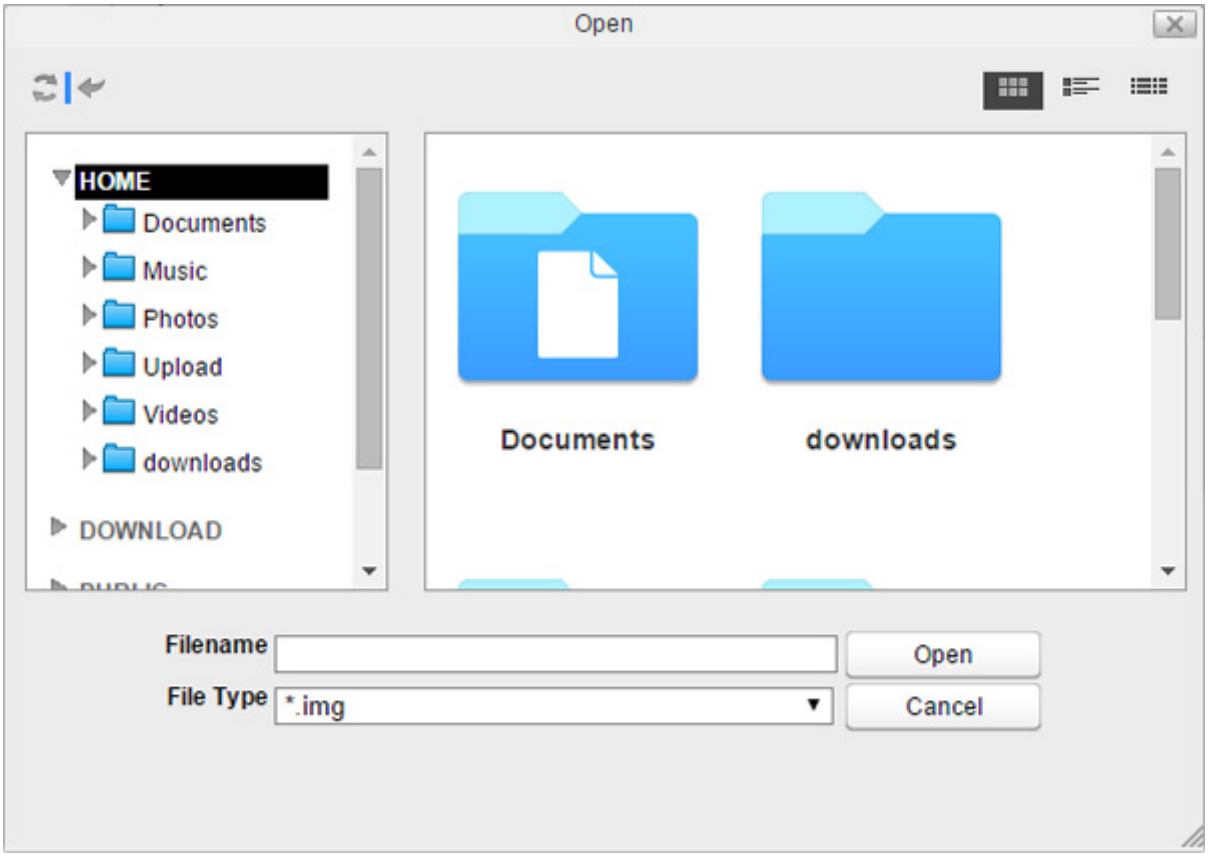



**3** Click *Firmware*.

**4** Click *Browse*.



**5** Specify the firmware image file that was saved in the LinkStation's shared folder and click *Open*.

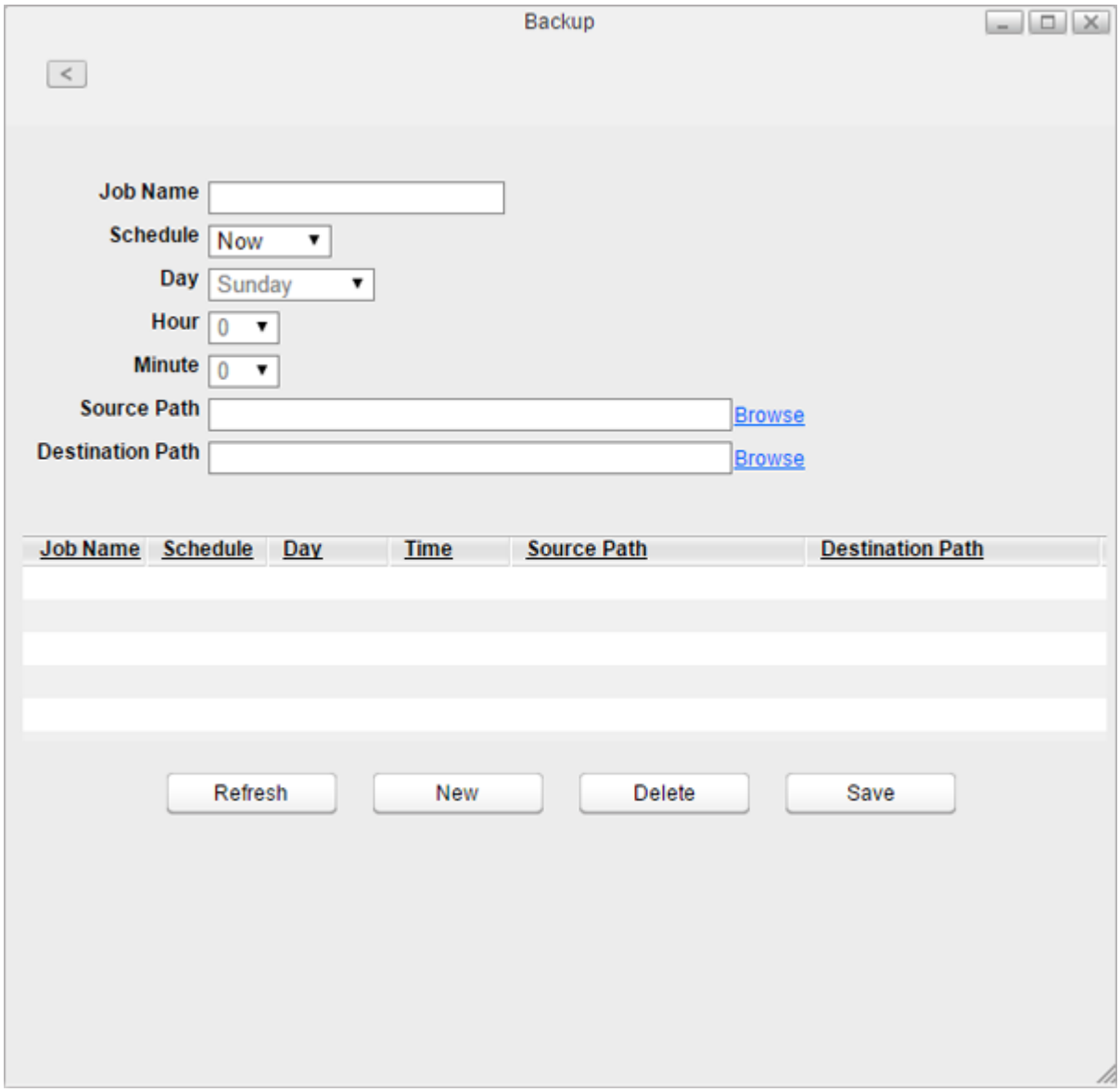



**6** Click *Apply*.

**7** While the firmware updates, the power LED blinks amber. Wait until the update is complete and the LED returns to white.

## Backup

Backs up the data in the LinkStation to another location to avoid unexpected data failure.



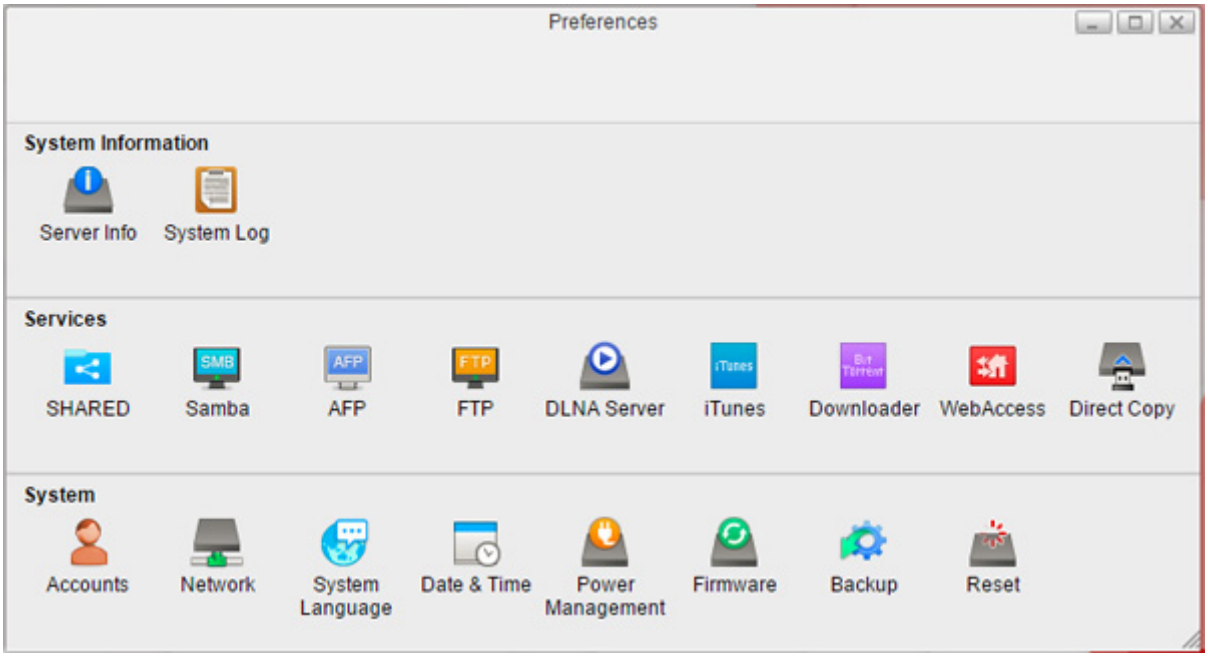

## Backing Up from LinkStation

You can back up a LinkStation folder to:

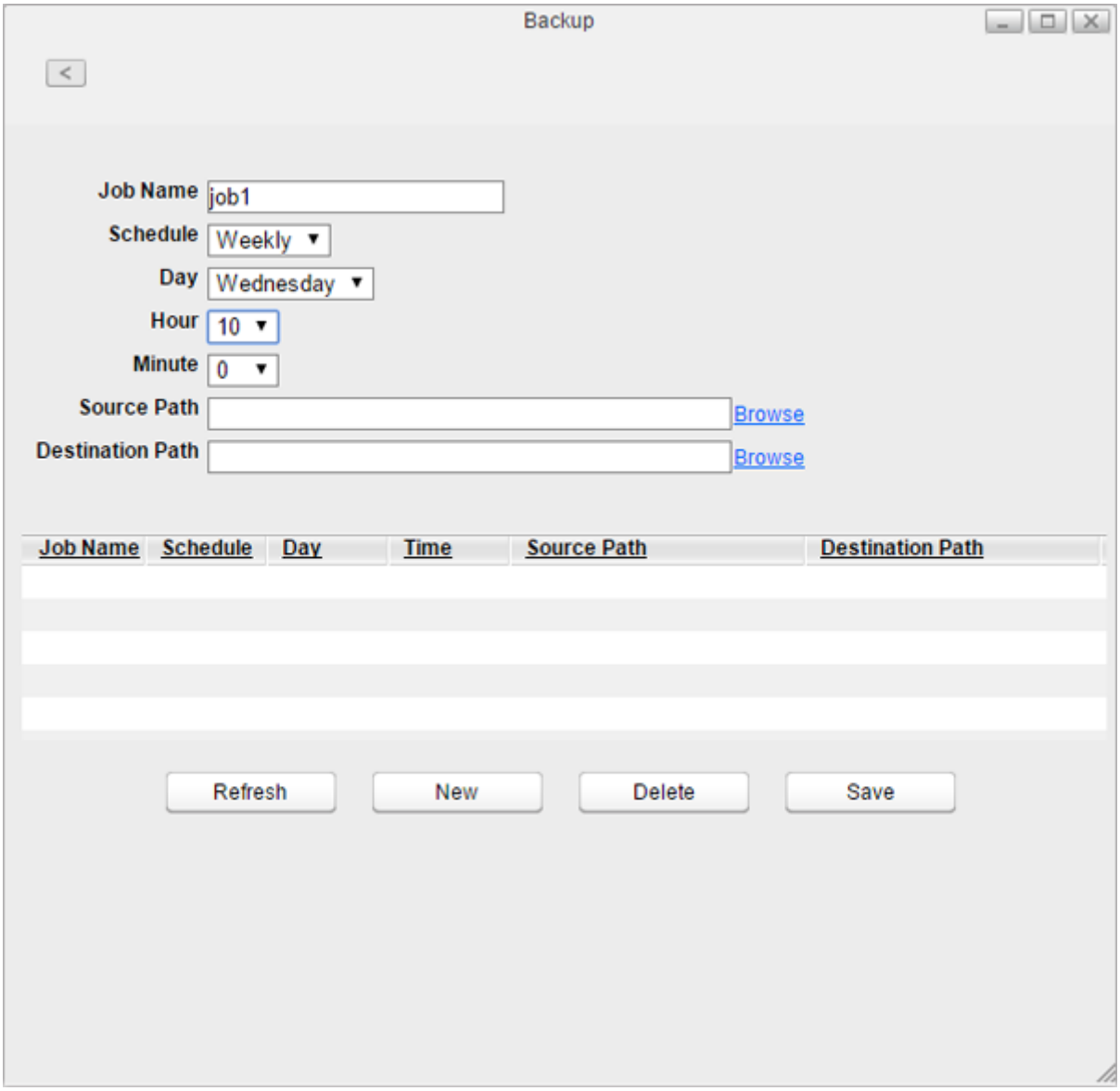
- A different folder on the LinkStation
- A USB device connected to the LinkStation

To create a backup job, follow the procedure below.

**1** In Preferences, click *Backup*.

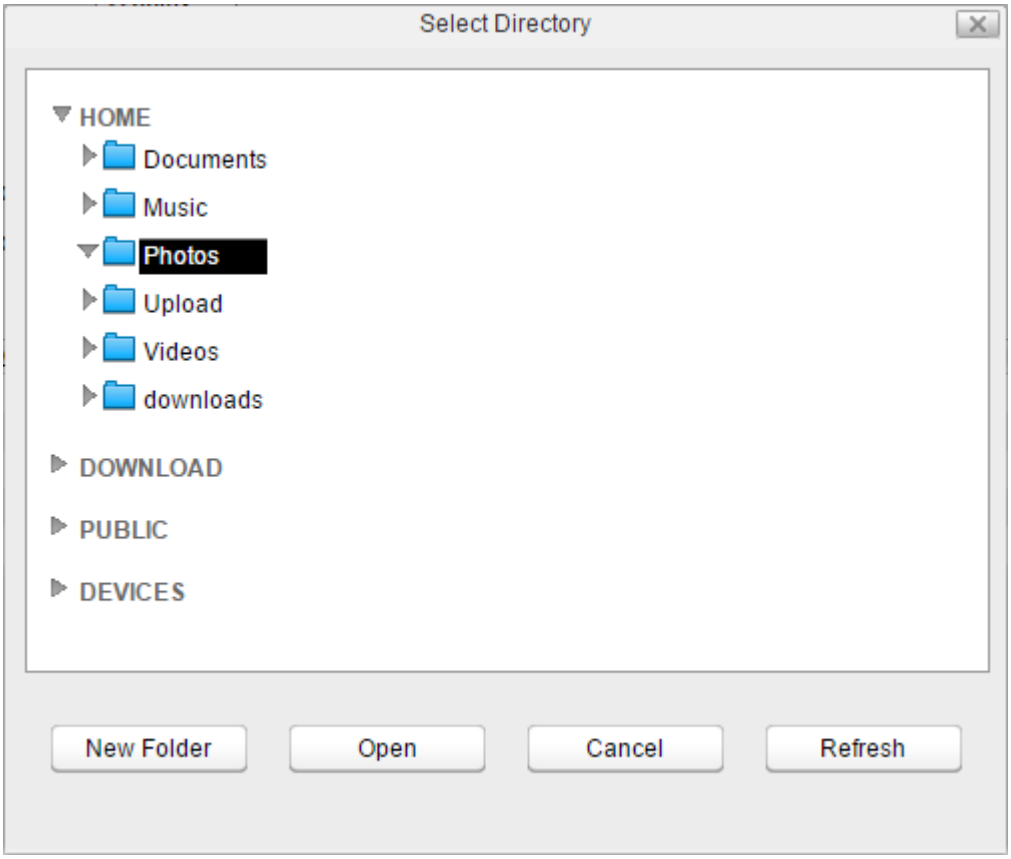


**2** Enter a job name and configure backup settings such as date and time to run.

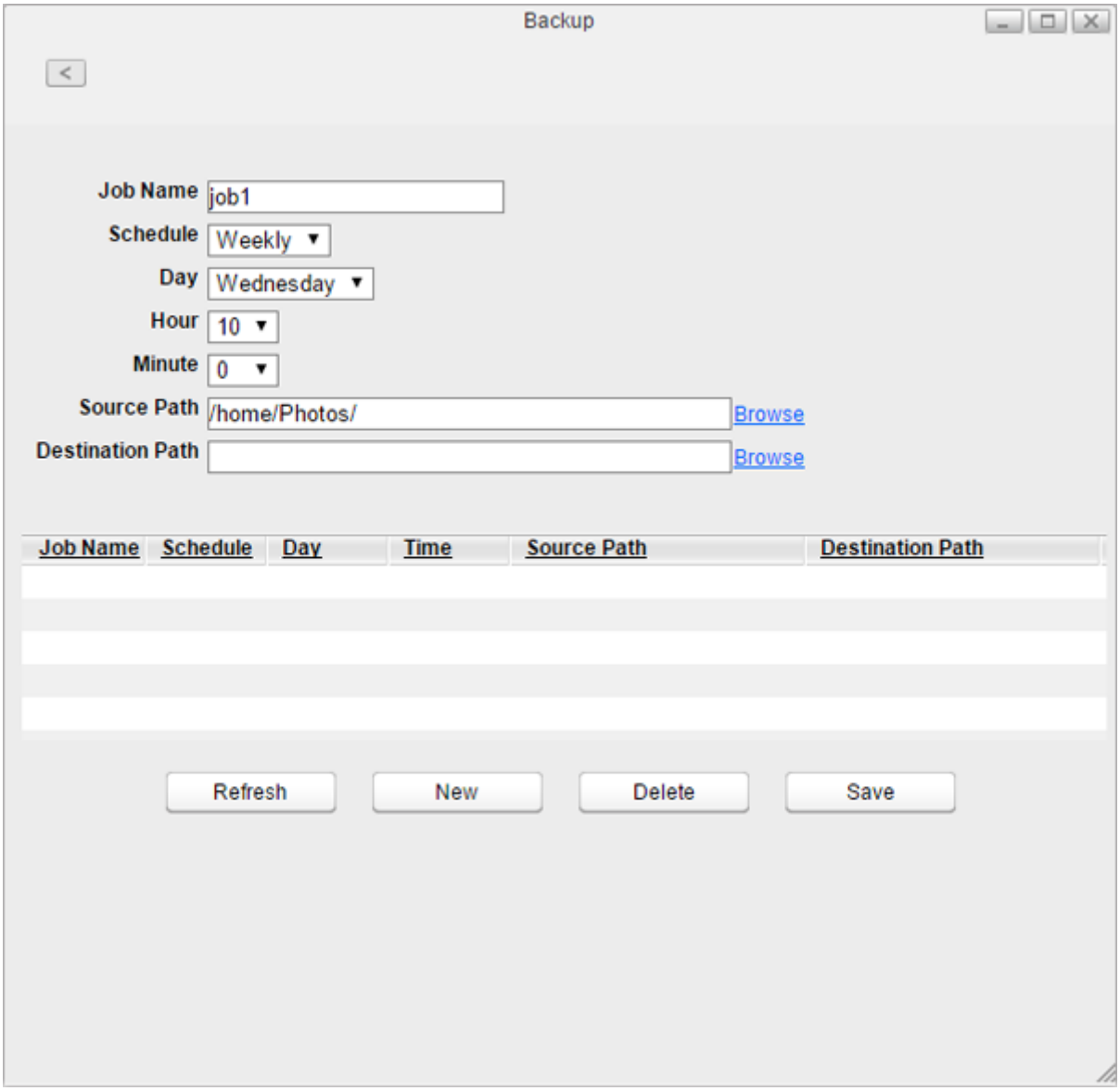



**3** Click *Browse* to the right of "Source Path".

**4** Select the folder that will be the backup source, then click *Open*.

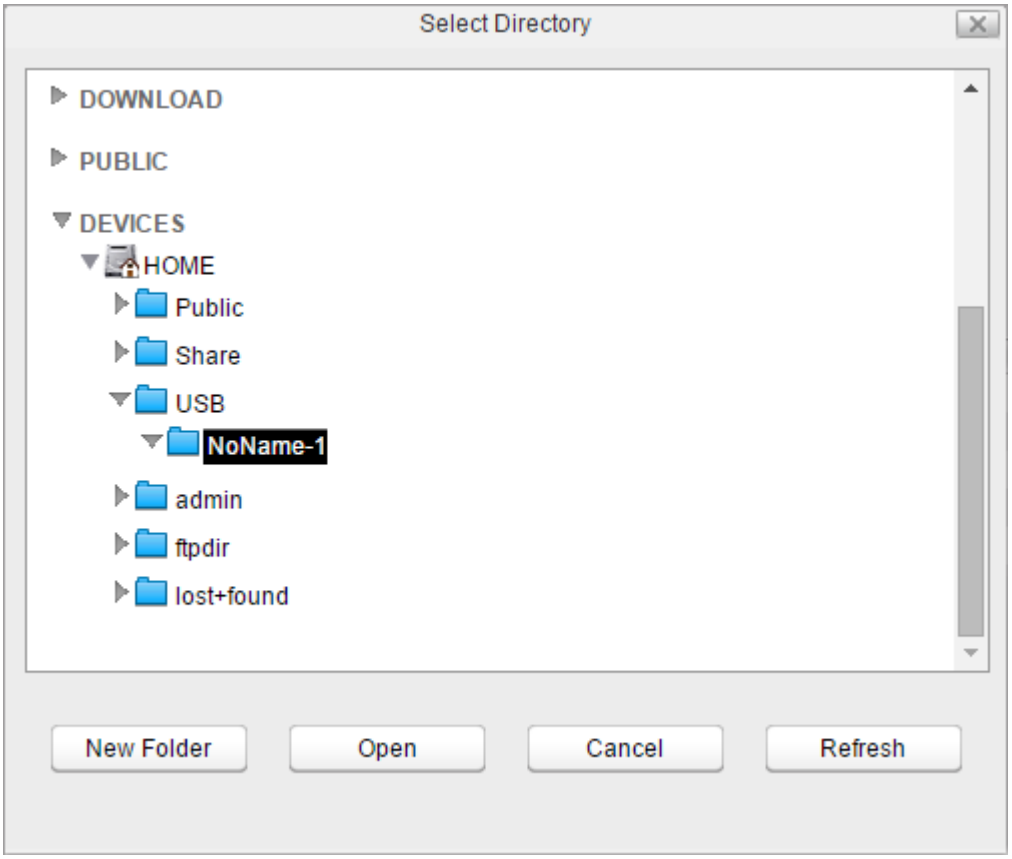


**5** Click *Browse* to the right of "Destination Path".

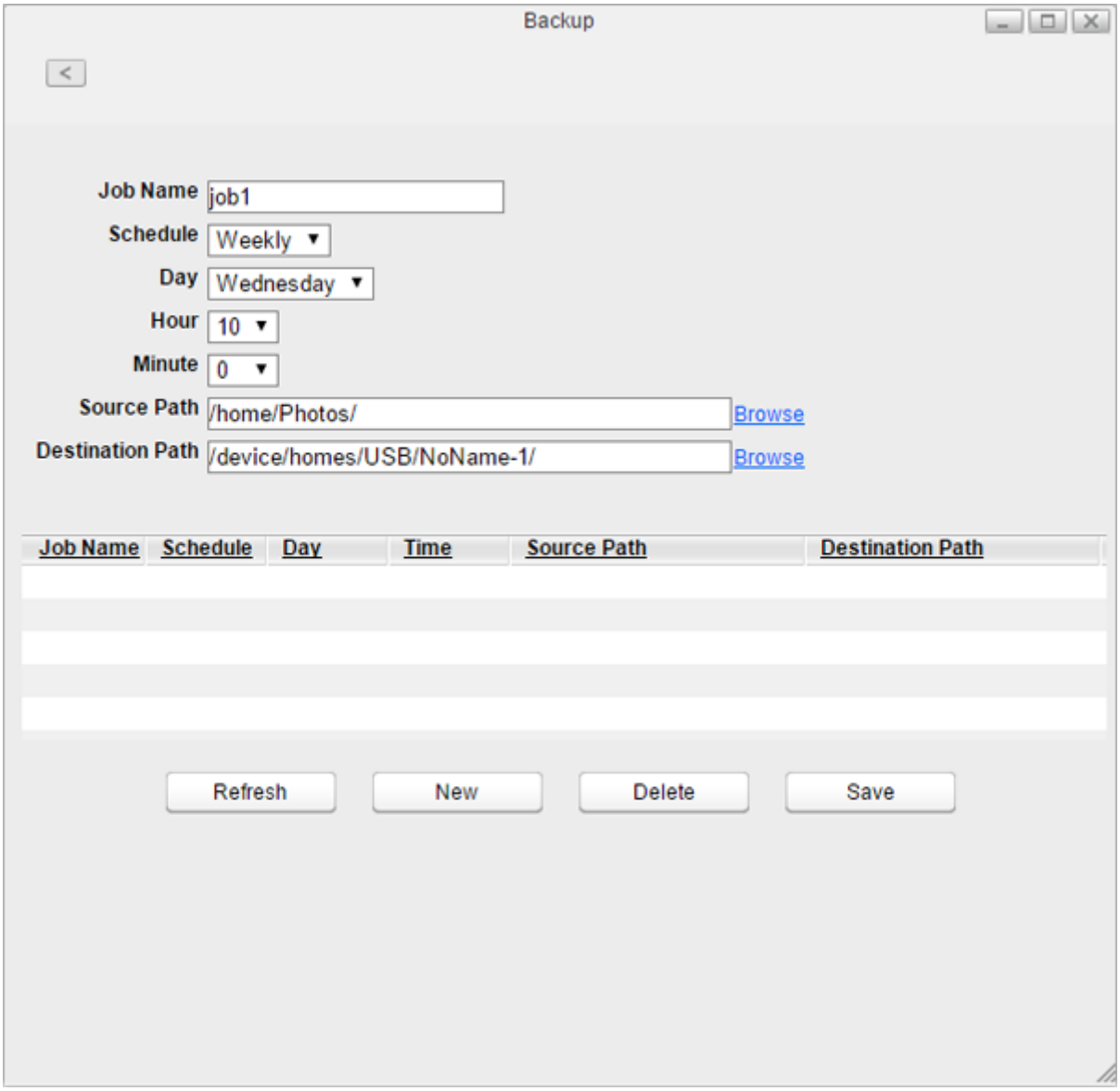



**6** Select the backup target and click *Open*.

If you want to select the USB device as the backup target, select the USB device hostname under the "USB" folder. The "USB" folder is not in the USB device.



**7** Click *Save*.




The backup job is added to the list.

**Notes:**

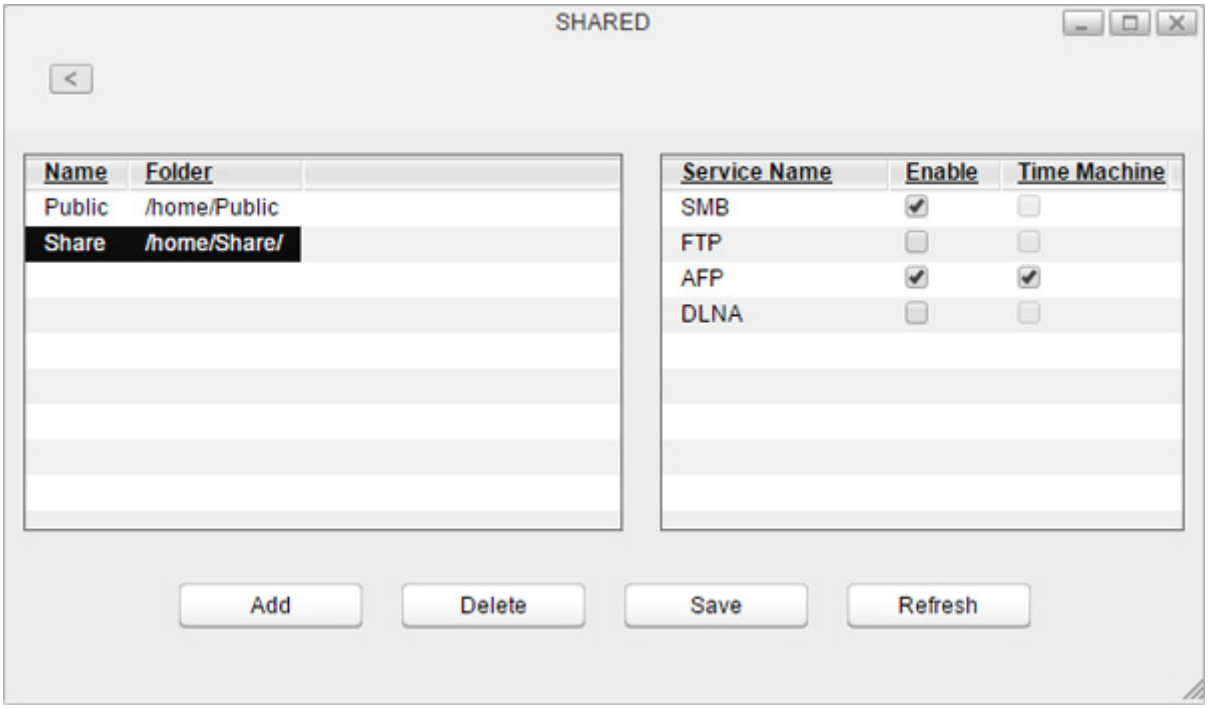
- Up to 8 backup jobs can be configured.
- When a backup job starts, a folder that contains the backup date in its folder name will be created in the backup target automatically and all data will be backed up to that folder.
- If a backup job is scheduled to run while Direct Copy is running, the job will be canceled. The prior process will work.

## Backing Up Your Mac with Time Machine

Time Machine is a backup program included with OS X. To use your LinkStation as a backup destination for Time Machine, configure it as described below.

**1** In Preferences, click *SHARED* and select a shared folder as your backup destination for Time Machine.

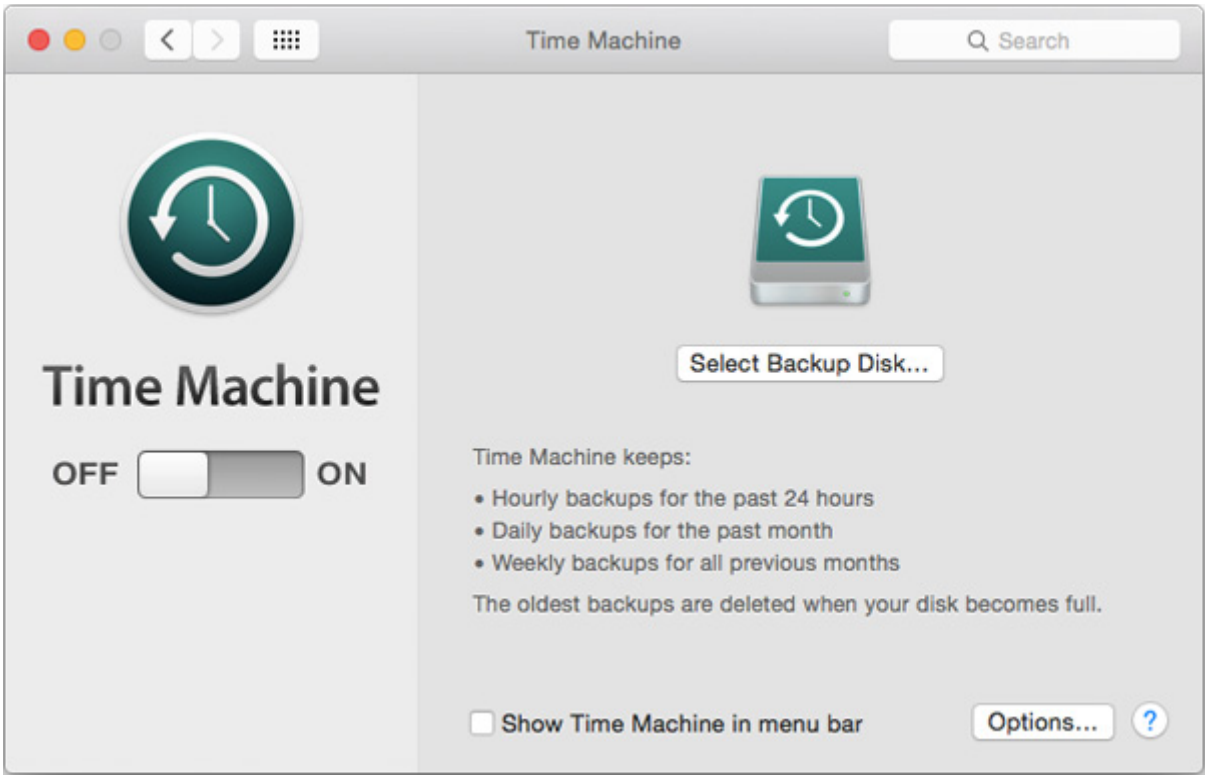
**2** Check both checkboxes under "Enable" and "Time Machine" next to "AFP", then click *Save*.



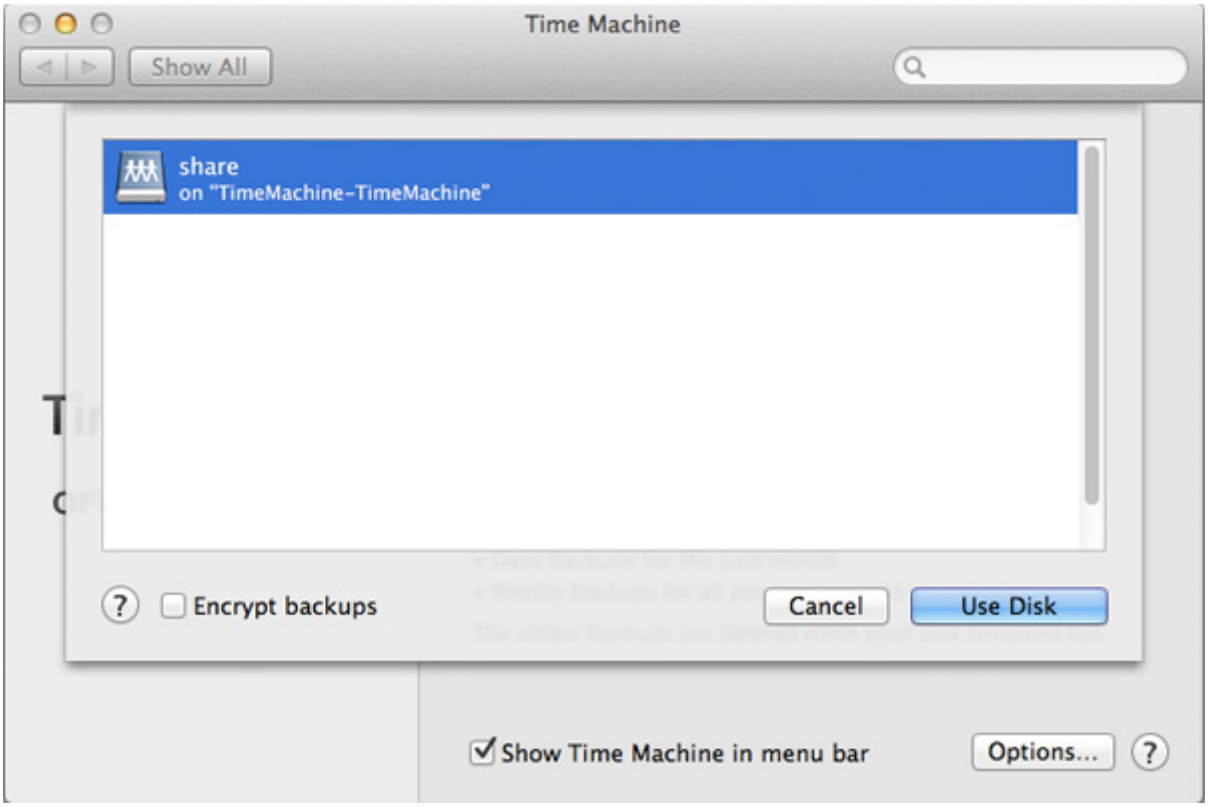

**3** On the Mac, open *System Preferences*.

**4** Click *Time Machine*.

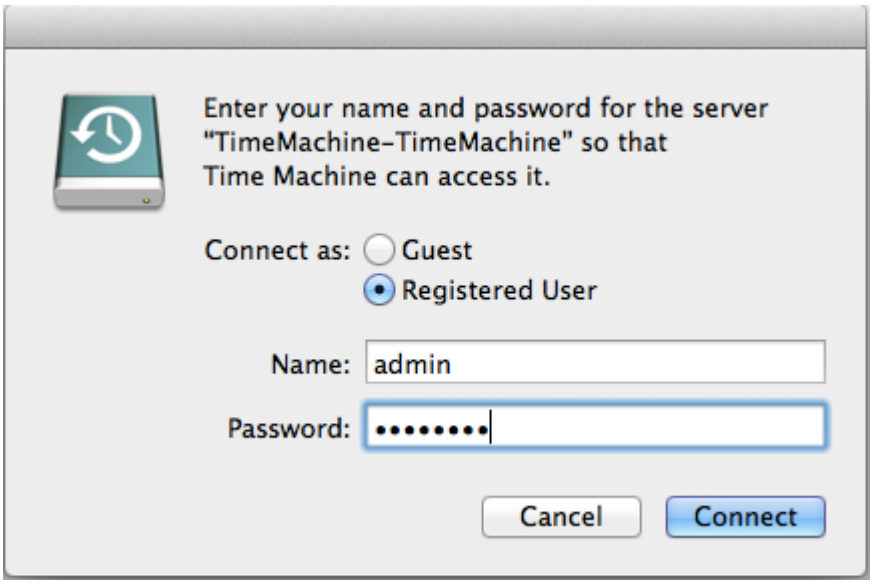
**5** Click *Select Backup Disk*.




**6** Select the LinkStation, then click *Use Disk*.



**7** Enter a username and password with the rights to access the shared folder on the LinkStation, then click *Connect*.




**8** Time Machine will count down from 120 seconds and backup will start.

## Reset

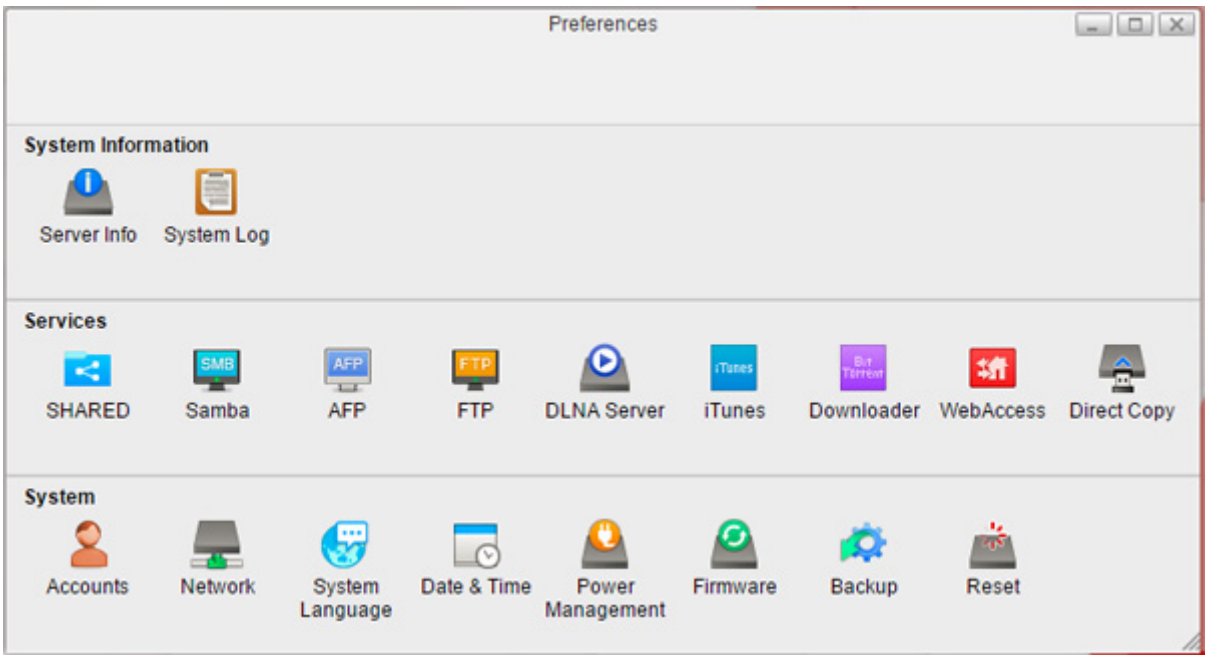
Enable or disable function button initialization or initialize the LinkStation to factory defaults from Settings.

**Note:** If you are using your LinkStation with 2 or more partitions and running firmware version 2.00 or earlier, you will loose your data when initializing settings because the disk management process has been changed since version 3.00. Before initializing the settings, make sure all your data has been backed up to the external device.

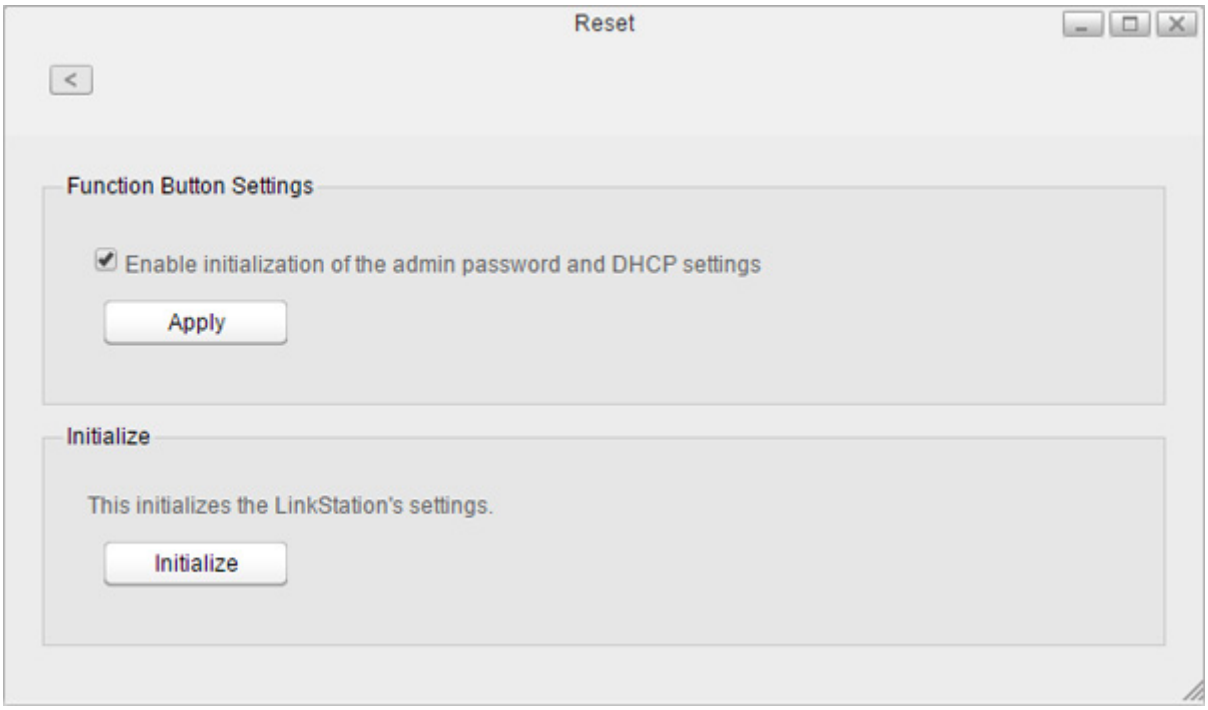
## Initializing from Settings

When initializing the LinkStation from Settings, all values will be erased and restored to its factory default. The data stored in the LinkStation will be kept.

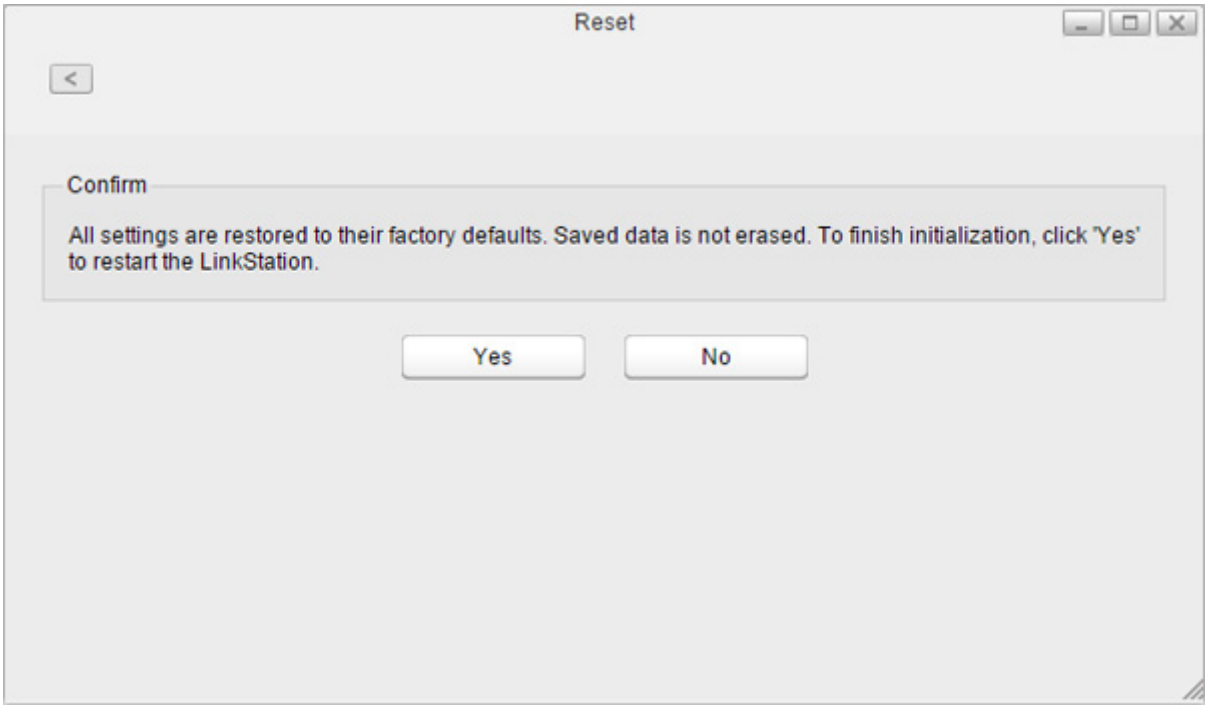
**1** In Preferences, click *Reset*.




**2** Click *Initialize*.



**3** Read the confirmation and click *Yes*.




**4** The LinkStation will be restored to its factory default settings.

## Initializing with the Function Button

You can also initialize the admin password and IP address with the function button. The IP address will only be restored from manual to DHCP. It is enabled by default.

**1** Turn off the LinkStation.

**2** Turn the LinkStation on while holding down the function button until the power LED flashes amber.

**3** Initialization will start. Do not power down the LinkStation while the power LED is blinking.

**4** When the power LED glows a steady white, initialization is finished.

**5** Once you reset the admin password, open Settings and run the setup wizard to configure a new password.

**Note:** To disable the function button reset, navigate to *Preferences - Reset* and check or uncheck "Enable initialization of the admin password and DHCP settings". If this is unchecked and you lose your admin password, you will not be able to reset it.

# Chapter 9 Configuring from Mobile Devices

## Settings That Can Be Changed from Your Mobile Device

You can change the following settings from your mobile device:

- Create or delete users, and change the user passwords.
- Configure WebAccess settings to remotely access your LinkStation.
- Configure your LinkStation to use with DLNA-compatible devices on the LAN.
- Configure and dismount a USB device connected to your LinkStation, including Direct Copy options.
- Change the RAID mode and recover the RAID array when a drive fails.
- Configure UPS synchronization.

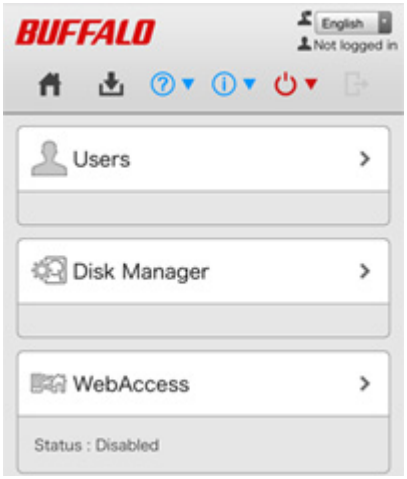
For the procedure of opening Settings from your mobile devices, refer to the "Opening Settings" section in chapter 2.

## Managing User Accounts

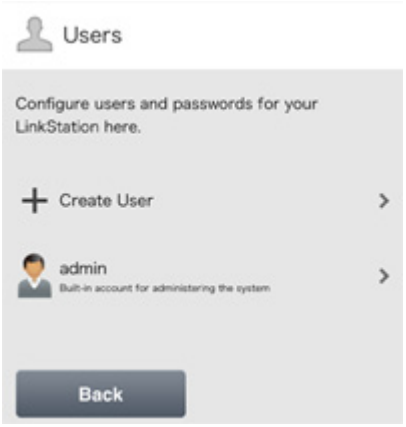
You can create or delete users, and change the user password using the following steps.

### Creating Users

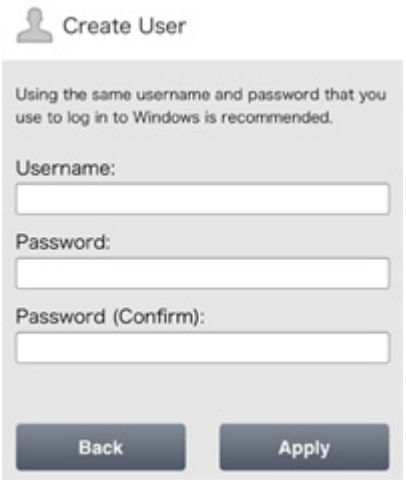
**1** In Settings, tap *Users*.



**2** Tap *Create User*.




**3** Enter the desired username and password (twice), then tap *Apply*.



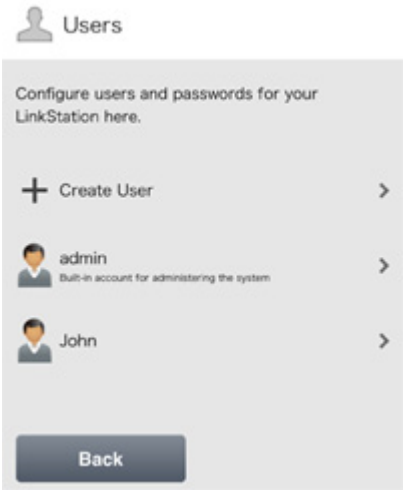

**4** Tap *Close*.

**Notes:**

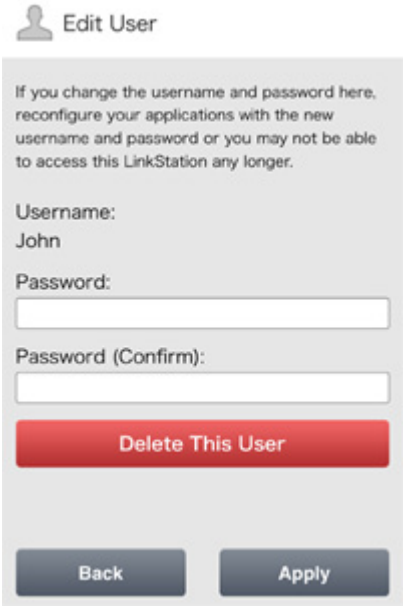
- Usernames may contain up to 32 alphanumeric characters and the following symbols: - _ . ! # + $ ^ %. Do not use a symbol as the first character.
- Passwords may contain up to 20 alphanumeric characters and the following symbols: - _ @ ! # $ % & ' ( ) * + , . / ; < > = ? " [ ] ^ { } | ~. Do not use a symbol other than an underscore (_) as the first character.

## Changing Passwords

**1** Tap an existing user to change the user's password from the list.



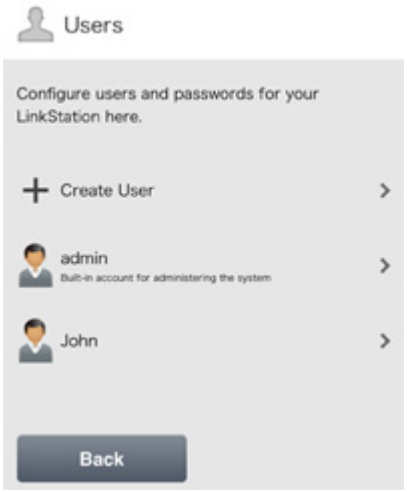

**2** Enter the new password (twice) and click *Apply*.



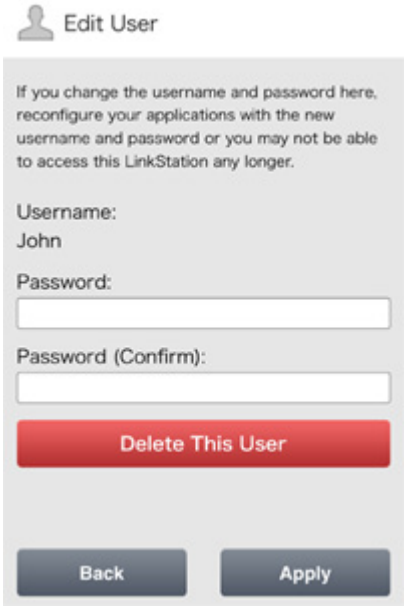

**3** Tap *Close*.

## Deleting Users

**1** Tap an existing user to delete from the list.




**2** Tap *Delete This User*.




**3** Tap *Yes*.

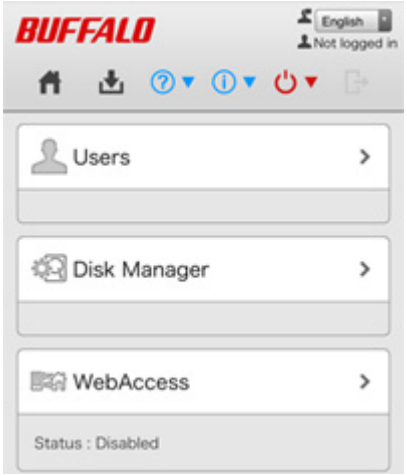
**4** The "Confirm Operation" screen will open. Enter the confirmation number, then tap *OK*.

**5** Tap *OK*.

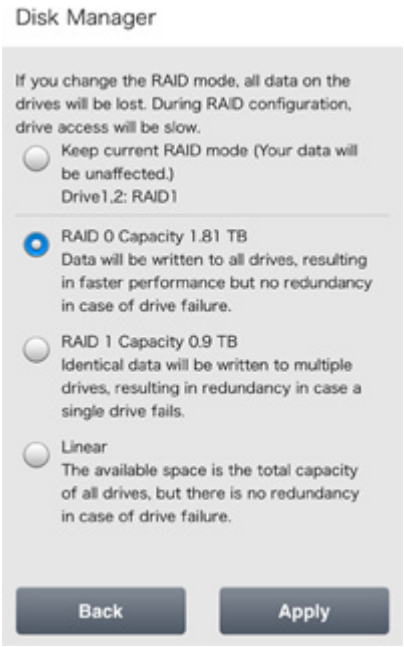
# Changing the RAID Mode

You can change the RAID settings easily from your mobile device.

**1** In Settings, tap *Disk Manager*.




**2** Select the desired RAID mode and tap *Apply*.




**3** Tap *Yes*.

**4** The "Confirm Operation" screen will open. Enter the confirmation number, then tap *OK*.

**Once you tap *OK*, the RAID array will be changed. Changing the RAID array will delete all data on the drives.**

**5** Tap *OK*.

# Configuring WebAccess

**Note:** On your mobile device, download and install the "SmartPhone Navigator" and "WebAccess" apps from the App Store (iOS devices) or Google Play (Android devices).

**1** Open SmartPhone Navigator on your mobile device.

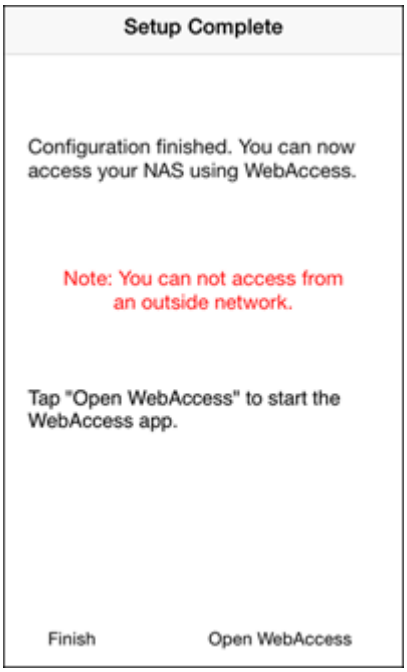
**2** Select the LinkStation to configure WebAccess.

**3** Tap *NAS Setup*.

**4** Enter a username and password. This will create a new user. Tap *Next*.

**5** Enter the password from the previous step again and tap *Next*.

If UPnP is not enabled on your network, you will only be able to access your LinkStation from the local network. To use WebAccess from outside your home, either enable UPnP in the router or open port 9000 for WebAccess in your router's settings.

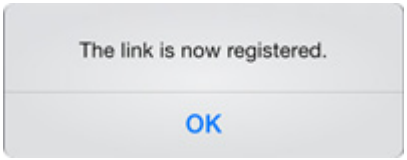



**6** Enter the BuffaloNAS.com name and tap *Set*.

**7** Tap *Open WebAccess*.

**8** WebAccess will launch.

**9** Tap *OK* if the following message is displayed.




**10** Tap your LinkStation's hostname to open the shared folder.

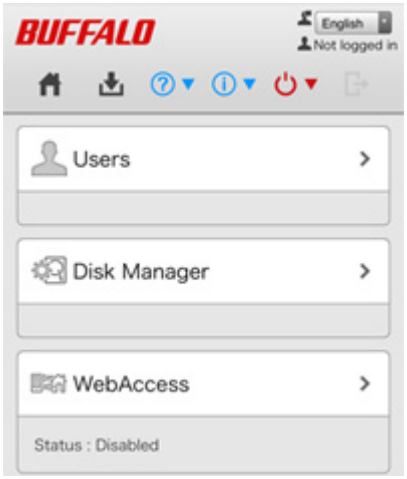
## If Unable to Create a BuffaloNAS.com Name

If UPnP is disabled on your router, creating the BuffaloNAS.com name from SmartPhone Navigator may fail. If this happens, try the following procedure.

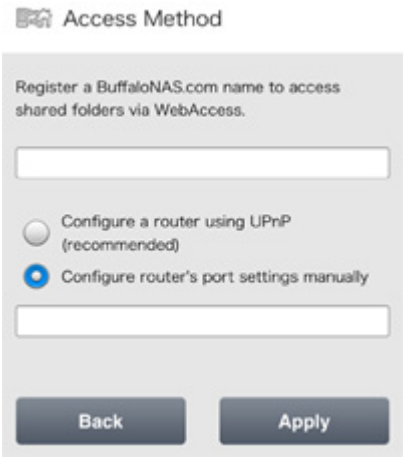
**1** Tap the "SmartPhone Navigator" icon on your mobile device.

**2** Tap *Open Settings*.

**3** Tap *WebAccess*.



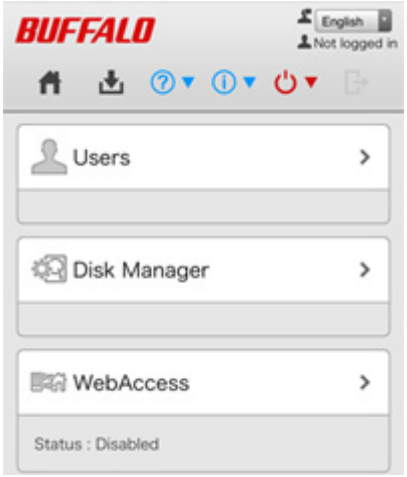

**4** Enter the desired BuffaloNAS.com name.



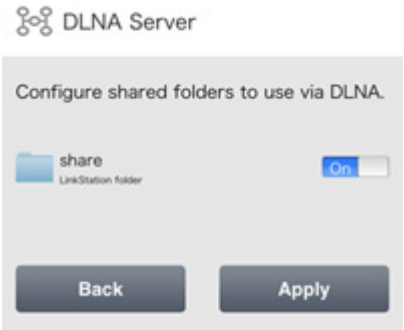

**5** Select "Configure router's port settings manually", enter the router's port number, and tap *Apply*.

# Configuring DLNA Server

**1** In Settings, tap *DLNA Server*.




**2** Enable the shared folder for DLNA and tap *Apply*.



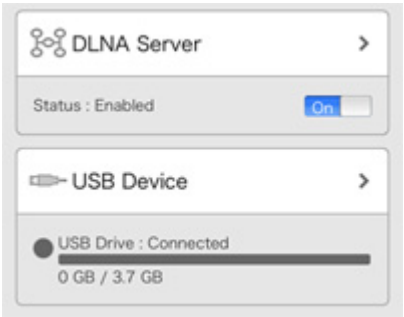

You can add a shared folder for sharing via DLNA from Settings using the computer. Refer to the "SHARED" section in chapter 7 for the instructions.

# Managing USB Devices

From "USB Device" option in Settings, you can dismount the USB drive, working with Direct Copy, and configuring UPS sync settings.

## Dismounting USB Drives

**1** In Settings, tap *USB Device*.



**2** Tap *Dismount*.

**3** When the completion message is displayed, unplug the USB device and tap *OK*.

## Starting Direct Copy

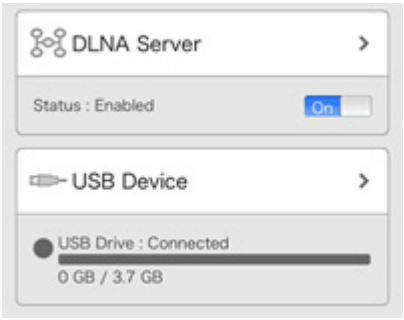
With the specific USB devices, you can copy the data in the USB device with your mobile device.

**1** Connect the USB device. After it mounts (about 10 seconds), the function LED will light up.

**Notes:**

- Unsupported devices will not cause the function LED to light.
- When you connect PTP devices, the function LED may not light up. In such a case, dismount the PTP device from the LinkStation once, then reconnect it.

**2** Open Settings and tap *USB Device*.



**3** Tap *Start Direct Copy*.

**4** If you do, the function LED will flash as all the files on the USB device are copied to the Direct Copy folder to the LinkStation.

**Note:** As the default settings, the Direct Copy folder is configured to the "usb_backup" folder in the "Public" folder. You can change the destination folder from Settings using the computer. Refer to the "Direct Copy" section in chapter 7 for the instructions.

**5** When the copy operation is finished, the access LED of the USB device will stop flashing. Safely dismount the USB device by using the dismount process.

## Configuring UPS Sync

You can enable/disable UPS sync settings from your mobile device. For other settings such as changing the shutdown process when using UPS sync, go to Settings from the computer. Refer to the "UPS Sync" section in chapter 8 for the instructions.

**1** In Settings, tap *USB Device*.

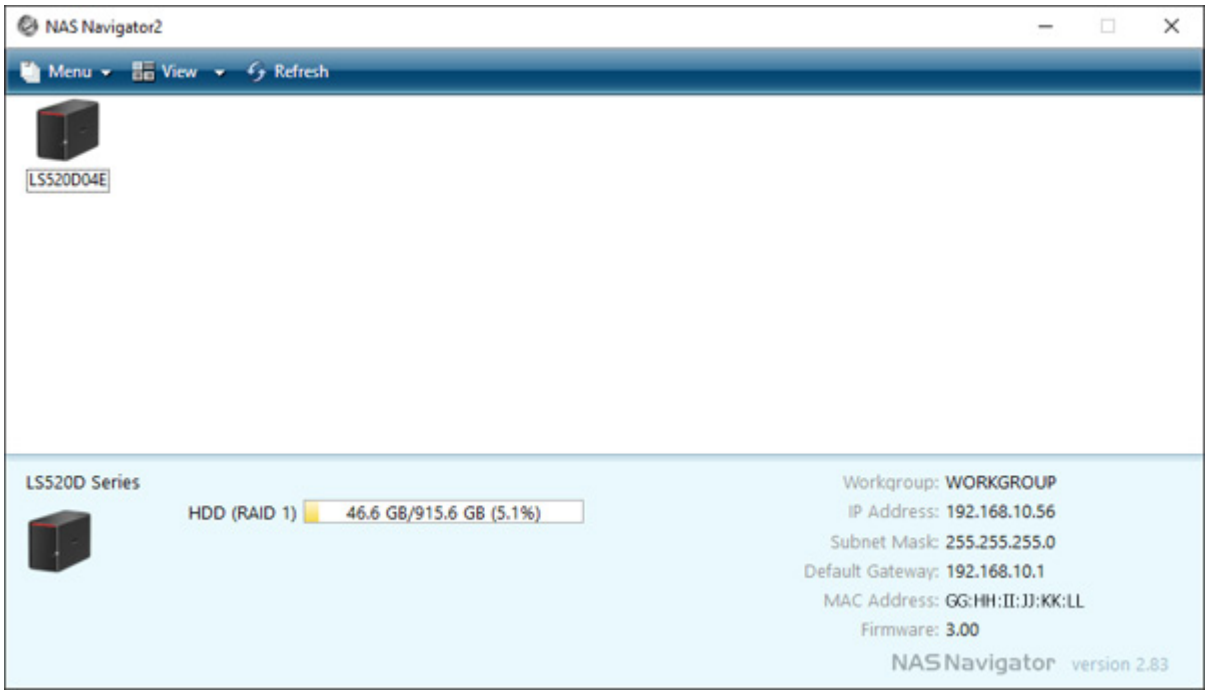
**2** Move the UPS sync switch to the "On" or "Off" position to enable or disable UPS sync.

# Chapter 10 Utilities

## NAS Navigator2 for Windows

NAS Navigator2 is a utility program that makes it easy to display Settings, change the LinkStation's IP address, or check its hard drive. You can download NAS Navigator2 from the Buffalo website.
NAS Navigator2 will run in the system tray when the computer is on.

Double-click the icon to start NAS Navigator2.




Click on a LinkStation's icon to display:

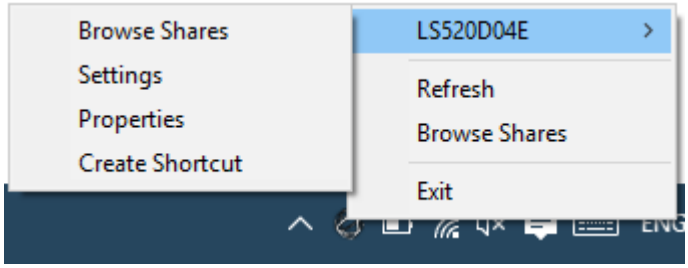
- Total capacity
- Capacity in use
- IP address
- Workgroup
- Subnet mask
- Default gateway
- MAC address
- Firmware version

Double-click the icon to open a share on the LinkStation.

| Name | | Description |
|---|---|---|
| Menu | Map All Remote Shares to Drive Letters | Assigns all the LinkStations' or TeraStations' shared folders as network drives.<br>**Note:** LS520D cannot be assigned as the network drive with this option. |
| | Create Desktop Shortcut* | Creates a desktop shortcut to the selected LinkStation's or TeraStation's shared folders. |
| | Launch NAS Navigator2 on Startup | Launches NAS Navigator2 in the system tray when Windows boots. |
| | Display Errors | If an error occurs, an error message will pop up from the NAS Navigator2 icon in the system tray. |
| | Properties* | Opens the selected LinkStation's or TeraStation's properties page. |
| | Close | Closes NAS Navigator2. |
| View | View | Icons: Displays icons.<br>Details: Displays the hostname, product name, workgroup, IP address, subnet mask, and default gateway. |
| | Sort by | If you have multiple LinkStations and TeraStations on the network, you may choose to display them in order of hostname, product name, workgroup, IP address, subnet mask, or default gateway. |
| Browse* | | Opens the selected LinkStation's or TeraStation's shared folders. |
| Refresh | | Searches for NAS devices on the network again. |
| Displays when you right-click a device's icon. | Browse Shares | Opens the selected LinkStation's or TeraStation's shared folders. |
| | Settings | Opens Settings for the selected LinkStation or TeraStation. |
| | Properties | Opens the selected LinkStation's or TeraStation's properties page. |
| | Create Desktop Shortcut | Creates a desktop shortcut to the selected LinkStation's or TeraStation's shared folders. |

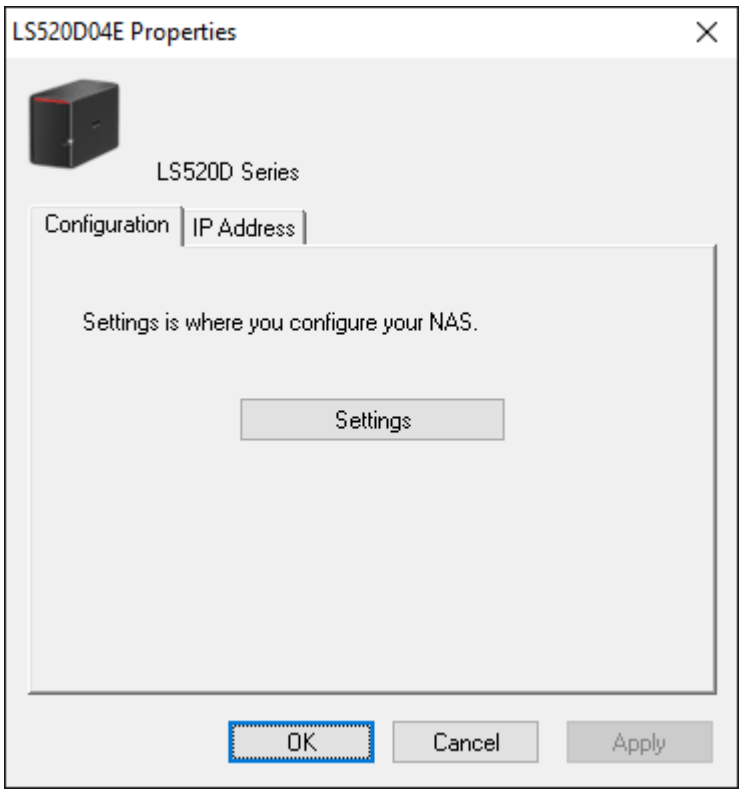
*Click on the selected LinkStation's or TeraStation's icon to display these options.

When NAS Navigator2 is minimized, right-click on the NAS Navigator2 icon in the system tray for the following options.



| Name | | Description |
|---|---|---|
| NAS Name | Browse Shares | Opens the selected LinkStation's or TeraStation's shared folders. |
| | Settings | Opens Settings for the selected LinkStation or TeraStation. |
| | Properties | Opens the selected LinkStation's or TeraStation's properties page. |
| | Create Shortcut | Creates a desktop shortcut to the selected LinkStation's or TeraStation's shared folders. |
| Refresh | | Refreshes list of NAS devices. |
| Browse Shares | | Displays NAS Navigator2 window. |
| Exit | | Exits NAS Navigator2. |

The following tasks may be performed from the properties page.



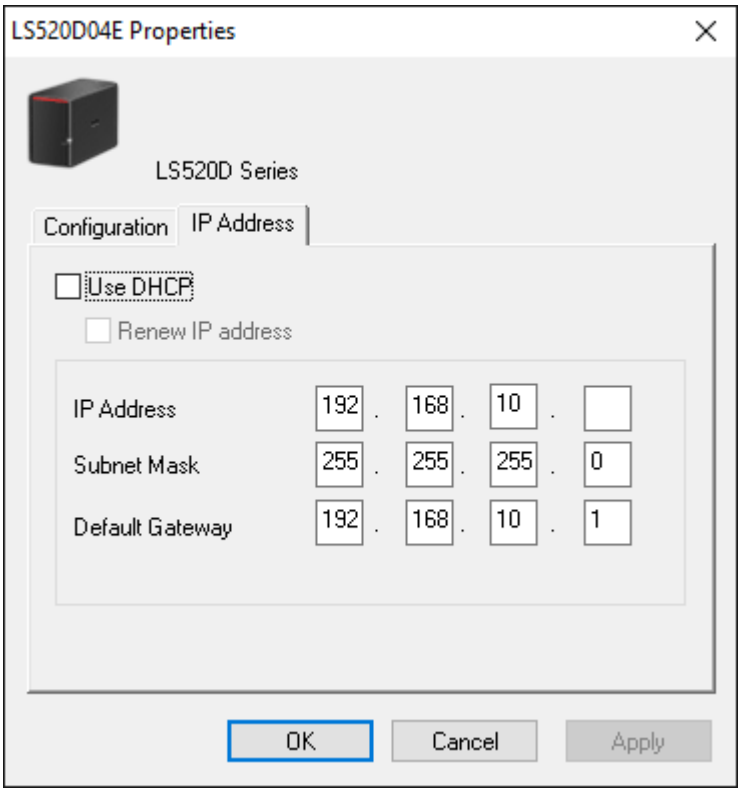

| Name | Description |
|---|---|
| Configuration | Click *Settings* to open the configuration interface. |
| IP Address | Check *Use DHCP* to assign an IP address from the DHCP server automatically. If there is no DHCP server in the network, you cannot use this function.<br>Check *Renew IP address* to obtain an IP address from the DHCP server.<br>You can manually enter an IP address, subnet mask, and default gateway. |

## Changing the IP Address

**1** Double-click the icon to start NAS Navigator2.

**2** Right-click on your LinkStation's icon and choose *Properties - IP Address*.

**3** Uncheck "Use DHCP", enter the IP address and subnet mask, and click *OK*. If the username and password prompts appears, enter the admin username and password.



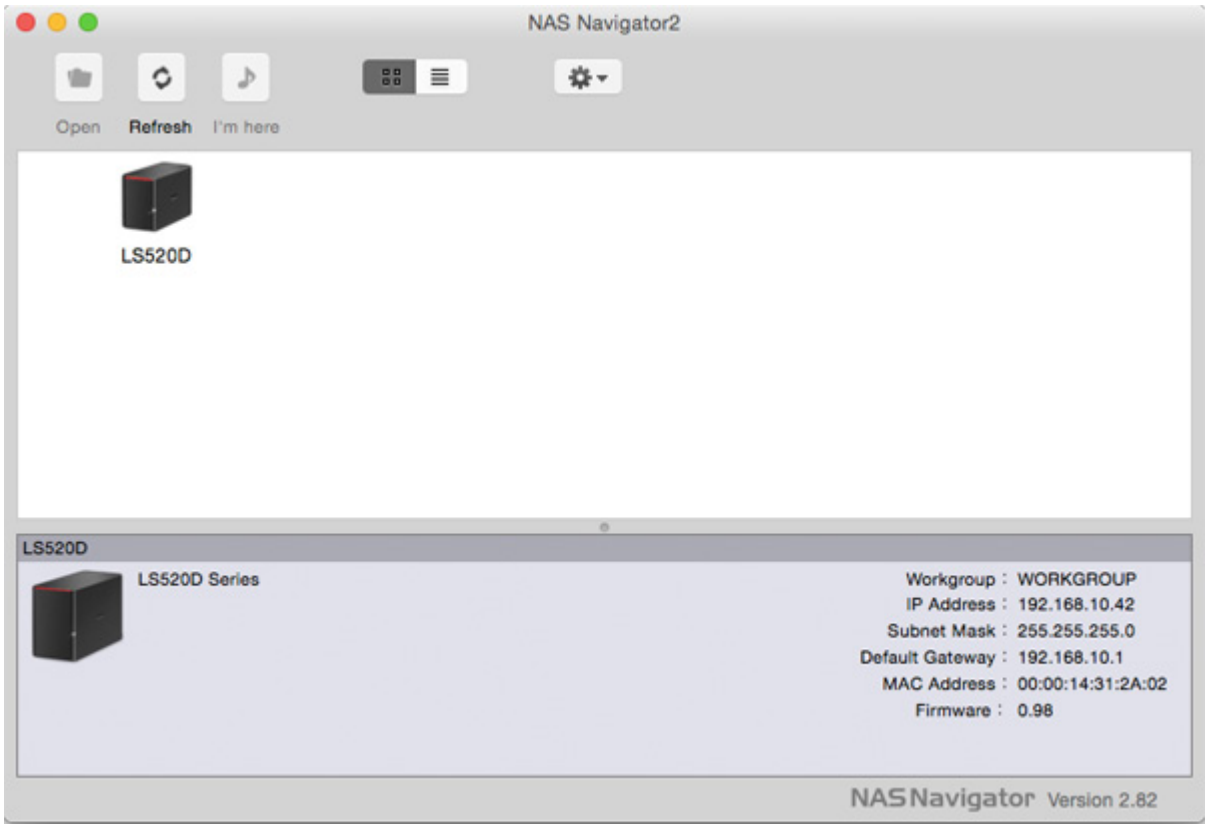

**Note:** The following IP addresses are reserved and should not be used. If you configure one of them by accident, initialize settings with the function button on the LinkStation.

Local loopback address: 127.0.0.1, 255.255.255.0
Network address: 0.0.0.0, 255.255.255.0
Broadcast address: 255.255.255.255, 255.255.255.0
The IP address range from 224.0.0.0 to 255.255.255.255

# NAS Navigator2 for Mac OS

NAS Navigator2 is a utility that makes it easy to display Settings, change the LinkStation's IP address, or check its hard drive. You can download NAS Navigator2 from the Buffalo website.

Click the icon in the Dock to start NAS Navigator2.




Click on a LinkStation's icon to display:

- Total capacity
- Capacity in use
- IP address
- Workgroup
- Subnet mask
- Default gateway
- MAC address
- Firmware version

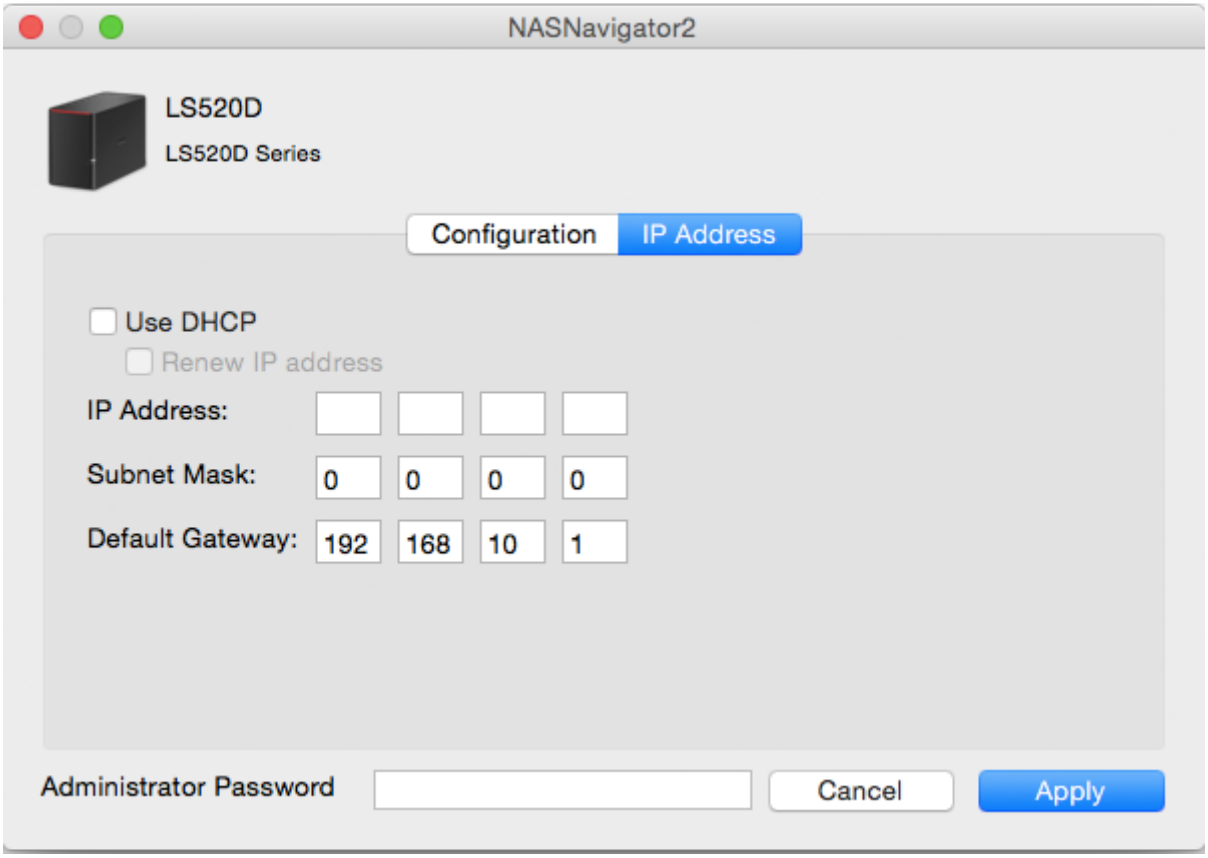
| Name | | Description |
|---|---|---|
| Open | | Opens the default shared folder for a selected LinkStation or TeraStation. |
| Refresh | | Searches for NAS devices on the network again. |
| Settings | | Opens Settings for the selected LinkStation or TeraStation. |
| Configure | | Opens a window that lets you configure the NAS's IP address or open Settings. |
| Label Color | | Selects the color of the name displayed below the icon. |
| View Options | | Lets you choose icon size, position, and view mode. |
| Auto Power Mode | | Auto power mode can turn supported TeraStations and LinkStations on the network on and off automatically. |
| To display these options, hold down the control key and click a device's icon. | Open Folder | Opens the selected LinkStation's or TeraStation's shared folder. |
| | Settings | Opens Settings for the selected LinkStation or TeraStation. |
| | Configure | Opens a window that lets you configure the NAS's IP address or open Settings. |
| | Label Color | Selects the color of the name displayed below the icon. |

## Changing the IP Address

**1** Click the icon in the Dock to start NAS Navigator2.

**2** Hold down the control key, select your LinkStation, and choose *Configure - IP Address*.

**3** Uncheck "Use DHCP", enter the desired settings and the administrator password, then click *Apply*.




**Note:** The following IP addresses are reserved and should not be used. If you configure one of them by accident, initialize settings with the function button on the LinkStation.

- Local loopback address: 127.0.0.1, 255.255.255.0
- Network address: 0.0.0.0, 255.255.255.0
- Broadcast address: 255.255.255.255, 255.255.255.0
- The IP address range from 224.0.0.0 to 255.255.255.255

# NovaBACKUP

NovaBACKUP is a Windows utility that lets you back up the data on your computer or LinkStations.
The software is available at http://d.buffalo.jp/LS500/. To download the installer, you need the serial number of your LinkStation. The serial number is printed on the label at the back of the unit.

# Chapter 11 Appendix

## When the Power LED Blinks

### White

The power LED will blink white during bootup or shutdown.

### Red

If there is an error, the power LED will blink red. You can also see any errors in NAS Navigator2.

| Error Code | Description | Corrective Action |
|---|---|---|
| E04 | The firmware is corrupted. | Save the firmware file to the root directory of a FAT32-formatted USB memory device. Power off the LinkStation, connect the USB memory device, then power the LinkStation back on. The firmware file will be restored automatically.<br>http://86886.jp/ls500-r/<br>If the error still present, contact Buffalo technical support for assistance.<br>**Note:** By recovering the firmware, all the LinkStation's settings will be initialized to default values, but the data on the LinkStation will be kept. |
| E10 | The LinkStation is running on the UPS battery due to a power outage. The system will now be shut down safely. | Check that power is being supplied to the UPS, and if there are no problems, turn on the LinkStation. |
| E11 | An error occurred in the fan speed. | Check the fan. Use compressed air or tweezers to remove any dust or foreign objects. Confirm that the fan is spinning normally. If it is not, contact Buffalo technical support for assistance. |
| E12 | A rise in the system temperature may have exceeded the allowable safety value. | Do not place objects in the area around the LinkStation. Also, move the LinkStation to a cool location. |
| E14 | RAID array X cannot be mounted. | Run the RAID array disk check in Settings. |
| E15 | The bad sectors have reached a dangerous level. | Replace the defective drive. |
| E16 | Unable to find hard drive X. | Hard drive X may be disconnected or may have failed. Shut down the LinkStation and reinstall the hard drive. |
| E22 | Unable to mount drive X. | Format the hard drive. After formatting, if the error still appears after rebooting, replace the hard drive. If the error is displayed again, contact Buffalo technical support for assistance. |
| E30 | A hard drive error occurred. | Replace the faulty drive. |

## Amber

If there is a status message, the power LED will blink amber. You can also see any status messages in NAS Navigator2.

| Information Code | Description | Corrective Action |
|---|---|---|
| I12 | Operating in degraded mode. | - |
| I13 | Formatting RAID array X. | - |
| I16 | Creating RAID array X. | - |
| I18 | Rebuilding RAID array X.<br>**Note:** Transfer speeds are slower during the rebuilding process. | - |
| I19 | Writing 0s to RAID array X, erasing all data. | - |
| I20 | Formatting hard drive X. | Don't turn off the LinkStation. |
| I21 | Checking hard drive X. | Don't turn off the LinkStation. |
| I22 | Erasing the data for hard drive X. | - |
| I23 | System is being initialized. | - |
| I25 | Updating the LinkStation firmware. | - |
| I28 | Formatting USB hard drive. | Don't turn off the LinkStation. |
| I46 | Data migration or conversion (RAID migration) is in progress. | Don't turn off the LinkStation. |
| I52 | A new firmware version has been released. | Update the firmware. |
| I54 | A backup job has failed. | Make sure that the backup job is configured correctly, and that the NAS is on and not in standby mode. If the backup job still fails, check the status of the NAS and the backup source and destination. |

# Default Settings

| | |
|---|---|
| Administrator's Name | admin |
| Password | password |
| Shared Folders | "Public" and "admin" (for both Windows and Mac computers). |
| DHCP Client | Normally, the LinkStation will get its IP address automatically from a DHCP server on the network. If no DHCP server is available, then an IP address will be assigned as follows:<br>IP address: IP address will be assigned starting from "169.254".<br>Subnet mask: 255.255.0.0 |
| Microsoft Network Group Setting | WORKGROUP |
| SMB | Enabled |
| AFP | Disabled |
| FTP | Disabled |
| NTP | Enabled |
| DLNA | Enabled |
| iTunes Server | Disabled |
| BitTorrent | Disabled |
| Wake-on-LAN | Enabled |
| RAID Mode | RAID 1 (LS520D) |

# Specifications

Check the Buffalo website for the latest product information and specifications.

| | | |
|---|---|---|
| LAN Port | Interface | IEEE 802.3ab (1000BASE-T)<br>IEEE 802.3u (100BASE-TX)<br>IEEE 802.3 (10BASE-T) |
| | Transfer Speed | 1000 Mbps full duplex (auto-negotiation)<br>100 Mbps full duplex/half duplex (auto-negotiation)<br>10 Mbps full duplex/half duplex (auto-negotiation) |
| | Number of Ports | 1 port (supports auto MDI-X) |
| | Connector Type | RJ-45 8-pin |
| | Protocol | TCP/IP |
| | Access Method | CSMA/CD |
| | File Sharing | SMB/CIFS, AFP, FTP, HTTP |
| | Management | HTTP |
| USB Port | 1 USB 3.0 port (type A) | |
| Internal Hard Drive | If a hard drive in your LS520D or LS520DE malfunctions, replace it with a Buffalo OP-HDBST series of the same or larger capacity, available from the Buffalo website. | |
| Power Supply | AC 100–240 V, 50/60 Hz | |
| Dimensions (W x H x D) | LS510D: 45 x 128 x 205 mm; 1.8 x 5.0 x 8.1 in<br>LS520D, LS520DE: 87 x 128 x 205 mm; 3.4 x 5.0 x 8.1 in | |
| Weight | LS510D: Approx. 1.3 kg; 2.9 lb<br>LS520D: Approx. 2.5 kg; 5.5 lb<br>LS520DE: Approx. 0.9 kg; 1.9 lb | |
| Power Consumption (Max.) | LS510D: 24 W<br>LS520D, LS520DE: 36 W | |
| Operating Environment | Temperature: 5–35°C; 41–95°F<br>Environment humidity: 20–80% (no condensation) | |
| Compatible Devices and OS | • Windows computers with Ethernet interface (both 32-bit and 64-bit)<br>Windows 10, 8.1, 8, 7, Vista<br>• Intel Mac computers with Ethernet interface<br>OS X 10.11, 10.10, 10.9, 10.8, 10.7<br>**Note:** The LinkStation requires an Ethernet connection with your computer for operation. It cannot be connected via USB. To use with mobile devices, Wi-Fi connection is required. | |

# Chapter 12 Regulatory Compliance Information

## For Customers in the United States

### FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Only use the cables and accessories that are included in the package.  Don't use other accessories or cables unless specifically instructed to in the documentation.

### MET

**Label Information**

| | |
|---|---|
| ⎓ | Direct current |
| ⊖⊙⊕ | Polarity of DC connector |

### Proposition 65

**WARNING:**
This product and its components contain chemicals known to the State of California to cause cancer and birth defects, or reproductive harm. Wash hands after handling.

# For Customers in Europe

## EU Declaration of Conformity

CE

Dansk
Brug ikke USB-kabler, der er 3 meter eller længere for at tilslutte USB enheder til denne LinkStation serie.
Der må kun bruges de kabler og det tilbehør der er inkluderet i pakken. Der må ikke bruges andet tilbehør eller kabler, medmindre det er udtrykkeligt beskrevet i dokumentationen.

Deutsch
Verwenden Sie keine USB-Kabel, die 3 Meter lang oder länger sind, um USB-Geräte an LinkStations dieser Serie anzuschließen.
Verwenden Sie ausschließlich die Kabel und Zubehörteile, die im Lieferumfang enthalten sind. Andere Zubehörteile oder Kabel dürfen nur dann verwendet werden, wenn dies in der Dokumentation ausdrücklich vorgeschrieben ist.

English
Do not use USB cables that are 3 meters or longer to connect USB devices to this LinkStation series.
Only use the cables and accessories that are included in the package. Don't use other accessories or cables unless specifically instructed to in the documentation.

Español
Utilice cables de una longitud inferior a 3 metros para conectar los dispositivos USB a este tipo de LinkStation.
Utilice únicamente los cables y accesorios incluidos en el paquete. No utilice otros accesorios ni cables a menos que así se indique en la documentación.

Français
Utilisez des câbles d'une longueur de moins 3 mètres pour connecter les périphériques USB à ce type de LinkStation.
Utilisez uniquement les câbles et accessoires inclus dans ce package. N'utilisez aucun autre accessoire ou câble sauf instruction spécifique de la documentation.

Italiano
Non utilizzare cavi USB lunghi 3 metri o più per collegare dispositivi USB a questa LinkStation.
Utilizzare esclusivamente i cavi e gli accessori inclusi nell'imballaggio. Non utilizzare altri accessori o cavi a meno che non sia specificamente indicato nella documentazione.

Nederlands
Gebruik geen USB-kabels die 3 meter of langer zijn om USB-apparaten met deze LinkStation series te verbinden.
Gebruik alleen de kabels en toebehoren die zich in de verpakking bevinden. Gebruik geen ander toebehoren of kabels tenzij dit uitdrukkelijk in de handleiding wordt aangegeven.

Norsk
Bruk ikke USB-kabler på tre meter eller mer for å koble USB-enheter til denne LinkStation-serien.
Bruk kun kabler og tilbehør som er inkludert i pakken.  Ikke bruk annet tilbehør eller kabler med mindre spesielt instruert til å gjøre det i dokumentasjonen.

Português
Não usar cabos USB de 3 metros ou mais para ligar dispositivos USB a esta série LinkStation.
Utilizar apenas cabos e acessórios incluídos na embalagem. Não utilizar outros acessórios ou cabos, salvo se especificamente indicado na documentação.

Suomi
Älä käytä 3m tai pitempiä USB-kaapeleita USB-laitteiden liittämiseen näille LinkStation-sarjoille.
Käytä ainoastaan pakkauksen mukana toimitettuja kaapeleita ja varusteita. Älä käytä muita varusteita tai kaapeleita ellei näin ole erityisesti ohjeistettu asiakirjoissa.

Svensk
Använd inte USB-kablar som är 3 meter eller längre för att ansluta USB-enheter till den här LinkStation-serien.
Använd bara kablar och tillbehör som ingår i förpackningen. Använd inte andra tillbehör eller kablar om du inte får uttryckliga instruktioner om det i dokumentationen.

Türk
USB aygıtları bu LinkStation serisine bağlamak için 3 metre ve daha uzun USB kabloları kullanmayın.
Yalnızca pakette bulunan kablo ve aksesuarları kullanın.  Belgelerde özellikle belirtilmedikçe başka aksesuar ve kablolar kullanmayın.

**AC Adaputer**

| | |
|---|---|
| LS510D | Asian Power Devices Inc.  WA-24Q12R |
| LS520D, LS520DE | Asian Power Devices Inc.  WA-36A12 |

## CB

**Label Information**

| | |
|---|---|
| ⎓ | Direct current |
| ⊖⊙⊕ | Polarity of DC connector |