

User's Guide

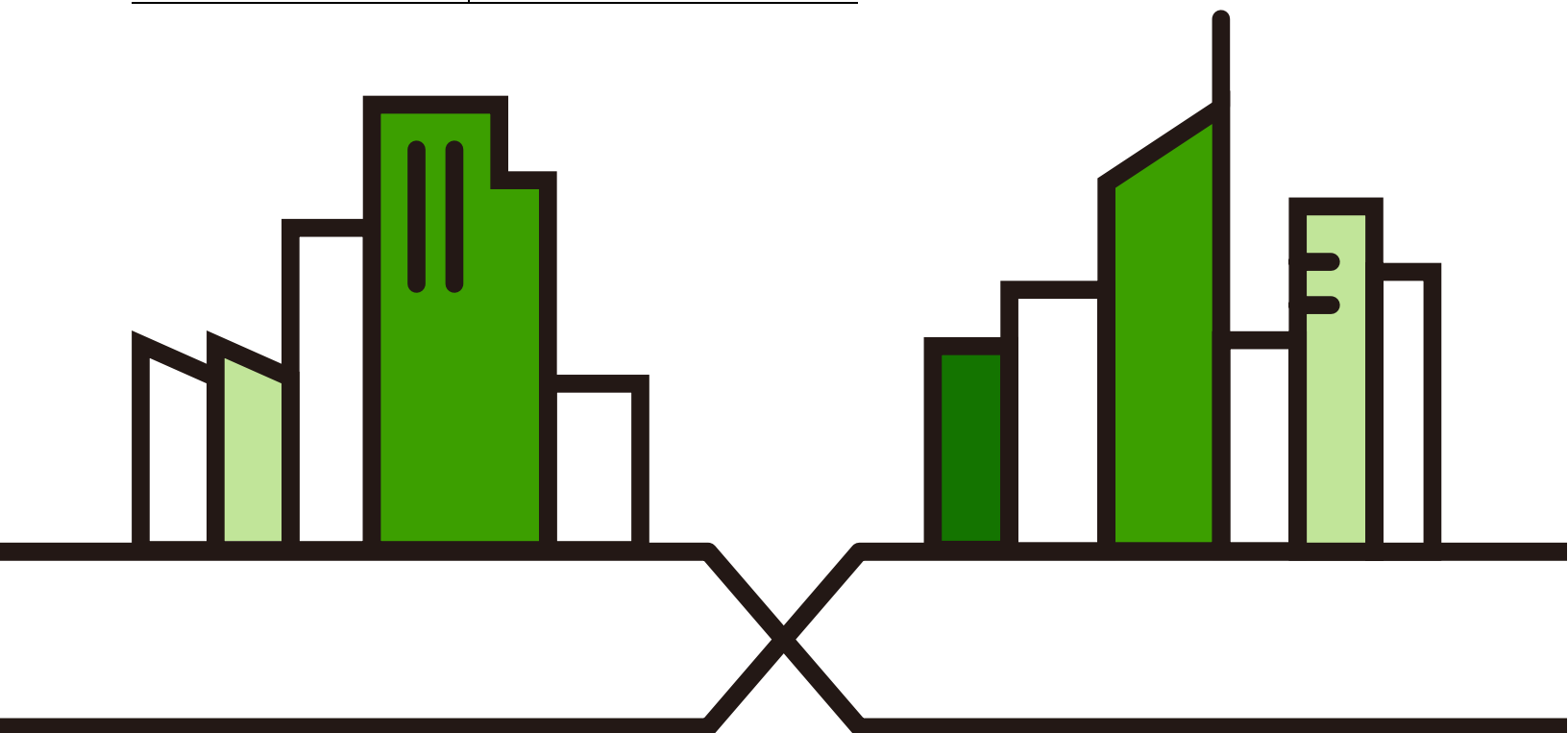
NAS Series

Model: NAS326, NAS520, NAS540, and NAS542
Personal Cloud Storage

Default Login Details

Ways to Find Your NAS	FindMe
Web Address	http://(NAS Server Name) http://(NAS IP Address)
User Name	admin
Password	1234

Version 5.21 Edition 4, 8/2022



IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

Screenshots and graphics in this book may differ slightly from what you see due to differences in your product firmware or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

Related Documentation

- Quick Start Guide

The Quick Start Guide shows how to connect the NAS.

- More Information

Go to support.zyxel.com to find other information on the NAS.



Document Conventions

Warnings and Notes

These are how warnings and notes are shown in this guide.

Warnings tell you about things that could harm you or your device.












Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

Syntax Conventions

- The NAS Series in this user's guide may be referred to as the "NAS" in this guide.
- Product labels, screen names, field labels and field choices are all in **bold** font.
- A right angle bracket (>) within a screen name denotes a mouse click. For example, **Network Setting > Routing > DNS Route** means you first click **Network Setting** in the navigation panel, then the **Routing** sub menu and finally the **DNS Route** tab to get to that screen.

Icons Used in Figures

Figures in this user guide may use the following generic icons. The NAS icon is not an exact representation of your device.

NAS 	Internet 	Laptop Computer 
Switch 	Firewall 	Server 
Desktop Computer 	Media Player 	USB Storage Drive 
TV 	USB Hard Drive 	

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CHAPTER 1

Get to Know Your NAS

1.1 Overview

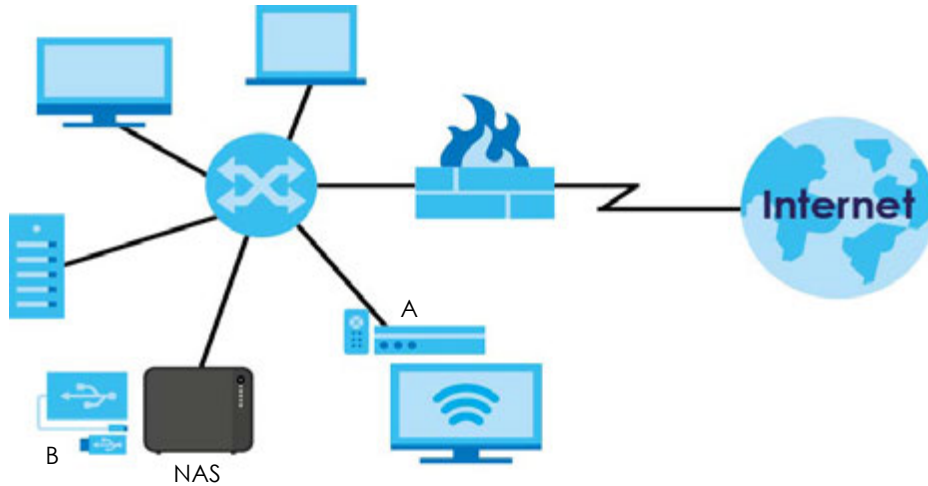
This User's Guide covers the following models: NAS326, NAS520, NAS540, and NAS542.

Table 1 NAS Series Comparison Table

FEATURES	NAS326	NAS520	NAS540	NAS542
RAM Size	512 MB DDR III	1 GB DDR III	1 GB DDR III	1 GB DDR III
Number of Hard Disk Bays	2	2	4	4
Supported RAID Types	RAID0 RAID1 JBOD BASIC	RAID0 RAID1 JBOD BASIC	RAID0 RAID1 RAID5 RAID6 RAID10 JBOD BASIC	RAID0 RAID1 RAID5 RAID6 RAID10 JBOD BASIC
Number of Ethernet Ports	1	2	2	2
Port Trunking Support	No	Yes	Yes	Yes
Number of USB Ports	2 (USB3.0) 1 (USB2.0)	3 (USB3.0)	3 (USB3.0)	3 (USB3.0)
Number of SD Card Slots	N/A	1	1	1

Use the NAS as your own personal cloud. Here are some key features:

- **Start using Zyxel NAS instantly with FindMe** - Use Zyxel FindMe to discover your NAS on your home network and get in control in under 15 seconds. Then do an easy installation with no need to install a NAS utility.
- **Access and share files from your NAS wherever you are** - Using the Zyxel Drive mobile app makes it easy.
- **Create a shared cloud space for people without a NAS** - Provide your cloud space for your friends or family members when you share a folder from the NAS with the Zyxel Drive mobile app. Your friends and family members don't need to purchase an additional NAS - just install the Zyxel Drive mobile app on their mobile devices.
- **Protect your data from drive failure** - The NAS's RAID 1 capability clones contents from one drive to another. If a drive is damaged or corrupted, you still have another drive to restore from or use.
- **Get up and running quickly with the easy-to-use interface** - The Zyxel NSM (NAS Station Management) 5.2 intelligent desktop provides a rich feature set of tools with an easy-to-understand GUI design to help you get things done quickly. The multitasking capability through a multi-window interface enables you to quickly get applications up and running.
- **Check your NAS while you're away** - Even if you have several Zyxel NAS devices, visit the myZyxelcloud Web portal from anywhere to see their health status at a glance.

Figure 1 Example of the NAS in a Home Network

Above is the NAS in a home network. Users back up and share data on the NAS. The media player (**A**) plays the NAS's media files on the TV. A USB hard drive (**B**) provides extra storage space and files are copied directly from the USB storage device to the NAS.

Place the NAS behind a firewall and/or IDP (Intrusion Detection and Prevention) device to protect it from attacks from the Internet.

Refer to the Quick Start Guide for hardware connections and how to install and remove hard drives from the disk trays.

Note: Turn off and disconnect the NAS before you install or remove the internal hard disk or disks.

1.2 LEDs

This table describes the NAS's LEDs.

Table 2 LEDs

LED	COLOR	STATUS	DESCRIPTION
POWER	White	On	The NAS is turned on and receiving power, or in the process of starting up.
		Off	The NAS is turned off.
SYSTEM	White	On	The NAS has fully started and is operating normally.
		Blinking	The NAS is starting up or upgrading the firmware. Note: Do not turn off the NAS while it is upgrading the firmware or you may render it unusable.
	Red	On	The NAS has a system error.

Table 2 LEDs (continued)

LED	COLOR	STATUS	DESCRIPTION
HDD1/2	White	On	The hard disk drive is connected properly to the NAS. This LED stays on white when the hard disk drive is in hibernation if you do not enable sleeping HDD LED blinking.
		Blinking	The NAS is saving data to the hard disk drive.
		Slow Blinking	Sleeping HDD LED blinking is enabled and the hard disk drive is in hibernation.
	Red	On	The NAS detected an error on the hard disk drive (like a bad sector for example). The NAS automatically tries to recover a bad sector, but the LED stays red until the NAS restarts.
		Off	The NAS cannot detect a hard disk in the disk bay or the LED is disabled.
USB	White	On	The NAS has a USB device installed.
		Off	There is no USB device installed or the NAS does not detect a USB connection.
COPY	White	On	A USB or SD device is connected to the NAS and the NAS is ready to copy.
		Blinking	The NAS is copying or synchronizing files, or in the process of pairing with a myZyxelcloud account.
	Red	On	Copying or synchronizing files to or from the USB or SD failed.
		Off	No USB/SD device is connected.
LAN / LAN1 / LAN2	Green	On	The NAS has a successful 10/100 Mbps Ethernet connection.
		Blinking	The 100M LAN is sending or receiving packets.
		Off	The NAS does not have a 10/100 Mbps Ethernet connection.
	Amber	On	The NAS has a successful 1000 Mbps Ethernet connection.
		Blinking	The 1000 M LAN is sending or receiving packets.
		Off	The NAS does not have a 1000 Mbps Ethernet connection.

1.3 Hard Disks

The NAS has internal hard disk bays. Install SATA (Serial Advanced Technology Attachment) hard disks. Note that the SATA hard disks are treated as internal or SATA volumes. Any hard disk connected to a USB port is considered an external or USB volume.

1.4 SD Card

Use up to a 128 GB SDXC card with the front panel SD card slot. The SD card slot works with the **COPY/ SYNC** button (see [Section 1.6 on page 16](#) for details).

1.5 Power Button

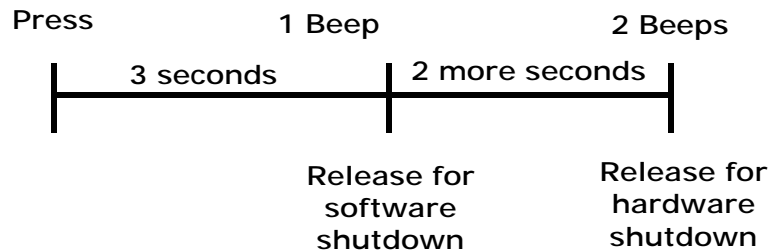
Use the power button on the front panel to turn the NAS on or off.

Power On

- Press the power button for one second to turn on the NAS. When the system is on and ready, you will hear one beep.

Power Off

Figure 2 Using the Power Button to Turn Off the NAS



- To have the NAS go through its normal software shutdown process and turn itself off, press the power button until you hear one beep (after about three seconds), then release it.
- To perform a hardware shutdown and have the NAS immediately turn itself off without going through the normal shutdown process, press the power button until you hear a second beep (after about five seconds), then release it.

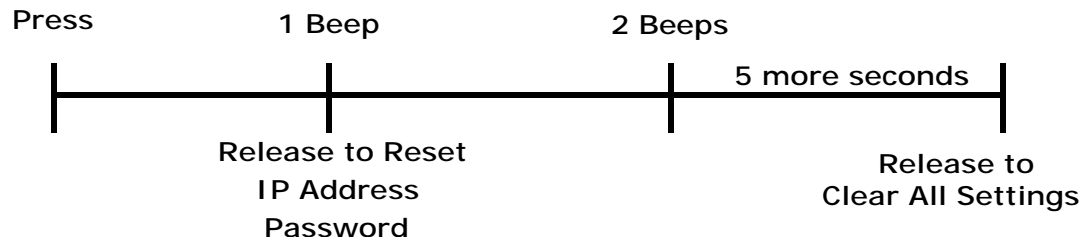
1.6 COPY/SYNC Button

Use the **COPY/SYNC** button on the front panel to copy or synchronize files between a connected USB or SD device and the NAS. See [Section 16.4 on page 279](#) for more details on how to configure the copy/sync settings.

1.7 RESET Button

Use the **RESET** button on the rear panel to restore the NAS's default settings.

Figure 3 The RESET Button



- Press the **RESET** button until you hear one beep (after about two seconds), then release it. You will hear one more beep after you release the button.

This resets the NAS's IP address and password to the default values.

- Press the **RESET** button until you hear two beeps. After the second beep, continue pressing the button for five more seconds, then release it. You will hear three quick beeps after you release the button.

This resets the NAS to the factory default configuration. All settings you have configured on the NAS, including IP address, password, user accounts, groups, and so on will be reset to the factory defaults.

The reset process does NOT affect the volume settings, nor data stored on the NAS.

You should periodically back up your configuration file to your computer (see [Section 11.5 on page 178](#) for details about managing the NAS's configuration file). You could then restore your configuration in the event that you or someone else reset the NAS to the factory defaults.

Note: Keep the NAS in a secure location in order to prevent unauthorized reset of the device.

If no IP address information is assigned, the NAS uses Auto-IP to assign itself an IP address and subnet mask. For example, you could connect the NAS directly to your computer. If the computer is also set to get an IP address automatically, the computer and the NAS will choose addresses for themselves and be able to communicate.

CHAPTER 2

Find and Access Your NAS

2.1 Overview

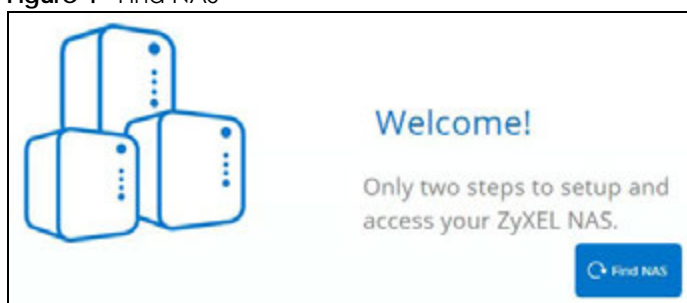
Use FindMe to find and access the NAS and the files on it.

Note: Refer to the Quick Start Guide for your NAS's hardware connections.

2.2 FindMe

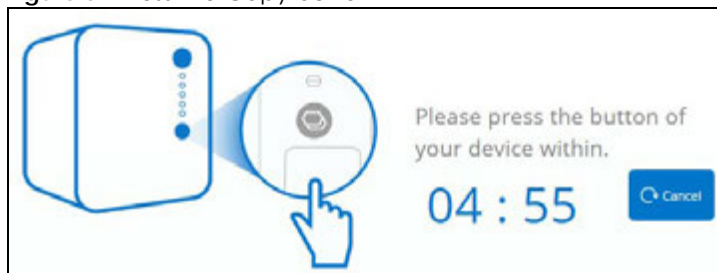
- 1 Make sure both the NAS and your computer are connected to a switch or router with Internet access.
- 2 Open your web browser and type "https://findme.zyxel.com" as the website address.
- 3 Click **Find NAS** to discover your NAS.

Figure 4 Find NAS



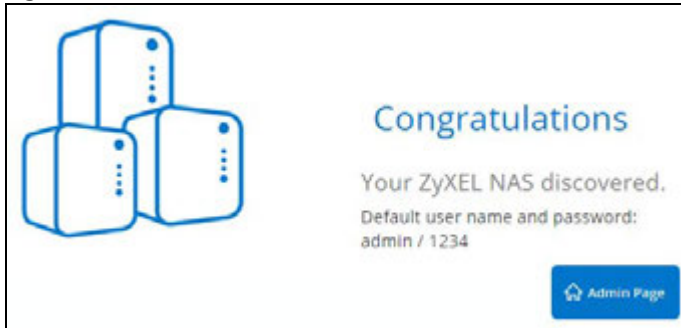
- 4 Press the **Copy** button on the NAS within 5 minutes.

Figure 5 Press the Copy button



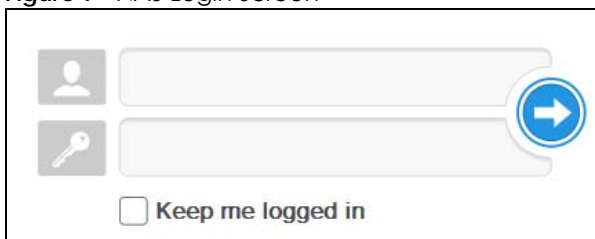
- 5 Your NAS is now discovered. Click **Admin Page** to open the login screen.

Figure 6 Congratulations



- 6 Use the default username "admin" and password "1234" to log in. See [Chapter 3 on page 20](#) for more on the web desktop.

Figure 7 NAS Login Screen



CHAPTER 3

Web Configurator

3.1 Overview

This chapter describes how to access the NAS web configurator and provides an overview of its screens. The web configurator is an HTML-based management interface that allows easy NAS setup and management using an Internet browser. Use a browser that supports HTML5, such as Microsoft Edge, Mozilla Firefox, or Google Chrome. The recommended minimum screen resolution is 1024 by 768 pixels.

In order to use the web configurator you need to allow:

- Web browser pop-up windows from your device.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

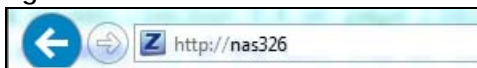
3.2 Access the NAS Web Configurator

This guide uses the NAS326 screens as an example. The screens may vary slightly for different models.

- 1 Make sure your NAS is properly connected and that your computer is in the same subnet as the NAS (refer to the Quick Start Guide or the appendices).

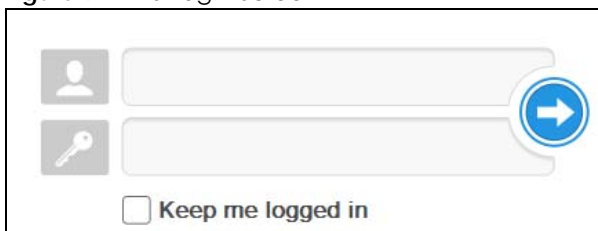
Open your web browser and type in the server name of the NAS. The default is "nas" followed by the number of your model ("nas326" for example). Configure the server name of your NAS using the **Control Panel > System > Server Name** screen ([Section 9.4 on page 141](#)).

Figure 8 NAS URL



- 2 The default user name and password are "admin" and "1234" respectively. Enter your user name and password. See [Chapter 7 on page 98](#) for how to create other user accounts. If you use the option to stay logged in (assuming you do not log out), make sure you keep your computer secure from unauthorized access. Click the arrow to log in. Logging in with a (non-administrator) user account takes you to a different Desktop screen (see [Section 3.3 on page 24](#) for details).

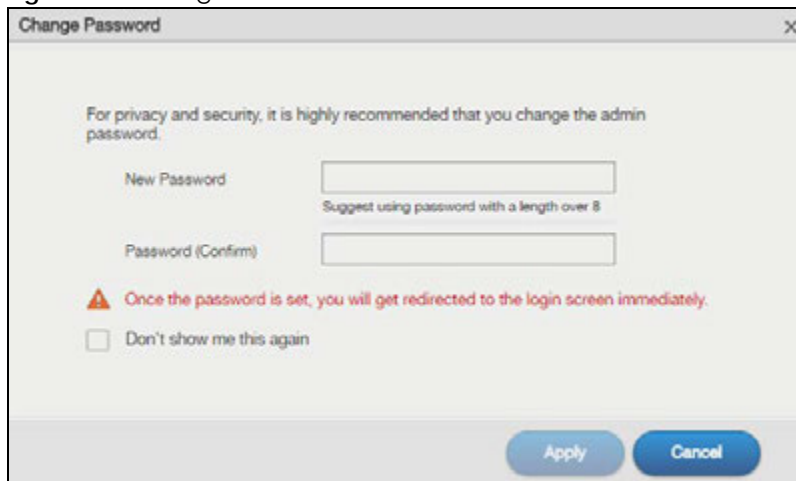
Figure 9 NAS Login Screen



Make sure you have a backup of any existing data in the hard disk before installing it in the NAS. Creating a volume formats the hard disk and deletes all data in the process.

- 3 You should see a screen asking you to change your password (highly recommended) as shown next. Type a new password in the **New Password** field. Retype the password for confirmation in the **Password (Confirm)** field. Click **Cancel** if you do not want to change the password this time. Click **Apply** to save your changes back to the NAS.

Figure 10 Change Default Password Screen

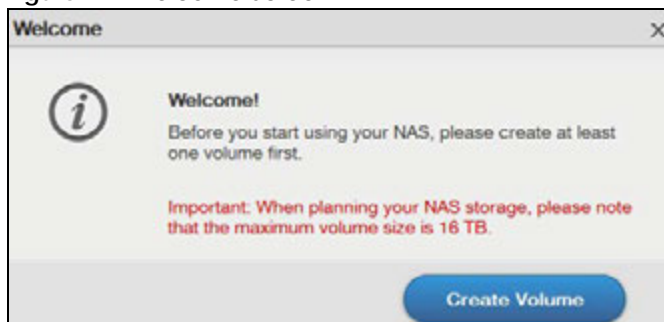


The 'Change Password' window has a title bar with a close button (X). The main content area contains the following elements:

- A message: "For privacy and security, it is highly recommended that you change the admin password."
- A label "New Password" followed by a text input field. Below the field is a hint: "Suggest using password with a length over 8".
- A label "Password (Confirm)" followed by a text input field.
- A warning icon (triangle with exclamation mark) and text: "Once the password is set, you will get redirected to the login screen immediately."
- A checkbox labeled "Don't show me this again".
- At the bottom right, there are two buttons: "Apply" and "Cancel".

- 4 This screen displays if you have not created a volume yet. Click **Create Volume** to make a volume or click the **x** to close the screen to go to the **Desktop** ([Section 3.3 on page 24](#)).

Figure 11 Welcome Screen

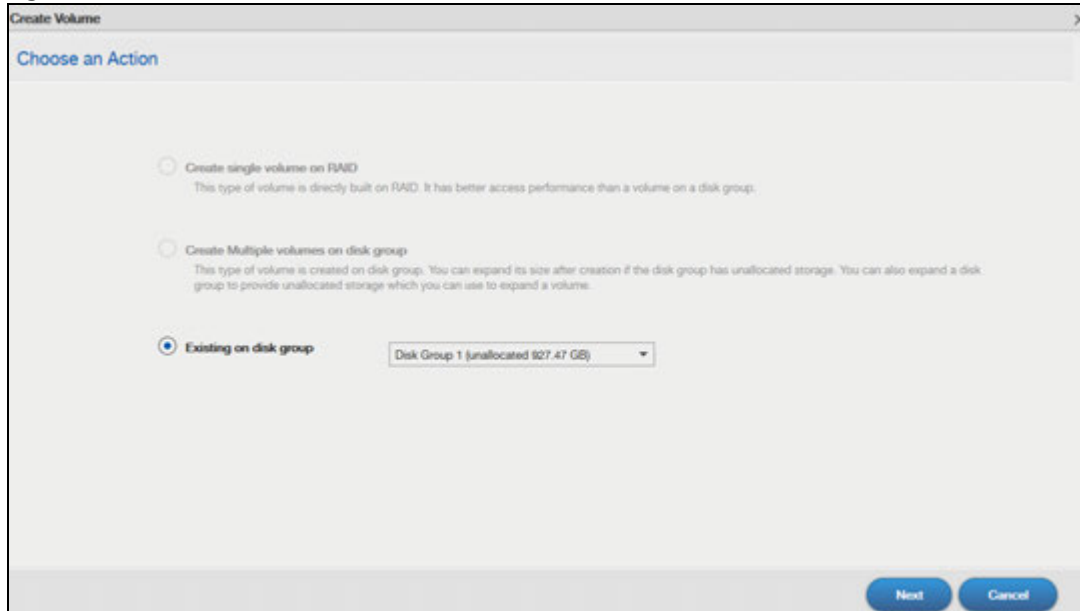


The 'Welcome' window has a title bar with a close button (X). The main content area contains the following elements:

- An information icon (circle with 'i') next to the heading "Welcome!".
- Text: "Before you start using your NAS, please create at least one volume first."
- Text in red: "Important: When planning your NAS storage, please note that the maximum volume size is 16 TB."
- A large blue button at the bottom labeled "Create Volume".

- 5 Select **Create single volume on RAID** for a simple set up. Go to [Section 5.3.1.1 on page 43](#) for details. Select **Create Multiple volumes on disk group** to be able to create more than one storage volume. Go to [Section 5.3.1.7 on page 56](#) for details.

Figure 12 Create Volume



The image shows a 'Create Volume' dialog box with a title bar and a close button. Below the title bar is a section labeled 'Choose an Action'. There are three radio button options:

- ☐ Create single volume on RAID
This type of volume is directly built on RAID. It has better access performance than a volume on a disk group.
- ☐ Create Multiple volumes on disk group
This type of volume is created on disk group. You can expand its size after creation if the disk group has unallocated storage. You can also expand a disk group to provide unallocated storage which you can use to expand a volume.
- ☒ Existing on disk group

Next to the 'Existing on disk group' option is a dropdown menu showing 'Disk Group 1 (unallocated 927.47 GB)'.

At the bottom right of the dialog box are two buttons: 'Next' and 'Cancel'.

If you choose **Existing on disk group**, you will go to the screens below after clicking **Next**.

Figure 13 Existing on Disk Group

Create Volume

① Create Volume / ② Summary

Create volume on disk group

Disk group information

Name: Disk Group 1

Unallocated capacity: 99.99% 927.47 GB / 927.57 GB

Create Volume

Volume Name: Volume1

Allocated volume size: 10 GB MAX

Create Volume

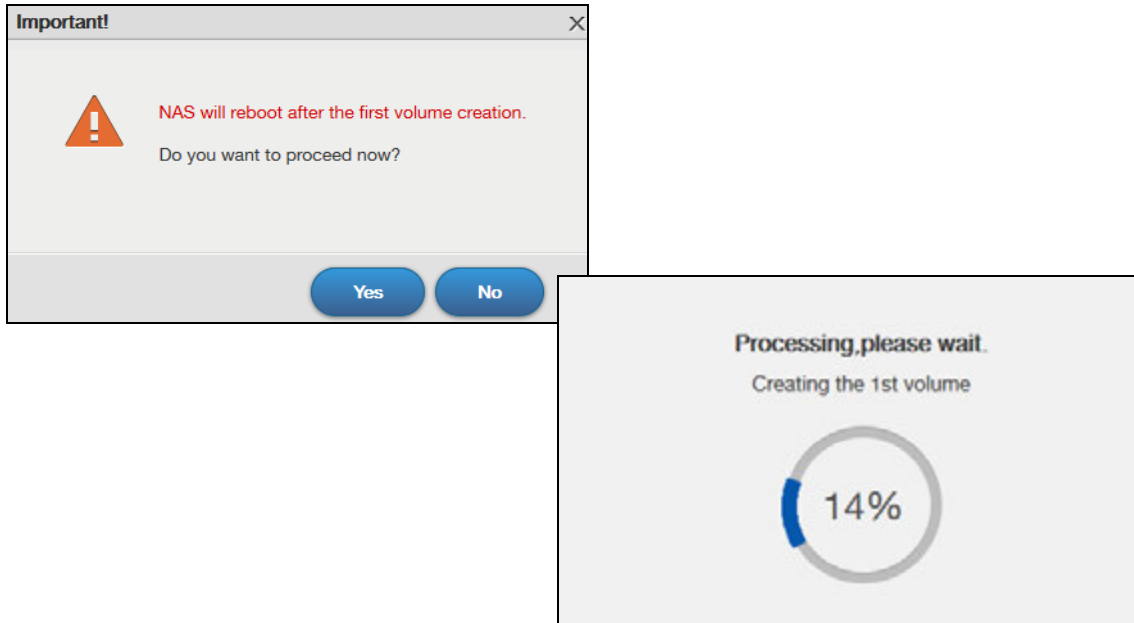
① Create Volume / ② Summary

Item	Value
Volume Type	Multiple volumes on RAID (Disk Group 1)
Volume Name	Volume1
Volume Capacity	10 GB

Back Apply Cancel

If this is the first time the NAS has created a volume, it needs to reboot after the volume is created. Click **Yes** to reboot or **No** to go to the Desktop.

Figure 14 Reboot



3.3 Desktop

The **Desktop** screen displays after you log in. Hover your mouse over the heading bar icons to display their names.

Figure 15 Desktop (Administrator)



Figure 16 Desktop (User)







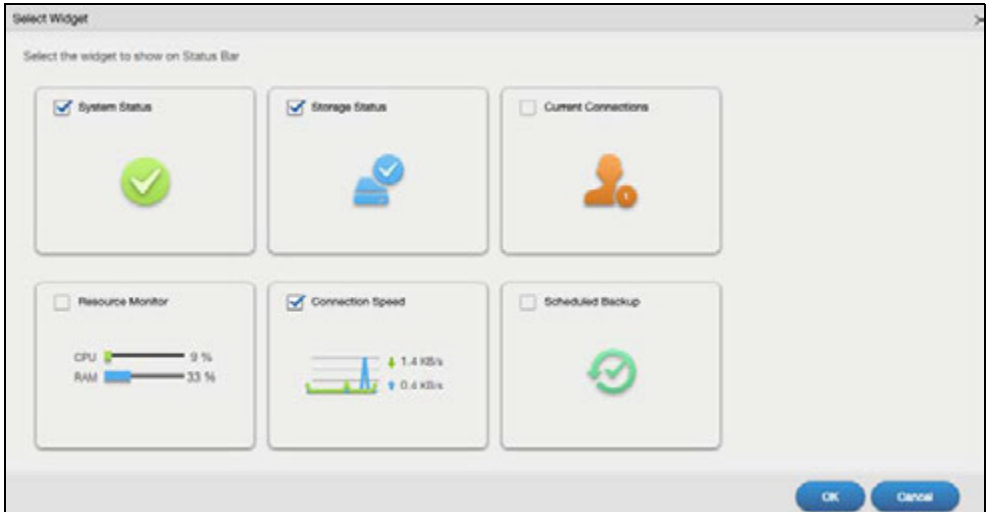

Note: The Web Configurator session automatically times out if left idle for 15 minutes. Simply log back into the NAS if this happens to you.

- 1 **Desktop** - click this to minimize all windows so you can see the desktop. Click it again to restore the windows to their previous state.
- 2 **Storage Manager**- click this to open the storage configuration screens to display the status of both internal and external storage, and configure disk groups, volumes, and iSCSI functions.
- 3 **Control Panel** - click this to open the control panel screens to configure user's access privileges, network, system, media services and maintenance settings.
- 4 **Status Center** - click this to display NAS system information or network connection status.
- 5 **App Center** - click this to discover, install and update applications which packed in the NAS.
- 6 **Download Service** - click this to configure download settings and view download details.
- 7 **Upload Manager** - click this to upload files to FTP servers, your Flickr and YouTube accounts.
- 8 **Backup Planner** - click this to set up your backup plan, restore backups, configure copy and synchronous settings or turn Time Machine support on.
- 9 **Help** - click this to display the NAS' embedded help system screens.
- 10 **File Browser** - click this to see files in a tree-folder structure.
- 11 **Photo** - click this to view photos in the shares that publish photos.
- 12 **Music** - click this to view and play music files in the shares that publish music.
- 13 **Video** - click this to view and play video files in the shares that publish videos.
- 14 **myZyxelCloud** - click this to open a screen to set up myZyxelCloud service.
- 15 **Video Tutorial** - click this to view Zyxel's youtube videos, which show you how to use the NAS.
- 16 **Knowledge Base** - click this to visit Zyxel product support website and find articles related to product applications, FAQ, and user experience.
- 17 **Twonky Media Player** - click this to open the Twonky media server configuration screens to check media server status or modify media server settings.
- 18 **Eject NAS External Drives** - click this to eject the connected external volumes.
- 19 **Language** - this displays current language using by the NAS. Click to select the language you want to use to configure the Web Configurator.
- 20 **User** - click this to restart, shutdown, log out and change your user account password.
- 21 **Playzone Settings** - click this to open the playzone configuration screen in a new tab.
- 22 **Application Zone** - click this to open the application zone in a new tab.

3.3.1 Status Zone

The Status Zone displays icons for various features you can access.

Table 3 Status Zone Icons

ICON	DESCRIPTION
	Click System Status to open the Status Center screen. System Status displays the health state of the NAS. A green circle with a check mark indicates healthy.
	User Type displays the current number of web sessions. Click this to go to the Status Center > Network screen for more details.
	CPU displays what percentage of the NAS's processing capability is currently being used. RAM displays what percentage of the NAS's memory is currently being used. Click this to open the Status Center > System Information screen for more details.
	Click this to select widgets to show on the status bar.  Select or clear the widgets to show or hide on the Status bar. Click OK to save your changes or Cancel to exit this screen without saving changes.
	Click this to hide or show the status bar.

3.3.2 Switch between Desktop Pages

Click the dot to move between multiple desktop pages. A white dot indicates the current page. The maximum number of the desktop pages is five.

Figure 17 Switch between Desktop Pages



3.3.3 Group Icons

You can drag one icon to another one and make them a group as shown below.

Figure 18 Group Icons

After the group is created, the default group name is "NewGroup". You can click the icon to change the group name. In the following example, the group name is changed to Media.

Figure 19 Change the Group Name

You can also move the group to another page by right-clicking the icon as shown next.

Figure 20 Move the Group Location

3.3.4 Move Icons

You can move an icon to another page by right-clicking the icon as shown next.

Figure 21 Move the Icon Location

CHAPTER 4

Video Tutorials

4.1 Overview

Click **Video Tutorial** on the **Desktop** to go to www.youtube.com to view Zyxel's youtube videos, which show you how to use the NAS. This chapter provides information about the following tutorials.

- [Create a volume and copy files using Windows Explorer](#), see [page 31](#)
- [Enable Time Machine on the NAS and your Mac computer](#), see [page 31](#)
- [Back up files to the NAS using Windows File History](#), see [page 33](#)
- [Restore a backup using Windows File History](#), see [page 34](#)
- [Remotely access files on the NAS using WebDAV](#), see [page 34](#)

Note: Screens and graphics in the video may differ slightly from your product due to differences in your product firmware or your computer operating system.

4.2 Create a volume and copy files using Windows Explorer

After you find and log into the NAS, you must create a volume to start using the NAS. You can then use Windows Explorer to copy files from your computer to the NAS.

Creating a volume formats the hard disk and deletes all data in the process. Make sure you have a backup of any existing data in the hard disk before installing it in the NAS.

See https://www.youtube.com/watch?v=_-WelGHdxwA&index=1&list=PL-69xFi03dP9zQn8gHGcVwf-X6ShkNU27 for the related Zyxel youtube video.

4.3 Enable Time Machine on the NAS and your Mac computer

Time Machine is a backup system provided by Mac OS X. It automatically backs up everything on your Mac, including pictures, music, videos, documents, applications, and settings. This tutorial helps you to enable Time Machine in OS X to use your NAS as a backup volume.

Use the **Backup Planner > Time Machine** screen ([Section 16.5 on page 283](#)) to turn Time Machine support on or off, and designate a share for Time Machine backups.

After enabling Time Machine on the NAS, follow the steps below to set up Time Machine on your Mac to use your NAS for backup.

You can also see <https://www.youtube.com/watch?v=nzpZNUjEsUs&index=2&list=PL-69xFi03dP9zQn8gHGcVwf-X6ShkNU27> for the related Zyxel youtube video.

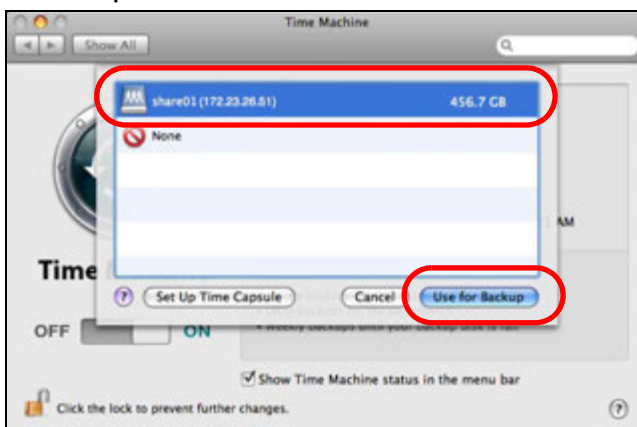
- 1 Click **Apple > System Preferences**. Then go to **System** and select **Time Machine**.



- 2 Turn Time Machine **ON**. Then click **Change Disk**.



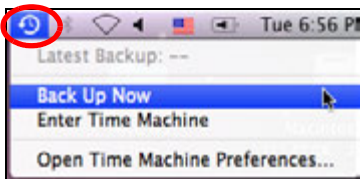
- 3 Select the share you designated on the NAS as the backup disk (**share01** in this example). Then click **Use for Backup**.



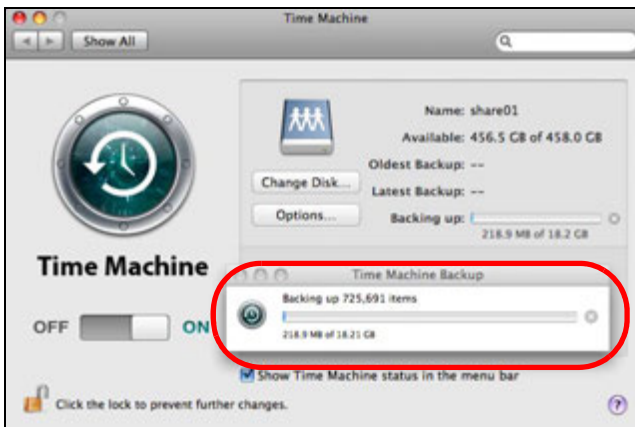
- 4 When prompted for the username and password of **share01**, enter the login information for an existing user account with write access permission on **share01** (for information on configuring user accounts and shares see [Chapter 7 on page 98](#)). In this example **user1/12345** is used. Then click **Connect**.



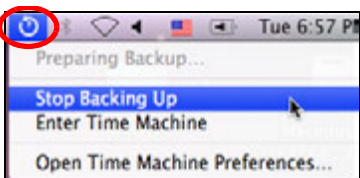
- 5 Time Machine starts backing up files to **share01** after 120 seconds. If you want to back up immediately, click the Time Machine icon and select **Back Up Now**.



- 6 The screen shows the status of the backup once the process begins.



- 7 To stop the backup process, click the Time Machine icon and select **Stop Backing Up**. Then turn Time Machine OFF.



4.4 Back up files to the NAS using Windows File History

File History is a Windows backup tool which was original introduced in Windows 8. You can set up File History in your Windows computer to automatically back up your files to a connected NAS.

See <https://www.youtube.com/watch?v=xt1XdMAZisU&list=PL-69xFi03dP9zQn8gHGcVwf-X6ShkNU27&index=3> for how to use File History in Windows 10 to back up files from a computer to the NAS.

4.5 Restore a backup using Windows File History

If you used Windows File History to back up files from your computer to the NAS, File History also allows you to restore the backup.

See <https://www.youtube.com/watch?v=xt1XdMAZisU&list=PL-69xFi03dP9zQn8gHGcVwf-X6ShkNU27&index=3> for how to use File History in Windows 10 to restore files from a backup.

4.6 Remotely access files on the NAS using WebDAV

If your computer is not connected to the NAS's local network, WebDAV allows you to use client programs that support WebDAV to remotely edit and manage files stored on the NAS.

In this example, you need to:

- 1 Click **Control Panel > Service > WebDAV** to enable WebDAV on your NAS (see [Section 10.7 on page 158](#)).
- 2 Click the myZyxelcloud icon on the desktop to create a myZyxelcloud account at <https://mycloud.zyxel.com>.
- 3 Pair the NAS and the myZyxelcloud account.
- 4 Set up a free DDNS host name for the NAS so you can connect to it easily from the Internet.
- 5 Configure UPnP port mapping to allow access from the WAN (Internet) to the WebDAV services on the NAS.
- 6 Install a client program that supports WebDAV (NetDrive for example) on the computer from which you want to remotely access files stored on the NAS.

See <https://www.youtube.com/watch?v=Z9oxXx1rZAA&index=5&list=PL-69xFi03dP9zQn8gHGcVwf-X6ShkNU27> for the Zyxel youtube video.

CHAPTER 5

Storage Manager

5.1 Overview

This chapter displays the status of both internal and external storage, and introduces how to configure disk groups, volumes, and iSCSI functions. After you log in with an administrator account, click **Storage Manager** on the **Desktop** to go to the following screens in a new window.

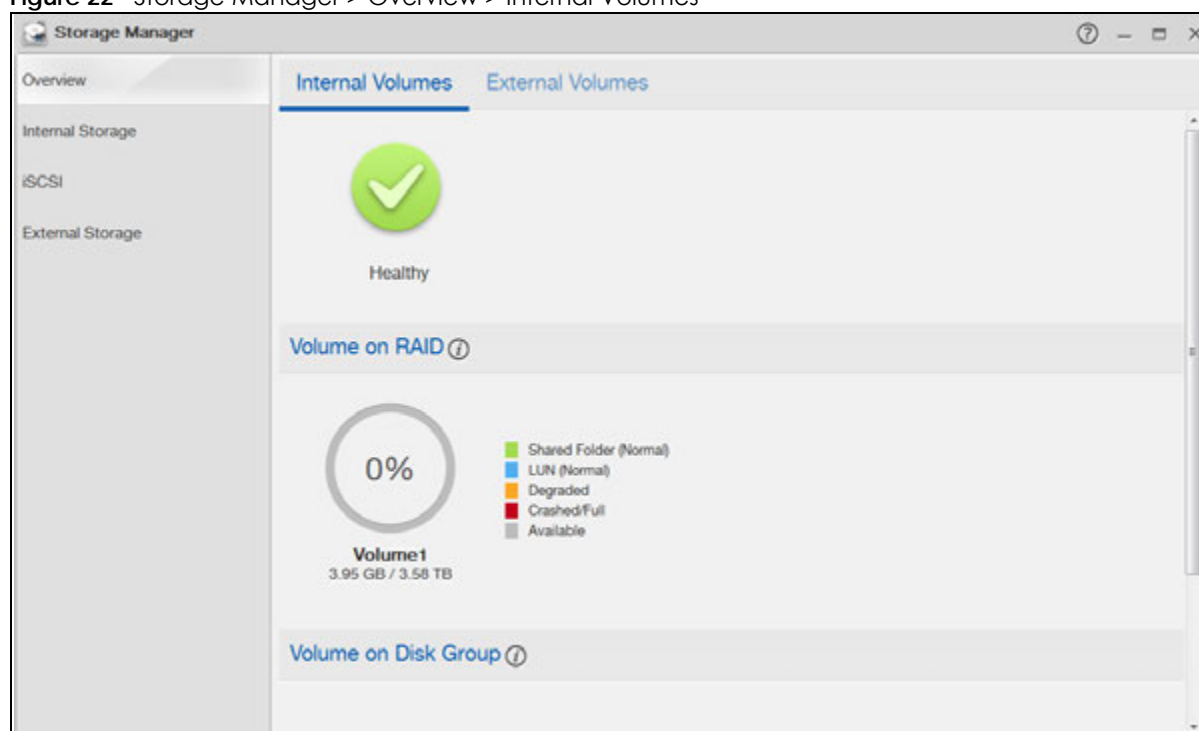
5.2 Storage Manager Overview

Click **Storage Manager** on the **Desktop** to display the status of both internal and external storage, and configure disk groups, volumes, and iSCSI functions.

The **Storage Manager Overview** screen displays the status, current storage configuration and volume usage of internal volumes and capacity usage of external volumes.

5.2.1 Internal Volumes Screen

Figure 22 Storage Manager > Overview > Internal Volumes



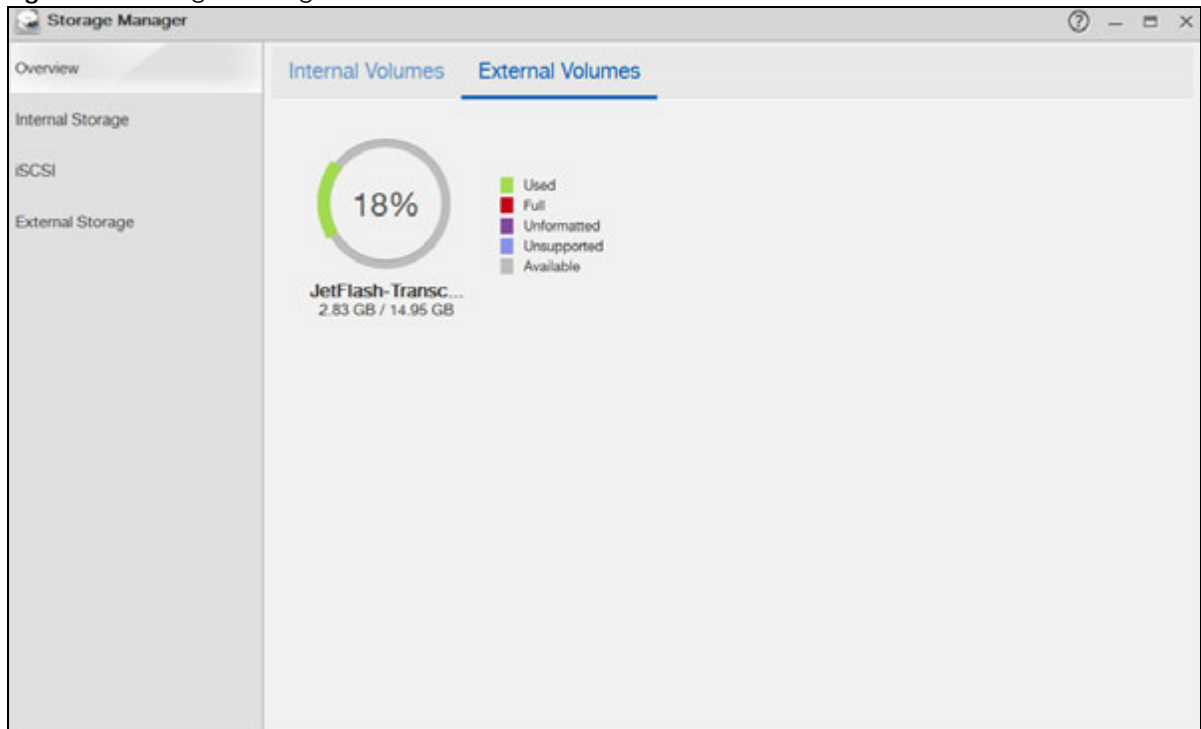
The following table describes the labels in this screen.

Table 4 Storage Manager > Overview > Internal Volumes

LABEL	DESCRIPTION
Storage	<p>The circular icon displays the overall health state of the NAS.</p> <p>A green circle with a check mark indicates healthy.</p> <p>An orange circle with an exclamation mark indicates attention. This appears when a volume or disk group is degraded. Click Repair to repair it.</p> <p>An red circle with an exclamation mark indicates danger. This appears when a volume or disk group is crashed. You cannot recover the volume.</p>
Volume on RAID	<p>This section shows the current storage usage for each volume built directly on top of a RAID. These volumes have higher access performance than volumes on a disk group but are less flexible in regards to size.</p> <p>Details include the currently used percentage of the volume.</p> <p>Shared Folder (Normal) - green on the circle represents the volume's percentage of used capacity in a healthy state.</p> <p>LUN (Normal) - blue on the circle represents the iSCSI LUN's percentage of used capacity.</p> <p>Degraded - orange on the circle represents the volume's percentage of used capacity in a degraded state. Degraded means one or more disks has failed but you can still replace a faulty disk to recover the volume.</p> <p>Crashed/Full - a red exclamation point represents the volume is in a down state. Down means you cannot recover the volume. Full means the volume has run out of space.</p> <p>Available - gray on the circle represents the volume's percentage of unused capacity.</p> <p>This section also displays the volume's used capacity, and total capacity available.</p>
Volume on Disk Group	<p>This section shows the current storage usage for each volume built on top of a disk group. You can expand a volume's size after creation if the disk group has unallocated space. You can also expand a disk group by adding hard disks.</p>

5.2.2 External Volumes Screen

Figure 23 Storage Manager > Overview > External Volumes



The following table describes the labels in this screen.

Table 5 Storage Manager > Overview > External Volumes

LABEL	DESCRIPTION
Volume	<p>Details include the currently used percentage of the volume.</p> <p>Used - green on the circle represents the volume's percentage of used capacity in a healthy state.</p> <p>Full - a red exclamation point represents the volume has run out of space.</p> <p>Unformatted - purple on the circle represents the connected USB storage device is not formatted with a file system.</p> <p>Unsupported - violet on the circle represents the connected USB storage device uses a file system the NAS does not support.</p> <p>Available - gray on the circle represents the volume's percentage of unused capacity.</p> <p>This section also displays the volume's used capacity, and total capacity available.</p>

5.3 Internal Storage

A volume is a basic storage space on the NAS. To store data on the NAS, you must create at least one volume. Your NAS supports the following:

- Internal volumes (built on the hard disks installed in the NAS)

- External volumes (built on the external storage devices attached to the NAS)

Internal Volumes

Table 6 Internal Volumes

OPTION	DESCRIPTION
Volume	Allocates all the available space to the volume. Provides better performance.
Volume on Disk Group	Allows you to create multiple volumes on a disk group. Allows you to customize the size of a volume.

RAID Types

The following table describes RAID types.

Note: RAID 5, RAID 6, RAID 10, and the hot spare option apply to 4-bay NAS devices.

Table 7 RAID Types

RAID TYPE	NO. OF HDD	NO. OF HDD ALLOWED TO FAIL	DESCRIPTION	CAPACITY
Basic	1	0	Use Basic with one disk. It has no fault tolerance.	1 x (HDD size)
JBOD	2-4	0	Use JBOD with two or more disks for maximum capacity. This is just a collection of disks with no fault tolerance.	sum of HDD sizes
RAID 0	2-4	0	Use RAID 0 with two or four disks for maximum speed and no fault tolerance.	sum of HDD sizes
RAID 1	2-4	(No. of HDD) - 1	Use RAID 1 to create an exact copy of data on one disk to a second disk. Use this with two to four disks to mirror primary data to another disk(s) with high performance. You can add a hot spare to a 2-disk RAID 1.	Smallest HDD size
RAID 5	3-4	1	Use RAID 5 with three or four disks to balance performance and hard disk capacity usage with data protection in case of disk failure. You can add a hot spare to a 3-disk RAID 5.	(No. of HDD - 1) x (smallest HDD size)
RAID 6	4	2	Use RAID 6 with four disks for more data protection in case of disk failure.	(No. of HDD - 2) x (smallest HDD size)
RAID 10	4	1 HDD in each RAID 1 group	Use RAID 10 with four disks to get better performance than RAID 6, with slightly less data protection.	(No. of HDD / 2) x (smallest HDD size)

Repair Volumes or Disk Groups

If a hard disk in a RAID 1 with a hot spare or a RAID 5 with a hot spare fails, the NAS automatically uses the hot spare to re-build the volume or disk group. Later you can replace the failed hard disk and add the new disk as a hot spare.

A hard disk failure in a RAID 1, RAID 5, RAID 6, or RAID 10 degrades the volume or disk group. Replace the failed disk and use the **Internal Storage** screen's **Repair** link to repair the volume.

Change RAID Type

You can change the following RAID types without losing stored data. This can help you manage your storage capacity as you add more disks.

Table 8 Internal Volumes

RAID TYPE	WHAT YOU CAN CHANGE IT TO
Basic	RAID 1
RAID 1	RAID 1 with a hot spare or RAID 5
RAID 5	RAID 5 with a hot spare or RAID 6

Expand Volumes or Disk Groups

As your content grows, you can do the following to expand the storage capacity of a volume or disk group without losing stored data.

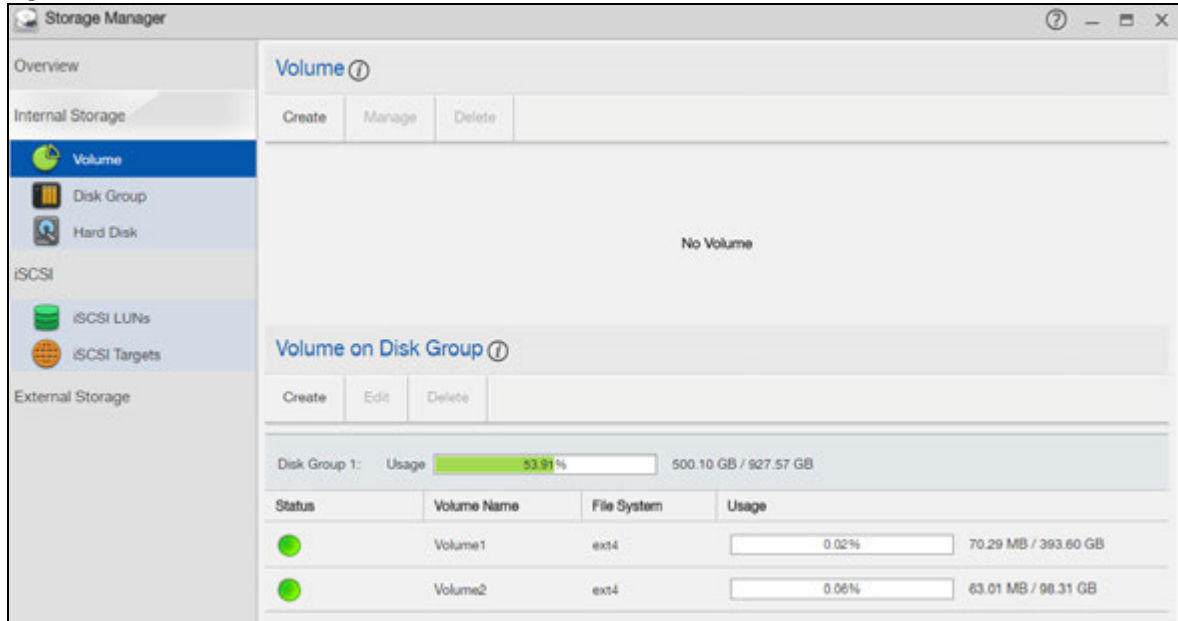
Table 9 Expand Volumes and Disk Groups

EXPANSION METHOD	DESCRIPTION
Using unallocated disk space	You can add more storage space to a volume if there is still some space unallocated on the same disk group.
Adding disks	<p>You can add one or more disks to a JBOD, RAID 1 or RAID 5.</p> <p>The hard disk you want to add must have capacity equal to or greater than the smallest disk in the volume or disk group.</p>
Replacing with larger disks	<p>You can replace smaller disks in a RAID 1, RAID 5, or RAID 6 with larger disks.</p> <p>Replace disks one-by-one.</p> <p>Replace the smallest disk in the volume or disk group first.</p> <p>After replacing a disk, you must use the Internal Storage screen's Manage link to repair the volume.</p> <p>Wait for the repair process to complete before you replace another disk.</p>

5.3.1 Volume Screens

Use the **Volume** screen to configure and manage internal volumes. From the **Internal Storage** screen, click **Volume** to open the screen as shown.

Figure 24 Internal Storage Volume



The following table describes the labels in this screen.

Table 10 Storage Manager > Internal Storage > Volume

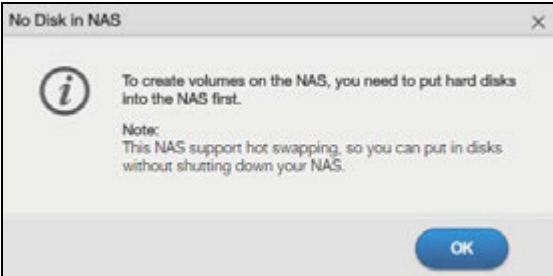
LABEL	DESCRIPTION
Volume	Use this section to configure and manage volumes built on hard disks directly.
Create	<p>Click this to format internal hard disks and create a new volume. All data on the disk(s) will be lost.</p> <p>Note: This button is not available while the NAS is creating, deleting, or changing the RAID type of any volume or disk group.</p> <p>A pop-up screen appears if all installed hard disks are used by other volumes or disk groups. You will need to install another hard disk into the NAS if any disk tray is available or remove unnecessary volumes or disk groups to release the storage space. Click OK to close this screen.</p> 
Manage	<p>Select a volume and click Manage to edit, repair or expand the volume.</p> <p>Note: This button is available only when you can repair, expand or change the RAID type.</p>

Table 10 Storage Manager > Internal Storage > Volume (continued)


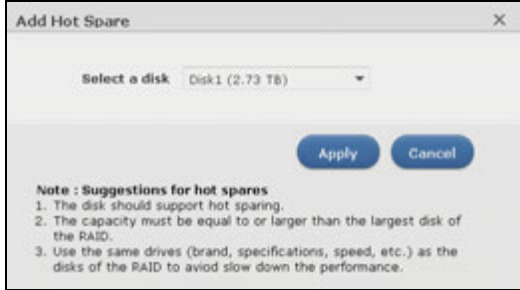
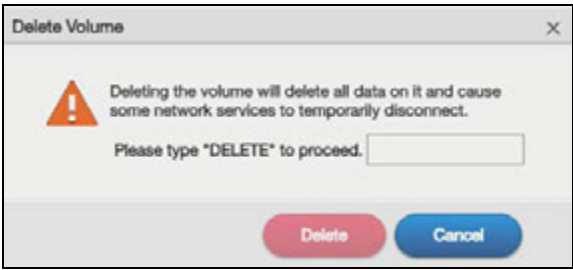
LABEL	DESCRIPTION
Delete	<p>Click Delete to remove the selected volume. A pop-up screen displays. Type "DELETE" in the text box and click Delete to remove it.</p>  <p>The dialog box titled "Delete Volume" contains a warning icon and text: "Deleting the volume will delete all data on it and cause some network services to temporarily disconnect. Please type 'DELETE' to proceed." Below the text is a text input field. At the bottom are "Delete" and "Cancel" buttons.</p> <p>Note: If you delete a volume, all data in the volume disks is erased.</p>
Add Hot Spare	<p>Select a RAID 1 or RAID 5 volume and click Add Hot Spare to add another disk as a hot-spare (standby) to the RAID array. A pop-up screen displays.</p>  <p>The dialog box titled "Add Hot Spare" shows a "Select a disk" dropdown menu with "Disk1 (2.73 TB)" selected. Below the menu are "Apply" and "Cancel" buttons. A note section titled "Note : Suggestions for hot spares" lists three points: 1. The disk should support hot sparing. 2. The capacity must be equal to or larger than the largest disk of the RAID. 3. Use the same drives (brand, specifications, speed, etc.) as the disks of the RAID to avoid slow down the performance.</p> <p>Select a disk from the drop-down list box and then click Apply.</p> <p>See Table 7 on page 38 for more information about RAID.</p> <p>Note: The capacity of the disk you are adding must be equal to or greater than the largest disk in the RAID 1 or RAID 5 array.</p>
Remove Hot Spare	<p>Select a RAID 1 or RAID 5 volume and click Remove Hot Spare to remove the standby drive from the RAID array.</p>

Table 10 Storage Manager > Internal Storage > Volume (continued)

LABEL	DESCRIPTION
Status	<p>This field shows whether the volume is normal, degraded, crashed, Creating, Deleting, Expanding, Repairing or Changing the RAID type.</p> <p>Normal: A green circle represents a healthy volume.</p> <p>Degraded: An orange circle represents a degraded RAID 1 volume.</p> <p>Crashed: A red circle represents a down volume.</p> <p>The following status also displays the percentage of an action has been completed.</p> <p>Creating: The NAS's percentage progress in creating the volume.</p> <p>Deleting: The NAS's percentage progress in deleting the volume.</p> <p>Expanding: The NAS's percentage progress in expanding the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Repairing: The NAS's percentage progress in repairing the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Changing: The NAS's percentage progress in changing the volume's RAID type. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p>
Volume Name	This field shows the name of the volume. Click the column's heading cell to display an arrow. Use the arrow to sort the table entries in ascending or descending order.
RAID Type	This field shows what type of disk storage technology (Basic , a RAID level or JBOD) a volume uses.
Usage	This field shows the percentage of the volume being used, the percentage that is available, and the total disk size.
Hot Spare	This field shows the name of the standby disk if there is any for a RAID 1 or RAID 5 volume. Otherwise, it shows not supported .
Volume on Disk Group Use this section to configure and manage volumes built on disk groups.	
Create	<p>Click this to format internal hard disks and create a new volume on a disk group. All data on the disks will be lost.</p> <p>Note: This button is unavailable when a volume or disk group is being created, deleted or changing the RAID type.</p>
Edit	Select a volume and click Edit to expand the volume's capacity.

Table 10 Storage Manager > Internal Storage > Volume (continued)

LABEL	DESCRIPTION
Delete	<p>Click Delete to remove the selected volume. A pop-up screen displays. Type "DELETE" in the text box and click Delete to remove it.</p>  <p>Note: If you delete a volume, all data in the volume disks is erased.</p> <p>Note: Deleting a volume on a disk group here does not delete the corresponding disk group. To delete a disk group, click Internal Storage > Disk Group.</p>
Disk Group X	<p>This field shows the name of the disk group, the percentage of the disk group size that is available, the disk group size being used, and the total disk group size.</p>
Status	<p>This field shows whether the volume is normal, degraded, crashed, Creating, Deleting, Expanding, Repairing or Changing the RAID type.</p> <p>Normal: A green circle represents a healthy volume.</p> <p>Degraded: An orange circle represents a degraded RAID 1 volume.</p> <p>Crashed: A red circle represents a down volume.</p> <p>The following status also displays the percentage of an action has been completed.</p> <p>Creating: The NAS's percentage progress in creating the volume.</p> <p>Deleting: The NAS's percentage progress in deleting the volume.</p> <p>Expanding: The NAS's percentage progress in expanding the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Repairing: The NAS's percentage progress in repairing the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Changing: The NAS's percentage progress in changing the volume's RAID type. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p>
Volume Name	<p>This field shows the name of the volume. Click the column's heading cell to display an arrow. Use the arrow to sort the table entries in ascending or descending order.</p>
File System	<p>This field shows what file system the volume uses. At the time of writing, your NAS uses the EXT4 file system for internal volumes.</p>
Usage	<p>This field shows the percentage of the volume being used, the percentage that is available, and the total disk group size.</p>

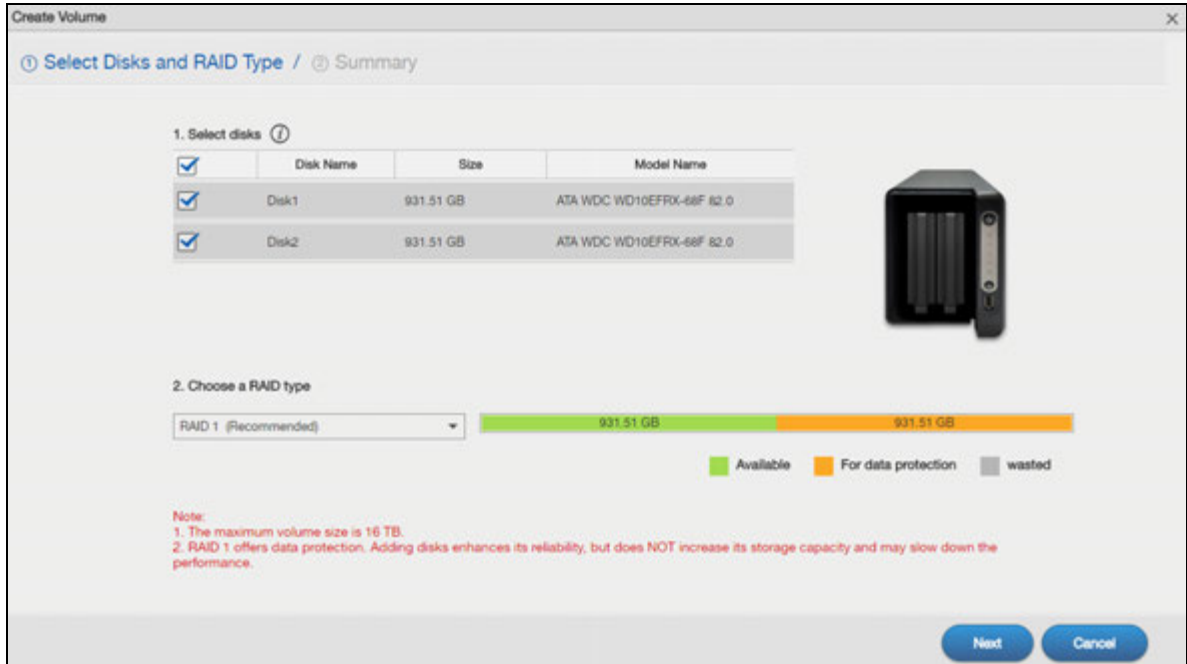
5.3.1.1 Create a Volume

Use the **Create Volume** screen to configure a volume directly on a disk/RAID, which has better performance. Click **Create** in the **Volume** section of the **Storage Manager > Internal Storage > Volume** screen to open the screen as shown.

Note: Create a volume on a disk group instead if you want to have multiple volumes on a disk. See [Section 5.3.1.7 on page 56](#) for more information. Moreover, the maximum size for one volume is 16TB.

Step 1 Select Disks and RAID Type

Figure 25 Create Volume: Select Disks and RAID Type



The following table describes the labels in this screen.

Table 11 Create Volume: Select Disks and RAID Type

LABEL	DESCRIPTION
1. Select disks	This section lists all available hard disks in the table and displays the disk trays where they are currently installed on the graphic at the right.
	Select one or more hard disks where you want to create a volume. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of the hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.

Table 11 Create Volume: Select Disks and RAID Type (continued)

LABEL	DESCRIPTION
2. Choose a RAID type	<p>Select a RAID type from the drop-down list box. The corresponding space allocations of available size, data protection area, and wasted size display.</p> <p>Use Basic with one disk.</p> <p>Use JBOD with two or more disks for maximum capacity.</p> <p>Use RAID 0 with two or four disks for maximum speed.</p> <p>Use RAID 1 with two or more disks to mirror primary data to another disk(s) with high performance.</p> <p>Use RAID 5 with three or more disks to balance performance, hard disk capacity usage with data protection in case of disk failure.</p> <p>Use RAID 6 with four disks for more data protection in case of disk failure.</p> <p>Use RAID 10 with four disks to get better performance than RAID 6, with slightly less data protection.</p> <p>See Table 7 on page 38 or Section 5.6 on page 91 for more information.</p> <p>Note: Use the same capacity of hard disks for RAID 1, 5, 6, or 10 to avoid wasting space.</p>
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Figure 26 Create Volume: Summary

Create Volume

① Select Disks and RAID Type / ② Summary

Item	Value
Disk Selected	Disk1, Disk2
RAID Type	RAID1
Volume Type	Single volume on RAID (no disk group)
Volume Name	Volume1
Volume Capacity	931.51 GB

Back Apply Cancel

The following table describes the labels in this screen.

Table 12 Create Volume: Summary

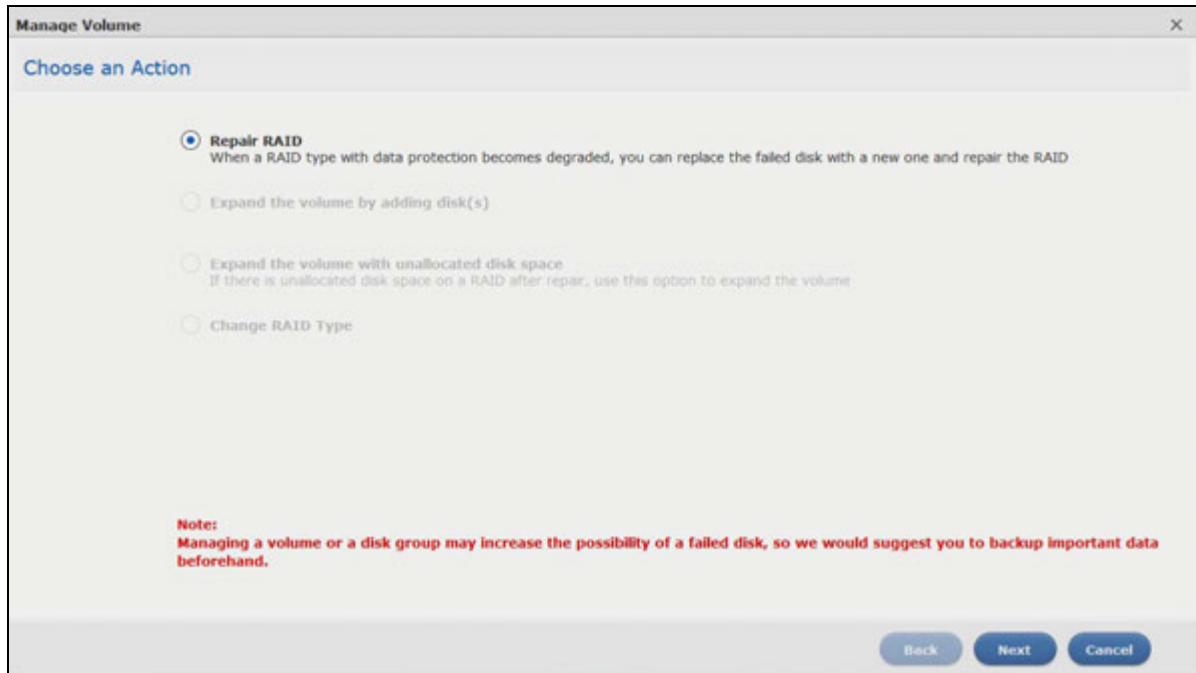
LABEL	DESCRIPTION
Disk Selected	This field displays the hard disks you have selected.
RAID Type	This field displays the type of RAID on which the volume will be built.
Volume Type	This field displays the type of the volume, Single volume on RAID (no disk group) .
Volume Name	This field displays the name of the volume.
Volume Capacity	This field displays the size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.2 Manage a Volume

Use the **Manage Volume** screen to repair, expand a volume or change the volume's RAID type. In the **Storage Manager > Internal Storage > Volume** screen, select a volume and then click **Manage** in the **Volume** section to open the screen as shown.

The available options vary depending on the conditions it matches. For example, the **Repair RAID** option is available only when a degraded volume is selected.

Figure 27 Manage Volume



The following table describes the labels in this screen.

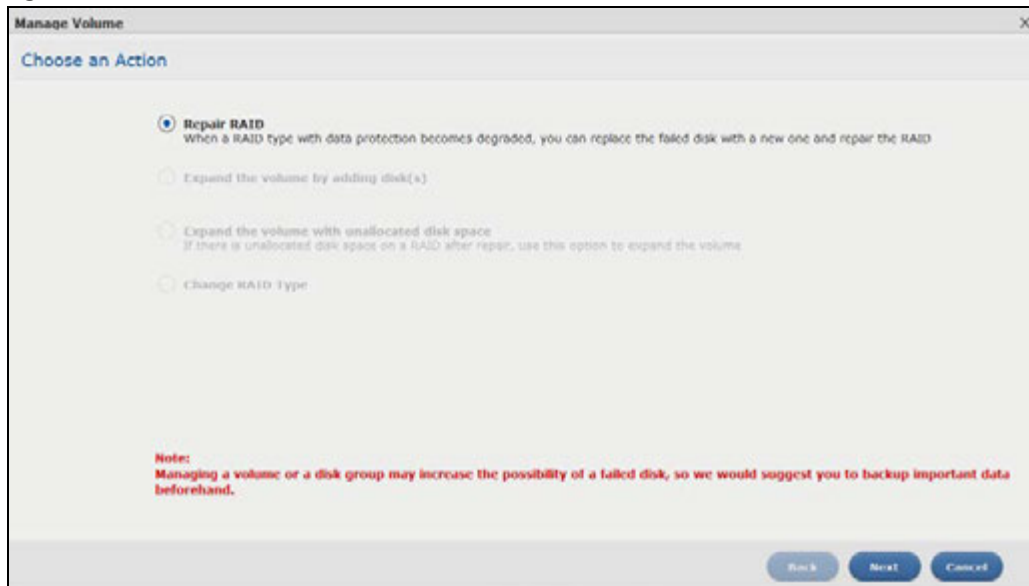
Table 13 Manage Volume

LABEL	DESCRIPTION
Repair RAID	Select this to repair a degraded RAID volume.
Expand the volume by adding disk(s)	Select this to add one or more disks to a JBOD, RAID 1 or RAID 5 volume. You can add a disk to increase an array's capacity or to use as a hot-spare (standby). When you add a disk to an existing array, you do not have to re-create shares, access rights and so on as you would if you create a new volume. Note: This option is available when a disk has not been allocated to any volume or disk group yet.
Expand the volume with unallocated disk space	Select this to add more storage space to a volume if there is still some space unallocated on the same disk group. Select this if the NAS fails to expand a volume by adding disk(s) and the final volume capacity is not as expected. For example, you want to expand a 1 TB RAID 1 volume by adding two more 1 TB disks. The volume size should be 2 TB after expansion, however, you just see 1 TB. Use this option to fix the issue.
Change RAID Type	Select this if you want to change the volume's RAID type from Basic to RAID 1, RAID 1 to RAID 5, or RAID 5 to RAID 6.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.3 Repair RAID

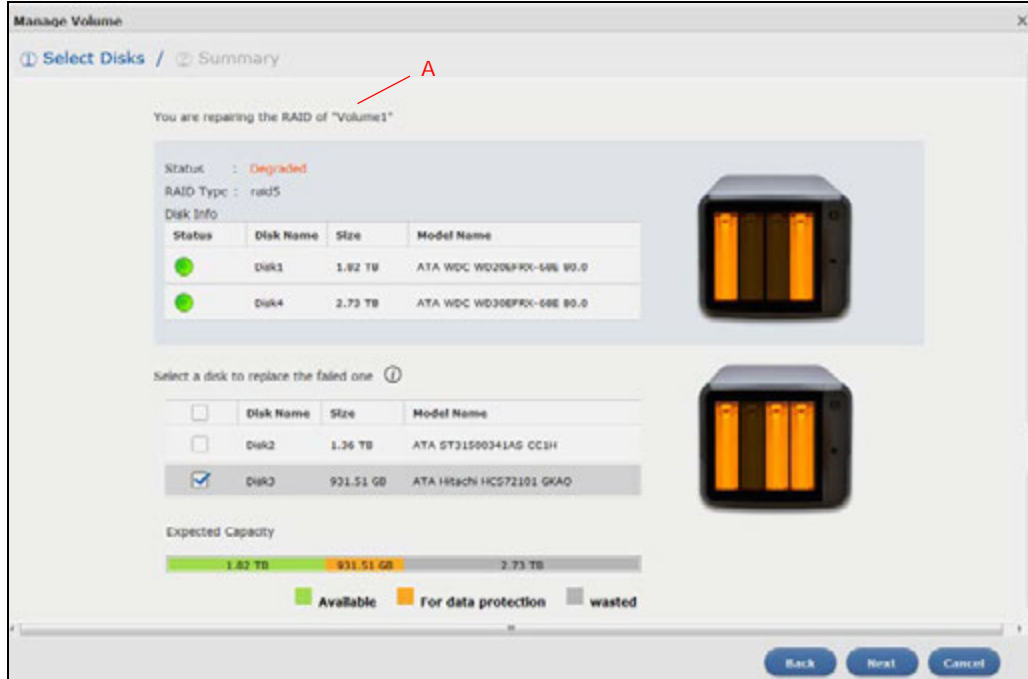
Select **Repair RAID** in the **Storage Manager > Internal Storage > Volume: Manage** screen. Click **Next**.

Figure 28 Manage Volume (Repair RAID)



Step 1 Select Disks

Figure 29 Manage Volume (Repair RAID): Select Disks



The following table describes the labels in this screen.

Table 14 Manage Volume (Repair RAID): Select Disks

LABEL	DESCRIPTION
A	This shows the name of the volume you have selected.
Status	This field displays the status of the volume.
RAID Type	This field displays the type of RAID on which the volume is built.
Disk Info	
Status	This field displays the status of the disk.
Disk Name	This field displays the name of the disk.
Size	This field displays the total capacity of the disk.
Model Name	This field displays the model of the disk.
Select a disk to replace the failed one	This section lists all available hard disks in the table and displays the corresponding disk tray of the disks you selected on the graphic at the right.
	Select one or more hard disks for increasing the volume's capacity. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of a hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.
Expected Capacity	This field shows the corresponding space allocations of available size, data protection area, and wasted size according to your selections on hard disks above. Note: Use the same capacity of hard disks for RAID 1, 5, 6, or 10 to avoid wasting space.
Back	Click Back to go to the previous step.

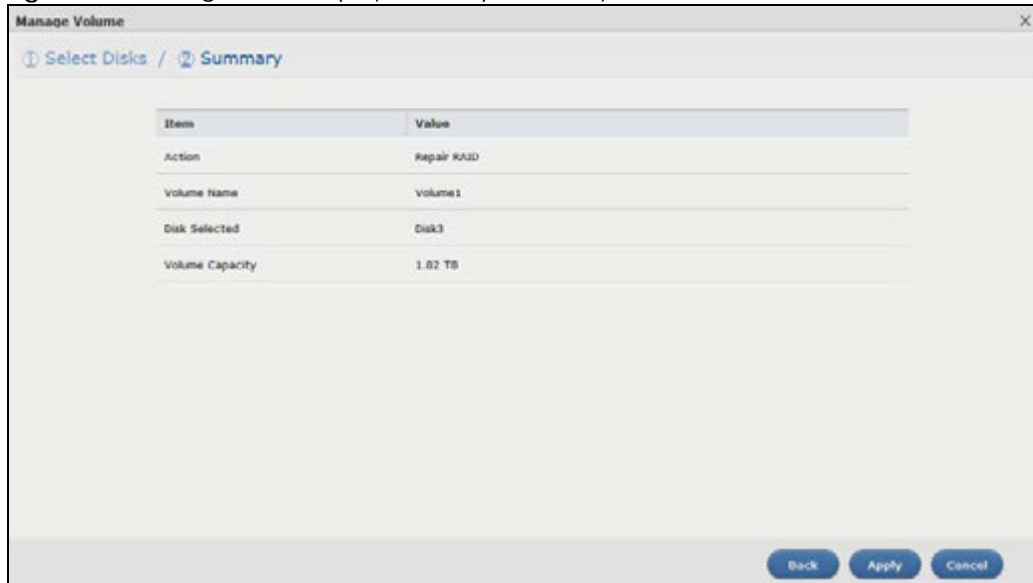
Table 14 Manage Volume (Repair RAID): Select Disks (continued)

LABEL	DESCRIPTION
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Use this screen to review the settings you configured in the last step.

Figure 30 Manage Volume (Repair RAID): Summary



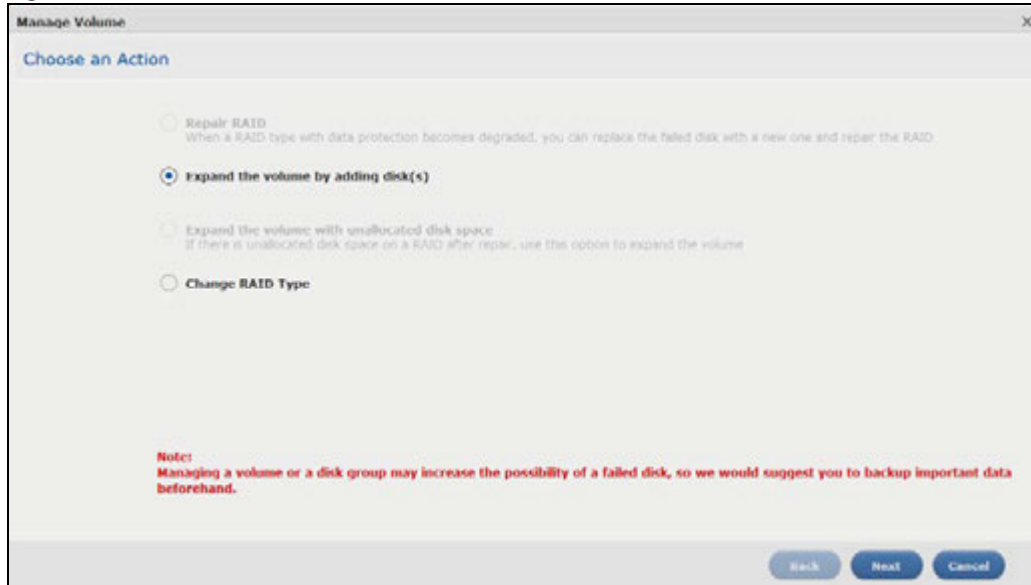
The following table describes the labels in this screen.

Table 15 Manage Volume (Repair RAID): Summary

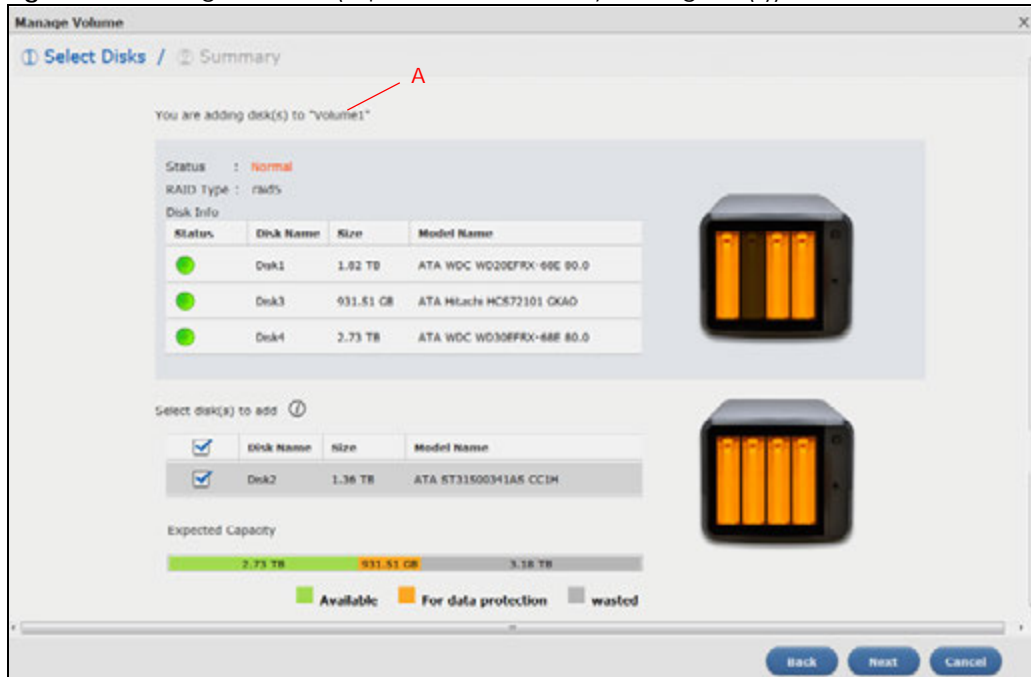
LABEL	DESCRIPTION
Action	This field displays for what the configuration is.
Volume Name	This field displays the name of the volume.
Disk Selected	This field displays the hard disks you have selected.
Volume Capacity	This field displays the total available size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.4 Expand the volume by adding disk(s)

Select **Expand the volume by adding disk(s)** in the **Storage Manager > Internal Storage > Volume: Manage** screen. Click **Next**.

Figure 31 Manage Volume (Expand the volume by adding disk(s))

Step 1 Select Disks

Figure 32 Manage Volume (Expand the volume by adding disk(s)): Select Disks

The following table describes the labels in this screen.

Table 16 Manage Volume (Expand the volume by adding disk(s)): Select Disks

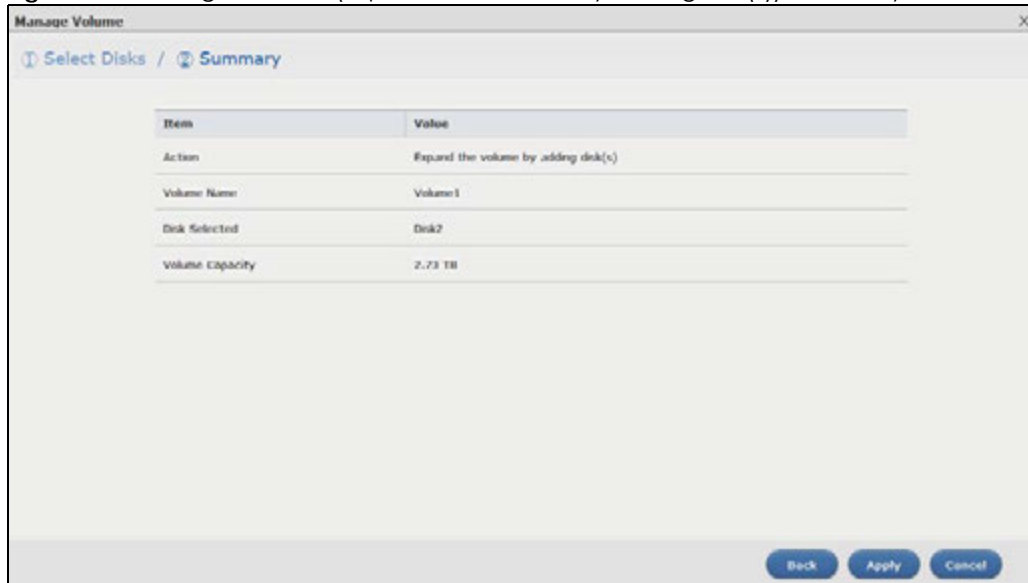
LABEL	DESCRIPTION
A	This shows the name of the volume you have selected.
Status	This field displays the status of the volume.
RAID Type	This field displays the type of RAID on which the volume is built.
Disk Info	

Table 16 Manage Volume (Expand the volume by adding disk(s)): Select Disks (continued)

LABEL	DESCRIPTION
Status	This field displays the status of the disk.
Disk Name	This field displays the name of the disk.
Size	This field displays the total capacity of the disk.
Model Name	This field displays the model of the disk.
Select disk(s) to add	This section lists all available hard disks in the table and displays the corresponding disk tray of the disks you selected on the graphic at the right.
	Select one or more hard disks for increasing the volume's capacity. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of a hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.
Expected Capacity	This field shows the corresponding space allocations of available size, data protection area, and wasted size according to your selections on hard disks above. Note: Use the same capacity of hard disks for RAID 1, 5, 6, or 10 to avoid wasting space.
Back	Click Back to go to the previous step.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Figure 33 Manage Volume (Expand the volume by adding disk(s)): Summary



The following table describes the labels in this screen.

Table 17 Manage Volume (Expand the volume by adding disk(s)): Summary

LABEL	DESCRIPTION
Action	This field displays for what the configuration is.
Volume Name	This field displays the name of the volume.

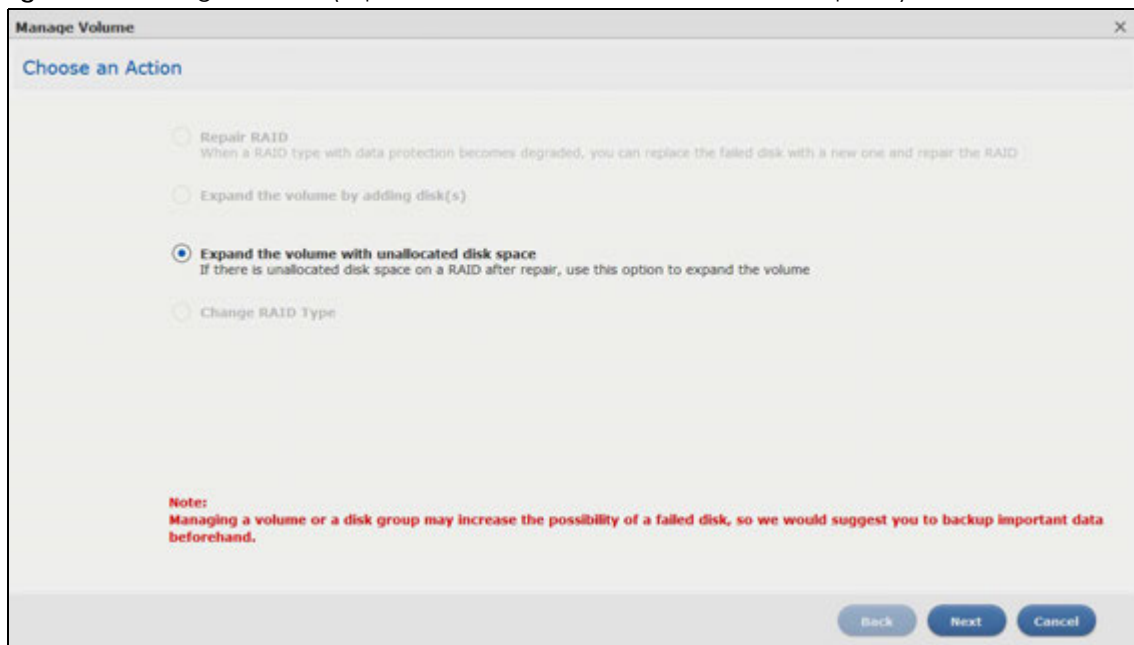
Table 17 Manage Volume (Expand the volume by adding disk(s)): Summary (continued)

LABEL	DESCRIPTION
Disk Selected	This field displays the hard disks you have selected.
Volume Capacity	This field displays the total available size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.5 Expand the volume with unallocated disk space

Select **Expand the volume with unallocated disk space** in the **Storage Manager > Internal Storage > Volume: Manage** screen. Click **Next**.

Figure 34 Manage Volume (Expand the volume with unallocated disk space)



Summary

Use this screen to review the settings you configured.

Figure 35 Manage Volume (Expand the volume with unallocated disk space)

Item	Value
Action	Expand the volume with unallocated disk space
Volume Name	Volume1
Volume Capacity	1.82 TB

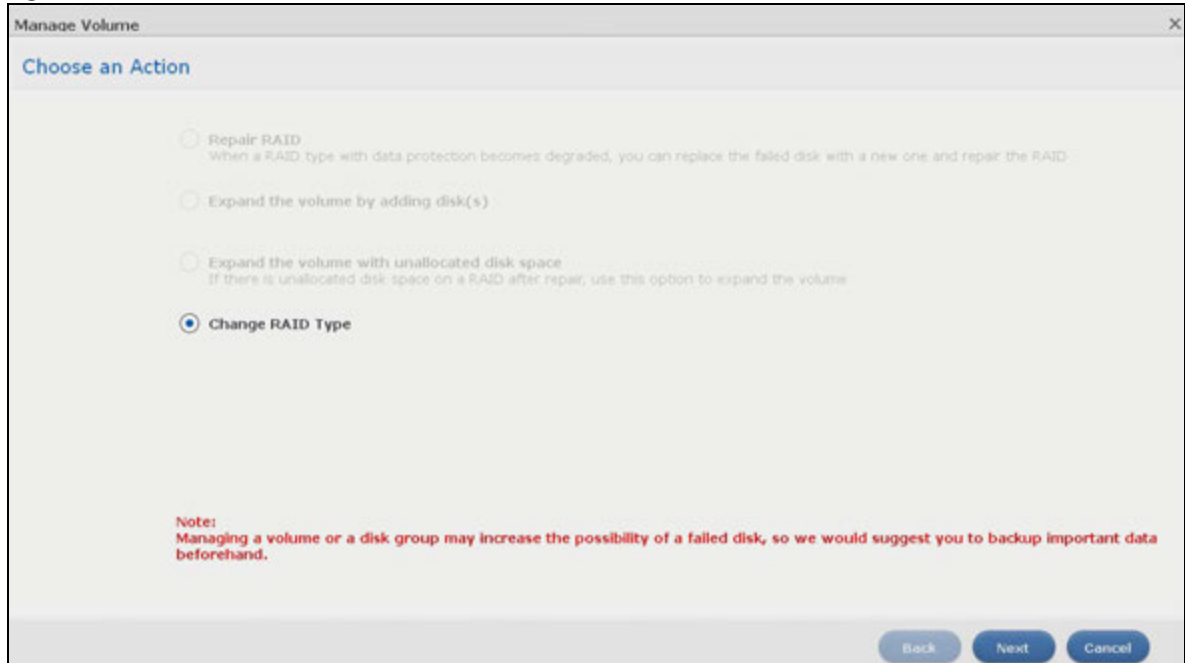
The following table describes the labels in this screen.

Table 18 Manage Volume (Expand the volume with unallocated disk space)

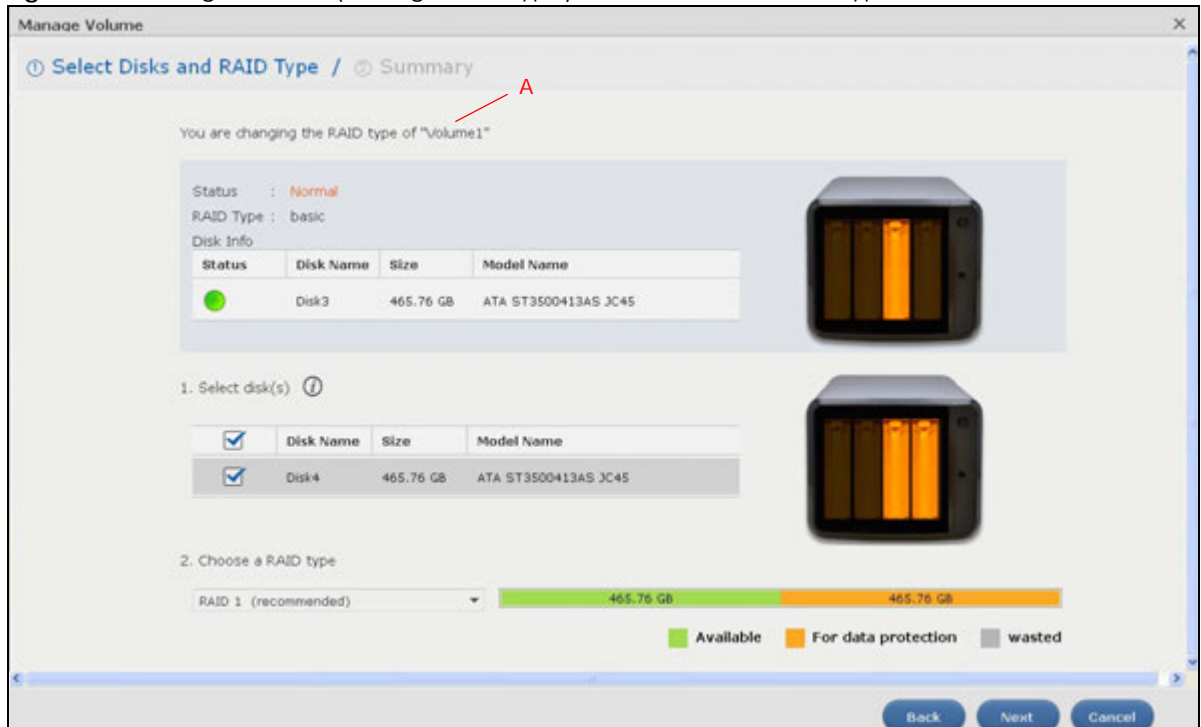
LABEL	DESCRIPTION
Action	This field displays for what the configuration is.
Volume Name	This field displays the name of the volume.
Volume Capacity	This field displays the total available size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.6 Change RAID Type

Select **Change RAID Type** in the **Storage Manager > Internal Storage > Volume: Manage** screen. Click **Next**.

Figure 36 Manage Volume (Change RAID Type)

Step 1 Select Disks and RAID Type

Figure 37 Manage Volume (Change RAID Type): Select Disks and RAID Type

The following table describes the labels in this screen.

Table 19 Manage Volume (Change RAID Type): Select Disks and RAID Type

LABEL	DESCRIPTION
A	This shows the name of the volume you have selected.
Status	This field displays the status of the volume.
RAID Type	This field displays the type of RAID on which the volume is built.
Disk Info	
Status	This field displays the status of the disk.
Disk Name	This field displays the name of the disk.
Size	This field displays the total capacity of the disk.
Model Name	This field displays the model of the disk.
Select disk(s)	This section lists all available hard disks in the table and displays the corresponding disk tray of the disks you selected on the graphic at the right.
	Select one or more hard disks for changing the volume's RAID type. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of a hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.
Choose a RAID type	<p>Select a RAID type from the drop-down list box. The corresponding space allocations of available size, data protection area, and wasted size display.</p> <p>Use RAID 1 with two or four disks to mirror primary data to another disk(s) with high performance.</p> <p>Use RAID 5 with three or more disks to balance performance, hard disk capacity usage with data protection in case of disk failure.</p> <p>Use RAID 6 with four disks for more data protection in case of disk failure.</p> <p>See Table 7 on page 38 or Section 5.6 on page 91 for more information.</p> <p>Note: Use the same capacity of hard disks for RAID to avoid wasting space.</p>
Back	Click Back to go to the previous step.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Figure 38 Manage Volume (Change RAID Type): Summary

Item	Value
Action	Change RAID Type
Volume Name	Volume1
Disk Selected	Disk4
New RAID Type	RAID1
Volume Capacity	465.76 GB

The following table describes the labels in this screen.

Table 20 Manage Volume (Change RAID Type): Summary

LABEL	DESCRIPTION
Action	This field displays for what the configuration is.
Volume Name	This field displays the name of the volume.
Disk Selected	This field displays the hard disks you have selected.
RAID Type	This field displays the type of RAID on which the volume will be built.
Volume Capacity	This field displays the total size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.7 Create a Volume on Disk Group

Use the **Create Volume on Disk Group** screen to configure a volume on an existing or new disk group. Click **Create** in the **Volume on Disk Group** section of the **Storage Manager > Internal Storage > Volume** screen to open the screen as shown.

Note: It is suggested to create a volume directly on a disk instead of on a disk group if high performance is important to you. See [Section 5.3.1.1 on page 43](#) for more information.

5.3.1.8 Create a Volume on an Existing Disk Group

Select **Existing on disk group** and a disk group from the drop-down list box to create a volume on the disk group. This option is available only when there is an existing disk group available. Click **Next** to go to the next step.

Figure 39 Create a Volume on an Existing Disk Group

The screenshot shows a window titled "Create Volume on Disk Group" with a close button (X) in the top right corner. Below the title bar is a header "Choose an Action". The main area is titled "Create Volume on". There are two radio button options: "Existing on disk group" (which is selected) and "New disk group". To the right of the "Existing on disk group" option is a dropdown menu showing "Disk Group 1 (unallocated 627.47 GB)". At the bottom right of the window are two buttons: "Next" and "Cancel".

Step 1 Create Volume

Figure 40 Create a Volume on an Existing Disk Group: Create Volume

The screenshot shows the same window titled "Create Volume on Disk Group" with a close button (X) in the top right corner. Below the title bar is a header "Create Volume / Summary". The main area is titled "Create volume on disk group". It contains two sections: "Disk group information" and "Create Volume". The "Disk group information" section shows "Name" as "Disk Group 1" and "Unallocated capacity" as a green progress bar labeled "67.65%" with the text "627.47 GB / 927.57 GB" to its right. The "Create Volume" section shows "Volume Name" as "Volume2" and "Allocated volume size" as "627" GB, with a "MAX" button next to the "GB" label. At the bottom right of the window are three buttons: "Back", "Next", and "Cancel".

The following table describes the labels in this screen.

Table 21 Create a Volume on Disk Group: Create Volume

LABEL	DESCRIPTION
Disk group information	
Name	This field displays the name of the disk group.
Unallocated capacity	This field displays the percentage of the available size, the size in use, and total size of the disk group.
Create Volume	
Volume Name	This field displays the default name of the volume. You can also type a new name for the volume.
Allocated Volume Size	This field displays the number of Gigabytes available on the volume by default. You can change the size to allocate to this volume. Click MAX to allocate all available size of the disk group to the volume.
Back	Click Back to go to the previous step.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Figure 41 Create a Volume on an Existing Disk Group: Summary

The screenshot shows a window titled "Create Volume on Disk Group" with a close button (X) in the top right corner. Below the title bar is a breadcrumb navigation bar showing "1 Create Volume / 2 Summary". The main content area contains a table with the following data:

Item	Value
Volume Type	Multiple volumes on RAID (Disk Group 1)
Volume Name	Volume2
Volume Capacity	500 GB

At the bottom right of the window, there are three buttons: "Back", "Apply", and "Cancel".

The following table describes the labels in this screen.

Table 22 Create a Volume on Disk Group: Summary

LABEL	DESCRIPTION
Volume Type	This field displays the type of the volume, Multiple volumes on RAID (Disk Group X) where Disk Group X is the disk group's name.
Volume Name	This field displays the name of the volume.
Volume Capacity	This field displays the size of the volume.

Table 22 Create a Volume on Disk Group: Summary (continued)

LABEL	DESCRIPTION
Back	Click Back to go to the previous screen.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.9 Create a Volume on a New Disk Group

Select **New disk group** to create a disk group and then a volume on the disk group. Click **Next** to go to the next step.

Figure 42 Create Volume on a New Disk Group

Create Volume on Disk Group

Choose an Action

Create Volume on

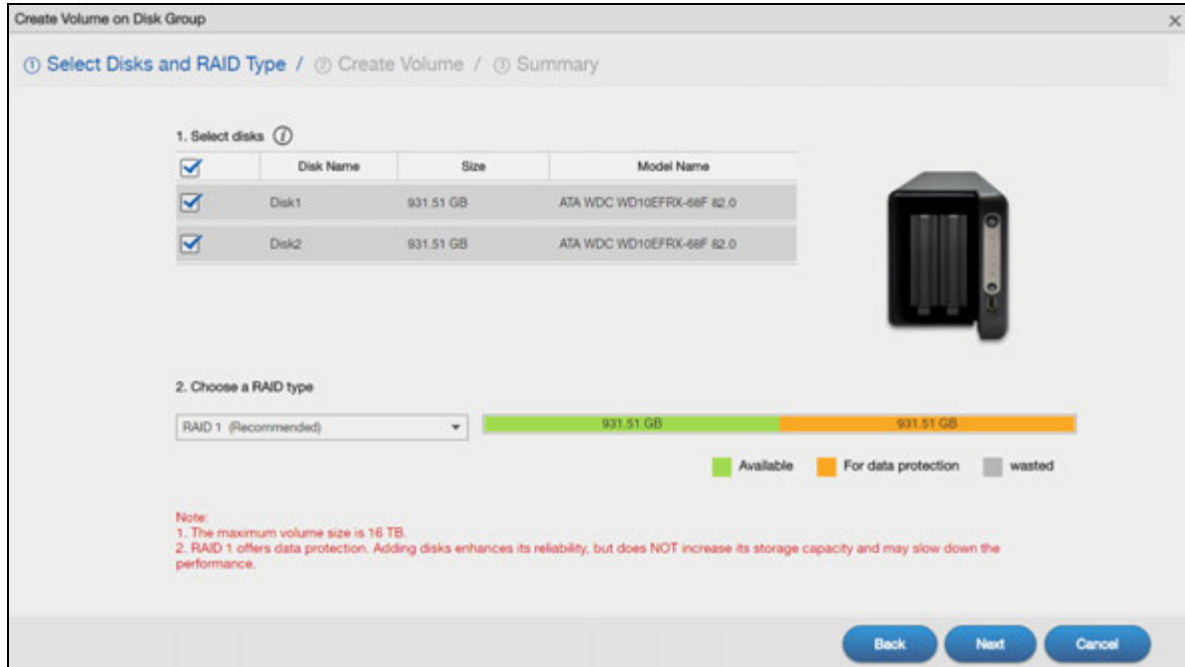
☐ Existing on disk group

☒ New disk group

Next Cancel

Step 1 Select Disks and RAID Type

Figure 43 Create Volume on a New Disk Group: Select Disks and RAID Type



The following table describes the labels in this screen.

Table 23 Create Volume on Disk Group: Select Disks and RAID Type

LABEL	DESCRIPTION
Select disks	This section lists all available hard disks in the table and displays the disk trays they are currently installed on the graphic at the right.
	Select one or more hard disks where you want to create a volume. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of the hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.

Table 23 Create Volume on Disk Group: Select Disks and RAID Type (continued)

LABEL	DESCRIPTION
Choose a RAID type	<p>Select a RAID type from the drop-down list box. The corresponding space allocations of available size, data protection area, and wasted size display.</p> <p>Use Basic with one disk.</p> <p>Use JBOD with two or more disks for maximum capacity.</p> <p>Use RAID 0 with two or four disks for maximum speed.</p> <p>Use RAID 1 with two or more disks to mirror primary data to another disk(s) with high performance.</p> <p>Use RAID 5 with three or more disks to balance performance, hard disk capacity usage with data protection in case of disk failure.</p> <p>Use RAID 6 with four disks for more data protection in case of disk failure.</p> <p>Use RAID 10 with four disks to get better performance than RAID 6, with slightly less data protection.</p> <p>See Table 7 on page 38 or Section 5.6 on page 91 for more information.</p> <p>Note: Use the same capacity of hard disks for RAID 1, 5, 6, or 10 to avoid wasting space.</p>
Back	Click Back to go to the previous screen.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Create Volume

Figure 44 Create Volume on a New Disk Group: Create Volume

Create Volume on Disk Group

1 Select Disks and RAID Type / 2 Create Volume / 3 Summary

Create volume on disk group

Disk group information

Name: Disk Group 1

Unallocated capacity: 100% 931.51 GB / 931.51 GB

Create Volume

Volume Name: Volume1

Allocated volume size: 200 GB MAX

Back Next Cancel

The following table describes the labels in this screen.

Table 24 Create Volume on Disk Group: Create Volume

LABEL	DESCRIPTION
Step 2. Create Volume	
Disk group information	
Name	This field displays the name of the disk group.
Unallocated capacity	This field displays the percentage of the available size, the size in used, and total size of the disk group.
Create Volume	
Volume Name	This field displays the default name of the volume. You can also type a new name for the volume.
Allocated volume size	This field displays the number of Gigabytes available on the volume by default. You can set the size to allocate for this volume. Click MAX to allocate all available capacity of the disk group to the volume.
Back	Click Back to go to the previous step.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 3 Summary

Figure 45 Create Volume on a New Disk Group: Summary

Create Volume on Disk Group

① Select Disks and RAID Type / ② Create Volume / ③ Summary

Item	Value
Disk Selected	Disk1_Disk2
RAID Type	RAID1
Volume Type	Multiple volumes on RAID (Disk Group 1)
Volume Name	Volume1
Volume Capacity	200 GB

Back Apply Cancel

The following table describes the labels in this screen.

Table 25 Create Volume on Disk Group: Summary

LABEL	DESCRIPTION
Disk Selected	This field displays the hard disk(s) on which the RAID array will be built.
RAID Type	This field displays the type of RAID on which the volume will be built.

Table 25 Create Volume on Disk Group: Summary (continued)

LABEL	DESCRIPTION
Volume Type	This field displays the type of the volume, Multiple volumes on RAID (Disk Group X) where Disk Group X is the disk group's name.
Volume Name	This field displays the name of the volume.
Volume Capacity	This field displays the size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.1.10 Edit a Volume on Disk Group

Use the **Edit Volume on Disk Group** screen to expand a volume's capacity. In the **Storage Manager > Internal Storage > Volume** screen, select a volume and then click **Edit** in the **Volume on Disk Group** section to open the screen as shown.

Figure 46 Edit Volume on Disk Group

The screenshot shows a window titled "Edit Volume on Disk Group". Inside, there's a section for "Unallocated capacity on Disk Group 1" showing a green progress bar at 24.52% and the text "227.47 GB / 927.57 GB". Below that, "Current volume size" is displayed as "295.17 GB". Further down, "New volume size" is set to "301" in a text box, followed by "GB" and a "MAX" button. At the bottom right, there are "Apply" and "Cancel" buttons.

The following table describes the labels in this screen.

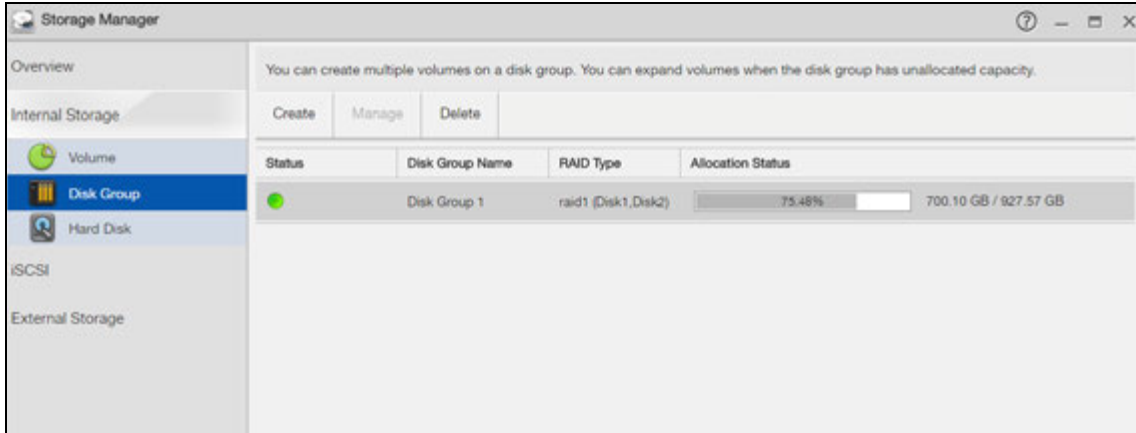
Table 26 Edit Volume on Disk Group

LABEL	DESCRIPTION
Unallocated capacity on Disk Group X	This field displays the percentage of the disk group size unallocated to other volumes, the size in use, and total size of the disk group.
Current volume size	This field displays the total size of the volume, excluding the file system size.
New volume size	This field displays the smallest size to which you can expand the volume (this includes the volume's current available size, file system size, and a minimum additional capacity for expansion). You can enter a bigger number or click MAX to allocate all the rest of the space in the disk group to the volume.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.2 Disk Group Screens

Use the **Disk Group** screen to configure and manage disk groups. Click **Storage Manager > Internal Storage > Disk Group** screen to open the screen as shown.

Figure 47 Disk Group



The following table describes the labels in this screen.

Table 27 Disk Group

LABEL	DESCRIPTION
Create	Click this to format internal hard disks and create a new disk group. All data on the disk(s) will be lost. Note: This button is not available while the NAS is creating, deleting, or changing the RAID type of any volume or disk group.
Manage	Select a volume and click Manage to edit, repair, or expand the volume. Note: This button is available only when you can repair, expand or change RAID type.
Delete	Select a disk group and click Delete to remove it. Note: If you delete a disk group, all data in the disk group is erased.
Add Hot Spare	Select a RAID 1 or RAID 5 disk group and click Add Hot Spare to add another disk as a hot-spare (standby) to the RAID array. See Section 5.6 on page 91 for more information. Note: The capacity of the disk you are adding must be equal to or greater than the largest disk in the RAID 1 or RAID 5 array. Note: You need four hard disks installed to use RAID 5 with hotspare.
Remove Hot Spare	Select a RAID 1 or RAID 5 disk group and click Remove Hot Spare to remove the standby drive from the RAID array.
Status	This field shows the status of the disk group.
Disk Group Name	This field shows the name of the disk group.
RAID Type	This field shows the type of the RAID over which this disk group is running.
Allocation Status	This field shows the percentage of the disk group size that is available, the disk group size being used, and the total disk group size.
Hot Spare	

Table 27 Disk Group (continued)

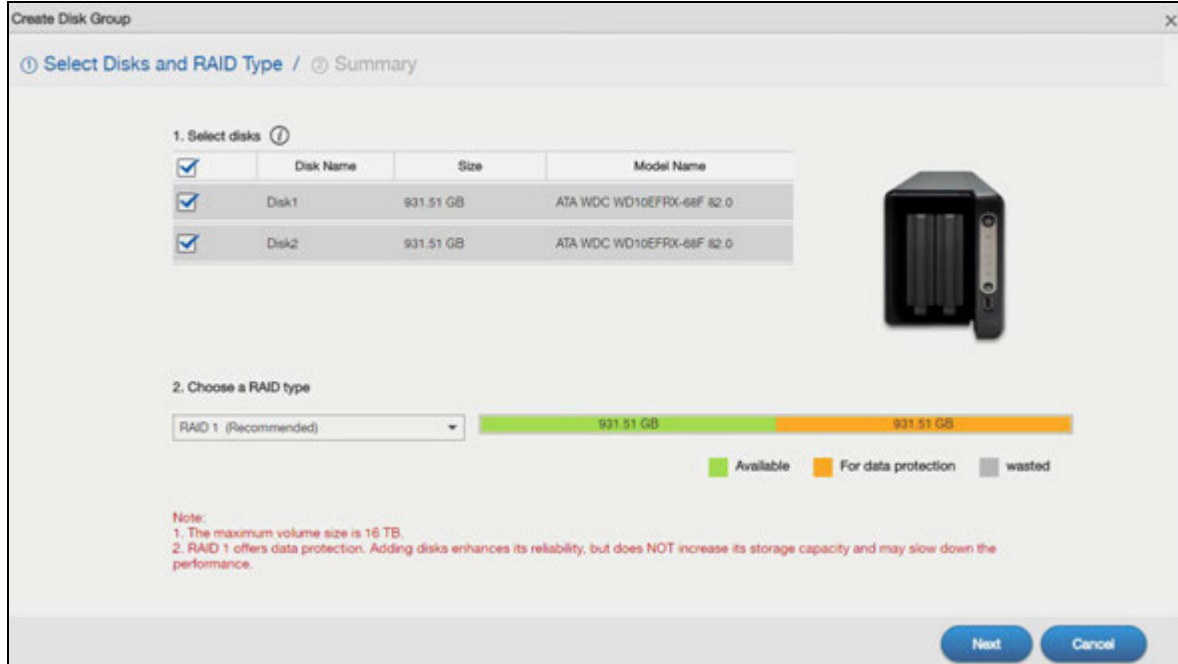
LABEL	DESCRIPTION
Status	<p>This field shows the status of the hot-spare disk.</p> <p>This field shows the name of the disk group and whether it is normal, degraded, crashed, Creating, Deleting, Expanding, Repairing or Changing the RAID type.</p> <p>Normal: A green circle represents a healthy volume.</p> <p>Degraded: An orange circle represents a degraded RAID 1 volume.</p> <p>Crashed: A red circle represents a down volume.</p> <p>The following status also displays the percentage of an action has been completed.</p> <p>Creating: The NAS's percentage progress in creating the volume.</p> <p>Deleting: The NAS's percentage progress in deleting the volume.</p> <p>Expanding: The NAS's percentage progress in expanding the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Repairing: The NAS's percentage progress in repairing the volume. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p> <p>Changing: The NAS's percentage progress in changing the volume's RAID type. For a RAID 1 volume, this also displays the percentage of resynchronizing the NAS has finished and the evaluated remaining time.</p>
Disk Name	This field shows the name of the hot-spare disk.
Size	This field shows the total size of the hot-spare disk.
Model Name	This field shows the model of the hot-spare disk.

5.3.2.1 Create a Disk Group

Use the **Create Disk Group** screen to create a disk group. From the **Storage Manager > Internal Storage > Disk Group** screen, click the **Create** button to open the screen as shown.

Step 1 Select Disks and RAID Type

Figure 48 Create Disk Group: Select Disks and RAID Type



The following table describes the labels in this screen.

Table 28 Create Disk Group: Select Disks and RAID Type

LABEL	DESCRIPTION
Select disks	This section lists all available hard disks in the table and displays the disk trays the hard disks are currently installed in the graphic on the right.
	Select one or more hard disks where you want to create a disk group. Use the check box on the top to select or unselect all entries in this column.
Disk Name	This field shows the name of the hard disk.
Size	This field shows the total disk size.
Model Name	This field shows the model of the hard disk.

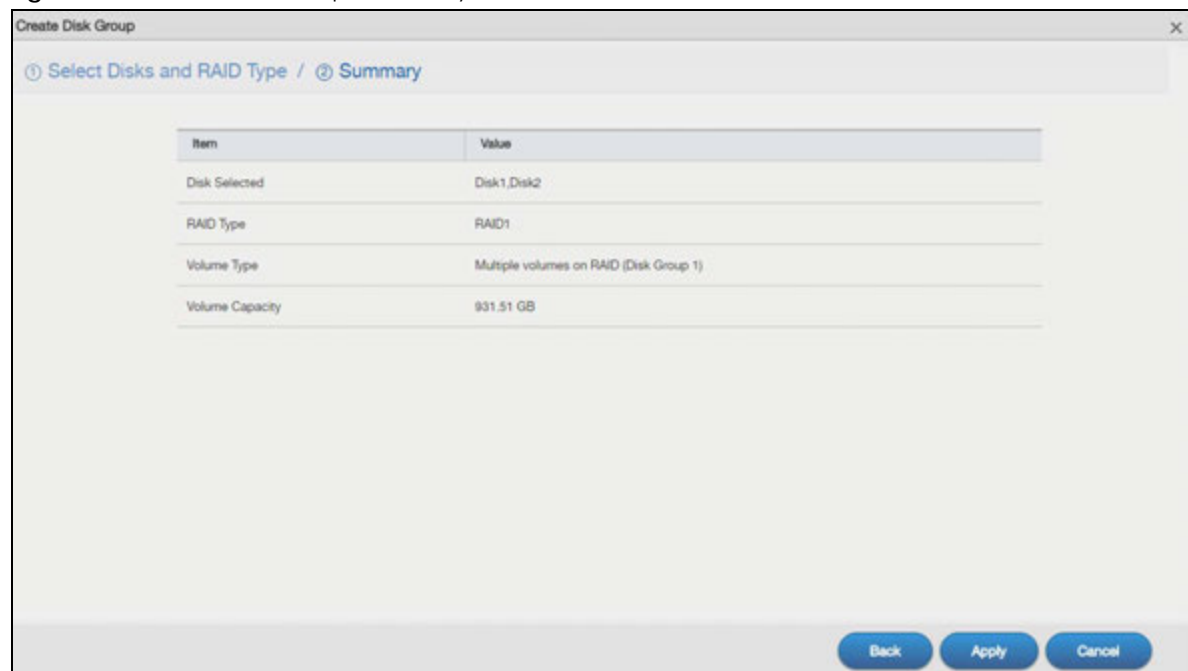
Table 28 Create Disk Group: Select Disks and RAID Type (continued)

LABEL	DESCRIPTION
Choose a RAID type	<p>Select a RAID type from the drop-down list box. The corresponding space allocations of available size, data protection area, and wasted size display.</p> <p>Use Basic with one disk.</p> <p>Use JBOD with two or more disks for maximum capacity.</p> <p>Use RAID 0 with two or four disks for maximum speed.</p> <p>Use RAID 1 with two or more disks to mirror primary data to another disk(s) with high performance.</p> <p>Use RAID 5 with three or more disks to balance performance, hard disk capacity usage with data protection in case of disk failure.</p> <p>Use RAID 6 with four disks for more data protection in case of disk failure.</p> <p>Use RAID 10 with four disks to get better performance than RAID 6, with slightly less data protection.</p> <p>See Table 7 on page 38 or Section 5.6 on page 91 for more information.</p> <p>Note: Use the same capacity of hard disks for RAID 1, 5, 6, or 10 to avoid wasting space.</p>
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Use this screen to review the settings you configured in the last step.

Figure 49 Create Disk Group: Summary



The following table describes the labels in this screen.

Table 29 Create Disk Group: Summary

LABEL	DESCRIPTION
Disk Selected	This field displays the hard disk(s) on which the RAID array will be built.
RAID Type	This field displays the type of RAID on which the volume will be built.
Volume Type	This field displays the type of the volume, Multiple volumes on RAID (Disk Group X) where Disk Group X is the disk group's name.
Volume Capacity	This field displays the size of the volume.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.3.3 Hard Disk Screens

Use the **Hard Disk** screen to view all disk information. Click **Storage Manager > Internal Storage > Hard Disk** screen to open the screen as shown.

Figure 50 Hard Disk

Status	Disk Name	Used by	Size	Model Name	Temperature
●	Disk1	Volume1 (raid1)	931.51 ...	ATA WDC WD10EFRX-68F 82.0	37°C/98.6°F
●	Disk2	Volume1 (raid1)	931.51 ...	ATA WDC WD10EFRX-68F 82.0	38°C/100.4°F

The following table describes the labels in this screen.

Table 30 Hard Disk

LABEL	DESCRIPTION
Status	This field shows the status of an installed hard disk. Normal: A green circle displays. This represents the volume is functioning normally. Crashed: A red circle displays. This represents the volume is down.
Disk Name	This field shows the name of the hard disk.
Used by	This field shows the name of a volume or disk group built on the hard disk if any. This field also displays the RAID type the volume or disk group is using.
Size	This field shows the total size of the hard disk.
Model Name	This field shows the model of the hard disk.
Temperature	This field shows the temperature of the hard disk in degrees celsius (°C) and fahrenheit (°F).

5.3.3.1 S.M.A.R.T

Use the **S.M.A.R.T** screens to view hard disk health indicators. Self Monitoring, Analysis, and Reporting Technology (S.M.A.R.T) detects and reports the reliability of hard disks using standard indicators (called “attributes”), to help you anticipate possible disk failures.


Note: The available S.M.A.R.T information varies from one hard disk vendor to another.

From the **Storage Manager > Internal Storage > Hard Disk** screen, select a disk and click **S.M.A.R.T** to open the screen as shown.

Figure 51 S.M.A.R.T Overview

S.M.A.R.T - Disk1

Overview **S.M.A.R.T Info**

A  **B** Healthy **C** 37°C/98.6°F
Status: Good

Item	Value
Power_On_Hours	545 hour(s)
Spin_Retry_Count	0
Reallocated_Sector_Ct	0
Model Family	Western Digital Red (AF)
Device Model	WDC WD10EFRX-68FYTN0
Serial Number	WD-WCC4J4YYHVXR
LU WWN Device Id	5 0014ee 2b797100b
Firmware Version	82.00A82
User Capacity	1.00 TB
Sector Sizes	512 bytes logical, 4096 bytes physical
Rotation Rate	5400 rpm
ATA Version	ACS-2 (minor revision not indicated)
SATA Version	SATA 3.0, 6.0 Gb/s (current: 6.0 Gb/s)
Local Time	Fri Jul 15 09:08:37 2016 GMT
SMART support	Available - device has SMART capability.
SMART support	Enabled

Close

The following table describes the labels in this screen.

Table 31 S.M.A.R.T Overview

LABEL	DESCRIPTION
A	This shows the current status of the hard disk (a green circle with a check mark indicates healthy).
B	This shows the overall health of the hard disk based on S.M.A.R.T diagnostics.
C	This shows the temperature of the hard disk in degrees celsius (°C) and fahrenheit (°F).
Status	This shows your hard disk's performance (Good or Bad).
Power_On_Hours	This field shows the number of hours the hard disk has been in power-on state since it was produced.
Spin_Retry_Count	This field shows the total number of spin start retry attempts. This is the number of attempts to spin up to fully operational speed the hard drive has made when the first attempt did not succeed. An increase in this value is an indicator of hard disk mechanical subsystem problems.
Reallocated_Sector_Ct	This field shows the total number of reallocated sectors on the hard drive. When the hard drive detects a read/write/verification error, it marks the sector as "reallocated" and transfers the data to a specially reserved (spare) area. The process is also known as remapping with "reallocated" sectors known as remaps. The more sectors the hard disk has to reallocate, the slower read and write speeds become.
Model Family	This field shows the model family of the hard disk.
Device Model	This field shows the hard disk model number that uniquely identifies a hard disk.
Serial Number	This field shows this individual hard disk's serial number from the manufacturer.
LU WWN Device Id	This field shows the hard disk's Logical Unit World Wide Name Device Identifier.
Firmware Version	This field shows the version number of the hard disk's internal operating software.
User Capacity	This field shows the hard disk's usable size.
Sector Sizes	This field shows the sector size of the hard disk. A sector is the smallest physical storage unit on a hard disk. Normally it is 512 bytes.
Rotation Rate	This field shows the rotational speed of the hard disk, measured in revolutions per minute (rpm).
ATA Version	This field shows the hard disk's Advanced Technology Attachment version number.
SATA Version	This field shows the hard disk's Serial ATA (SATA) version number.
Local Time	This field shows the local time that the hard disk is using.
SMART support	This field shows whether or not the hard disk is SMART-capable.
SMART support	This field shows whether or not the hard disk has SMART monitoring turned on.
Close	Click this button to close the screen.

5.3.3.2 SMART Info

Use this screen to display more details information about the volume.

Click **S.M.A.R.T Info** in the **S.M.A.R.T Overview** screen to display the following.

Figure 52 S.M.A.R.T Info

ID	Attribute	Value	Worst	Threshold	Type	Updated	When Failed	Raw Data
1	Raw_Read_Error_Rate	200	200	051	Pre-fail	Always	-	0
3	Spin_Up_Time	136	134	021	Pre-fail	Always	-	4191
4	Start_Stop_Count	100	100	000	Old_age	Always	-	234
5	Reallocated_Sector_Ct	200	200	140	Pre-fail	Always	-	0
7	Seek_Error_Rate	200	200	000	Old_age	Always	-	0
9	Power_On_Hours	099	099	000	Old_age	Always	-	1001

The following table describes the labels in this screen.

Table 32 S.M.A.R.T Info

LABEL	DESCRIPTION
ID	<p>This is the identification number used to tag a hard disk attribute.</p> <p>This is standard across all S.M.A.R.T-enabled storage devices. However it depends on the storage vendor which attributes it will allow S.M.A.R.T to diagnose.</p>
Attribute	This refers to an attribute of the hard disk that S.M.A.R.T can assess. Attributes describe the hard disk's physical state, performance, wear-and-tear, and so on.
Value	<p>This is a value that corresponds to the Raw Data. Compare this with the Threshold.</p> <p>S.M.A.R.T compresses the raw value(s) into a digit from 1 to 253, where 1 indicates the worst scenario while 253 indicates the best scenario.</p> <p>The values 100 or 200 usually represent the mean or normal value.</p>
Worst	This is the lowest value attained by the hard disk since S.M.A.R.T started its assessment of the hard disk.
Threshold	This is the attribute's threshold value. If the attribute's current normalized value is less than or equal to the threshold, the attribute has failed. An attribute value close to or below the threshold indicates the hard drive is no longer reliable.
Type	<p>This shows S.M.A.R.T's assessment of the hard disk.</p> <p>Old_age indicates end-of-product life from old-age (normal wearing out) if the attribute value is less than or equal to the threshold.</p> <p>Pre-fail indicate imminent hard drive failure if the attribute value is less than or equal to the threshold.</p> <p>Note that just because an attribute is of the Pre-fail type does not mean your hard drive is ready to fail. It only means this if the current normalized value of the attribute is less than or equal to the threshold.</p>

Table 32 S.M.A.R.T Info

LABEL	DESCRIPTION
Updated	<p>This indicates when the hard drive updates the value for this attribute.</p> <ul style="list-style-type: none"> Always means the hard drive updates this attribute during normal operation and during offline activities. Offline means the hard drive only updates this attribute when no one is accessing the hard drive.
When Failed	<p>This column indicates when (if ever) the attribute failed. An attribute has failed if the normalized value is less than or equal to the threshold.</p> <ul style="list-style-type: none"> -: This displays if the attribute is not failing now and has never failed in the past. FAILING_NOW: This displays if the attribute's current normalized value is less than or equal to the threshold. In_the_past: This displays if the attribute's current normalized value is greater than the threshold but the worst recorded value is less than or equal to the threshold.
Raw Data	<p>This is the attribute's unprocessed raw data. These values show exact amounts of time or numbers of attempts or errors. The meaning to the raw values is specific to the hard drive manufacturer. Table 42 on page 156 has some information about whether a higher or lower individual raw S.M.A.R.T. attribute value is better.</p>
Close	Click this button to close the screen.

5.3.3.3 S.M.A.R.T Attributes

The following table describes some common S.M.A.R.T. attributes. If a higher or lower raw attribute value is better, it is indicated in the **BETTER** column. Since S.M.A.R.T. attributes and their definitions vary by manufacturer, refer to the hard drive manufacturer for details about the attributes your hard drive supports.

Table 33 S.M.A.R.T. Attributes

ID	ATTRIBUTE NAME	BETTER	DESCRIPTION
01	Read Error Rate	Low	Shows the rate of hardware read errors. If this is not zero, there is a problem with the disk surface or the read/write heads.
02	Throughput Performance	High	This is the hard drive's general (overall) throughput performance. A decreasing value indicates a problem.
03	Spin-Up Time	Low	This is the average number of milliseconds the hard drive took for spindle spin up (from zero RPM to fully operational).
04	Start/Stop Count		The total number of spindle start and stop cycles.
05	Reallocated Sectors Count	Low	Total number of reallocated sectors on the hard drive. When the hard drive detects a read/write/verification error, it marks the sector as "reallocated" and transfers the data to a specially reserved (spare) area. The process is also known as remapping with "reallocated" sectors known as remaps. The more sectors the hard drive has to reallocate, the slower read and write speeds become.
06	Read Channel Margin		This is the margin of a channel when it reads data.
07	Seek Error Rate	Low	This is the rate of the magnetic heads' seek errors. A failure in the mechanical positioning system, such as servo damage or a thermal widening of the disk, results in seek errors. An increasing number of seek errors indicate the condition of the disk surface and the mechanical subsystem are worsening.
08	Seek Time Performance	High	This is an average performance indicator for the seek operations of the magnetic heads. Mechanical subsystem problems cause this value to decrease.
09	Power-On Hours (POH)	Low	This is how many hours the hard drive has been in a power-on state. The raw value lists the total number of hours (or minutes, or seconds depending on the manufacturer).

Table 33 S.M.A.R.T. Attributes (continued)

ID	ATTRIBUTE NAME	BETTER	DESCRIPTION
10	Spin Retry Count	Low	This is the total number of spin start retry attempts. This is the number of attempts to spin up to fully operational speed the hard drive has made when the first attempt did not succeed. An increase in this value is an indicator of hard disk mechanical subsystem problems.
11	Recalibration Retries	High	This is the number of times recalibration was requested when the first attempt did not succeed. A decrease in this value is an indicator of hard disk mechanical subsystem problems.
12	Device Power Cycle Count		This is the number of times the hard drive has gone through a full power on and power off.
13	Soft Read Error Rate	Low	This is the number of uncorrected read errors the hard drive has reported. If this is not zero, back up your data.
190	Airflow Temperature	Low	This indicates the temperature of the airflow measured by a Western Digital hard drive.
190	Temperature Difference from 100	High	This indicates the value of 100 - the temperature in degrees Celsius. Manufacturers can set a minimum threshold that corresponds to a maximum temperature.
191	G-sense error rate	Low	This is the number of mistakes caused by impact loads.
192	Power-off Retract Count	Low	This is how many times the heads are loaded off the media.
193	Load/Unload Cycle	Low	This is the number of load and unload cycles into head landing zone position.
194	Temperature	Low	This is the hard drive's internal temperature.
195	Hardware ECC Recovered	High	This is the time between ECC (Error Correction Code)-corrected errors.
196	Reallocation Event Count	Low	This is the total number of reallocation (remap) operations. The raw value is the total attempts to move data from reallocated sectors to a spare area. Successful and unsuccessful attempts are both included.
197	Current Pending Sector Count	Low	This is the number of unstable sectors awaiting reallocation. If the sector is later successfully written or read, this value decreases and reallocation is not performed. Only failed write attempts cause a reallocation, not read errors. This can be difficult to test since only direct I/O writes to the disk cause reallocations, not cached writes.
198	Uncorrectable Sector Count	Low	This is the number of errors reading or writing a sector that were not correctable. An increase in this value is an indicator of disk surface defects or mechanical subsystem problems.
199	UltraDMA CRC Error Count	Low	This is the number of data transfer errors through the interface cable according to the ICRC (Interface Cyclic Redundancy Check).
200	Write Error Rate / Multi-Zone Error Rate	Low	This is the total number of errors in writing sectors.
201	Soft Read Error Rate	Low	This is the number of read/write head off-track errors. If the value is not zero, make a backup.
202	Data Address Mark Errors	Low	This is the number of data address mark errors. This could also be a different, manufacturer-specific attribute.
203	Run Out Cancel	Low	This is the number of ECC (Error Correction Code) errors.
204	Soft ECC Correction	Low	This is the number of errors corrected by software ECC (Error Correction Code).
205	Thermal Asperity Rate (TAR)	Low	This is the number of thermal asperity errors. Thermal asperity is a read signal spike caused by sensor temperature rise due to touching the disk surface or contaminant particles.

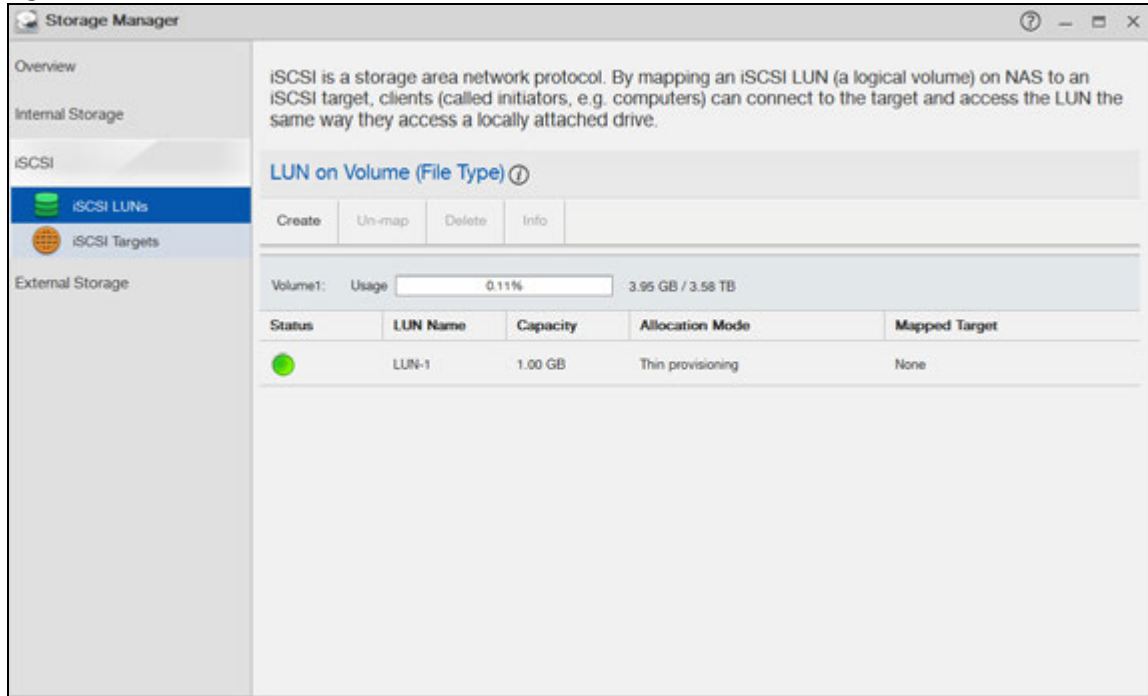
Table 33 S.M.A.R.T. Attributes (continued)

ID	ATTRIBUTE NAME	BETTER	DESCRIPTION
206	Flying Height		This is the height of the hard drive's read/write heads above the disk surface.
207	Spin High Current		This is the quantity of high current used to spin up the drive.
208	Spin Buzz		This is the number of buzz routines to spin up the drive. When the arm holding the read/write heads is stuck, the motor driving it tries to oscillate the arm to free it. This causes an audible vibration.
209	Offline Seek Performance		This is the hard drive's seek performance during offline operations. Offline operations are tests the drive does itself as opposed to those that an external diagnostic tool has it do. Seek performance is how quickly the drive moves from track to track.
220	Disk Shift	Low	This is how far the disk has moved relative to the spindle (this kind of shift is usually due to shock).
221	G-Sense Error Rate	Low	This is the number of errors that have resulted from external vibration and shock.
222	Loaded Hours		This is how long the hard drive has operated under data load (this requires movement of the magnetic head armature).
223	Load/Unload Retry Count		This is how many time the magnetic head has changed position.
224	Load Friction	Low	This is resistance caused by friction in mechanical parts during operation.
225	Load/Unload Cycle Count	Low	This is the total number of load cycles.
226	Load 'In'-time		This is the total time that the magnetic heads actuator has had a load (not been in the parking area).
227	Torque Amplification Count	Low	This is the number of attempts to compensate for variations in platter speed.
228	Power-Off Retract Cycle	Low	This is how many times the magnetic armature was automatically retracted because the power was cut.
230	GMR Head Amplitude		This is the amplitude of thrashing (or the distance of repetitive forward and reverse head motion).
231	Temperature	Low	This is the hard drive's temperature.
240	Head Flying Hours		This is the total time that the head has been positioning.
250	Read Error Retry Rate	Low	This is the number of errors in reading from the disk.

5.4 iSCSI LUNs Screens

This section enables you to create, up-map, and delete LUN volumes, as well as display the volumes' information. Click **Storage Manager > iSCSI > iSCSI LUNs** to display the following screen.

Figure 53 Storage Manager > iSCSI > iSCSI LUNs

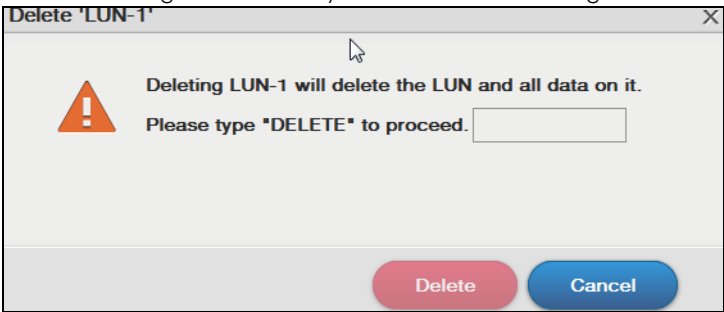



The following table describes the labels in this screen.

Table 34 Storage Manager > iSCSI > iSCSI LUNs

LABEL	DESCRIPTION
Create	Click this to create a new LUN on a volume. See more details on Section 5.4.1 on page 76 .
Un-map	Click this to open the following screen where you can un-map the LUN from the iSCSI target. <div data-bbox="594 1180 1323 1501"> </div> <p>Key in UN-MAP and click Un-map to un-map the LUN from the iSCSI target. Click Cancel to close this screen.</p>

Table 34 Storage Manager > iSCSI > iSCSI LUNs (continued)

LABEL	DESCRIPTION
Delete	<p>Click this to open the following screen where you can delete an existing LUN.</p>  <p>Key in DELETE and click Delete to remove an existing LUN. Click Cancel to close this screen.</p>
Info	<p>Click this item to check detailed information about the LUN.</p>  <p>Name - Displays the name of the LUN.</p> <p>Location - Displays the name of the volume the LUN is located in.</p> <p>Capacity - Displays the size of the LUN.</p> <p>Allocation mode - Displays the allocation method the LUN applies.</p> <p>Write Back - Displays whether the write back feature is enabled or disabled.</p> <p>Mapped iSCSI Target - Displays the iSCSI target name the LUN is mapped to.</p>

5.4.1 Create a New LUN

A LUN is a unit of storage shared over iSCSI that can be mapped to an iSCSI target. You must create an iSCSI LUN volume before you configure an iSCSI target for it. Click **Create** in the **iSCSI LUNs** section of the **Storage Manager > iSCSI** screen to open the screens as shown.

Step 1 Set up LUN Properties

Figure 54 Creating a New LUN: Set up LUN Properties

The following table describes the labels in these screens.

Table 35 Create a New LUN: Set up LUN Properties

LABEL	DESCRIPTION
Name	Type a LUN name in this field. Note: Valid characters for the name are 0-9, a-z, and A-Z, and the maximum length is 30 characters. The "-" symbol is allowed as well, but cannot be the first character.
Location	Select a volume to create the LUN on.
Capacity	Type the size of the LUN in this field.
Allocation Mode	Select the method the NAS uses to allocate storage space to the LUN. Thin provisioning - Allocate space only when an initiator writes data to it. Instant allocation - Allocate the specified disk space to the LUN when you create the LUN.
Enable Write Back	Select this option to increase the write performance. Write Back is a feature that collects data in the hard disk's cache memory first and permanently writes data into the hard disk when the system is idle. Note: It also creates a serious data integrity hazard. Data loss may occur if the NAS experiences unexpected power loss before it has time to write the cached data to the hard disk.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Summary

Use this screen to review the settings you configured in the last step.

Figure 55 Creating a New LUN: Summary

Item	Value
Name	LUN-2
Location	Volume2 (Available 590.39 GB)
Capacity	1 GB
Allocation mode	Thin Provisioning
Write Back	Enabled

The following table describes the labels in these screens.

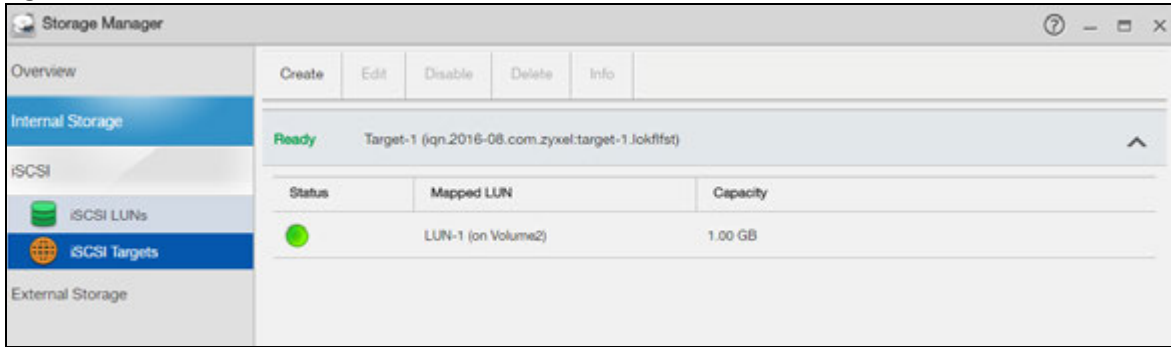
Table 36 Create a New LUN: Summary

LABEL	DESCRIPTION
Name	Displays the name of the LUN.
Location	Displays the name of the volume the LUN is located in.
Capacity	Displays the size of the LUN.
Allocation Mode	Displays the allocation method the LUN applies.
Write Back	Displays whether the Write Back feature is enabled or disabled.
Back	Click Back to go to the previous step.
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.4.2 iSCSI Targets Screens

The iSCSI target refers to the storage resource that is actually attached to the iSCSI storage device. The initiator can manage the assigned disk volume on the iSCSI target over the Internet as if it was the initiator's internal storage volume.

iSCSI Targets allows you to create, edit, and delete an iSCSI target and map a target to an existing LUN. Click **Storage Manager > iSCSI > iSCSI Targets** to show the following screen.

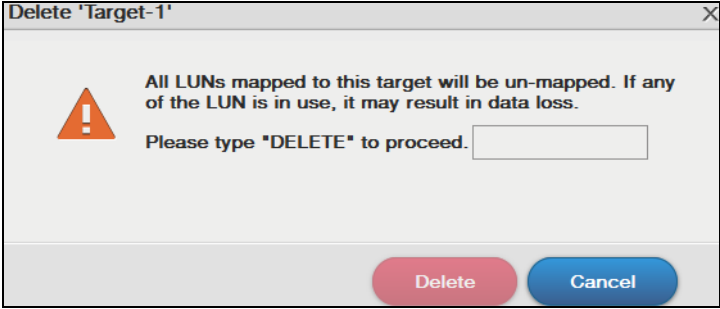
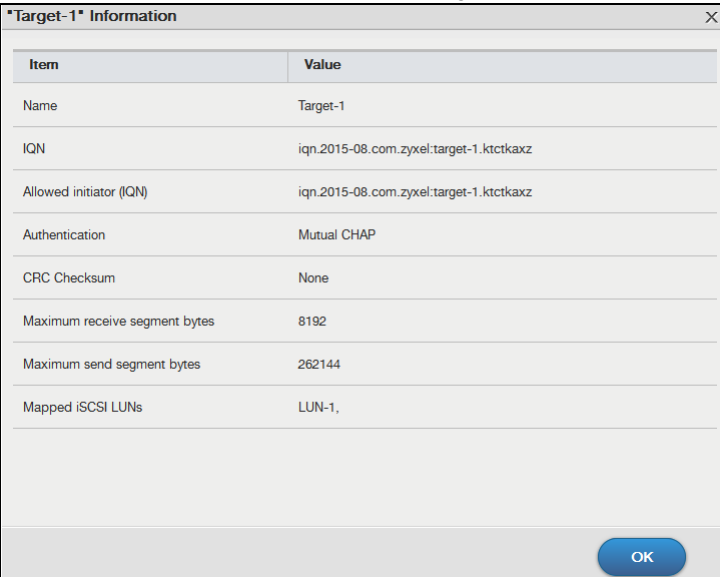
Figure 56 Storage Manager > iSCSI > iSCSI Targets

The following table describes the labels in these screens.

Table 37 Storage Manager > iSCSI > iSCSI Targets

LABEL	DESCRIPTION
Create	Click this to create a new iSCSI target. See more details on Section 5.4.2.1 on page 80 .
Edit	Click this to modify the configuration of the iSCSI target. See more detailed on Section 5.4.2.2 on page 85 .
Disable / Enable	<p>Disable - Click this to open the following screen where you can deactivate an existing target.</p> <div data-bbox="609 919 1325 1228"> </div> <p>Key in DISABLE and click Disable to deactivate the target. Click Cancel to close this screen.</p> <p>Enable - When the iSCSI is disabled, click Enable will activate the target.</p>

Table 37 Storage Manager > iSCSI > iSCSI Targets (continued)

LABEL	DESCRIPTION
Delete	<p>Click this to open the following screen where you can delete an existing target.</p>  <p>Key in DELETE and click Delete to remove an existing target. Click Cancel to close this screen.</p>
Info	<p>Click this item to check detailed information about the target.</p>  <p>Name - Displays the created target name.</p> <p>IQN - Displays the target's iSCSI Qualified Name (IQN) format.</p> <p>Allowed initiator (IQN) - Displays the allowed initiator's iSCSI Qualified Name (IQN) format.</p> <p>Authentication - Displays the authentication method the target applies.</p> <p>CRC Checksum - Displays the data transmission error detecting technique.</p> <p>Maximum receive segment bytes - Displays the maximum data segment length in bytes that the iSCSI target can receive.</p> <p>Maximum send segment bytes - Displays the maximum data segment length in bytes that the iSCSI target can send. This feature is for the NAS326 only.</p> <p>Mapped iSCSI Luns - Displays the LUNs mapped with the target.</p>

5.4.2.1 Create a New Target

Click **Create** in the **iSCSI Targets** section of the **Storage Manager > iSCSI** screen to open the screens as shown.

Note: The NAS can create only 10 targets at maximum.

Step 1 Set up Target Properties

Figure 57 Creating a new Target: Set up Target Properties

Create an iSCSI Target

① Set up Target Properties / ② Map iSCSI LUNs / ③ Summary

Name: Target-1

IQN: iqn.2016-08.com.zyxel.target-1.ykrfmgth

Allowed initiator (IQN): iqn.1991-05.com.microsoft.tspcst02102-01.zyxel.com

CHAP ⓘ

Username: iqn.1991-05.com.microsoft.tspcst0

Password: *****

Confirm Password: *****

☐ Enable mutual CHAP ⓘ

Username:

Password:

Confirm Password:

Next Cancel

The following table describes the labels in these screens.

Table 38 Create a New Target: Set up Target Properties

LABEL	DESCRIPTION
Name	Enter the name of your iSCSI target. Note: Valid characters for the name are 0-9, a-z, and A-Z, and the maximum length is 30 characters. The "-" symbol is allowed as well, but cannot be the first character.
IQN	The iSCSI Qualified Name (IQN) of the target is automatically generated after you enter the target name.

Table 38 Create a New Target: Set up Target Properties (continued)

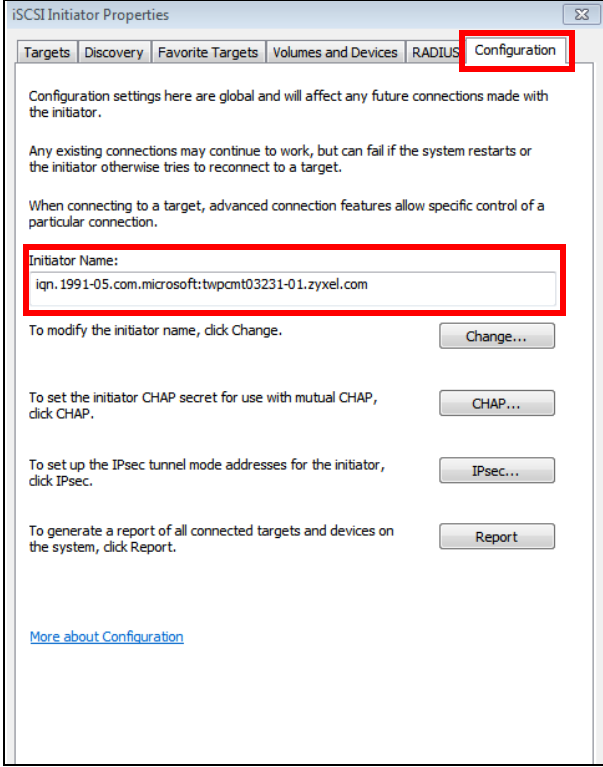
LABEL	DESCRIPTION
Allowed initiator (IQN)	<p>The allowed initiator name is in the iSCSI Qualified Name (IQN) format.</p> <p>To check the initiator name, open the iSCSI Initiator program on your computer. Select the Configuration tab and you can see the initiator name as shown in the following screen.</p>  <p>Note: If you use your computer as the iSCSI initiator, download and install the iSCSI Initiator first. For example, use Microsoft iSCSI Software Initiator with a Microsoft OS or globalSAN iSCSI Initiator with MAC OS.</p>
CHAP	<p>If the iSCSI target has configured Challenge Handshake Authentication Protocol (CHAP) here, the initiator needs to enter the secret before the initiator connects to the target. The target will authenticate the initiator with the username and password (shared secret). The connection fails if the username and password are not entered correctly.</p> <p>Username - The user name is for the initiator to authenticate the initiator when attempting connection.</p> <p>Password - The password is for the target to authenticate the initiator when attempting connection.</p> <p>Confirm password - Re-type the password to make sure you entered it correctly.</p> <p>Note: Valid characters for password are 0-9, a-z, and A-Z. The password length is 12 to 16 characters.</p>

Table 38 Create a New Target: Set up Target Properties (continued)

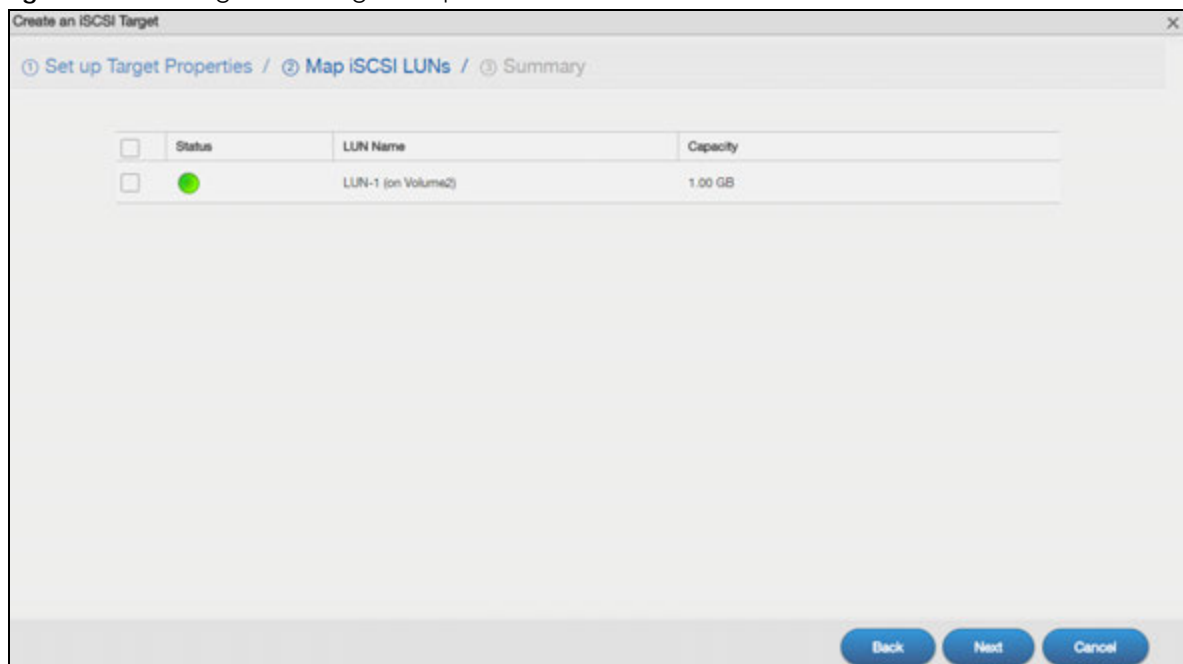
LABEL	DESCRIPTION
Enable mutual CHAP	<p>Mutual CHAP is a two-way authentication between the iSCSI initiator and the target. If the initiator has configured CHAP authentication, the target must enter the secret that's set up by the initiator when attempting connection.</p> <p>Select this check box to perform mutual CHAP on the target.</p> <p>Username - The user name is for the initiator to authenticate the initiator when attempting connection.</p> <p>Password - The password is for the target to authenticate the initiator when attempting connection.</p> <p>Confirm password - Re-type the password to make sure you entered it correctly.</p> <p>Note: Valid characters for password are 0-9, a-z, and A-Z. The password length is 12 to 16 characters.</p>
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 2 Map iSCSI LUNs

Use this screen to map the iSCSI target to an existing LUN.

Note: One iSCSI target can map to several LUN, but one LUN can only map to one target.

Figure 58 Creating a new Target: Map iSCSI LUNs



The following table describes the labels in these screens.

Table 39 Create a New Target: Map iSCSI LUNs

LABEL	DESCRIPTION
Status	Displays the status of the iSCSI LUN(s).
LUN Name	Displays the LUN name.
Capacity	Displays the size of the iSCSI LUN(s).
Back	Click Back to go to the previous step.
Next	Click Next to go to the next step.
Cancel	Click Cancel to close the screen without saving any settings.

Step 3 Summary

Use this screen to review the settings you configured in the last step.

Figure 59 Creating a new Target: Summary

The screenshot shows a window titled "Create an iSCSI Target" with a close button (X) in the top right corner. Below the title bar is a breadcrumb navigation bar: "① Set up Target Properties / ② Map iSCSI LUNs / ③ Summary". The main content area contains a table with the following data:

Item	Value
Name	Target-1
IQN	iqn.2016-08.com.zyxel.target-1.ykrfmgth
Allowed initiator (IQN)	iqn.1991-05.com.microsoft:twpc2102-01.zyxel.com
Authentication	CHAP
Mapped iSCSI LUNs	LUN-1,

At the bottom right of the window are three buttons: "Back", "Apply", and "Cancel".

The following table describes the labels in these screens.

Table 40 Create a New Target: Summary

LABEL	DESCRIPTION
Name	Displays the iSCSI target name.
IQN	Displays the IQN of the target.
Allowed initiator (IQN)	Displays the IQN of the allowed initiator.
Authentication	Displays the CHAP authentication method the target applies.
Mapped iSCSI LUNs	Displays the iSCSI LUN the target maps to.
Back	Click Back to go to the previous step.

Table 40 Create a New Target: Summary (continued)

LABEL	DESCRIPTION
Apply	Click Apply to save the settings.
Cancel	Click Cancel to close the screen without saving any settings.

5.4.2.2 Edit a Created Target

You can edit iSCSI target settings such as allowed initiator (IQN), CHAP, and CRC checksum after you create a target. Click **Storage Manager > iSCSI > iSCSI Targets** and select **Edit** to open the following screens.

Properties

The **Properties** screen allows you to edit the allowed initiator (IQN), CHAP authentication features as shown in the following screen.

Figure 60 Storage Manager > iSCSI > iSCSI Targets > Edit > Properties

The following table describes the labels in these screens.

Table 41 Storage Manager > iSCSI > iSCSI Targets > Edit > Properties

LABEL	DESCRIPTION
Name	Displays the name of your iSCSI target.
IQN	Displays the iSCSI Qualified Name (IQN) of the target.
Allowed initiator (IQN)	The allowed initiator name is in the iSCSI Qualified Name (IQN) format. You can connect with another initiator by changing the allowed initiator IQN. The system will display a prompt if you enter an invalid character or username of unacceptable length in this field.

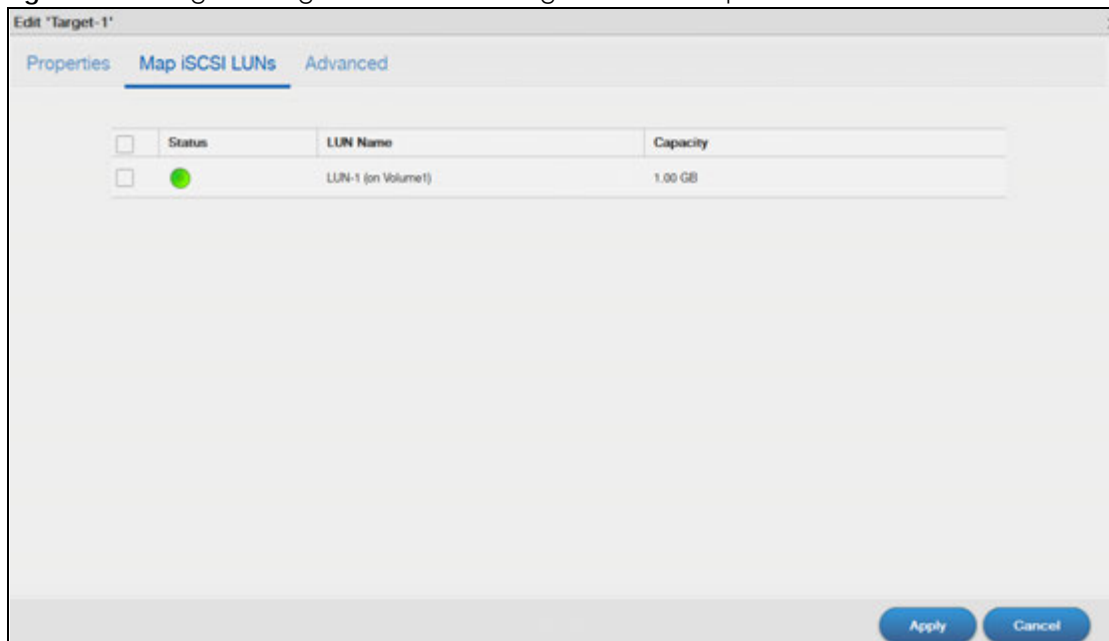
Table 41 Storage Manager > iSCSI > iSCSI Targets > Edit > Properties (continued)

LABEL	DESCRIPTION
CHAP	<p>Username - The user name is for the initiator to authenticate the initiator when attempting connection.</p> <p>Password - The password is for the target to authenticate the initiator when attempting connection.</p> <p>Confirm password - Re-type the password to make sure you entered it correctly.</p> <p>Note: Valid characters for password are 0-9, a-z, and A-Z. The password length is 12 to 16 characters.</p>
Enable mutual CHAP	<p>Select this check box to perform mutual CHAP on the target.</p> <p>Username - The user name is for the target to authenticate the initiator when attempting connection.</p> <p>Password - The password is for the target to authenticate the initiator when attempting connection.</p> <p>Confirm password - Re-type the password to make sure you entered it correctly.</p> <p>Note: Valid characters for password are 0-9, a-z, and A-Z. The password length is 12 to 16 characters.</p>
Apply	Click Apply to save your changes.
Cancel	Click Cancel to close the screen without saving any settings.

Map iSCSI LUNs

If the existing iSCSI target doesn't map to any iSCSI LUN, go to **Map iSCSI LUNs** to configure the mapping.

Figure 61 Storage Manager > iSCSI > iSCSI Targets > Edit > Map iSCSI LUNs



The following table describes the labels in these screens.

Table 42 Storage Manager > iSCSI > iSCSI Targets > Edit > Map iSCSI LUNs

LABEL	DESCRIPTION
Status	Displays the status of the iSCSI LUN.
LUN Name	Displays the iSCSI LUN name.
Capacity	Displays the size of the iSCSI LUN.
Apply	Select the check to choose a LUN, and click Apply to save your changes.
Cancel	Click Cancel to close the screen without saving any settings.

Advanced

Go to **Advanced** screen for other configurations such as CRC checksum and maximum receive/send segments.

Figure 62 Storage Manager > iSCSI > iSCSI Targets > Edit > Advanced

The screenshot shows the 'Edit Target-1' window with the 'Advanced' tab selected. The window contains the following settings:

- CRC checksum**: Checked (indicated by a checkmark icon).
- Data digest**: Unchecked (checkbox).
- Header digest**: Unchecked (checkbox).
- Maximum receive segment bytes**: Set to 8192 (dropdown menu).
- Maximum send segment bytes**: Set to 262144 (dropdown menu).

At the bottom right, there are two buttons: **Apply** and **Cancel**.

The following table describes the labels in these screens.

Table 43 Storage Manager > iSCSI > iSCSI Targets > Edit > Advanced

LABEL	DESCRIPTION
CRC checksum	Cyclic Redundancy Check (CRC) checksum is a technique for detecting data transmission errors. It ensures correct data transmissions between the initiator and the target. If you select the Data/Header Digest, the iSCSI initiator will be verified by these parameters when transmitting data.
Data digest	Select the check box to enable data digest. The data digest protects the integrity of the data.
Header digest	Select the check box to enable header digest. The header digest protects the integrity of the header.
Maximum receive segment bytes	Select the maximum receive segments allowed in bytes. Four options are applied: 262144, 65536, 9182, 4092.

Table 43 Storage Manager > iSCSI > iSCSI Targets > Edit > Advanced (continued)

LABEL	DESCRIPTION
Maximum send segment bytes	Select the maximum send segments allowed in bytes. Four options are applied: 262144, 65536, 9182, 4092. Note: This feature is for the NAS326 only.
Apply	Click Apply to save your changes.
Cancel	Click Cancel to close the screen without saving any settings.

5.5 External Storage

This section covers the management of external volumes and disks.

Use the **External Storage** screen ([Section 5.5.2 on page 88](#)) to display information on all external volumes, configure volumes' name and format volumes.

5.5.1 What You Need to Know

Disk

USB-attached storage disks and SD cards are treated as external disks/volumes.

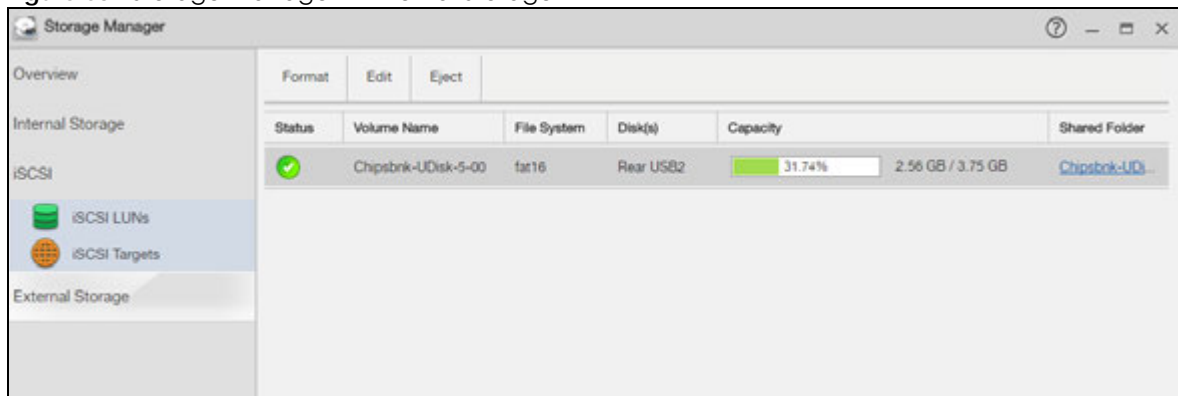
Volume

A volume is a storage area on a disk or disks. You can create volumes on SD cards or external disks attached to the USB ports. You cannot spread a volume across external disks like you can with internal disks.

5.5.2 External Storage Screens

Click **Storage Manager > External Storage** in the navigation panel to display the following screen. Use this screen to format and edit external volumes on USB-connected storage and SD cards.

Figure 63 Storage Manager > External Storage



The following table describes the labels in this screen.

Table 44 Storage Manager > External Storage

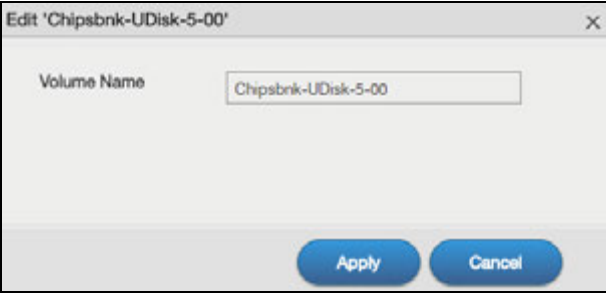
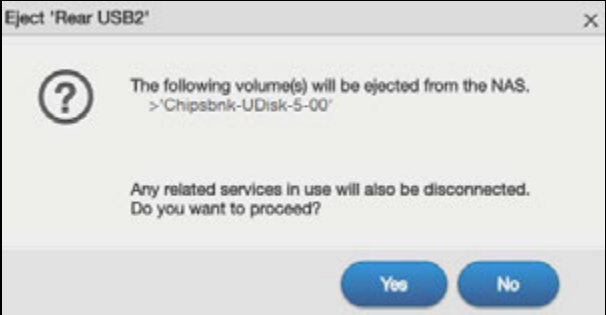
LABEL	DESCRIPTION
Format	<p>Click this to format the connected USB disk.</p> <p>See Section 5.5.3 on page 90 for more information.</p>
Edit	<p>Click this to modify the volume name.</p>  <p>Volume name -</p> <ul style="list-style-type: none"> • Type a volume name from 1 to 31 characters. • Acceptable characters are all alphanumeric characters and " " [spaces], "_" [underscores], and "." [periods]. • The first character must be alphanumeric (A-Z 0-9). • The last character cannot be a space " ". <p>Apply - Click this to save your change and rename the volume.</p> <p>Cancel - Click this to exit this screen without saving changes.</p>
Eject	<p>Click this to eject the external volume.</p>  <p>Click Yes to eject the volume or No to exit this screen without saving changes.</p>
Status	<p>This field shows whether the volume is Normal, Unsupported, or Unformatted.</p> <p>Normal means the USB connected device is functioning properly.</p> <p>Unsupported means the USB connected device uses a file system the NAS does not support.</p> <p>Unformatted means the USB connected device is not formatted with a file system.</p> <p>Note: There is no explicit message from CIFS that tells users their volume is degraded or down.</p>
Volume Name	<p>This field displays the volume name. If the status is Unsupported or Unformatted, the volume name displays "...".</p>
File System	<p>This field displays the file system that an external (USB or SD) volume is using.</p>
Disk(s)	<p>This field shows to which USB port the disk is connected.</p>

Table 44 Storage Manager > External Storage (continued)

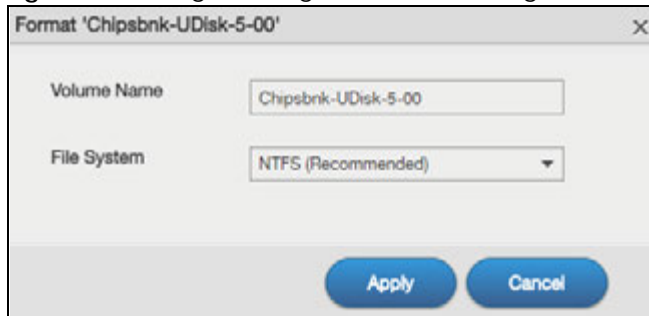
LABEL	DESCRIPTION
Capacity	This field shows total disk size, the percentage of the volume being used and the percentage that is available. If the status is Unsupported , the capacity displays "Unknown". If the status is Unformatted , the capacity displays "--".
Shared Folder	This field displays the folder that shares files. Roll your mouse over the link and click it to display the files in the File Browser.

5.5.3 Format the External Volume

This allows you to format the connected USB disk. Click **Storage Manager > External Storage > Format** to show the following screen.

Note: Formatting the disk will also delete all your data in the USB drive. If the connected external volume has more than one partition, you can choose which partition you want to format.

Figure 64 Storage Manager > External Storage > Format



The following table describes the labels in this screen.

Table 45 Storage Manager > External Storage > Format

LABEL	DESCRIPTION
Volume Name	Type a volume name from 1 to 31 characters. Acceptable characters are all alphanumeric characters and " " [spaces], "_" [underscores], and "." [periods]. The first character must be alphanumeric (A-Z 0-9). The last character cannot be a space " ".
File System	Select the file system you want the new volume to use. Windows file systems NTFS: Recommended. FAT32: Newer, and more efficient than FAT16. Supports a volume size of up to 2 TB (Tera Bytes) and individual file sizes of up to 4 GB. Linux file systems EXT2: Older file system. EXT3: The same as EXT2, but adds a journaled file system and is more robust. EXT4: Supports larger files and better performance than EXT3.
Apply	Click this to save your changes and format the disk.
Cancel	Click this to exit this screen without saving changes.

5.6 Technical Reference

This section contains background on JBOD and the RAID levels used on the NAS.

JBOD

- Minimum number of disks: 1
- Total capacity: Sum of the member disks
- Advantages: Maximum storage capacity, especially for disks of mixed sizes. Flexibility (you can add disks to the JBOD)
- Disadvantages: Not as fast or reliable as RAID.

JBOD allows you to combine multiple physical disk drives into a single virtual one, so they appear as a single large disk. JBOD can be used to turn several different-sized drives into one big drive. For example, JBOD could convert 100 GB, 200 GB, 250 GB, and 500 GB drives into one large logical drive of 1050 GB. Since data isn't striped across disks, if one disk fails, you should just lose the data on that disk (but you may lose data in the whole array depending on the nature of the disk failure). You can add disks to the JBOD array later (using the Add disk to JBOD feature) and even remove them so JBOD offers a lot of flexibility. However JBOD read performance is not as good as RAID as only one disk can be read at a time and they must be read sequentially. The following figure shows three disks in a single JBOD array. Data is not written across disks but written sequentially to each disk until it's full.

Table 46 JBOD

A1	B1	C1
A2	B2	C2
A3	B3	C3
A4	B4	C4
DISK 1	DISK 2	DISK 3

RAID 0

RAID 0 spreads data across two or more disks (data striping) with no mirroring nor parity for data redundancy, so if one disk fails the entire array will be lost. The major benefit of RAID 0 is performance. The following figure shows two disks in a single RAID 0 array. Data can be written and read across disks simultaneously for faster performance.

Table 47 RAID 0

A1	A2
A3	A4
A5	A6
A7	A8
DISK 1	DISK 2

RAID 0 capacity is the size of the sum of the capacities of the disks in the RAID 0. For example, if you have four disks of sizes 1 TB, 2 TB, 3 TB and 2 TB respectively in one RAID 0 array, then the maximum capacity is 8 TB.

Typical applications for RAID 0 are non-critical data (or data that changes infrequently and is backed up regularly) requiring high write speed such as audio, video, graphics, games and so on.

RAID 1

RAID 1 creates an exact copy (or mirror) of a set of data on another disk. This is useful when data backup is more important than data capacity. The following figure shows two disks in a single RAID 1 array with mirrored data. Data is duplicated across two disks, so if one disk fails, there is still a copy of the data.

Table 48 RAID 1

A1	A1
A2	A2
A3	A3
A4	A4
DISK 1	DISK 2

As RAID 1 uses mirroring and duplexing, a RAID 1 array needs an even number of disks (two or four for the NAS).

RAID 1 capacity is limited to the size of the smallest disk in the RAID array. For example, if you have two disks of sizes 150 GB and 200 GB respectively in one RAID 1 array, then the maximum capacity is 150 GB and the remaining space (50 GB) is unused.

Typical applications for RAID 1 are those requiring high fault tolerance without need of large amounts of storage capacity or top performance, for example, accounting and financial data, small database systems, and enterprise servers.

RAID 6

RAID 6 can tolerate two simultaneous drive failures by calculating dual distributed parity data on striped data across disks. Dual parity provides extra data protection, however, it is slower to write than most other RAID levels.

RAID 6 uses parity to store redundant data on space equal to the size of two disks for later data recovery. Therefore, on a RAID 6 array, only 50% of the space is available as usable capacity. If you have four disks of sizes 1TB, 1TB, 2TB, 2TB respectively in one RAID 6 array, then the maximum capacity of

the array is the capacity of the smallest drive (1TB, 1TB, 2TB, 2TB) * (Number of disks - 2) = 1TB * (4-2) = 2TB. The remaining space (2 TB) is unused.

Table 49 RAID 6

RAID 6			
A1	A2	AP	AQ
B1	BP	BQ	B2
CP	CQ	C1	C2
DQ	D1	D2	DP
DISK 1	DISK 2	DISK 3	DISK 4

RAID 10

RAID 10 (RAID 1+0) is a nested RAID where two RAID 1 arrays are stored on the physical disks with a RAID 0 array on top. It is a stripe of mirrors. RAID 1 provides redundancy while RAID 0 boosts performance. The following figure shows two disks in two RAID 1 arrays. Data is duplicated across two disks, so if one disk fails, there is still a copy of the data. These two arrays are configured as a single RAID 0 array for faster performance.

Table 50 RAID 10

RAID 0			
RAID 1		RAID 1	
A1	A1	A2	A2
A3	A3	A4	A4
A5	A5	A6	A6
A7	A7	A8	A8
DISK 1	DISK 2	DISK 3	DISK 4

Typical applications for RAID 10 are those requiring both high performance and reliability such as enterprise servers and high-end moderate-sized database systems. RAID 10 is often used in place of RAID 1 or RAID 5 by those requiring higher performance. It may be used instead of RAID 1 for applications requiring more capacity.

RAID 5

RAID 5 provides the best balance of capacity and performance while providing data redundancy. It provides redundancy by striping data across three disks and keeps the parity information (AP) on the fourth disk (in each stripe). In case of disk failure, data can be recovered from the surviving disks using the parity information. When you replace the failed disk, the reconstructed data is written onto the new disk. Re-synchronize the array to have it return to its original state. The following example shows data

stripped across three disks (A1 to A3 in the first strip for example) with parity information (AP) on the fourth disk.

Table 51 RAID 5

A1	A2	A3	AP
B1	B2	BP	B3
C1	CP	C2	C3
DP	D1	D2	D3
DISK 1	DISK 2	DISK 3	DISK 4

The capacity of a RAID 5 array is the smallest disk in the RAID set multiplied by one less than the number of disks in the RAID set. For example, if you have four disks of sizes 150 GB, 150 GB, 200 GB and 250 GB respectively in one RAID 5 array, then the maximum capacity is 450 GB (3 * 150 GB, the smallest disk size) and the remaining space (300 GB) is unused.

Typical applications for RAID 10 are transaction processing, relational database applications, enterprise resource planning and other business systems. For write-intensive applications, RAID 1 or RAID 1+0 are probably better choices, as the performance of RAID 5 will begin to substantially decrease in a write-heavy environment.

Hot-spare

A RAID 1 or RAID 5 array with a hot-spare operates as a three-disk RAID 1 or RAID 5 array with the fourth disk on standby. The standby disk automatically comes into play if a disk in the array fails. The advantage of a hot-spare is that if a disk fails, then the array resynchronizes automatically with the standby disk and operates at healthy array speed after the resynchronization.

Note: You need four hard disks installed to use RAID 10, RAID 5 or RAID 5 with hot-spare.

RAID and Data Protection

If a hard disk fails and you're using a RAID 1, RAID 10, or RAID 5 array then your data will still be available (but at degraded speeds until you replace the hard disk that failed and re-synchronize the array). However, RAID cannot protect against file corruption, virus attacks, files incorrectly deleted or modified, or the NAS malfunctioning.

CHAPTER 6

Control Panel: Overview

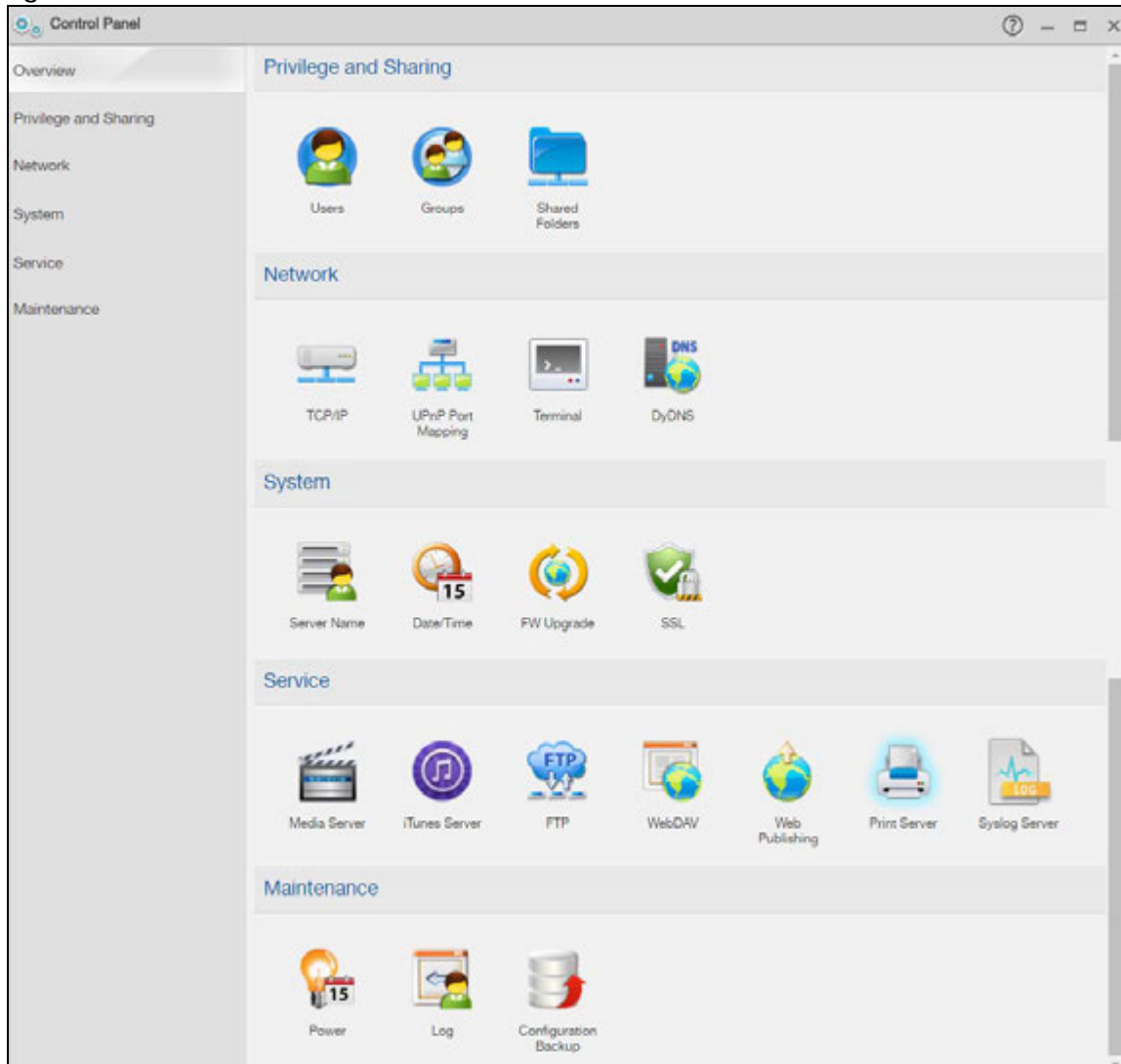
6.1 Overview

This chapter discusses the **Control Panel** screens. Use the **Control Panel** screens to configure administrator settings. The **Control Panel** icon displays on the Desktop when you log in with an administrator account.

6.2 Control Panel Overview

The **Control Panel Overview** screen displays user's access privileges, network, system, media services and maintenance settings. Click **Control Panel** on the **Desktop** to display the following screen.

Figure 65 Control Panel > Overview



The following table describes the labels in this screen.

Table 52 Control Panel > Overview

LABEL	DESCRIPTION
Privilege and Sharing	
Users	Use this section to display and manage a list of user accounts created on the NAS.
Groups	Use this section to display and manage a list of groups created on the NAS.
Shared Folders	Use this section to navigate a list of shares created on the NAS.
Network	
TCP/IP	Use this section to configure the NAS's TCP/IP network connection settings such as the teaming mode and IP addresses.
UPnP Port Mapping	Use this section to automatically configure your Internet gateway's firewall and Network Address Translation (NAT) to allow access to the NAS from the Internet.
Terminal	Use this section to enable or disable Telnet and SSH access.
DyDNS	Use this section to configure the domain name settings of your NAS.

Table 52 Control Panel > Overview (continued)

LABEL	DESCRIPTION
System	
Server Name	Use this section to specify the NAS's server and workgroup names.
Date/Time	Use this section to set up date/time and choose a time zone for the NAS.
FW Upgrade	Use this section to upgrade the NAS firmware.
SSL	Use this section to configure the NAS's SSL certificate.
Service	
Media Server	Use this section to enable or disable the sharing of media files and select which shares to share.
iTunes Server	Use this section to share media files with iTunes users on your network.
FTP	Use this section to enable FTP file transfer to/from the NAS, set the number of FTP connections allowed, an FTP idle timeout, and the character set.
WebDAV	Use this section to allow remote users to use client programs that support WebDAV to edit and manage files stored on the NAS.
Web Publishing	Use this section to let people use a web browser to access files in shares without logging into the Web Configurator.
Print Server	Use this section to view and manage the NAS's list of printers and print jobs.
Syslog Server	Use this section to enable the syslog server and select the categories to include in the log report.
Maintenance	
Power	Use this section to configure power saving settings for the NAS and have the NAS turn itself off and on or reboot according to the schedules you configure.
Log	Use this section to view the NAS's logs and configure how you want to receive the log reports.
Configuration Backup	Use this section to back up and/or restore the NAS configuration file.

CHAPTER 7

Control Panel: Privilege and Sharing

7.1 Overview

This chapter introduces the **Control Panel > Privilege and Sharing** screens.

7.2 What You Can Do

- Use the **Users** screens ([Section 7.3 on page 98](#)) to display and manage a list of user accounts created on the NAS.
- Use the **Groups** screens ([Section 7.4 on page 107](#)) to display and manage a list of groups created on the NAS.
- Use the **Shared Folders** screens ([Section 7.5 on page 114](#)) to navigate a list of shares created on the NAS.

7.3 Users

Use the **Users** screens to create and manage administrator and user accounts.

Administrators can:

- Configure and manage the NAS.
- Create volumes, shares, and user accounts.
- Assign individual users specific access rights for specific shares.




Users are people who have access rights to the NAS and can store files there for later retrieval. A user can:

- Change his own password.
- Access the contents of other shares to which he is given access rights.

User Icons

The following table describes the user icons.

Table 53 User Icons

ICON	DESCRIPTION
	This icon is for an administrator account.
	This icon is for a user account.
	This icon is for a myZyxelCloud account.

Username

Enter a username from one to 32 characters. The first character must be alphabetical (case insensitive, [A-Z a-z]); numeric characters are not allowed as the first character.

The username can only contain the following characters:

- Alphanumeric A-z 0-9. Usernames are supported with CIFS and web configurator logins.
- Spaces
- _ [underscores]
- . [periods]
- - [dashes]

Other limitations on usernames are:

- All leading and trailing spaces are removed automatically.
- Multiple spaces within names are converted to a single space.
- Usernames are case insensitive. The username cannot be the same (no matter the letter case) as an existing user. For example, if a user exists with the name 'BOB', you cannot create a user named 'bob'. If you enter a user 'bob' but use 'BOB' when connecting via CIFS or FTP, it will use the account settings used for 'bob'.
- The username cannot be the same as a system username such as **pc-guest** nor be the same as an existing user. Other reserved usernames that are not allowed are:
 - bin
 - daemon
 - ftp
 - anonymous
 - nobody
 - root
 - pc-guest
 - admin
 - password

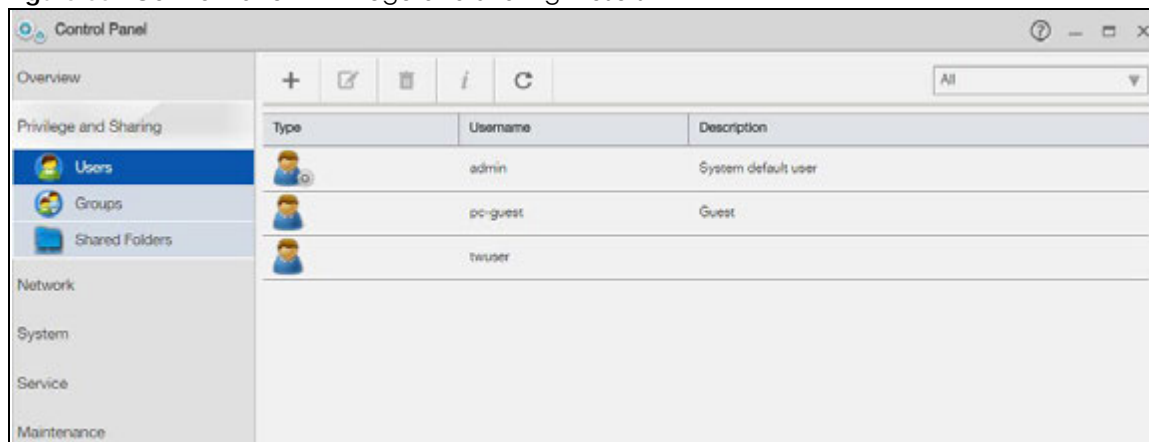
pc-guest

If you give the **pc-guest** user read-only access or full access to files in a share. The share becomes a public share. Everyone on the network can use Windows Explorer to access a public share without a login user name and password.

7.3.1 Users Screen

Use this screen to create and manage accounts for users who can store files on the NAS. Click **Control Panel > Privilege and Sharing > Users** to display the screen shown next.

Figure 66 Control Panel > Privilege and Sharing > Users



The following table describes the labels in this screen.

Table 54 Control Panel > Privilege and Sharing > Users


LABEL	DESCRIPTION
Add User	Click this to open a screen where you can configure a new user account. Refer to Section 7.3.2 on page 101 to see the screen.
Edit User	Select an account and click this to open a screen where you can edit the properties of the account. Refer to Section 7.3.3 on page 105 to see the screen.
Delete Selected Users	Select an account and click this to open a screen where you can delete the user account. 
User Info	Select an account and click this to open a screen displaying the amount of storage space used by the account. You can also check the account's membership in any groups. Refer to Section 7.3.4 on page 106 to see the screen.
Refresh	Click this to renew this screen.
	Select what users you want to see from the drop-down list box.
Type	This field displays whether the account is an administrator account or a user account.

Table 54 Control Panel > Privilege and Sharing > Users (continued)

LABEL	DESCRIPTION
Username	This field displays the username of each account.
Description	This field displays the description of each account.

7.3.2 Add an Account

Use this screen to create a NAS user account with NAS access password. Click the **Add User** button in the **Users** screen to open the following screens.

Step 1 General Settings

Figure 67 Control Panel > Privilege and Sharing > Users > Add a User: General Settings

The following table describes the labels in this screen.

Table 55 Control Panel > Privilege and Sharing > Users > Add a User: General Settings

LABEL	DESCRIPTION
Account Type	<p>Select Administrator to give the account full configuration and management access to the NAS.</p> <p>Select User to give the account basic access rights to the NAS and allow the user to manage his own shares, change his own password, and access the contents of other shares to which he is given access rights.</p>
Username	Type a name from 1 to 32 single-byte (no Chinese characters allowed for example) ASCII characters. See Section 7.3 on page 98 for more details on usernames.
Description	Type the description for this account.
Password	Create a password associated with this user. You can type from one to 14 single-byte (no Chinese characters allowed for example) ASCII characters.
Confirm Password	You must type the exact same password that you just typed in the above field.

Table 55 Control Panel > Privilege and Sharing > Users > Add a User: General Settings (continued)

LABEL	DESCRIPTION
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 2 Groups

Figure 68 Control Panel > Privilege and Sharing > Users > Add a User: Groups

The screenshot shows the 'Add User' dialog box with the 'Groups' tab selected. The breadcrumb trail at the top reads: ① General Settings / ② Groups / ③ Shared Folder Access / ④ Quota / ⑤ Summary. Below this is a table with three columns: 'Group Name', 'Description', and 'Join Group'. The first row contains the text 'everyone' under 'Group Name', 'System default group' under 'Description', and a checked checkbox under 'Join Group'. At the bottom right of the dialog are three buttons: 'Back', 'Next', and 'Cancel'.

Group Name	Description	Join Group
everyone	System default group	<input checked="" type="checkbox"/>

The following table describes the labels in this screen.

Table 56 Control Panel > Privilege and Sharing > Users > Add a User: Groups

LABEL	DESCRIPTION
Group Name	This field displays the group name.
Description	This field displays the description of the group.
Join Group	Click this to add the account to the group.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 3 Shared Folder Access

Figure 69 Control Panel > Privilege and Sharing > Users > Add a User: Shared Folder Access

① General Settings / ② Groups / ③ Shared Folder Access / ④ Quota / ⑤ Summary

Shared Folder	Description	<input type="checkbox"/> No Access	<input type="checkbox"/> Read Only	<input type="checkbox"/> Read/Write
admin	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
music	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
photo	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
video	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Access right priority : NA > RO > RW

Back Next Cancel

The following table describes the labels in this screen.

Table 57 Control Panel > Privilege and Sharing > Users > Add a User: Shared Folder Access

LABEL	DESCRIPTION
Shared Folder	This field lists the shares to which you can assign access rights.
Description	This field displays the description of the shared folder.
No Access	<p>Click the check box to block access (users cannot read, modify, nor execute) to all files contained within this share.</p> <p>Among all access rights, No Access has the highest . For example, User A belongs to Group 1. You assign User A full access rights to the Music share but deny access rights to Group 1. Then User A cannot access the Music share.</p> <p>Note: If you deny access to all users, no-one can use the share, not even the administrator.</p>
Read Only	Click the check box to give users read-only access (they cannot modify nor execute) to all files contained within this share.
Read/Write	Click the check box to give users full access (read, write and execute) to all files contained within this share.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 4 Quota

Figure 70 Control Panel > Privilege and Sharing > Users > Add a User: Quota

The screenshot shows a web-based configuration window titled "Add User". At the top, there is a breadcrumb navigation trail: "General Settings / Groups / Shared Folder Access / Quota / Summary". The "Quota" step is currently active. Below the breadcrumb, there are two main input sections. The first is labeled "Volume Name" and contains a dropdown menu showing "Volume1 (available 912.79 GB)". The second is labeled "Quota (per volume)" and contains a text input field with the value "0" and a unit selector set to "GB (0 means unlimited)". At the bottom right of the window, there are three buttons: "Back", "Next", and "Cancel".

The following table describes the labels in this screen.

Table 58 Control Panel > Privilege and Sharing > Users > Add a User: Quota

LABEL	DESCRIPTION
Volume Name	Select the volume in which you want the user's files to be stored.
Quota (per volume)	Enter how much space (in gigabytes) you want to allow for the user to store files.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 5 Summary

Figure 71 Control Panel > Privilege and Sharing > Users > Add a User: Summary

Item	Value
Username	trouser
Description	
Group List	everyone
Shared Folders(N/A Access)	N/A
Shared Folders(Read Only)	N/A
Shared Folders(Read/Write)	N/A
Quota	Volume1: 100 GB

Navigation buttons: Back, Apply, Cancel

Use this screen to view your account settings. Click **Back** to return to the previous step. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.3.3 Edit an Account

Use this screen to edit a NAS user account with NAS access password. Select an account and click the **Edit User** button in the **Users** screen to open the following screen.

Figure 72 Control Panel > Privilege and Sharing > Users > Edit a User

Account Type: ☐ Administrator ☒ User

Username:

Description:

Password:
Suggest using password with a length over 8

Confirm Password:

Navigation buttons: Apply, Cancel

Click **General Settings**, **Groups**, **Shared Folder Access** or **Quota** to edit the account settings. Refer to [Section 7.3.2 on page 101](#) for more information on the screens. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.3.4 User Info

Use this screen to display a user's information. In the **Users** screen, select an account and click the **User Info** button to open the following screen.

Figure 73 Control Panel > Privilege and Sharing > Users > User Info

The screenshot shows a window titled "User Information" with a close button (X) in the top right corner. Below the title bar is a "Summary" section containing a table with two columns: "Item" and "Value". The table lists the following information:

Item	Value
Username	admin
Description	System default user
Group List	everyone
Shared Folders(No Access)	--
Shared Folders(Read Only)	--
Shared Folders(Read/Write)	admin
Quota	Unlimited

An "OK" button is located at the bottom right of the window.

The following table describes the labels in this screen.

Table 59 Sharing > Users > User Info

LABEL	DESCRIPTION
Username	This field displays the selected username.
Description	This field displays the description of the user.
Group List	This field displays the list of groups to which the selected user belongs.
Shared Folders (No Access)	This field displays the access permission to the user.
Shared Folders (Read Only)	This field displays the access permission to the user.
Shared Folders (Read/Write)	This field displays the access permission to the user.
Quota	This field displays the amount of volume space used by the selected account.
OK	Click this to close the current screen.

7.4 Groups

Use the **Groups** screens to create and manage groups. You can assign users to groups and grant individual groups access rights to specific shares.

Group Names

Enter a group name from 1 to 32 characters. The first character must be alphabetical (case insensitive, [A-Z a-z]); numeric characters are not allowed as the first character.

The group name can only contain the following characters:

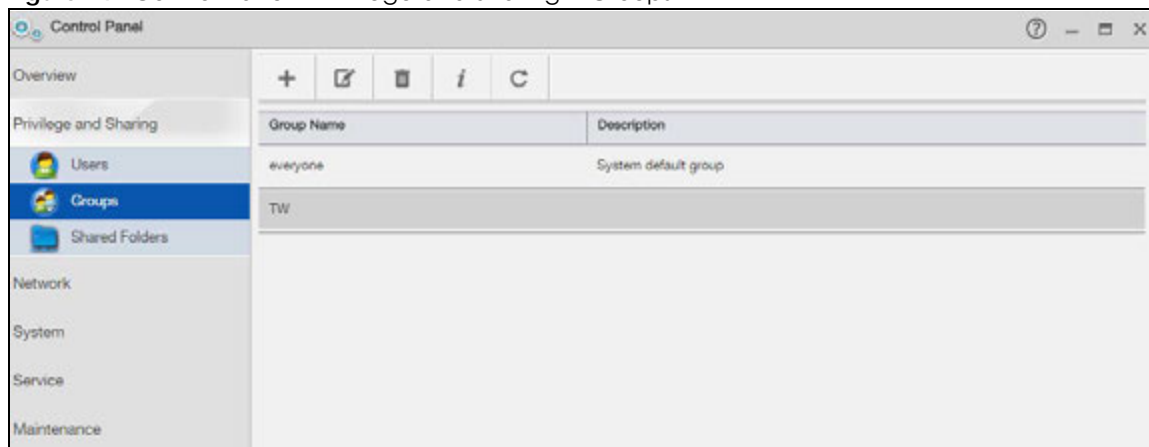
- Alphanumeric A-z 0-9. Unicode usernames are supported with CIFS logins, but not FTP or web configurator logins.
- Spaces
- _ [underscores]
- . [periods]
- - [dashes]

Other limitations on group names are:

- All leading and trailing spaces are removed automatically.
- Multiple spaces within names are converted to a single space.
- Group names are case insensitive. The group name cannot be the same (no matter the letter case) as an existing group. For example, if a group exists with the name 'FAMILY', you cannot create a group named 'family'.
- The group name cannot be the same as a system group name such as **EVERYONE** nor be the same as an existing group. Other reserved groups names that are not allowed are:
 - nobody
 - root
 - everyone

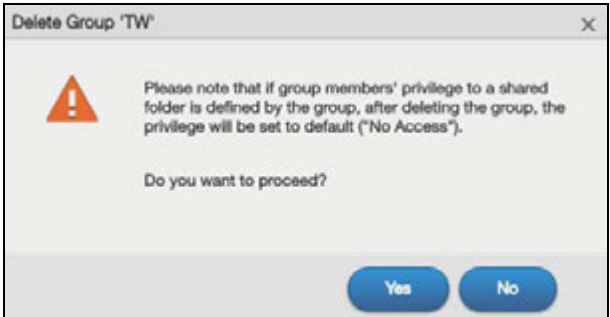
7.4.1 Groups Screen

Use this screen to create and manage groups. Click **Control Panel > Privilege and Sharing > Groups** to display the screen shown next.

Figure 74 Control Panel > Privilege and Sharing > Groups

The following table describes the labels in this screen.

Table 60 Control Panel > Privilege and Sharing > Groups

LABEL	DESCRIPTION
Add Group	Click this to open a screen where you can configure a new group.
Edit Group	Select a group and click this to open a screen where you can edit the properties of the selected group.
Delete Selected Group(s)	Select a group and click this to open a screen where you can delete the group. 
Group Information	Select a group and click this to open a screen displaying the details. You can also check the group's membership in any groups. Refer to Section 7.4.4 on page 113 to see the screen.
Refresh	Click this to renew this screen.
Group Name	This field displays the group name created on the NAS.
Description	This field displays the description of each group.

7.4.2 Add a Group

Use this screen to create a NAS group. Click the **Add Group** button in the **Groups** screen to open the following screens.

Step 1 General Settings

Figure 75 Control Panel > Privilege and Sharing > Groups > Add a Group: General Settings

The screenshot shows a window titled 'Add Group' with a close button (X) in the top right corner. Below the title bar is a breadcrumb navigation path: '① General Settings / ② Members / ③ Shared Folder Access / ④ Summary'. The main area contains two input fields: 'Group Name' and 'Description'. The 'Group Name' field has a red asterisk (*) to its right, indicating a required field. At the bottom right of the window are two blue buttons: 'Next' and 'Cancel'.

The following table describes the labels in this screen.

Table 61 Control Panel > Privilege and Sharing > Groups > Add a Group: General Settings

LABEL	DESCRIPTION
Group Name	Type a name from 1 to 32 single-byte (no Chinese characters allowed for example) ASCII characters. See Section 7.4 on page 107 for more details on group names.
Description	Type the description for this group name.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 2 Members

Figure 76 Control Panel > Privilege and Sharing > Groups > Add a Group: Members

Type	Username	Description	Add
	admin	System default user	<input type="checkbox"/>
	taxuser		<input type="checkbox"/>

The following table describes the labels in this screen.

Table 62 Control Panel > Privilege and Sharing > Groups > Add a Group: Members

LABEL	DESCRIPTION
Type	This field displays whether the account is an administrator account or a user account.
Username	This field lists the user accounts created on the NAS.
Description	This field displays the description of each user.
Add	Click this to add the user account to the group. Otherwise, clear this field to remove the user account from the group.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 3 Shared Folder Access

Figure 77 Control Panel > Privilege and Sharing > Groups > Add a Group: Shared Folder Access

Shared Folder	Description	<input type="checkbox"/> No Access	<input type="checkbox"/> Read Only	<input checked="" type="checkbox"/> Read/Write
admin	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
music	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
photo	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
video	System default share	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following table describes the labels in this screen.

Table 63 Control Panel > Privilege and Sharing > Groups > Add a Group: Shared Folder Access

LABEL	DESCRIPTION
Shared Folder	This field lists the shares to which you can assign access rights.
Description	This field displays the description of the shared folder.
No Access	<p>Click the check box to block access (groups cannot read, modify, nor execute) to all files contained within this share.</p> <p>Among all access rights, No Access has the highest . For example, User A belongs to Group 1. You assign User A full access rights to the Music share but deny access rights to Group 1. Then User A cannot access the Music share.</p> <p>Note: If you deny access to all users, no-one can use the share, not even the administrator.</p>
Read Only	Click the check box to give groups read-only access (they cannot modify nor execute) to all files contained within this share.
Read/Write	Click the check box to give groups full access (read, write and execute) to all files contained within this share.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 4 Summary

Figure 78 Control Panel > Privilege and Sharing > Groups > Add a Group: Summary

Item	Value
Group Name	TW
Members	trouser
Description	
Shared Folders(No Access)	N/A
Shared Folders(Read Only)	N/A
Shared Folders(Read/Write)	admin,music,photo,video

Use this screen to view your group settings. Click **Back** to return to the previous step. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.4.3 Edit a Group

Use this screen to edit a NAS group. Select a group and click the **Edit Group** button in the **Groups** screen to open the following screen.

Figure 79 Control Panel > Privilege and Sharing > Groups > Edit a Group

General Settings Members Shared Folder Access

Group Name:

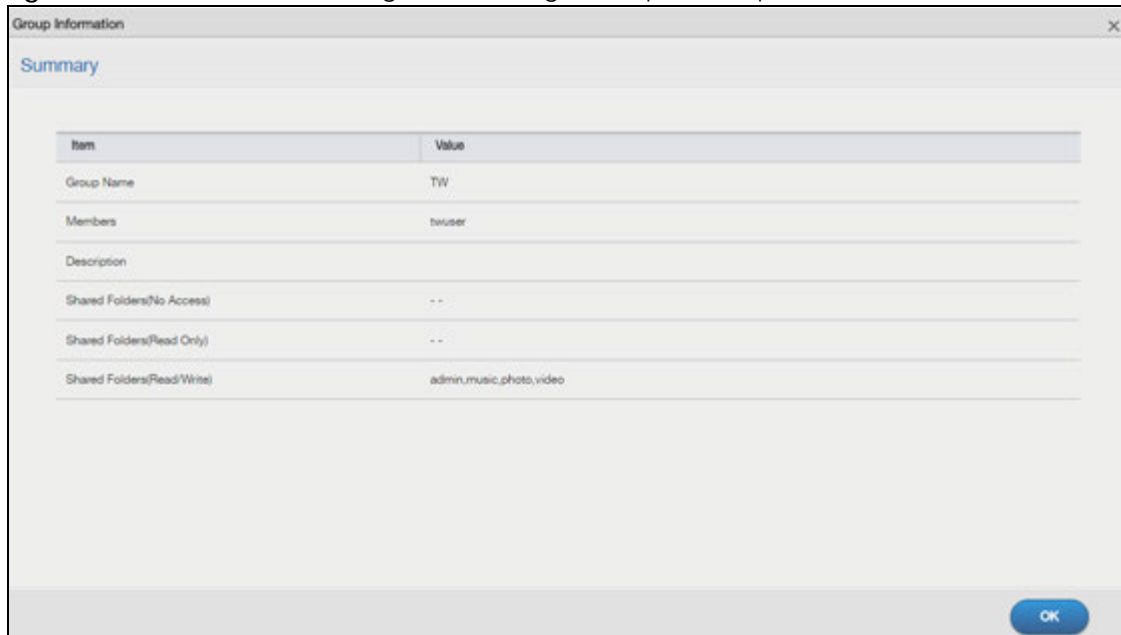
Description:

Click **General Settings**, **Members**, or **Shared Folder Access** to edit the group settings. Refer to [Section 7.4.2 on page 108](#) for more information on the screens. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.4.4 Group Information

Use this screen to display a group's information. In the **Groups** screen, select a group and click the **Group Information** button to open the following screen.

Figure 80 Control Panel > Privilege and Sharing > Groups > Group Information



The screenshot shows a window titled "Group Information" with a close button (X) in the top right corner. Below the title bar is a "Summary" section. It contains a table with two columns: "Item" and "Value". The table lists the following information:

Item	Value
Group Name	TW
Members	tsuser
Description	
Shared Folders(No Access)	--
Shared Folders(Read Only)	--
Shared Folders(Read/Write)	admin,music,photo,video

At the bottom right of the window is an "OK" button.

The following table describes the labels in this screen.

Table 64 Control Panel > Privilege and Sharing > Groups > Group Information

LABEL	DESCRIPTION
Group Name	This field displays the selected group name.
Members	This field displays the selected group's membership.
Description	This field displays the description of the group.
Shared Folders (No Access)	This field displays the access permission to the group.
Shared Folders (Read Only)	This field displays the access permission to the group.
Shared Folders (Read/Write)	This field displays the access permission to the group.
OK	Click this to close the current screen.

7.5 Shared Folders

A share is a set of access permissions mapped to a specific folder on a volume. It is equivalent to the Windows concept of a shared folder. You can map a share to a network drive for easy and familiar file transfer for Windows users.

7.5.1 Share and Folder Names

The name can only contain the following characters:

- Alphanumeric (A-z, 0-9) and Unicode.

The NAS allows FTP access to shares, folders or files with names encoded in the UTF-8 (8-bit UCS/Unicode Transformation Format) format. So your FTP client must support UTF-8 in order to access shares, folders or files on the NAS with Unicode names.

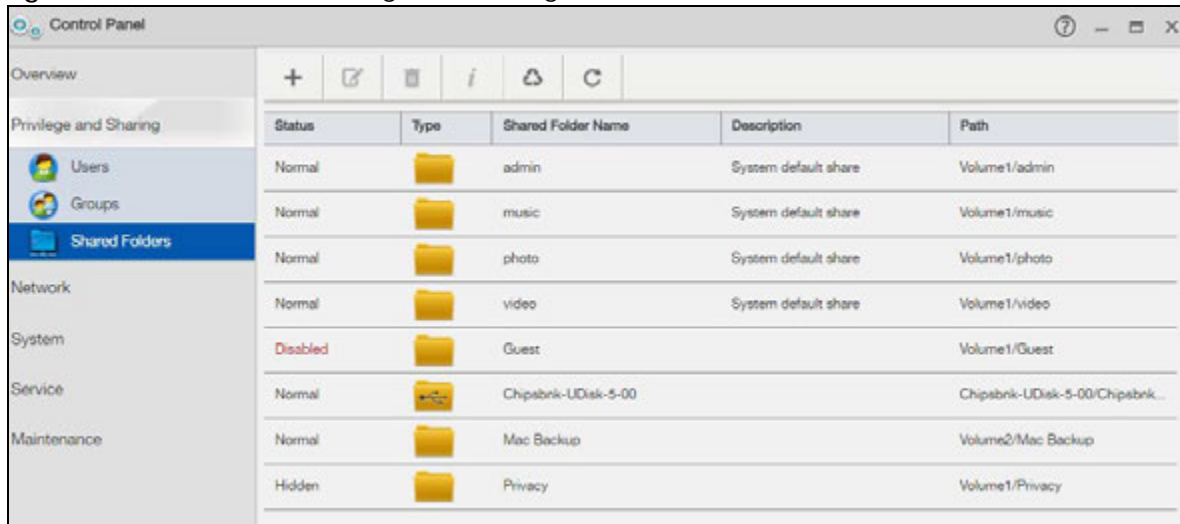
- Spaces
- _ [underscores]
- . [periods]
- - [dashes]

Other limitations include:

- All leading and trailing spaces are removed automatically.
- Multiple spaces within names are converted to a single space.
- Share names must be unique (they cannot be the same as other share names).
- The NAS creates automatic volume names for external (USB) disk volumes. These are a type of share, so the share name you configure cannot conflict with the external (USB) disk volume names. "ExtVol1" or "ExtVol2" are examples of external (USB) disk volume names.
- Folder names must be unique (they cannot be the same as other folder names).
- The minimum character length of a name is one character, that is a name cannot be blank.
- The maximum character length of share name is 239 characters.
- Unicode is supported for share names, although your FTP client must support UTF-8. Full support should be available in all Windows versions after Windows 2000.

7.5.2 Shared Folders Screen

Click **Control Panel > Privilege and Sharing > Shared Folders** in the navigation panel to open the following screen. This screen lists all shares created on the NAS.



Figure 81 Control Panel > Privilege and Sharing > Shared Folders

The following table describes the labels in this screen.

Table 65 Control Panel > Privilege and Sharing > Shared Folders

LABEL	DESCRIPTION
Add Share	Click this to create a new share.
Edit Share	Select a share and click this to edit the share.
Delete Share	<p>Select a share and click this to remove or restrict access to the share.</p>
Shared Folder Information	This field displays the general settings and access permission of a share.
Recycle Bin	Click this to configure recycle bins.
Refresh	Click this to renew this screen.
Status	<p>This field displays four types of status: Normal, Disabled, Lost, and Hidden.</p> <p>Normal: This represents a built-in or user-created share on a volume on the internal hard drives and an auto or user-created share on a volume on the external (USB) devices.</p> <p>Disabled: This represents a disabled share that no user can access.</p> <p>Lost: This represents a missing share. The NAS cannot find the hard disk associated with the share (the disk may be removed from the NAS for example). You may install the disk back to the NAS to recover the share, or you may delete the share from the NAS.</p> <p>Hidden: This represents a hidden share on the network.</p>

Table 65 Control Panel > Privilege and Sharing > Shared Folders (continued)

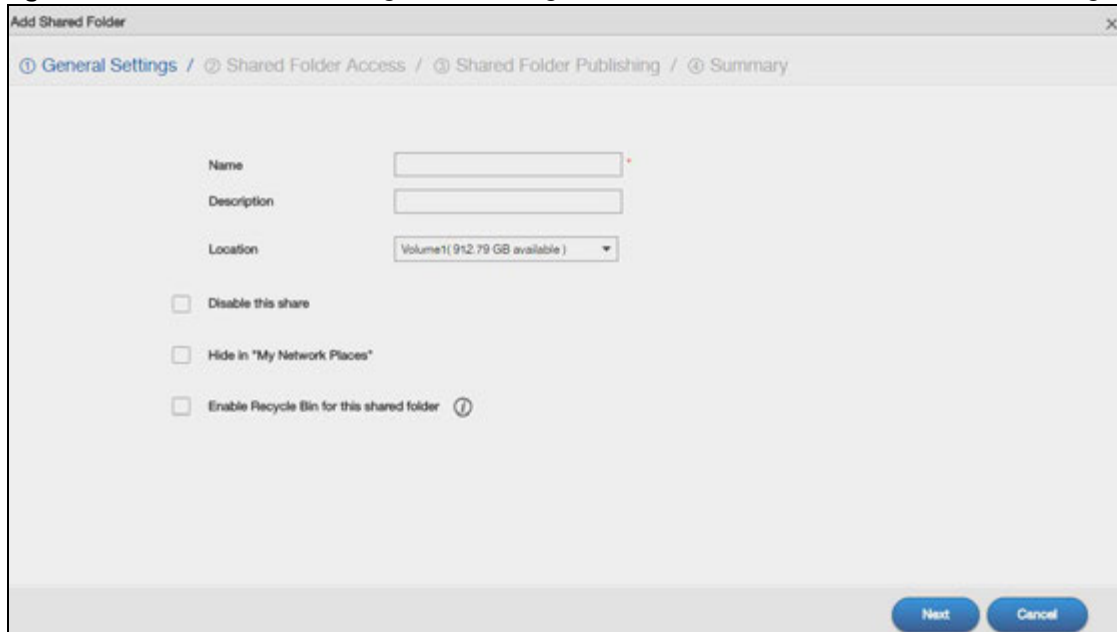
LABEL	DESCRIPTION
Type	<p>This field displays the type icons.</p> <p> represents built-in or user-created or predefined shares on the internal hard drives. Predefined shares include music, video, and photo, always exist as long as there is a volume. If you delete the volume containing these built-in or predefined shares, the NAS automatically creates these shares in the next volume by alphabetical order.</p> <p> represents an auto share that is automatically created on an external (USB) device when a user plugs in the device.</p>
Shared Folder Name	This field displays the share's names.
Description	This field displays the description of each share.
Path	This field displays the share's file path, for example, volume1/music.

7.5.3 Add a Share

Use this screen to create a new share. Click the **Add Share** button in the **Shared Folders** screen to open the following screens.

Step 1 General Settings

Figure 82 Control Panel > Privilege and Sharing > Shared Folders > Add Share: General Settings



The following table describes the labels in this screen.

Table 66 Control Panel > Privilege and Sharing > Shared Folders > Add Share: General Settings

LABEL	DESCRIPTION
Name	Type a share name from 1 to 239 single-byte (no Chinese characters allowed for example) ASCII characters. The name cannot be the same as another existing share. See Section 7.5.1 on page 114 for more information on share names.
Description	Type the description for this shared folder.

Table 66 Control Panel > Privilege and Sharing > Shared Folders > Add Share: General Settings

LABEL	DESCRIPTION
Location	You should have already created volumes (a single accessible storage area with a single file system) on the NAS. Select the one that contains the folder that you want to share out. You cannot modify this when editing a share.
Disable this share	Click this to disallow access to this share.
Hide in "My Network Places"	Click this to hide the share on the network.
Enable Recycle Bin for this shared folder	Click this to activate the recycle bin. When you delete a file from this share, a recycle folder is created to store the deleted item.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 2 Shared Folder Access

Figure 83 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Access

① General Settings / ② Shared Folder Access / ③ Shared Folder Publishing / ④ Summary

Users ▼

Define the access right to the shared folder (w-sharing):

Username	Description	<input type="checkbox"/> No Access	<input type="checkbox"/> Read Only	<input type="checkbox"/> Read/Write
admin	System default user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pc-guest	Guest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
truser		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Access right priority : NA > RO > RW

Back Next Cancel

The following table describes the labels in this screen.

Table 67 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Access

LABEL	DESCRIPTION
The following fields display only when you select Users from the drop-down list box.	
Username	This field lists the users to which you can assign access rights.
Description	This field displays the description of each account.
The following fields display only when you select Groups from the drop-down list box.	
Group Name	This field lists the groups to which you can assign access rights.
Description	This field displays the description of each group.

Table 67 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Access

LABEL	DESCRIPTION
No Access	Click the check box to block access (users/groups cannot read, modify, nor execute) to all files contained within this share. Among all access rights, No Access has the highest . For example, User A belongs to Group 1. You assign User A full access rights to the Music share but deny access rights to Group 1. Then User A cannot access the Music share. Note: If you deny access to all users, no-one can use the share, not even the administrator.
Read Only	Click the check box to give users/groups read-only access (they cannot modify nor execute) to all files contained within this share.
Read/Write	Click the check box to give users/groups full access (read, write and execute) to all files contained within this share.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 3 Shared Folder Publishing

Figure 84 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Publishing

The following table describes the labels in this screen.

Table 68 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Publishing

LABEL	DESCRIPTION
Media Type	This field displays media types that you publish media files to media server.
Publish to Media Server	This option is available only when you enable the Media Server (Section 10.4 on page 152). Click this check box to have the NAS make media files in this share available to media clients and through the Playzone screens. When you publish a share, you can also select whether or not to publish music tracks, photos, and videos. The media clients do not have to use a password to play the shares you publish.

Table 68 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Shared Folder Publishing

LABEL	DESCRIPTION
Publish to Web	This option is available when you enable the Web Publish (Section 10.8 on page 160). Click this check box to let people use a web browser to access this share's files without logging into the Web Configurator.
Back	Click this to return to the previous step.
Next	Click this to go to the next step.
Cancel	Click this to return to the previous screen without saving.

Step 4 Summary

Click **General** to view your share settings and open the following screen.

Figure 85 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Summary: General

Add Shared Folder

① General Settings / ② Shared Folder Access / ③ Shared Folder Publishing / ④ Summary

General Access Right

Item	Value
Shared Folder Name	test
Description	
Publish to Media Server	--
Publish to Web	--

Back Apply Cancel

Click **Access Right** to view access rights to groups or users and open the following screen.

Figure 86 Control Panel > Privilege and Sharing > Shared Folders > Add Share: Summary: Access Right

	Read Only	Read/Write
Groups	+	everyone, TW
Users	twuser	+

The privilege of all others not listed above is "NO Access"

Back Apply Cancel

Click **Back** to return to the previous step. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.5.4 Edit a Share

Use this screen to edit a share. Select a share and click the **Edit Share** button in the **Shared Folders** screen to open the following screen.

Figure 87 Control Panel > Privilege and Sharing > Shared Folders > Edit Share

General Settings Shared Folder Access Shared Folder Publishing

Name: TEST

Description: 123

Location: Volume1 (912.79 GB available)

☐ Disable this share

☐ Hide in "My Network Places"

☐ Enable Recycle Bin for this shared folder ⓘ

Apply Cancel

Click **General Settings**, **Shared Folder Access** or **Shared Folder Publishing** to edit the share settings. Refer to [Section 7.5.3 on page 116](#) for more information on the screens. Click **Apply** to save your changes. Click **Cancel** to return to the previous screen without saving.

7.5.5 Shared Folder Information

Use this screen to display a share's information. In the **Shared Folders** screen, select a share and click the **Shared Folder Information** button to open the following screen.

Figure 88 Control Panel > Privilege and Sharing > Shared Folders > Shared Folder Information

Item	Value
Shared Folder Name	TEST
Description	123
Publish to Media Server	--
Publish to Web	--
Enable Recycle Bin	No

The following table describes the labels in this screen.

Table 69 Control Panel > Privilege and Sharing > Shared Folders > Shared Folder Information

LABEL	DESCRIPTION
The following fields display only when you click General from this screen.	
Shared Folder Name	This field displays the selected share's name.
Description	This field displays the description of the share.
Publish to Media Server	This field displays whether you publish a share to the media server.
Publish to Web	This field displays whether you publish a share to the web.
Enable Recycle Bin	This field displays whether the recycle bin is activated or not.
The following fields display only when you click Access Right from this screen.	
Read Only	This field displays the access permission to specific groups or users.
Read/Write	This field displays the access permission to specific groups or users.
OK	Click this to close the current screen.

7.5.6 Recycle Bin Screen

Use this screen to periodically clean up items in all recycle bins.

Recycle Bins

Recycle bins in the NAS help users recover accidentally deleted files or folders in the shares. When you delete an item, a recycle folder is created within the share to hold the deleted item.

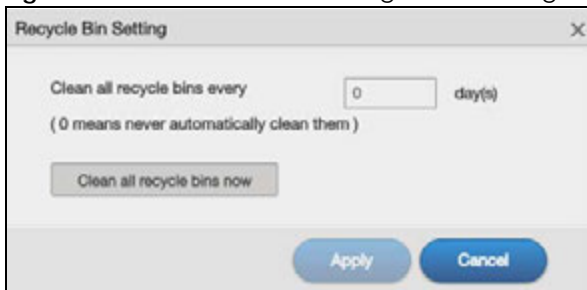
Every share can have its own recycle folder. You must enable the recycle-bin function to recycle deleted items. You can configure this setting when you add or edit a share. See [Section 7.5.6.1 on page 122](#) for details on activating the recycle bin in a share.

Later if you want to retrieve a deleted item, you can locate the item in the recycle folder. You may move or copy the deleted item to another share.

7.5.6.1 Configure Recycle Bins

In the **Control Panel > Privilege and Sharing > Shared Folders** screen, click the **Recycle Bin** button to open the following screen.

Figure 89 Control Panel > Privilege and Sharing > Shared Folders > Recycle Bin



The following table describes the labels in this screen.

Table 70 Control Panel > Privilege and Sharing > Shared Folders > Recycle Bin

LABEL	DESCRIPTION
Clean all recycle bins every N days	Specify how often you want to clear the contents in all recycle bins. The specified days correspond to how long a file has been stored in a recycle bin. For example, if you set the interval to be 3 days, recycle bins will clean up items deleted or not accessed for 3 days. Note: Cleaning up recycle bins permanently removes the files from the NAS.
Clean all recycle bins now	Click this to immediately remove contents from all recycle bins.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

CHAPTER 8

Control Panel: Network

8.1 Overview

This chapter discusses the **Control Panel > Network** screens. Use the **Network** screens to configure network settings.

8.2 What You Can Do

- Use the **TCP/IP** screens ([Section 8.4 on page 124](#)) to configure the NAS's TCP/IP network connection settings such as the IP addresses.
- Use the **UPnP Port Mapping** screen ([Section 8.5 on page 131](#)) to automatically configure your Internet gateway's firewall and Network Address Translation (NAT) to allow access to the NAS from the Internet.
- Use the **Terminal** screen ([Section 8.6 on page 137](#)) to enable or disable Telnet and SSH access.
- Use the **DyDNS** screen ([Section 8.7 on page 138](#)) to configure the domain name settings of your NAS.

8.3 What You Need to Know

IP Address

The NAS needs an IP address to communicate with other devices on your network. The NAS can get an IP address automatically if you have a device on your network that gives them out. Or you can assign the NAS a static (fixed) IP address.

DNS Server Address

A DNS (Domain Name System) server maps domain names (like www.zyxel.com) to their corresponding numerical IP addresses. This lets you use domain names to access web sites without having to know their IP addresses. The NAS can receive the IP address of a DNS server automatically (along with the NAS's own IP address). You can also manually enter a DNS server IP address in the NAS.

PPPoE

Point-to-Point Protocol over Ethernet (PPPoE) allows the NAS to establish a direct Internet connection if you do not have a router. PPPoE is a dial-up connection. You need a username and password from your Internet Service Provider (ISP) to set up the connection.

8.4 TCP/IP Screens

Use the **TCP/IP** screens to have the NAS use a dynamic or static IP address, to configure its subnet mask, default gateway, PPPoE and DNS servers, and to test the network connection.

8.4.1 Configure General TCP/IP Settings

Click **Control Panel > Network > TCP/IP > General Settings** in the navigation panel to open the following screen. This screen allows you to configure the default gateway and DNS server.

Note: If you change the NAS's IP address, you need to log in again after you apply changes.

Figure 90 Control Panel > Network > TCP/IP > General Settings

The following table describes the labels in this screen

Table 71 Control Panel > Network > TCP/IP > General Settings

LABEL	DESCRIPTION
Default Gateway	Select the LAN interface to use as the default gateway.
DNS Server	DNS (Domain Name System) is for mapping a domain name to its corresponding IP address and vice versa. If you have the IP address(es) of the DNS server(s), enter them.
Automatically	Select the option to have the NAS get a DNS server address automatically.
Manually	Select this option to choose a static DNS server address. Type the DNS server IP address(es) into the fields below.
Primary DNS Server	Type a primary DNS server IP address.
Secondary DNS Server	Type a secondary DNS server IP address.

Table 71 Control Panel > Network > TCP/IP > General Settings (continued)

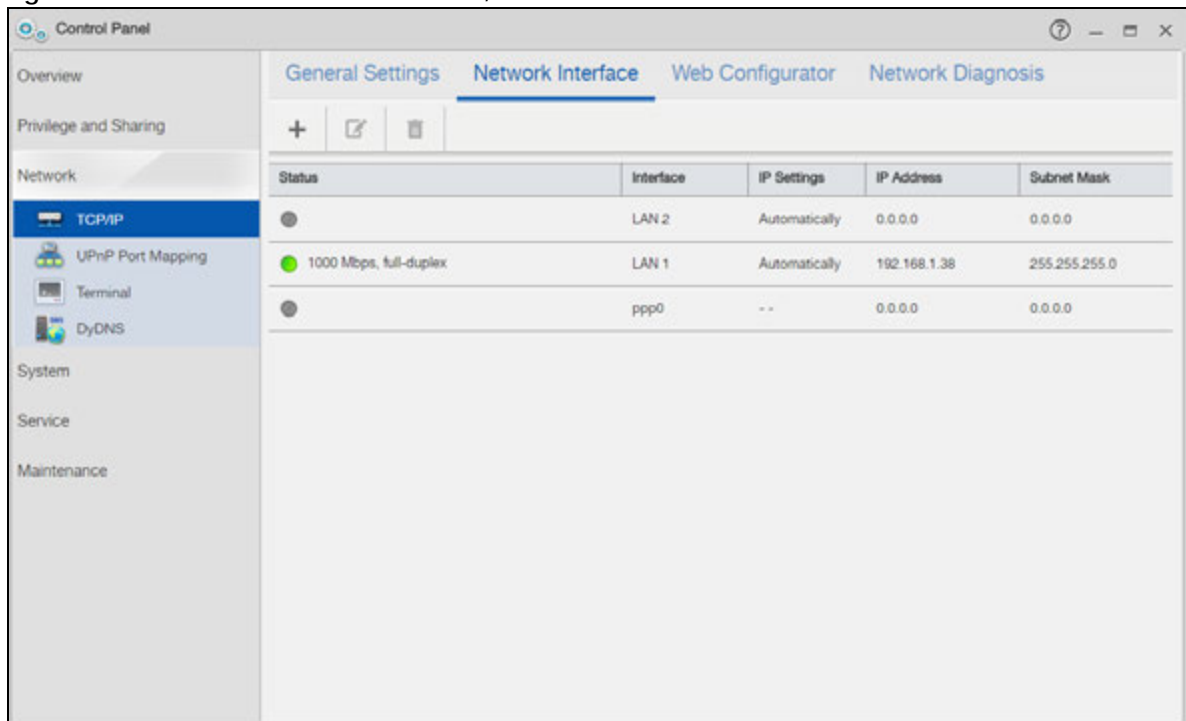
LABEL	DESCRIPTION
Apply	Click this to save your TCP/IP configurations. After you click Apply , the NAS restarts.
Reset	Click this to restore your previously saved settings.

8.4.2 Configure Network Interface

Use the **Network Interface** screen to edit the IPv4 or IPv6 settings of LAN 1 and LAN 2, set up port trunking, and configure PPPoE settings. Click **Control Panel > Network > TCP/IP > Network Interface** in the navigation panel to open the following screen.

Note: LAN 2 and port trunking are available only on the NAS which has multiple Ethernet ports.

Figure 91 Control Panel > Network > TCP/IP > Network Interface



The following table describes the labels in this screen.

Table 72 Control Panel > Network > TCP/IP > Network Interface

LABEL	DESCRIPTION
Create	This button is available only on the NAS which has multiple Ethernet ports. Click it to open the following screen to set up a port trunking. For adding a port trunking, see Section 8.4.2.1 on page 126 .
Edit	Select the LANx interface and click this to modify the IPv4 or IPv6 settings. See Section 8.4.2.2 on page 127 . Select the ppp0 interface and click this to edit the PPPoE settings. See Section 8.4.2.3 on page 129 .

Table 72 Control Panel > Network > TCP/IP > Network Interface (continued)

LABEL	DESCRIPTION
Remove	This button is available only on the NAS which has multiple Ethernet ports and when a port trunking is created. Click this to remove the port trunking.
Status	This shows the data transmission rate and duplex setting (full-duplex or half-duplex) of the interface. This field is left blank if the interface is not connected. A green ball signifies that this interface is active. A gray ball signifies that this interface is not active.
Interface	This shows the interface name.
IP Settings	This shows whether the interface obtains the IP settings automatically or the IP address information is configured manually.
IP Address	This shows the IP address of an interface.
Subnet Mask	This shows the subnet mask of an interface.

8.4.2.1 Create a Port Trunking

Link aggregation combines LAN1 and LAN2 into a single logical link with greater bandwidth. Both interfaces use the same IP address and MAC address. It also includes fault tolerance and load balancing. Connect LAN1 and LAN2 to the same Ethernet switch.

Figure 92 Link Aggregation



Use this screen to set up port trunking. Click **Control Panel > Network > TCP/IP > Network Interface**, and then click **Create**.

Figure 93 Creating a Port Trunking

The following table describes the labels in this screen.

Table 73 Control Panel > Network > TCP/IP > Network Interface > Create

LABEL	DESCRIPTION
Automatically	Select this option to have the interface get IP address information automatically. If no IP address information is assigned, the NAS uses Auto-IP to assign itself an IP address and subnet mask. For example, you could connect the NAS directly to your computer. If the computer is also set to get an IP address automatically, the computer and the NAS will choose addresses for themselves and be able to communicate.
Manually	Select this option for the interface to use fixed TCP/IP information. You must fill in the following fields. IP Address - Type an IP address in this field. Subnet Mask - Type an IP subnet mask in this field. Default Gateway - Type a default gateway address in this field.
Create	Click this to save the settings and create a port trunking.
Cancel	Click this to return to the previous screen without saving.

8.4.2.2 Edit LAN1

Use this screen to configure IPv4 and/or IPv6 settings for LAN1. Select the LAN1 interface and then click **Edit**.

IPv4

Click **IPv4** to configure the IPv4 settings.

Figure 94 Control Panel > Network > TCP/IP > Network Interface > LAN1: IPv4

The screenshot shows a web-based configuration window titled "Edit LAN 1". At the top, there are two tabs: "IPv4" (which is selected and highlighted with a blue underline) and "IPv6". Below the tabs, there are two radio buttons: "Automatically" (unselected) and "Manually" (selected with a blue dot). Under the "Manually" option, there are three text input fields with red asterisks indicating they are required. The first field is labeled "IP address" and contains the value "192.168.1.57". The second field is labeled "Subnet mask" and contains the value "255.255.255.0". The third field is labeled "Gateway" and contains the value "192.168.1.1". At the bottom right of the window, there are two blue buttons: "Apply" and "Cancel".

The following table describes the labels in this screen.

Table 74 Control Panel > Network > TCP/IP > Network Interface > LAN1: IPv4

LABEL	DESCRIPTION
Automatically	Select this option to have the interface get IP address information automatically.
Manually	Select this option for the interface to use fixed TCP/IP information. <ul style="list-style-type: none"> IP Address - Type an IP address in this field. Subnet Mask - Type an IP subnet mask in this field. Default Gateway - Type a default gateway address in this field.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

IPv6

Click **IPv6** to configure the IPv6 settings.

Figure 95 Control Panel > Network > TCP/IP > Network Interface > LAN1: IPv6

The screenshot shows a window titled 'Edit LAN 1' with a close button in the top right corner. Inside the window, there are two tabs: 'IPv4' and 'IPv6'. The 'IPv6' tab is selected and highlighted with a blue underline. Below the tabs, the 'Configure IPv6' section has a dropdown menu currently set to 'Manual'. Underneath this, there are three text input fields: 'IPv6 address', 'Subnet prefix length', and 'Default gateway'. Each of these fields has a small red asterisk to its right, indicating they are required. At the bottom right of the window, there are two blue buttons: 'Apply' and 'Cancel'.

The following table describes the labels in this screen.

Table 75 Control Panel > Network > TCP/IP > Network Interface > LAN1: IPv6

LABEL	DESCRIPTION
Configure IPv6	Select Auto to have the NAS use the IPv6 prefix from the connected router's Router Advertisement (RA) to generate an IPv6 address. Select Manual if you have a fixed IPv6 address assigned by your ISP. Select Disable to not assign any IPv6 address for the NAS.
IPv6 Address	Enter the IPv6 address assigned by your ISP if you select Manual .
Subnet prefix length	Enter the address prefix length to specify how many most significant bits in an IPv6 address compose the network address. The range is 0 to 128.

Table 75 Control Panel > Network > TCP/IP > Network Interface > LAN1: IPv6

LABEL	DESCRIPTION
Default Gateway	Enter the IP address of the next-hop gateway. The gateway is a router or switch on the same segment as your NAS's interface(s). The gateway helps forward packets to their destinations.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

8.4.2.3 Configure PPPoE Settings

Use this screen to configure PPPoE settings for a direct Internet connection. Select the ppp0 interface and then click **Edit**.

Figure 96 Control Panel > Network > TCP/IP > Network Interface > PPPoE

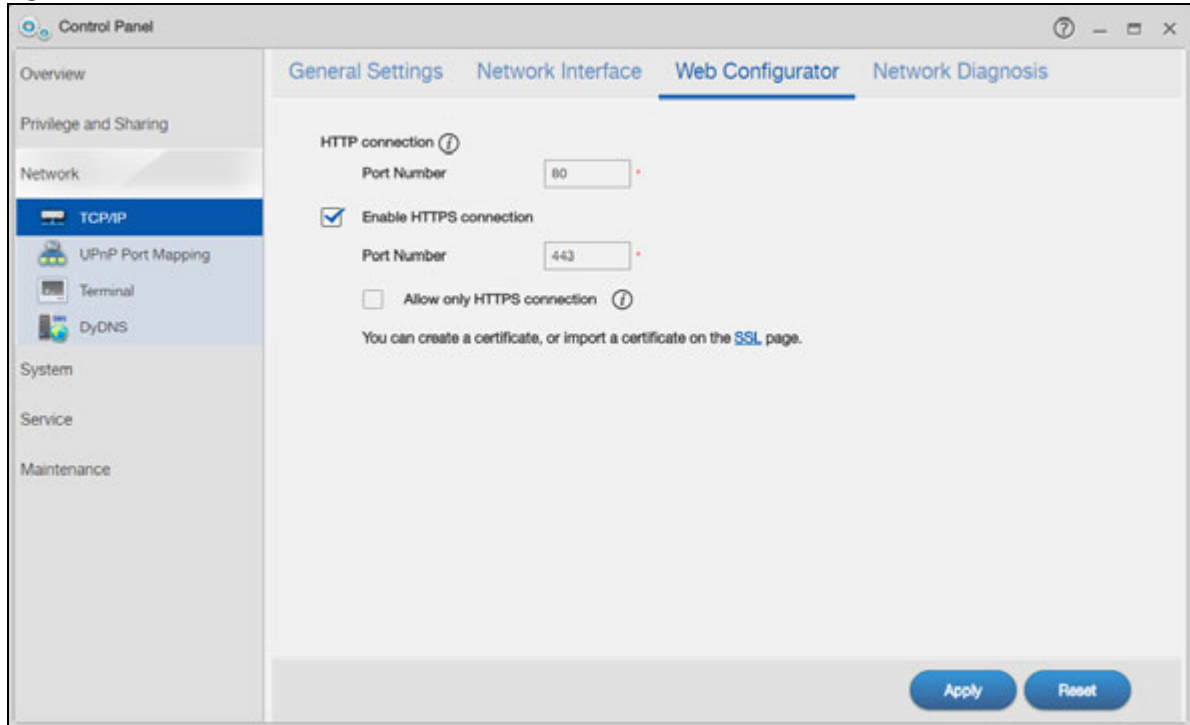
The following table describes the labels in this screen.

Table 76 Control Panel > Network > TCP/IP > Network Interface > PPPoE

LABEL	DESCRIPTION
Enable PPPoE to directly connect to the Internet.	Select or clear this field to enable or disable PPPoE.
Username	Enter the username exactly as your ISP assigned. If assigned a name in the form user@domain where domain identifies a service name, then enter both components exactly as given.
Password	Enter the password associated with the username above.
Show password	Select this field to reveal the password hidden behind asterisks or clear this field to hide the password.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

8.4.3 Configure Web Configurator

Click **Control Panel > Network > TCP/IP > Web Configurator** to configure the port number of HTTP and HTTPS.

Figure 97 Control Panel > Network > TCP/IP > Web Configurator

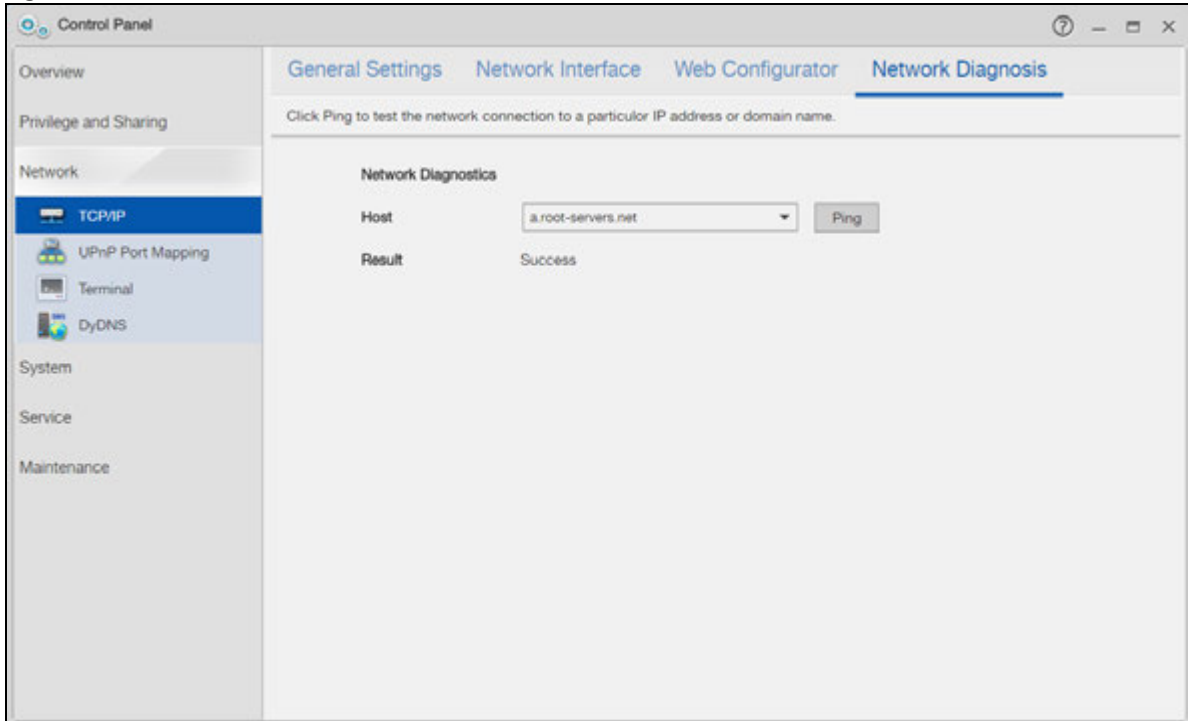
The following table describes the labels in this screen.

Table 77 Control Panel > Network > TCP/IP > Web Configurator

LABEL	DESCRIPTION
HTTP connection	
Port Number	Specify the port number of HTTP connection. Note: The port number 8082 is reserved for media streaming.
Enable HTTPS connection	Select or clear this field to enable or disable HTTPS connection.
Port Number	Specify the port number of HTTPS connection.
Allow only HTTPS connection	Select this field to allow connection to the Web Configurator via HTTPS only. Clear this field to allow connection to the Web Configurator via both HTTP and HTTPS.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

8.4.4 Configure Network Diagnosis

Click **Control Panel > Network > TCP/IP > Network Diagnosis** to test the network connection to a particular IP address or domain name.

Figure 98 Control Panel > Network > TCP/IP > Network Diagnosis

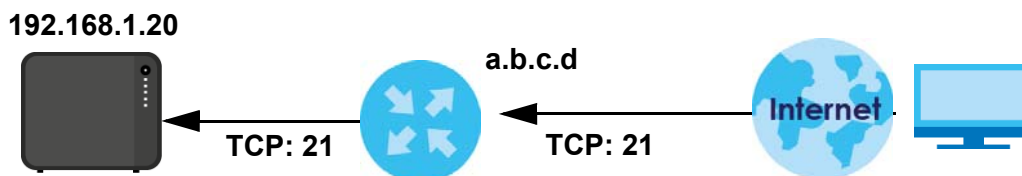
The following table describes the labels in this screen.

Table 78 Control Panel > Network > TCP/IP > Network Diagnosis

LABEL	DESCRIPTION
Host	Select a specific host to perform the diagnosis.
Ping	Click this to test the network connection.
Result	Displays whether or not the test received a response from the host.

8.5 UPnP Port Mapping Screens

Use UPnP (Universal Plug and Play) port mapping to allow access from the WAN to services you select on the NAS. It is recommended that you place the NAS behind an Internet gateway firewall device to protect the NAS from attacks from the Internet. Many such Internet gateways use UPnP to simplify peer-to-peer network connectivity between devices. UPnP can automatically configure the Internet gateway's firewall and Network Address Translation (NAT) to allow access to the NAS from the Internet.

Figure 99 UPnP for FTP Access

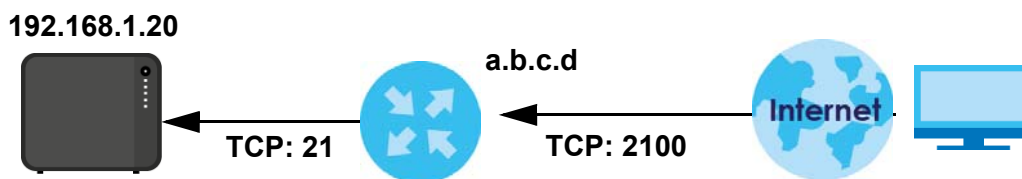
In the above example, UPnP creates a firewall rule and NAT port forwarding mapping to send FTP traffic (using TCP port number 21) from the public IP address a.b.c.d to the NAS's private IP address of 192.168.1.20.

Use the NAS's **UPnP Port Mapping** screen to configure the UPnP settings your Internet gateway uses to allow access from the WAN (Internet) to services you select on the NAS. You can also set which port Internet users need to use in order to access a specific service on the NAS.

Note: To use UPnP port mapping, your Internet gateway must have UPnP enabled.

If your Internet gateway supports Port Address Translation (PAT is sometimes included with a port forwarding feature), you can have the Internet users use a different TCP port number from the one the NAS uses for the service.

Figure 100 UPnP Port Address Translation for FTP Example



In the above example, the Internet gateway uses PAT to accept Internet user FTP sessions on port 2100, translate them to port 21, and forward them to the NAS.

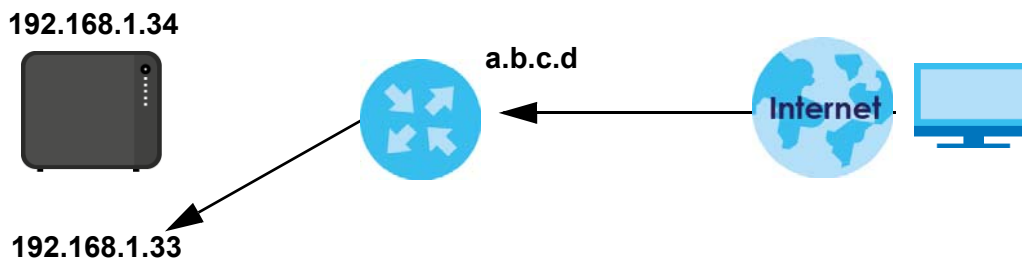
8.5.1 UPnP and the NAS's IP Address

It is recommended that the NAS use a static IP address (or a static DHCP IP address) if you will allow access to the NAS from the Internet. The UPnP-created NAT mappings keep the IP address the NAS had when you applied your settings in the **UPnP Port Mapping** screen. They do not automatically update if the NAS's IP address changes.

Note: WAN access stops working if the NAS's IP address changes.

For example, if the NAS's IP address was 192.168.1.33 when you applied the **UPnP Port Mapping** screen's settings and the NAS later gets a new IP address of 192.168.1.34 through DHCP, WAN access stops working because the Internet gateway still tries to forward traffic to IP address 192.168.1.33. Since you can no longer access the NAS from the WAN, you would have to access the NAS from the LAN and re-apply your **UPnP Port Mapping** screen settings to update the Internet gateway's UPnP port mappings.

Figure 101 UPnP Using the Wrong IP Address



8.5.2 UPnP and Security

UPnP's automated nature makes it easier to use than manually configuring firewall and NAT rules, but it is also less secure. Using UPnP may make your network more susceptible to snooping and hacking attacks.

8.5.3 The NAS's Services and UPnP

This section introduces the NAS's services which an Internet gateway can use UPnP to allow access to and from the Internet.

CIFS (Windows File Sharing)

Common Internet File System (CIFS) is a standard protocol supported by most operating systems in order to share files across the network. Using UPnP port mapping for CIFS allows users to connect from the Internet and use programs like Windows Explorer to access the NAS's shares to copy files from the NAS, delete files on the NAS, or upload files to the NAS from the Internet.

If you configure UPnP port mapping to allow CIFS access from the WAN but cannot get it to work, you may also have to configure the Internet gateway to also allow NetBIOS traffic. See [Windows/CIFS on page 140](#) for more on CIFS.

FTP

File Transfer Protocol is a standard file transfer service used on the Internet. Using UPnP port mapping for FTP allows remote users to use FTP from the Internet to access the NAS's shares. A user with read and write access to a share can copy files from the share, delete files from the share, or upload files to the share. See [Section 10.6 on page 155](#) for more on FTP. If you use UPnP to allow FTP access from the WAN, you may want to use a different WAN port number (instead of the default of port 21) to make it more secure. Remember to tell the remote users to use the custom port number when using FTP to access the NAS.

HTTP (Web Configurator)

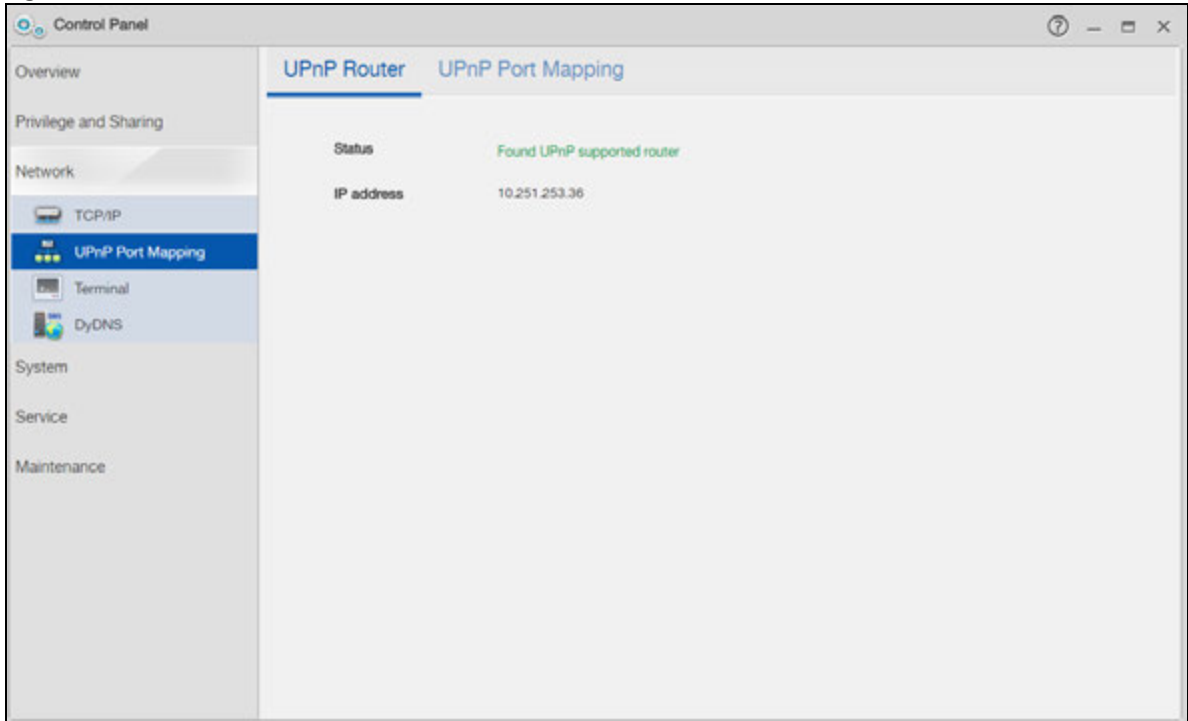
You can use UPnP port mapping to allow access to the NAS's management screens. If you use UPnP to allow web configurator access from the WAN, you may want to use a different WAN port number (instead of the default of port 80) to make it more secure. Remember to use the custom port number when accessing the NAS's web configurator from the Internet.

HTTP (Web Published Shares)

This is the NAS's web publishing feature that lets people access files using a web browser without having to log into the Web Configurator. Use UPnP port mapping to allow access to these files from the Internet without having to enter a user name or password. See [Section 10.8 on page 160](#) for more on web publishing.

8.5.4 Configure UPnP Router

UPnP allows access to your NAS through a UPnP router. Click **Network > UPnP Port Mapping > UPnP Router** to check if the NAS has found a UPnP router on the network.

Figure 102 Network > UPnP Port Mapping > UPnP Router

The following table describes the labels in this screen.

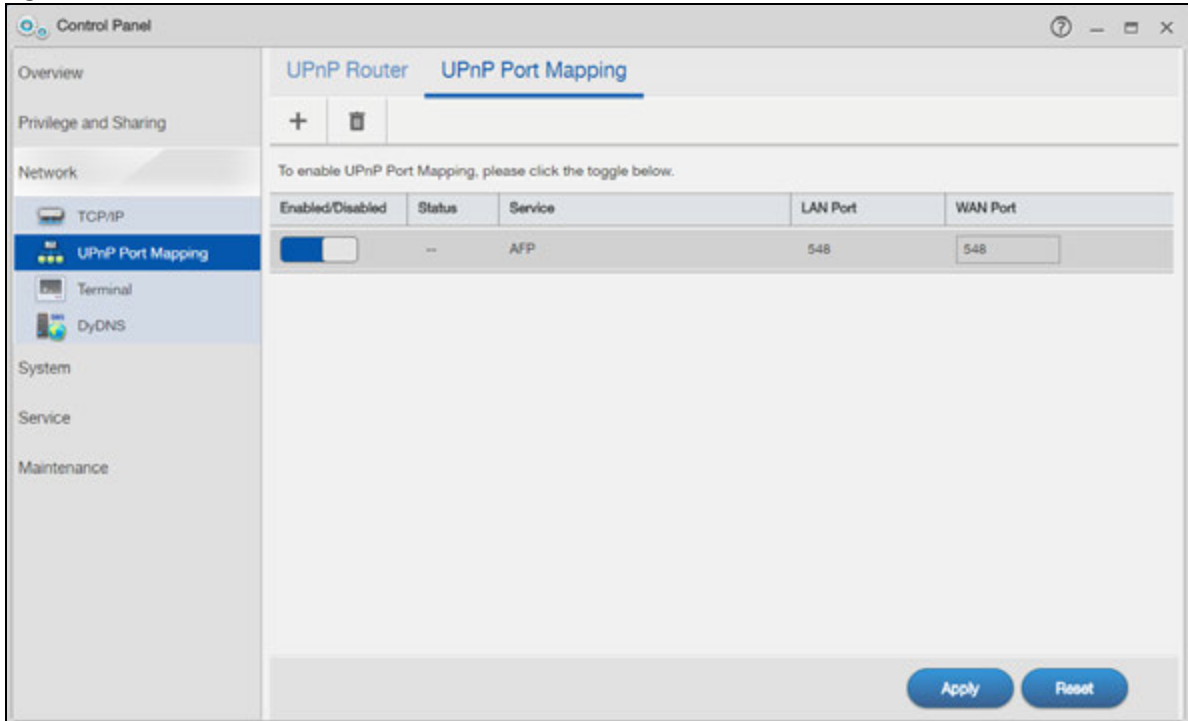
Table 79 Network > UPnP Port Mapping > UPnP Router

LABEL	DESCRIPTION
Status	This displays whether a UPnP router is found.
IP address	This displays the IP address of the UPnP router.

8.5.5 Configure UPnP Port Mapping

Click **Network > UPnP Port Mapping > UPnP Port Mapping** to display the **UPnP Port Mapping** screen.

Use this screen to set how the Internet gateway's UPnP feature configures the Internet gateway's NAT IP address mapping and port mapping settings. These settings allow Internet users connected to the Internet gateway's WAN interface to access services on the NAS. You can set which port Internet users need to use to access a specific service on the NAS.

Figure 103 Network > UPnP Port Mapping > UPnP Port Mapping

The following table describes the labels in this screen.

Table 80 Network > UPnP Port Mapping > UPnP Port Mapping

LABEL	DESCRIPTION
Add	Click this to add a service and create a port mapping rule. See more details on Section 8.5.5.1 on page 136 .
Remove	Click this to open the following screen where you can remove a port mapping rule. <div data-bbox="506 1213 1198 1537" data-label="Image"> </div> <p>Click Yes to remove the selected port mapping rule or No to close this screen.</p>
Enabled/Disabled	Use this to enable or disable a selected port mapping rule.
Status	Displays the status of the port mapping rule. A green circle indicates the port mapping rule is enabled and you can access the service. A grey circle indicates the port mapping rule is disabled. A red circle indicates the router's settings failed to be changed. "-" indicates a new mapping rule.
Service	This read-only field identifies a service on the NAS.
LAN Port	Displays the NAS's internal port number for the service.

Table 80 Network > UPnP Port Mapping > UPnP Port Mapping (continued)

LABEL	DESCRIPTION
WAN Port	<p>When you enable one of the NAS's services, specify the port number (1~65,535) Internet uses need to use to connect to the Internet gateway's WAN port in order to access the service on the NAS. Whoever wants to access a service on the NAS from the Internet must use this port number.</p> <p>Make sure there is not another service using TCP protocol with the same port number.</p> <p>If another device is using the same port (the Internet gateway has the same port number mapped to another LAN IP address), the NAS overwrites it when you apply the setting and WAN users can no longer access the other device.</p>
Apply	Click Apply to save your changes back to the NAS.
Reset	Click Reset to begin configuring this screen afresh.

8.5.5.1 Add a Port Mapping Rule

Some Internet gateways will delete all UPnP mappings after reboot. So if the Internet gateway reboots, you may need to re-apply the UPnP port mapping again. Click **UPnP Port Mapping > Add** to add NAS services and create port mapping rules.

Add Port Mapping Rule(s)

To use port number on the router (WAN) that is different from the one on the NAS (LAN), your router should support Port Address Translation (PAT).

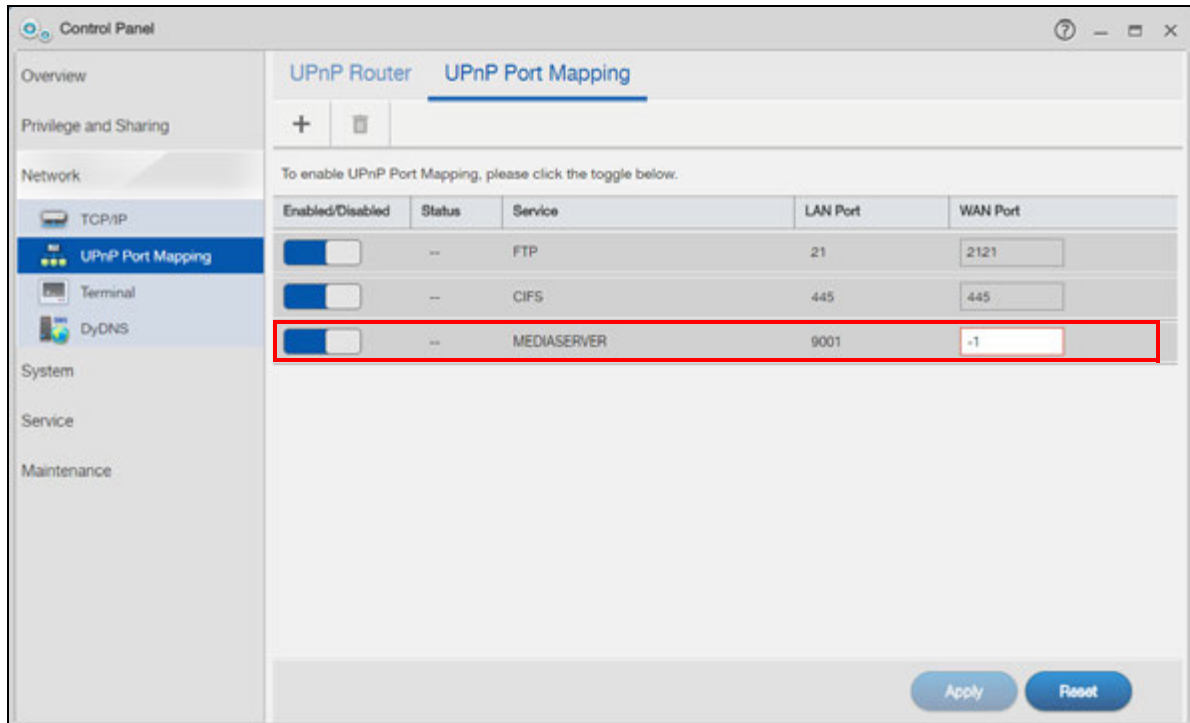
Select the service(s) to create port mapping rules

<input type="checkbox"/>	Service	LAN Port
<input type="checkbox"/>	HTTP	80
<input type="checkbox"/>	FTP	21
<input type="checkbox"/>	CIFS	445
<input type="checkbox"/>	TELNET	23
<input type="checkbox"/>	MEDIASERVER	9001
<input type="checkbox"/>	HTTPS	443
<input type="checkbox"/>	SSH	22
<input type="checkbox"/>	WEBDAV_HTTP	5002
<input type="checkbox"/>	WEBDAV_HTTPS	5003
<input type="checkbox"/>	WEBPUBLISHING_HTTP	5000

Apply Cancel

Select the services you want to create port mapping rules for, and click **Apply** to add the services. Click **Cancel** to close the screen without saving any setting.

Note: The default of the WAN port for the newly created service displays -1. Specify the port number from 1 to 65,535, or you cannot access that service from the Internet.

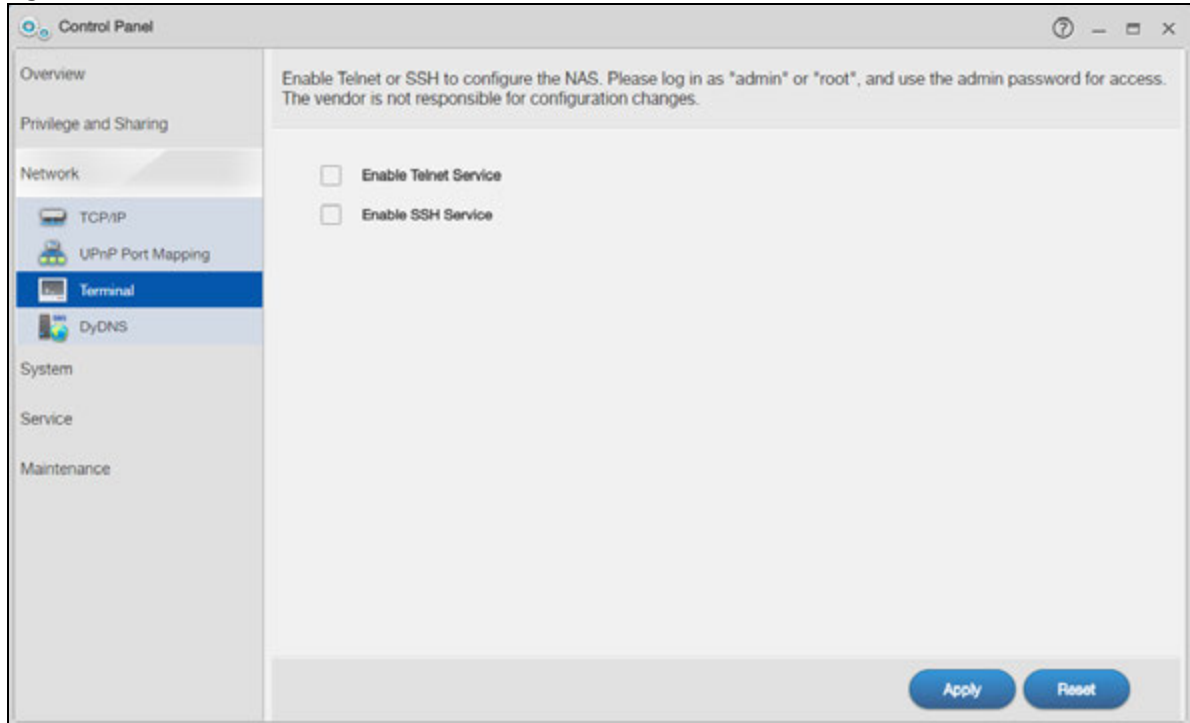


8.6 Terminal Screen

Use this screen to enable or disable Telnet and SSH (Secure SHell) access to the NAS.

Telnet or SSH access lets you use line commands to configure the NAS. Use these commands at your own risk. The vendor takes no responsibility for any changes you make using the commands.

Click **Control Panel > Network > Terminal** in the navigation panel to open the following screen.

Figure 104 Control Panel > Network > Terminal

The following table describes the labels in this screen.

Table 81 Control Panel > Network > Terminal

LABEL	DESCRIPTION
Enable Telnet Service	Select this to enable Telnet access to the NAS. Clear it to not allow Telnet access to the NAS. To use Telnet, log in as "admin" or "root" and use the admin password.
Enable SSH Service	Select this to enable SSH access to the NAS. Clear it to not allow SSH access to the NAS. To use SSH, log in as "admin" or "root" and use the admin password.
Apply	Click this to save your changes.
Reset	Click this to restore previously saved settings.

8.7 DyDNS Screen

Use this screen to enable and configure Dynamic DNS.

Dynamic DNS (DyDNS) allows you to update your current dynamic IP address with a dynamic DNS service so that anyone can contact you (such as through NetMeeting or CUSeeMe). You can also access your FTP server or Web site on your own computer using a domain name (for instance myhost.dhs.org, where myhost is a name of your choice) that will never change instead of using an IP address that changes each time you reconnect. Your friends or relatives will always be able to call you even if they don't know your IP address.

Click **Control Panel > Network > DyDNS** to open the following screen.

Figure 105 Control Panel > Network > DyDNS

The following table describes the labels in this screen.

Table 82 Control Panel > Network > DyDNS

LABEL	DESCRIPTION
Enable DyDNS	Select this to use dynamic DNS. You need to have registered a dynamic DNS account with a service provider such as www.dyndns.org . The Dynamic DNS service provider will give you a password or key.
Service Provider	Select your Dynamic DNS service provider.
Hostname	Enter your host name provided by the Dynamic DNS service.
Username	Enter your user name for your DNS account.
Password	Enter the password assigned to your DNS account.
Status	This shows the DyDNS update result: Disabled – You have manually disabled the DyDNS feature. Error – An unrecoverable error (such as authentication error) occurred caused the NAS to disable the DyDNS feature automatically. Fail to update – A recoverable error (such as a temporary Internet disconnect) occurred. The NAS will retry later. Updated – The NAS updated the DyDNS server with the NAS's public IP address.
Default Gateway	This shows with which public IP of interface the NAS updated the DyDNS server.
External Address	This shows the IP address of the NAS that can be accessed in the Wide Area Network (WAN). Note that this is not assigned by the DyDNS server.
Apply	Click this to save your changes.
Reset	Click this to clear the fields.

CHAPTER 9

Control Panel: System

9.1 Overview

This chapter gives an overview of the various features included in the system screens.

9.2 What You Can Do

- Use the **Server Name** screen ([Section 9.4 on page 141](#)) to specify the NAS's server and workgroup names.
- Use the **Date/Time** screen ([Section 9.5 on page 142](#)) to set up date/time and choose a time zone for the NAS.
- Use the **FW Upgrade** screen ([Section 9.6 on page 144](#)) to upgrade the NAS firmware.
- Use the **SSL** screen ([Section 9.7 on page 146](#)) to configure the NAS's SSL certificate.

9.3 What You Need to Know

Windows/CIFS

Common Internet File System (CIFS) is a standard protocol supported by most operating systems in order to share files across the network.

- CIFS is included by default in Windows operating systems.
- You can use Samba with Linux to use CIFS.
- CIFS transfers use security.

Time Lag

Time lag occurs when the time on the NAS falls behind the time on the time server. This may happen if:

- the time server is no longer reachable
- the NAS is shut down often (the NAS internal battery keeps time when the NAS is shut down and this may cause possible variance)
- power surges occur.

The NAS gives no warning if time lag occurs. You should resynchronize the time after a power surge or after you have shut down the NAS several times.

9.4 Server Name Screen

Click **Control Panel > System > Server Name** to open the following screen. Use this screen to configure your CIFS settings. In this screen you can set your server name and specify if your NAS is a part of a workgroup.

Note: CIFS cannot be disabled on the NAS.

Figure 106 Control Panel > System > Server Name

The following table describes the labels in these screens.

Table 83 Control Panel > System > Server Name

LABEL	DESCRIPTION
Server Name	Enter a name to identify your NAS on the network in this field. You can enter up to 15 alphanumeric characters with minus signs allowed but not as the last character. The name must begin with an alphabet (a-z) and is NOT case sensitive.
Description	Add text here to describe the NAS if the Server Name field is not enough. Use up to 61 characters. You can use all characters except the following: / \ : [] < > + , ; ? = * " ~ .
Workgroup Name	Type your workgroup name in this field. A workgroup is a group of computers on a network that can share files. These user accounts are maintained on the NAS. You can enter up to 15 alphanumeric characters with minus signs allowed but not as the last character. The name must begin with an alphabet (a-z) and is NOT case sensitive.
Prevent NAS From Being Master Browser	Select this option if computers in your workgroup are named with non-English characters (such as Chinese and Russian). When you perform a search in the workgroup, this option allows you to locate computers named with non-English characters.
Apply	Click this to save your changes.
Reset	Click this to restore previously saved settings.

9.5 Date/Time Screen

Use this screen to select a time zone and a time server from which your NAS can get the time and date. This time is then used in NAS logs and alerts.

9.5.1 Configure Date/Time

Click the **Control Panel > System** link in the navigation panel and then click the **Date/Time** link to access the **Date/Time** screen.

Figure 107 Control Panel > System > Date/Time

The following table describes the labels in this screen.

Table 84 Control Panel > System > Date/Time

LABEL	DESCRIPTION
Current system date/time	This field displays the current date and time used by your NAS for its logs and alerts.
Time Zone	Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).
Date/time setting	
Manually	<p>Select this radio button to enter the time and date manually.</p> <p>When you enter the time settings manually, the NAS uses the new setting once you click Apply.</p> <p>Note: If you enter time settings manually, they revert to their defaults when power is lost.</p>

Table 84 Control Panel > System > Date/Time (continued)

LABEL	DESCRIPTION
Date/time	This field displays the last updated date and time from the time server or the last date and time configured manually. When you set Date/time setting to Manually , enter the new date and time in this field and then click Apply .
Synchronize with time server	Select this option to have the NAS get the time and date from the time server you select in the Time server address field.
Time server address	Select a time server from the drop-down list box. Check with your ISP/network administrator if you are unsure of this information.
Synchronize Now	Click this for the NAS to retrieve the correct time from the configured time server right away.
Apply	Click this to save your changes. If you configured a new time and date, Time Zone and Daylight Saving at the same time, all of the settings take affect.
Reset	Click this to restore your previously saved settings.

9.5.2 Configure Daylight Saving Time

Click **Control Panel > System > Date/Time > Daylight Saving Time** to open the following screen.

Figure 108 Control Panel > System > Date/Time > Daylight Saving Time

The screenshot shows the 'Daylight Saving Time' configuration window in the Control Panel. The left sidebar lists categories: Overview, Privilege and Sharing, Network (TCP/IP, UPnP Port Mapping, Terminal, DyDNS), System (Server Name, Date/Time, FW Upgrade, SSL), Service, and Maintenance. The 'Date/Time' option is selected. The main area has tabs for 'Date/Time' and 'Daylight Saving Time'. A note states: 'Daylight Saving Time rule will be changed with different time zones. The NAS depends on the time zone you choose to provide appropriate Daylight Saving Time settings retrieved from the Internet.' The configuration options are:

- ☒ Enable daylight saving
 - ☐ Auto daylight saving
 - ☒ Manual daylight saving
 - Start date: January, First, Monday, at 12:00
 - End date: January, First, Monday, at 12:00
 - Offset: 1 Hour(s)

 At the bottom right are 'Apply' and 'Reset' buttons.

The following table describes the labels in this screen.

Table 85 Control Panel > System > Date/Time > Daylight Saving Time

LABEL	DESCRIPTION
Enable daylight saving	Select this option to use daylight saving time.
Auto daylight saving	Select this option to have the NAS automatically retrieve Daylight Saving Time settings from the Internet. The NAS will download a new daylight saving resource file from the Internet every month.
Manual Daylight Saving	Daylight saving is a period from late spring to fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening. Select this option to manually enter Daylight Saving Time settings.
Start Date	Configure the day and time when Daylight Saving Time starts if you selected Enable Daylight Saving . The hour field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time starts in most parts of the United States on the second Sunday of March. Each time zone in the United States starts using Daylight Saving Time at 2 A.M. local time. So in the United States you would use March, Second, Sunday, at 2:00 . Daylight Saving Time starts in the European Union on the last Sunday of March. All of the time zones in the European Union start using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would select March, Last, Sunday . The time you specify depends on your time zone. In Germany for instance, you would type 2 because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
End Date	Configure the day and time when Daylight Saving Time ends if you selected Enable Daylight Saving . The o'clock field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time ends in the United States on the first Sunday of November. Each time zone in the United States stops using Daylight Saving Time at 2 A.M. local time. So in the United States you would select November, First, Sunday, at 2:00 . Daylight Saving Time ends in the European Union on the last Sunday of October. All of the time zones in the European Union stop using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would select October, Last, Sunday . The time you specify depends on your time zone. In Germany for instance, you would type 2 because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
Offset	Specify by how many hours to change the time for Daylight Saving Time.
Apply	Click this to save your changes. If you configured a new time and date, Time Zone and Daylight Saving at the same time, all of the settings take affect.
Reset	Click this to restore your previously saved settings.

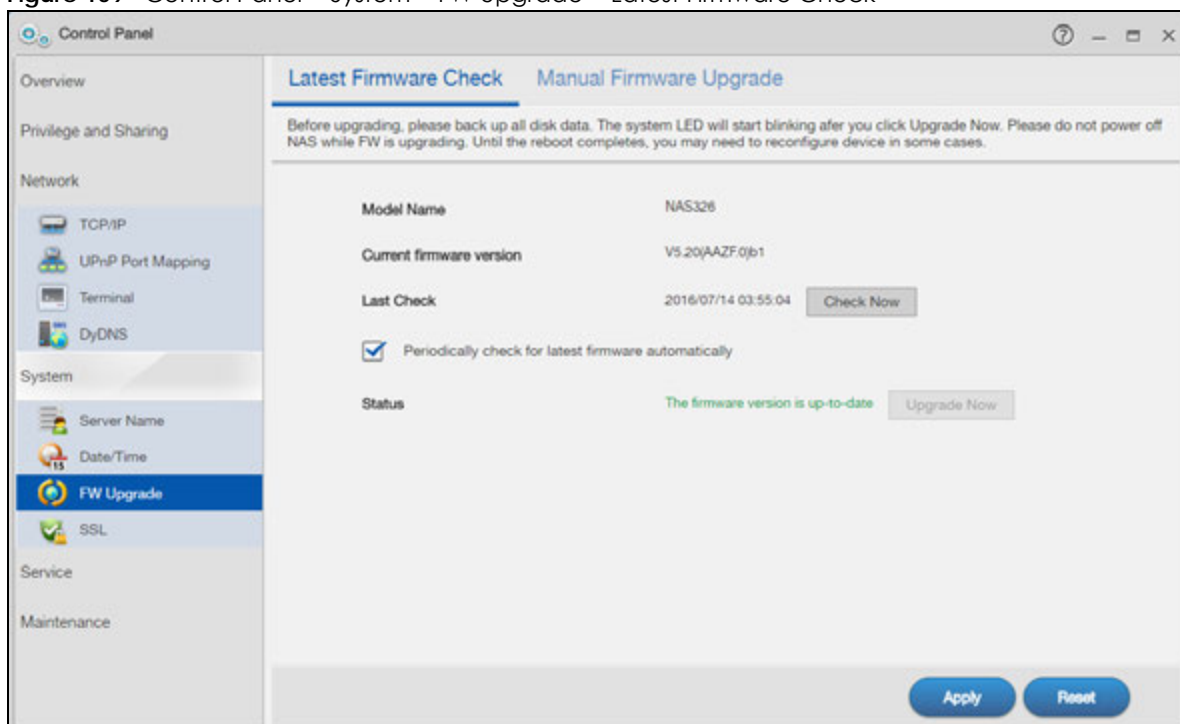
9.6 FW Upgrade Screens

Use this screen to upgrade the NAS firmware. You should first have downloaded the latest firmware files from the Zyxel website.

Do not turn off the NAS while it is upgrading the firmware or you may render it unusable.

9.6.1 Latest Firmware Check

Click **Control Panel > System > FW Upgrade** to open the following screen. **Latest Firmware Check** allows you to check the latest firmware version and perform the upgrade.

Figure 109 Control Panel > System > FW Upgrade > Latest Firmware Check

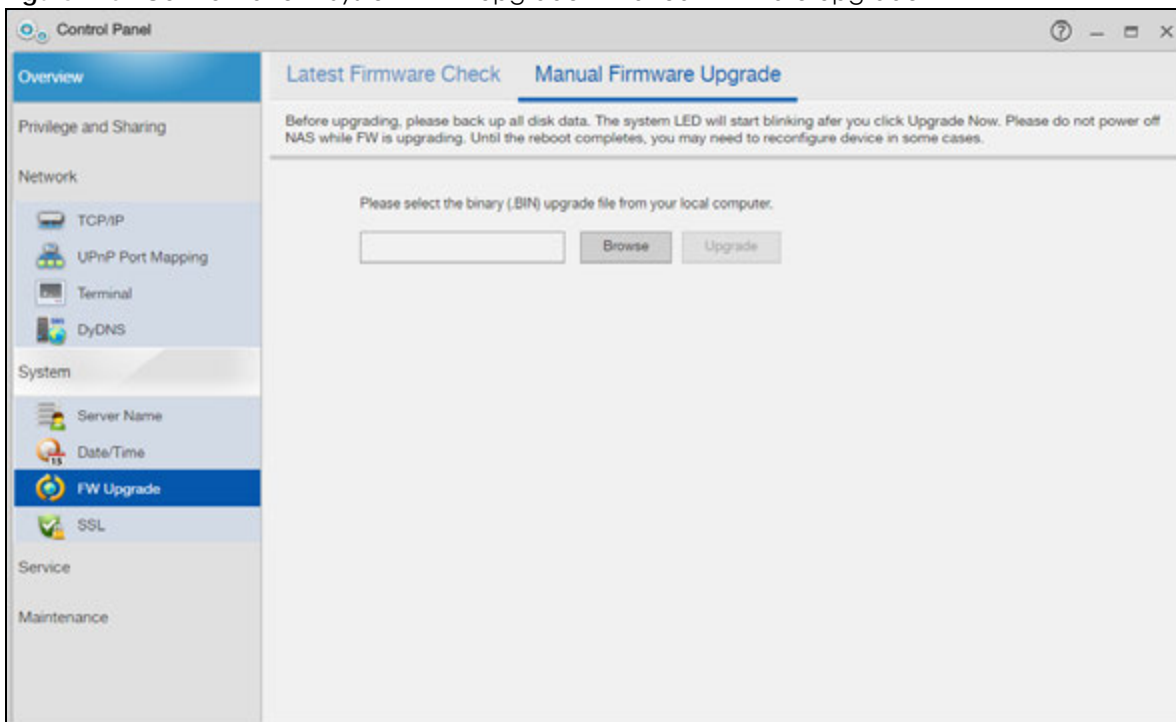
The following table describes the labels in this screen.

Table 86 Control Panel > System > FW Upgrade > Latest Firmware Check

LABEL	DESCRIPTION
Model Name	Displays the model name of you NAS
Current Firmware Version	Displays the current firmware version of your NAS
Last Check	Displays the last checking time. If no, it is blank.
Check Now	Click this to check Zyxel's server for updated firmware.
Periodically Check for Latest Firmware Automatically	Select this to have the NAS regularly check Zyxel's server for updated firmware. The NAS notifies you at login if a new firmware is available. Click Apply to save this field's setting.
Status	Displays the firmware checking status or error messages. If there is no previous checking information, it displays --.
Upgrade Now	Click this to upload the new firmware. The NAS automatically restarts after you upgrade. Wait until the restart completes before accessing the NAS again. If you interrupt the upgrade, then the NAS may become unusable. See Section 1.2 on page 14 for your model's LED behavior during firmware upgrade.
Reset	Click this to refresh the screen.

9.6.2 Manual Firmware Upgrade

You can also download the firmware from the Zyxel website and upgrade the firmware manually. Click **Control Panel > System > FW Upgrade > Manual Firmware Upgrade** to show the following screen.

Figure 110 Control Panel > System > FW Upgrade > Manual Firmware Upgrade

The following table describes the labels in this screen.

Table 87 Control Panel > System > FW Upgrade > Manual Firmware Upgrade

LABEL	DESCRIPTION
Browse	Click this to find the file on your computer. Note: You cannot choose a downgraded firmware. If you do, the screen will show: The NAS firmware cannot be downgraded, please select a newer version of binary (.BIN) upgrade file from your computer.
Upgrade	Click this to upgrade the firmware after you find the file.

9.7 SSL Screens

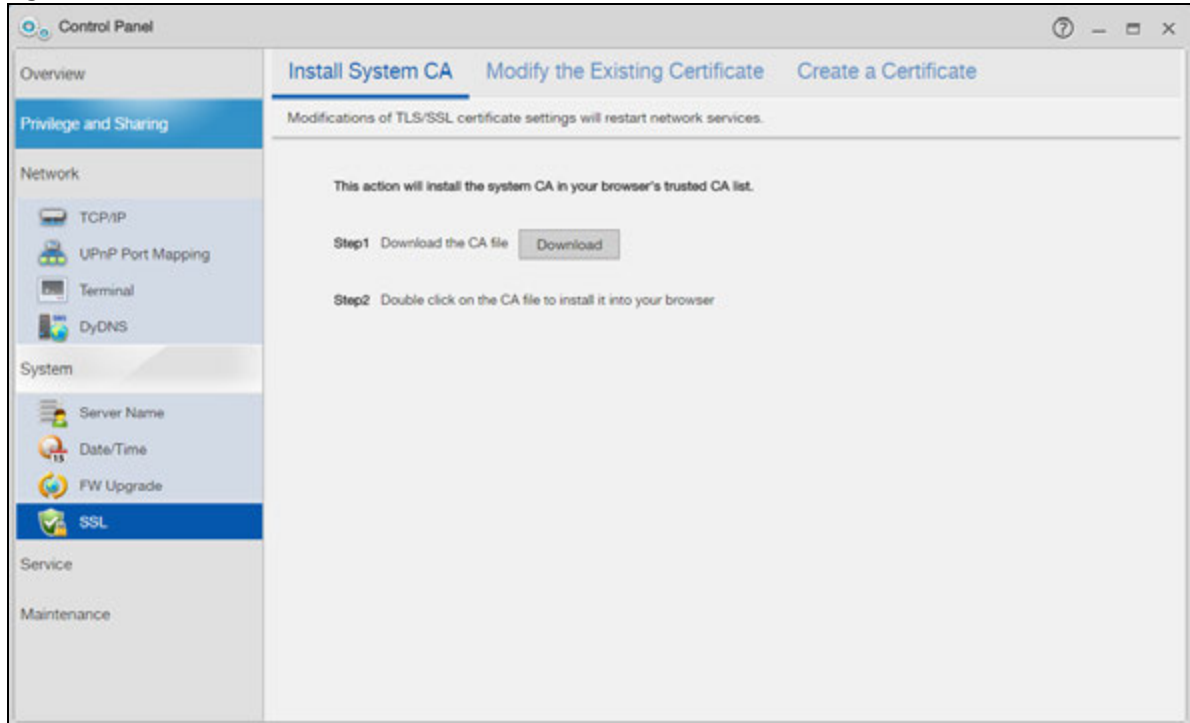
Click **Control Panel > System > SSL** to open this screen, where you can create a public key certificate, or upload a public key certificate that was issued by a known certificate authority.

9.7.1 Install System CA

Click **Control Panel > System > SSL > Install System CA** to show the following screen.

Click the **Download** button to save a copy of the NAS's public key certificate to your local computer. This is useful for installing the certificate without having to connect to the NAS, or for sending by email to other users for them to install prior to logging into the NAS for the first time. After saving the certificate to your computer, double-click it to install it.

Note: Each web browser handles certificate installation differently.

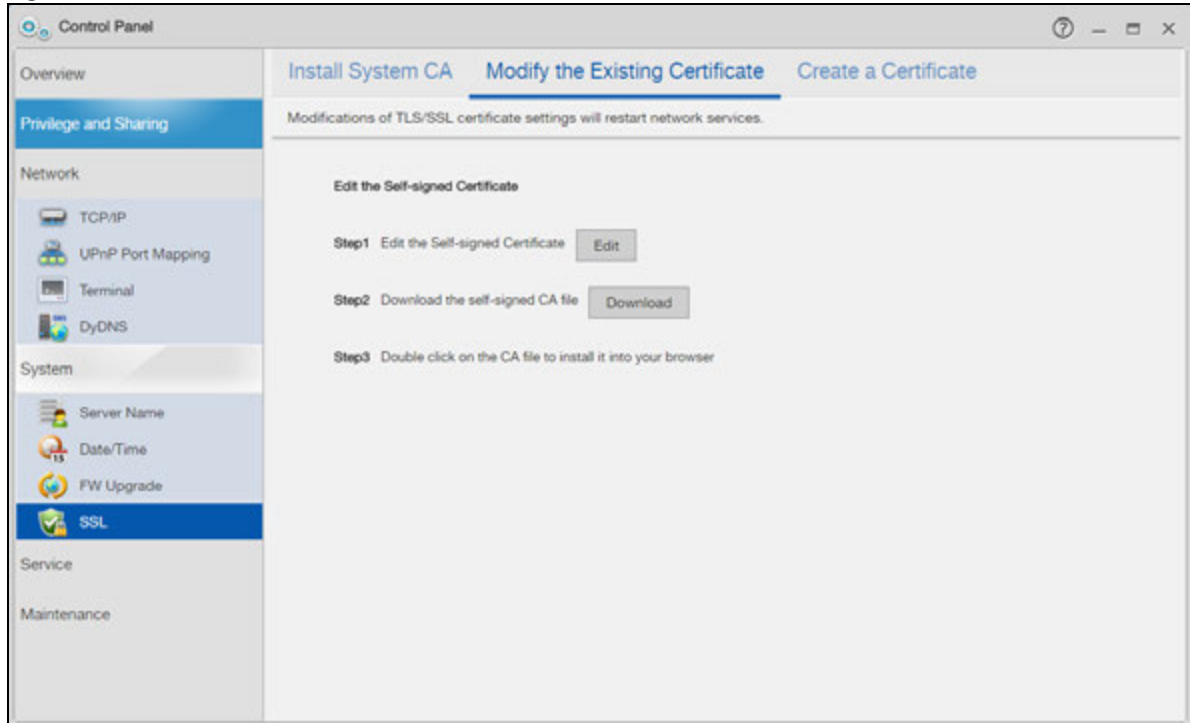
Figure 111 Control Panel > System > SSL > Install System CA

9.7.2 Modify the Existing Certificate

Click **Control Panel > System > SSL > Modify the Existing Certificate** to show the following screen.

Click **Edit**, then follow the on-screen instructions for creating a public key certificate signed by the NAS as the local certificate authority. See [Edit or Create a Certificate on page 149](#) for more information.

Note: Use certificates created and signed by the NAS if the device is not open to external access.

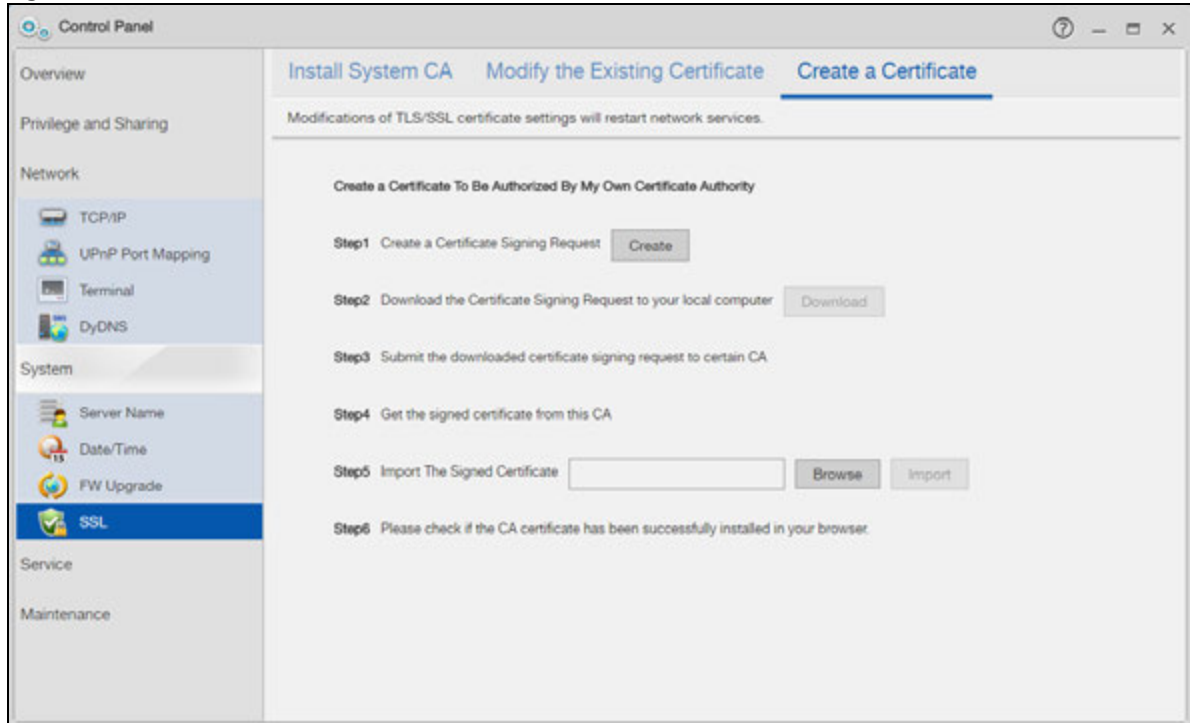
Figure 112 Control Panel > System > SSL > Modify the Existing Certificate

9.7.3 Create a Certificate

Click **Control Panel > System > SSL > Create Certificate** to show the following screen.

Click **Create**, then follow the on-screen instructions to install a certificate that has been authorized by a third-party certificate authority. See [Edit or Create a Certificate on page 149](#) for more information.

Note: Use this method if the device is open to external access, such as allowing users to connect through the Internet using FTP over TLS or HTTPs.

Figure 113 Control Panel > System > SSL > Create a Certificate

Edit or Create a Certificate

When you click the **Edit** button in the **SSL > Modify the Existing Certificate** screen, a screen opens to allow you to make adjustments to the NAS's public key certificate.

The screen is also the same for the **Create** button in the **SSL > Create a Certificate** screen.

Figure 114 Maintenance > SSL > Create or Edit a Certificate

The following table describes the labels in this screen.

Table 88 Maintenance > SSL > Create or Edit a Certificate

LABEL	DESCRIPTION
Common Name	This name describes the certificate's origin, either in the form of an IP address or a domain name.
Host IP Address	Select this option and enter the NAS's IP address if you want to use this for the common name.
Host Domain Name	Select this option and enter the NAS's domain name if you want to use this for the common name
Key Type	Select the certificate's key type, either RSA or DSA . RSA is a public-key encryption and digital signature algorithm, while DSA is only a digital signature algorithm.
Key Length	Select the encryption key length. The longer the key, the better the encryption security. The only drawback to having a long key is that the file encrypted with it swells in size as well.
Organizational Unit	Enter this name of the organizational unit which owns or maintains the NAS. This is an optional field.
Organization	Enter this name of the organization or company which owns or maintains the NAS. This is an optional field.
Country	Enter this name of the country in which the NAS is located. This is an optional field.
State or Province Name	Identify the state or province where the certificate owner is located. You can use up to 64 characters. You can use alphanumeric characters, the hyphen and the underscore.
Locality	Identify the town or city where the certificate owner is located. You can use up to 64 characters. You can use alphanumeric characters, the hyphen and the underscore.
Email	Enter the certificate's e-mail address.
Apply	Click this to save your changes.
Cancel	Click this to discard changes and close the window.

CHAPTER 10

Control Panel: Service

10.1 Overview

This chapter discusses the features in the **Service** screens. The NAS contains various applications for file sharing.

10.2 What You Can Do

- Use the **Media Server** screens ([Section 10.4 on page 152](#)) to share files with media clients.
- Use the **iTunes Server** screens ([Section 10.5 on page 154](#)) to share files with iTunes users on your network.
- Use the **FTP** screen ([Section 10.6 on page 155](#)) to configure settings for FTP file transfers to/from the NAS.
- Use the **WebDAV** screen ([Section 10.7 on page 158](#)) to allow remote users to use client programs that support WebDAV to edit and manage files stored on the NAS.
- Use the **Web Publishing** screen ([Section 10.8 on page 160](#)) to publish shares for people to access files using a web browser.
- Use the **Print Server** screen ([Section 10.9 on page 164](#)) to share a printer.
- Use the **Syslog Server** screen ([Section 10.10 on page 165](#)) to configure the NAS to accept syslog logs from syslog clients.

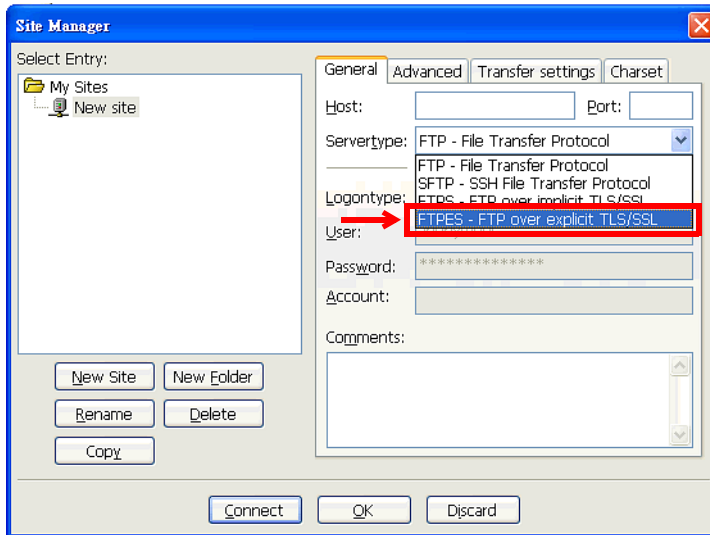
10.3 What You Need to Know

FTP

File Transfer Protocol (FTP) is a file transfer service that operates on the Internet. A system running the FTP server accepts commands from a system running an FTP client. FTP is not a secure protocol. Your file transfers could be subject to snooping.

FTPES (File Transfer Protocol over Explicit TLS/SSL)

File Transfer Protocol over Explicit TLS/SSL (FTPES) is a file transfer service that uses either TLS (Transport Layer Security) or SSL (Secure Sockets Layer) for secure transfers across the Internet. It requests for a mutual method of encryption from the FTP server for its file transfer sessions. Your FTP client must be set to use FTPES as in the following example.

Figure 115 FTP Client Example

Media Server

The media server feature lets anyone on your network play video, music, and photos from the NAS (without having to copy them to another computer). The NAS can function as a DLNA-compliant media server and/or an iTunes server. The NAS streams files to DLNA-compliant media clients or computers using iTunes. The Digital Living Network Alliance (DLNA) is a group of personal computer and electronics companies that works to make products compatible in a home network.

iTunes Server

The NAS iTunes server feature lets you use Apple's iTunes software on a computer to play music and video files stored on the NAS. You can download iTunes from www.apple.com.

Web Publishing

Web publishing lets you "publish" shares (containing folders and files) on the NAS so people can access the files using a web browser without having to log into the Web Configurator. This way you can share files with others without them having to know and enter a username and password.

For example, if you want to share photos in a FamilyPhotos share, you could "web publish" it and others could use a web browser to access the photos at <http://my-NAS's-IP-Address/MyWeb/FamilyPhotos>.

RSS

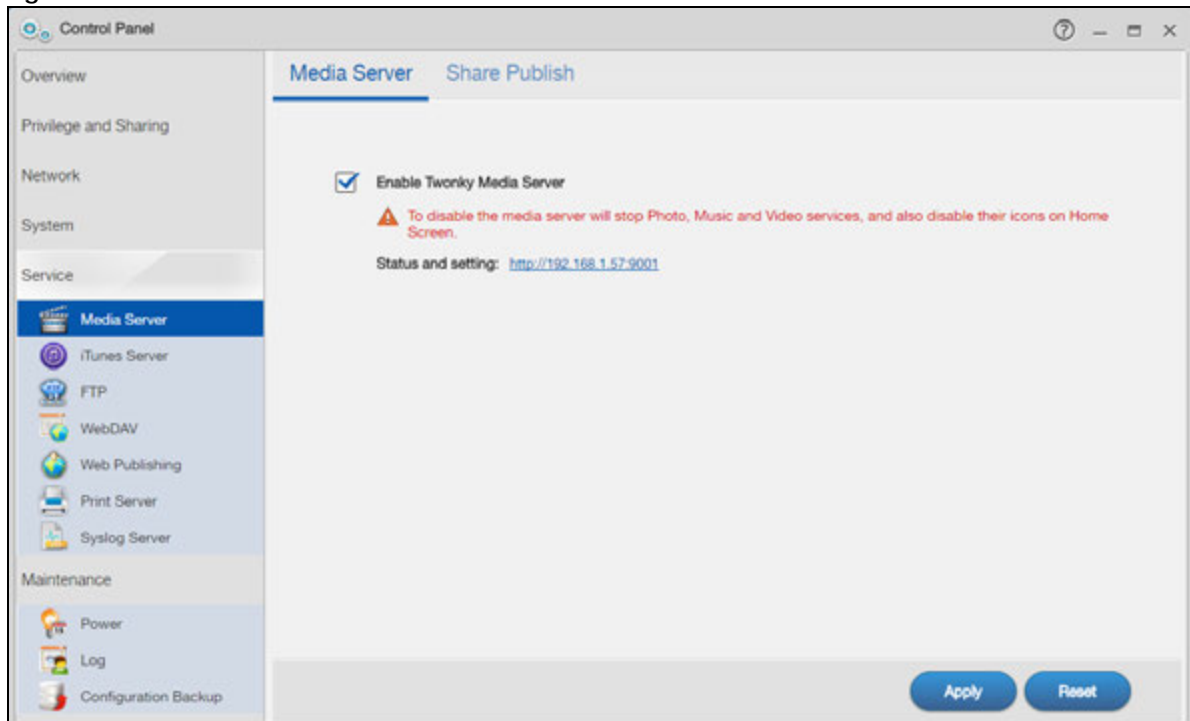
RSS (Really Simple Syndication) is a format for delivering frequently updated digital content. A channel uses a feed to deliver its contents (items). Subscribe the NAS to a feed to be able to download the contents.

10.4 Media Server Screens

The media server application allows you to share media files with media clients.

Click **Control Panel > Service > Media Server** to open the following screen. Use this screen to view the media server's status and rebuild the media server database.

Figure 116 Control Panel > Service > Media Server > Media Server



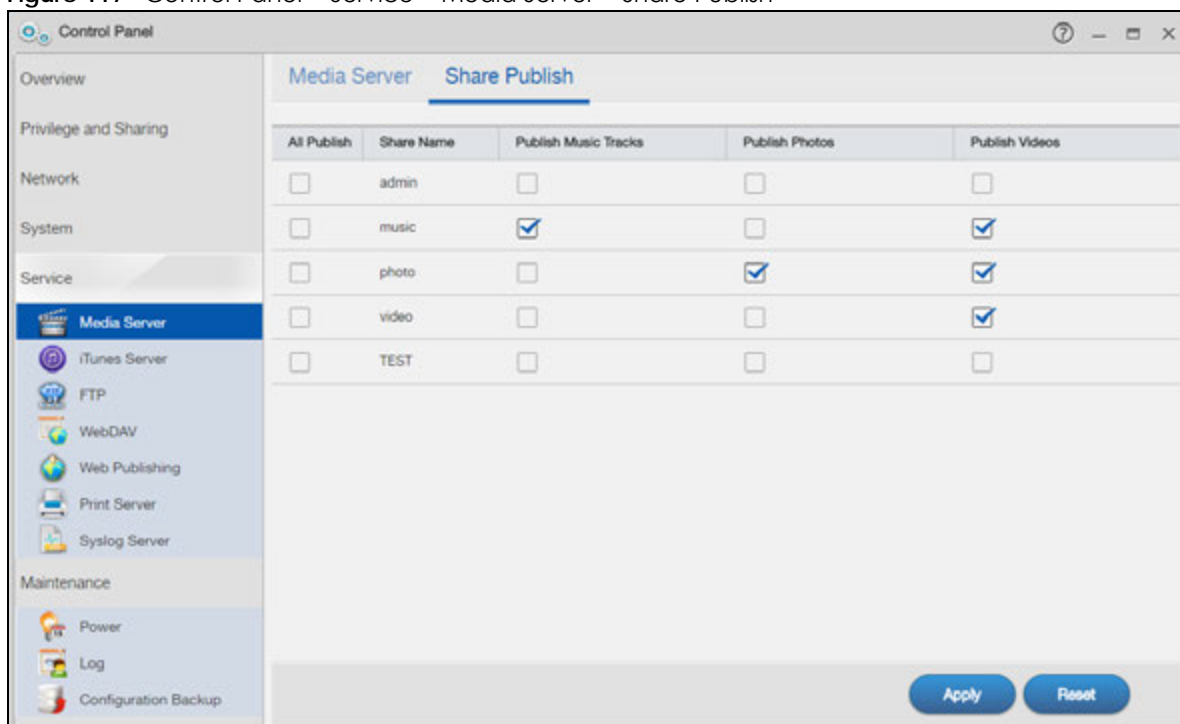
The following table describes the labels in this screen.

Table 89 Control Panel > Service > Media Server > Media Server

LABEL	DESCRIPTION
Enable Twonky Media Server	Select this to have the NAS share the media files in the shares selected in the Share Publish tab. Clear it to stop the NAS from sharing media files through the Playzone screens or media players. Click the hyper link to open the Twonky media server configuration screens to check media server status or modify media server settings. See the help center in the Twonky screens for details.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.4.1 Media Server Share Publish Screen

Click **Control Panel > Service > Media Server > Share Publish** to open the following screen. Use this screen to select shares to publish (share with media clients like a media player or iTunes).

Figure 117 Control Panel > Service > Media Server > Share Publish

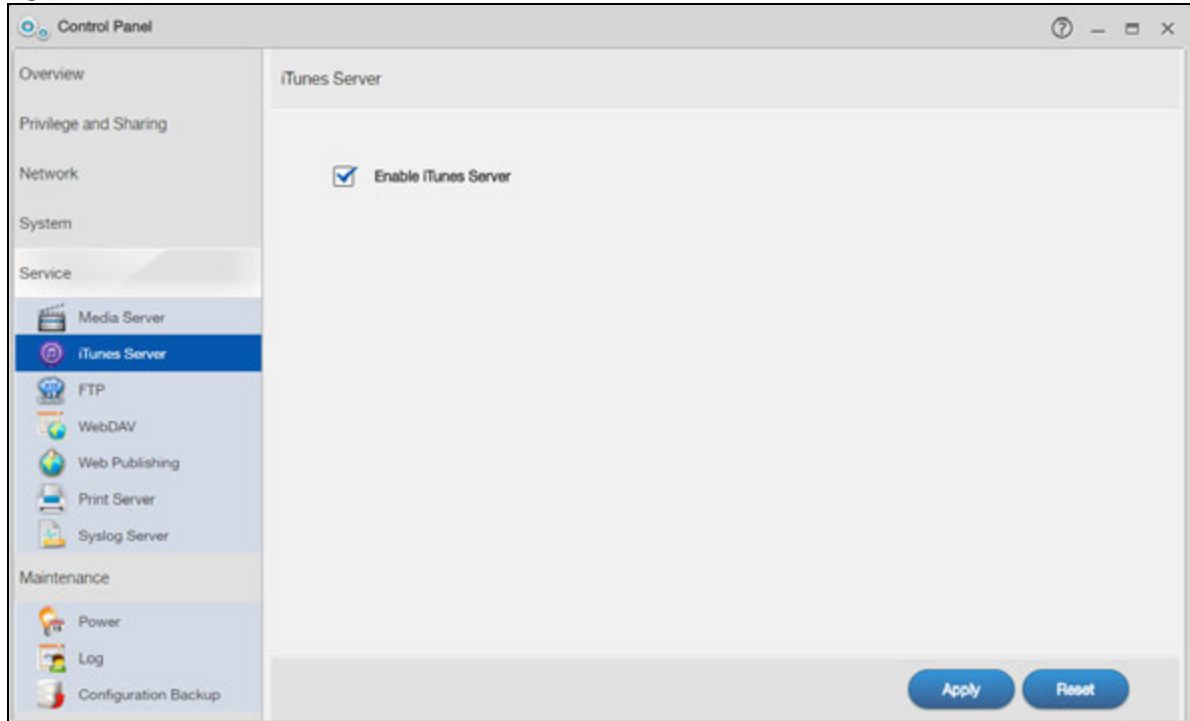
The following table describes the labels in this screen.

Table 90 Control Panel > Service > Media Server > Share Publish

LABEL	DESCRIPTION
All Publish	Select this to have the media server share a share's media files with media clients. Clear this to not share any media files of the share.
Share Name	This column lists names of shares on the NAS.
Publish Music Tracks	Select this to give media clients access to the share's music files.
Publish Photos	Select this to give media clients access to the share's photo files.
Publish Videos	Select this to give media clients access to the share's video files.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.5 iTunes Server Screen

Click **Control Panel > Service > iTunes Server** to open the following screen. Use this screen to turn the iTunes server on or off.

Figure 118 Control Panel > Service > iTunes Server

The following table describes the labels in this screen.

Table 91 Control Panel > Service > iTunes Server

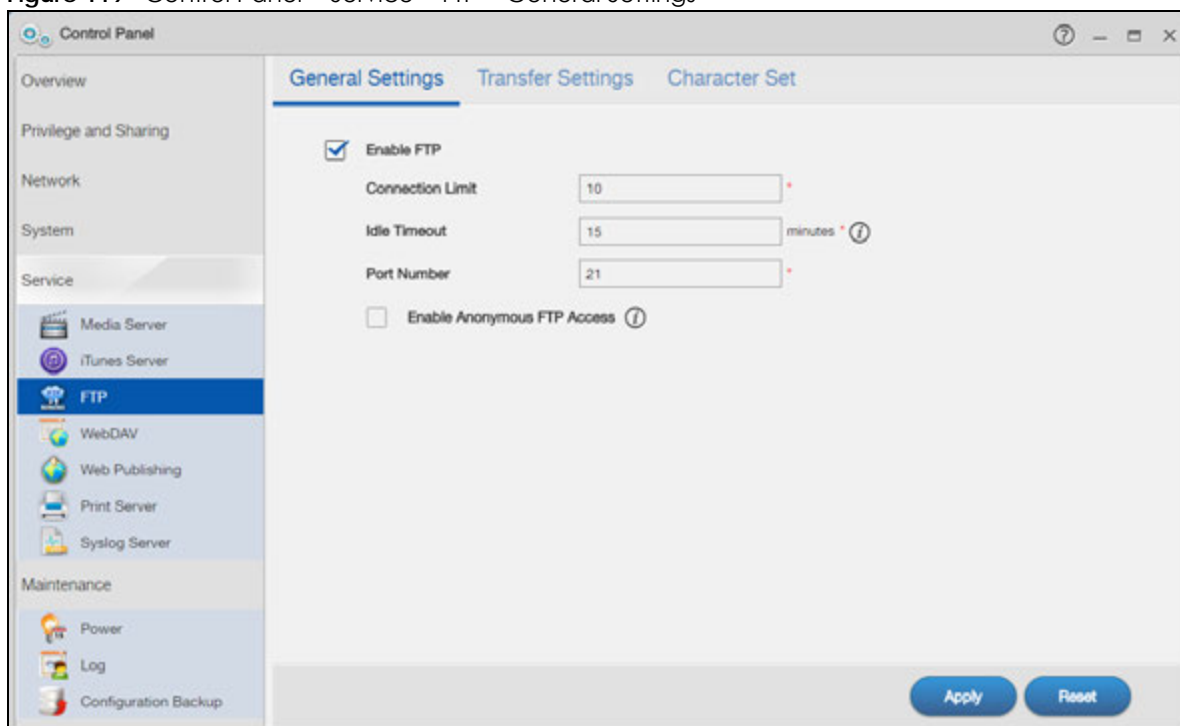
LABEL	DESCRIPTION
Enable iTunes Server	Check this to let anyone on your network use iTunes to play music files in the published shares.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.6 FTP Screens

Use FTP or FTPES (FTP over Explicit TLS/SSL) to upload files to the NAS and download files from the NAS.

10.6.1 General Settings

Click **Control Panel > Service > FTP > General Settings** to open the following screen.

Figure 119 Control Panel > Service > FTP > General Settings

The following table describes the labels in this screen.

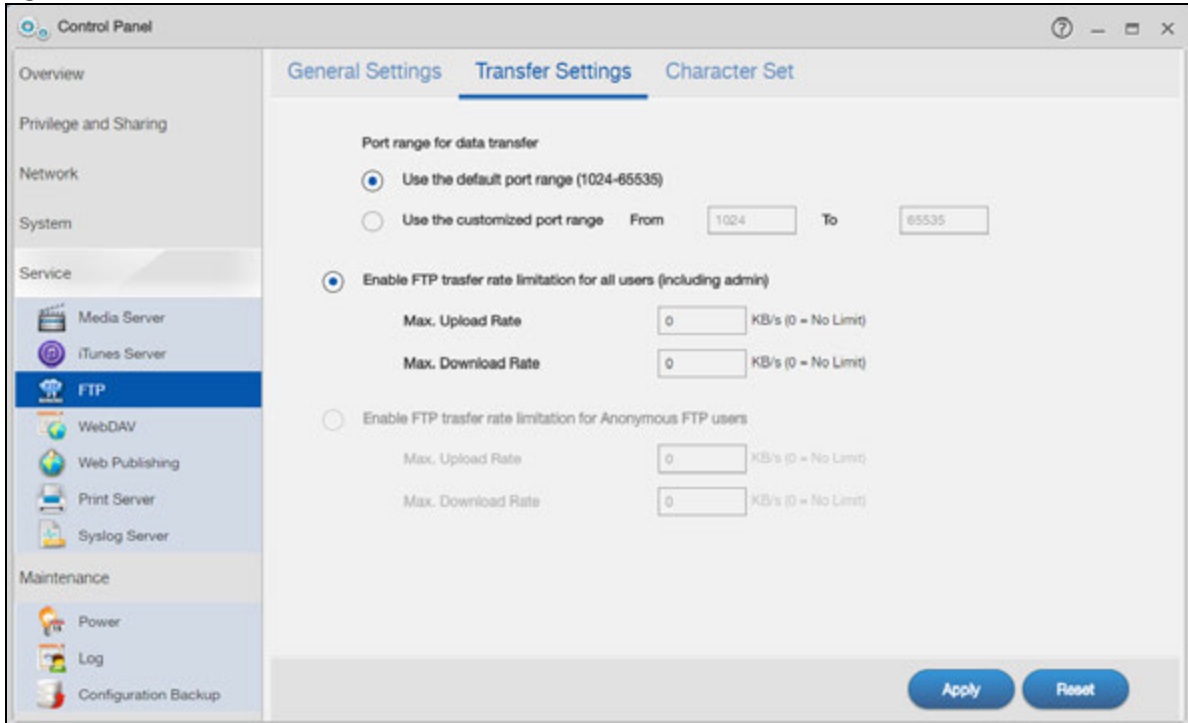
Table 92 Control Panel > Service > FTP > General Settings

LABEL	DESCRIPTION
Enable FTP	You can use FTP to send files to the NAS or get files from the NAS. Select this check box to allow users to connect to the NAS via FTP; otherwise clear the check box.
Connection Limit	Enter the maximum number of concurrent FTP connections allowed on the NAS in this field. See your screen for your model's connection limit.
Idle Timeout	Enter the length of time that an FTP connection can be idle before timing out. The timeout limit is 300 minutes.
Port Number	This is the port number used by the NAS for FTP traffic.
Enable Anonymous FTP Access	Select this check box to allow any user to log into the NAS using 'anonymous' as a username and no password. Any other name is considered a username, so must be valid and have a corresponding correct password. Note: If users log into the NAS using 'anonymous' as a username, they can only access files in the shares to which the "pc-guest" user is given access. See Section 7.3 on page 98 .
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.6.2 Transfer Settings

Click **Control Panel > Service > FTP > Transfer Settings** to open the following screen.

Figure 120 Control Panel > Service > FTP > Transfer Settings



The following table describes the labels in this screen.

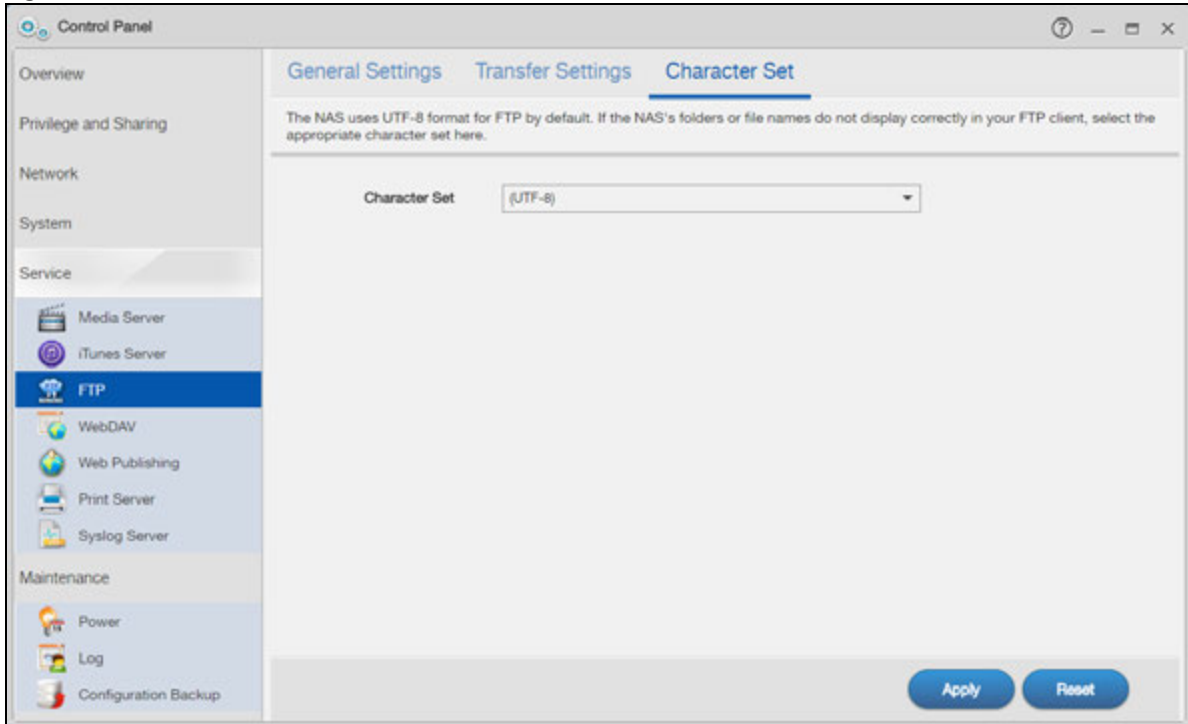
Table 93 Control Panel > Service > FTP > Transfer Settings

LABEL	DESCRIPTION
Port range for data transfer	<p>Select to Use the default port range. Otherwise, select Use the customized port range to assign a port range for FTP clients to use when downloading files from the NAS using passive mode. If you select Use the customized port range, enter the first and last port numbers in the range. Choose from 1024 to 65535.</p> <p>The connection limit is restricted to half of the port numbers within the range if this value is smaller than the one configured in the Connection Limit field of the FTP > General Settings screen. For example, you specified a port range from 1024 to 1029 and configured 10 in the Connection Limit field. The FTP connection limit will only be 3 (6 ports in the range divided by 2) because it is the smaller value.</p>
Enable FTP transfer rate limitation for all users (including admin)	<p>Select this if you want to limit the download/upload bandwidth for all users who are logged into the NAS, including the administrator.</p> <ul style="list-style-type: none"> • Max. Upload Rate - Enter the upload speed (in kilobytes/s) that the NAS allows for users who are logged into the NAS. • Max. Download Rate - Enter the download speed (in kilobytes/s) that the NAS allows for users who are logged into the NAS.
Enable FTP transfer rate limitation for Anonymous FTP users	<p>This option is configurable only when you select Enable Anonymous FTP Access in the FTP > General Settings screen.</p> <p>Select this if you want to limit the download/upload bandwidth for users who log into the NAS using 'FTP' or 'anonymous' as a username and no password.</p> <ul style="list-style-type: none"> • Max. Upload Rate - Enter the upload speed (in kilobytes/s) that the NAS allows for users who are logged into the NAS. • Max. Download Rate - Enter the download speed (in kilobytes/s) that the NAS allows for users who are logged into the NAS.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.6.3 Character Set

Click **Control Panel > Service > FTP > Character Set** to open the following screen.

Figure 121 Control Panel > Service > FTP > Character Set



The following table describes the labels in this screen.

Table 94 Control Panel > Service > FTP > Character Set

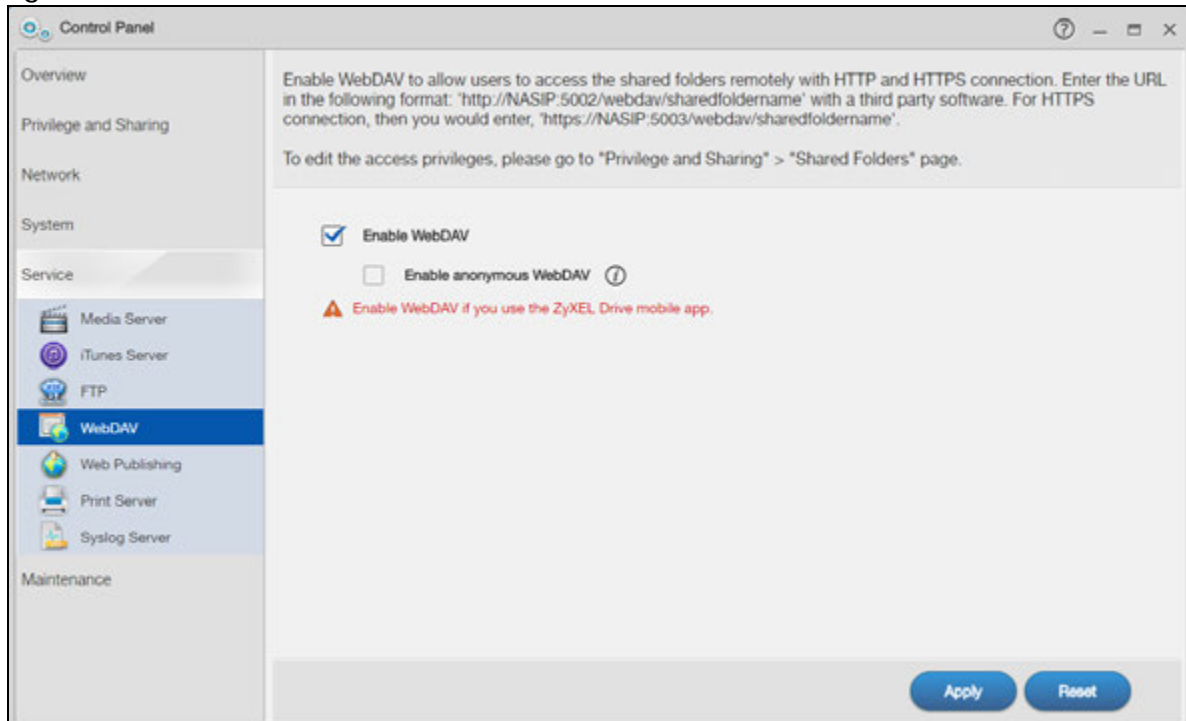
LABEL	DESCRIPTION
Character Set	The NAS uses UTF-8 (8-bit UCS/Unicode Transformation Format) format for FTP by default. If the NAS's folders, or file names do not display correctly in your FTP client, select the appropriate language encoding here. This setting applies to all FTP client connections to the NAS. It does not affect your Windows/CIFS connections (it will not correct the character display in Windows Explorer).
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

10.7 WebDAV Screen

The WebDAV HTTP extension lets users edit and manage files stored on remote servers. The NAS's WebDAV service allows client programs that support WebDAV, such as NetDrive and BitKinex on Windows, Mac OS Finder, and Linux file browsers remotely edit and manage files stored on the NAS.

Use the **WebDAV** screen to allow remote users to use client programs that support WebDAV to edit and manage files stored on the NAS.

Click **Control Panel > Service > WebDAV** to open the following screen.

Figure 122 Control Panel > Service > WebDAV

The following table describes the labels in this screen.

Table 95 Control Panel > Service > WebDAV

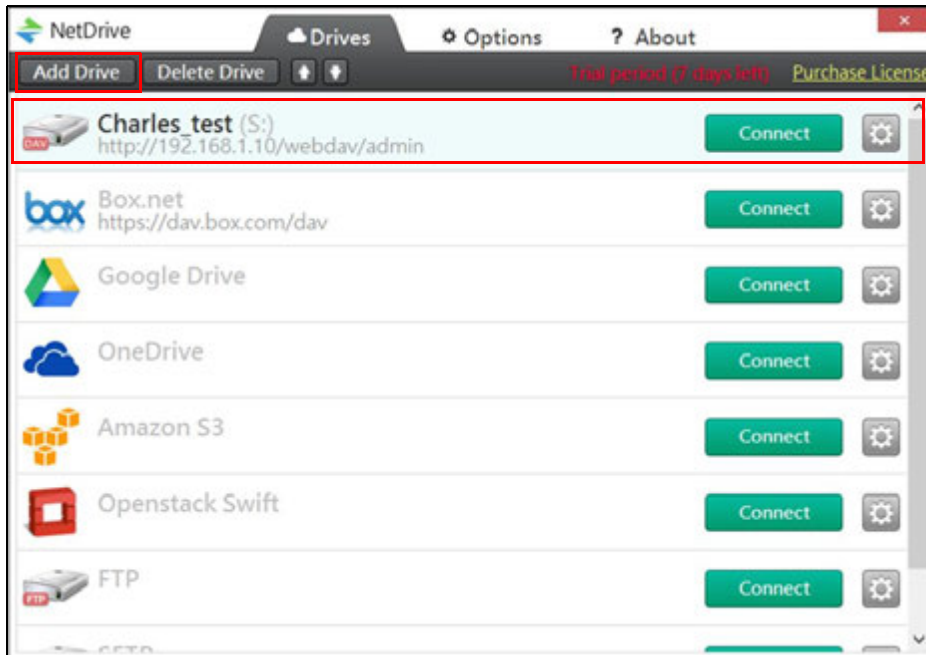
LABEL	DESCRIPTION
Enable WebDAV	Select this to allow remote users to work with files stored on the NAS. Edit the access privileges in Privilege and Sharing > Shared Folders . Https is for secure WebDAV connections to the NAS.
Enable anonymous WebDAV	Select this to allow remote users to use WebDAV to access all shares on the NAS without a login name or password.
Apply	Click this to save your changes.
Reset	Click this to discard any unsaved changes and restore previously saved settings.

10.7.1 How to Use NetDrive with the NAS

Here is an example of how to use the NetDrive WebDAV client with the NAS.

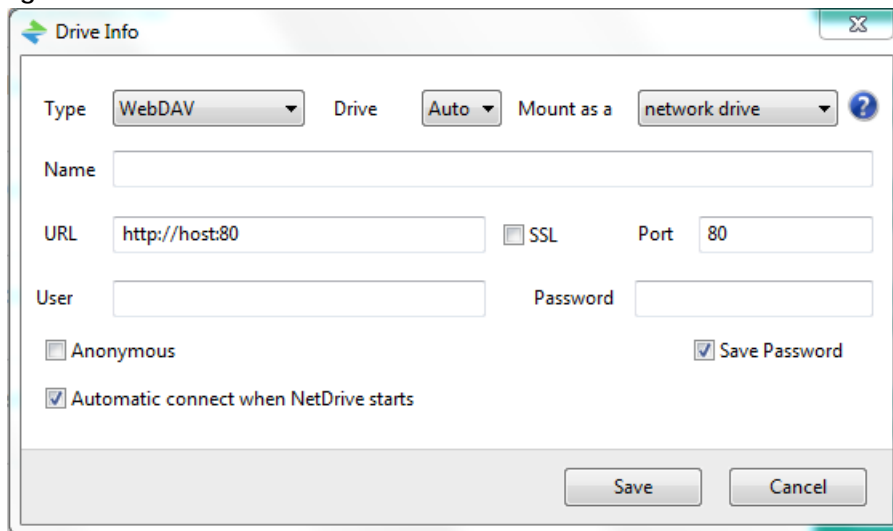
- 1 Download and install NetDrive.
- 2 Click **Add Drive** and use the URL for WebDAV connections to the NAS to add a drive entry for accessing the NAS.

Figure 123 NetDrive Example



- 3 Name the drive and specify the URL of the share to access. Select **SSL** if the NAS forces HTTPs use. Specify your user name and password for accessing the share on the NAS.

Figure 124 NetDrive Add Drive

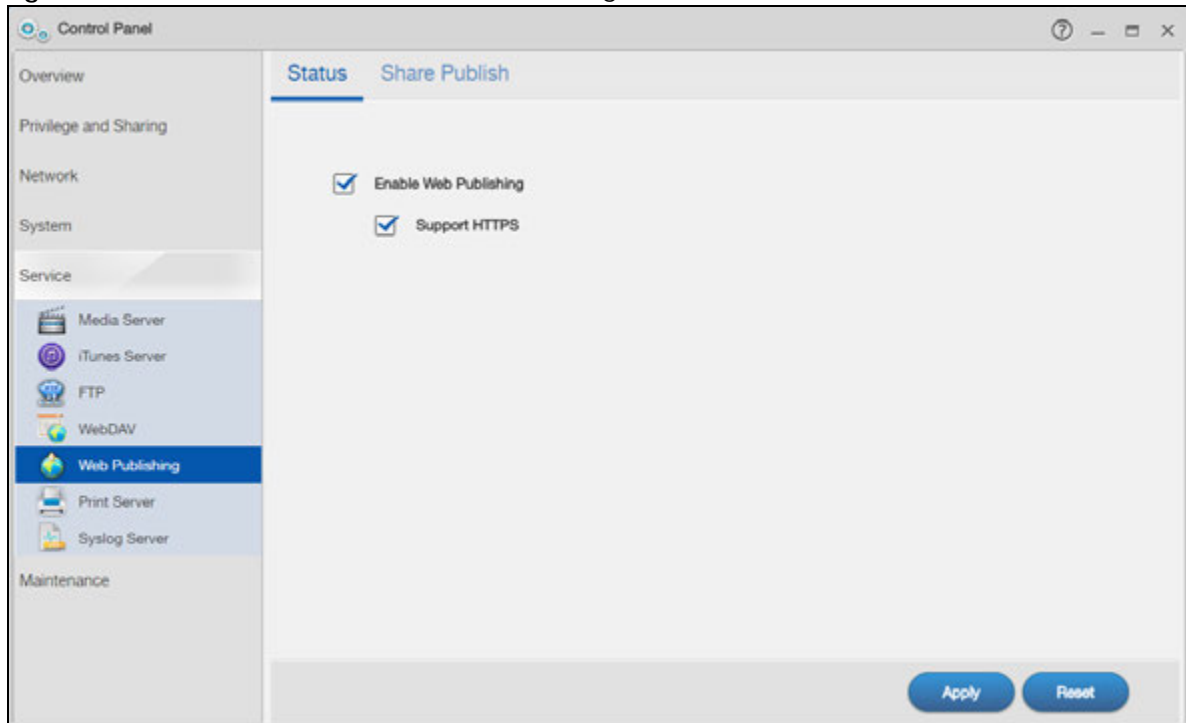


10.8 Web Publishing Screens

Use this screen to turn web publishing on or off and select shares to publish.

10.8.1 Status

Click **Control Panel > Service > Web Publishing > Status** to open the following screen.

Figure 125 Control Panel > Service > Web Publishing > Status

The following table describes the labels in this screen.

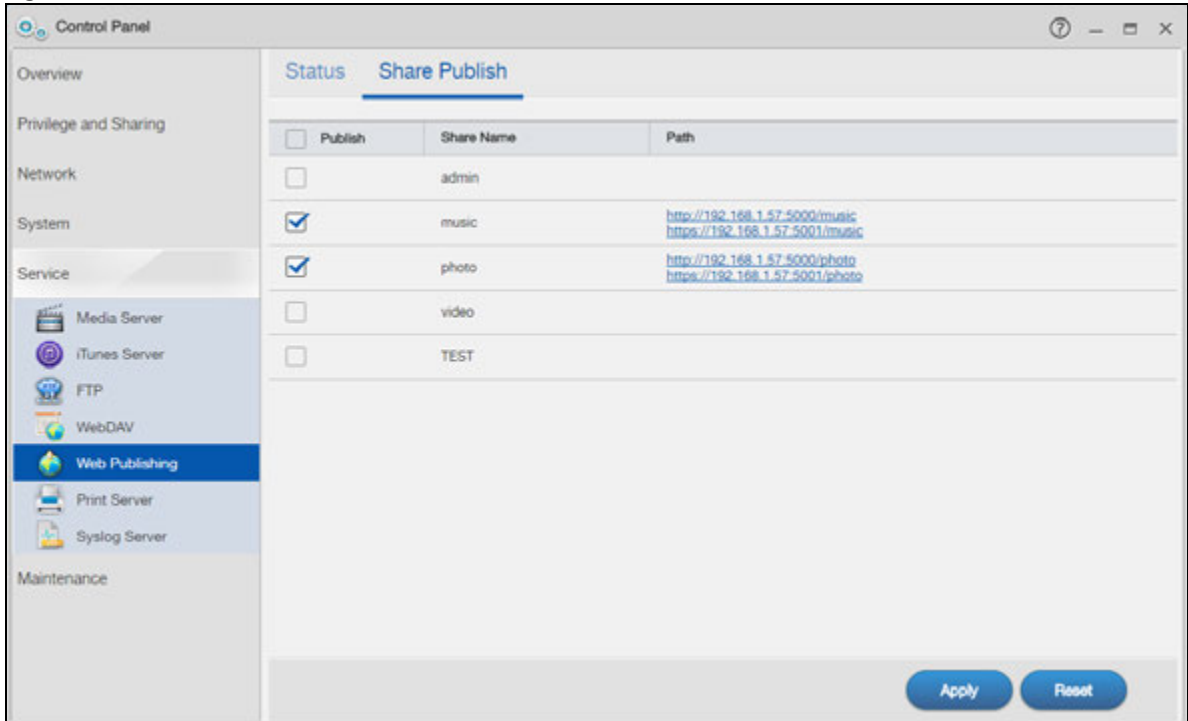
Table 96 Control Panel > Service > Web Publishing > Status

LABEL	DESCRIPTION
Enable Web Publishing	Select this option to turn on web publishing to let people access files in the published shares using a web browser, without having to log into the Web Configurator.
Support HTTPS	Select this to allow users to use web browser security for connections to the web-published shares. In order to use secured connections users must use "https://" in the NAS's web address and install the NAS's public key certificate.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

Note: If you installed **php-MySQL-phpMyAdmin** through the **App Center** screen ([Section 13.2 on page 193](#)) and enable it, you can use PHP and MySQL in your published web page.

10.8.2 Share Publish

Click **Control Panel > Service > Web Publishing > Share Publish** to open the following screen.

Figure 126 Control Panel > Service > Web Publishing > Share Publish

The following table describes the labels in this screen.

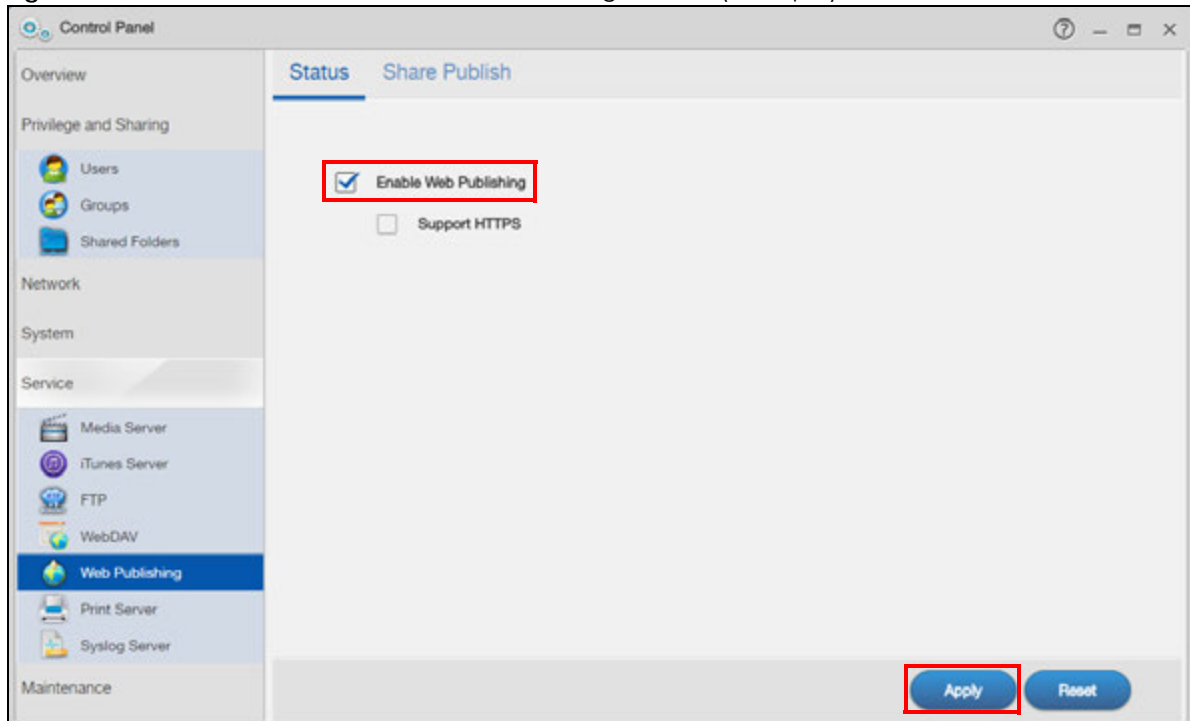
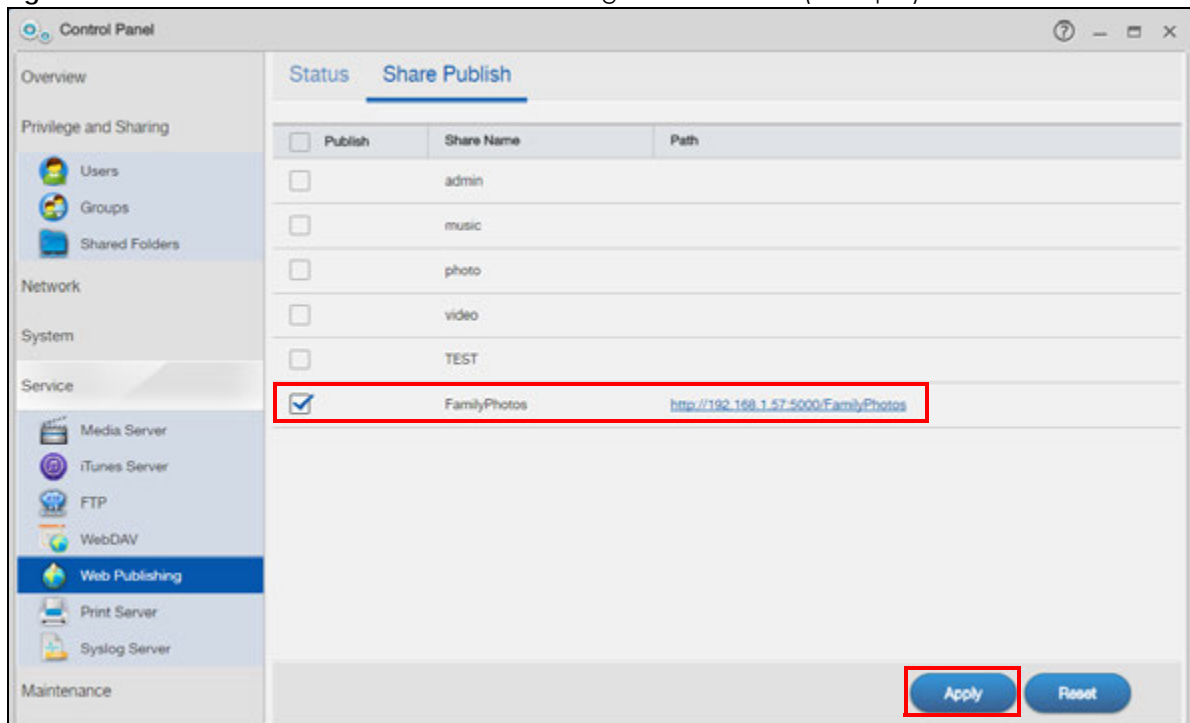
Table 97 Control Panel > Service > Web Publishing > Share Publish

LABEL	DESCRIPTION
Publish	Select the share(s) to publish for web browser access. People can access files in the published shares using a web browser, without logging into the Web Configurator.
Share Name	This displays the name of the share created on the NAS.
Path	After you select a share and click Apply , this displays the web address that you can enter in your browser's address bar to access the published share's web page. It contains the NAS's IP address, a port number for accessing the published share websites hosted on the NAS, and the name of the web-published share. Note: By default, the web-published shares use port 5000 for HTTP and 5001 for HTTPS.
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.

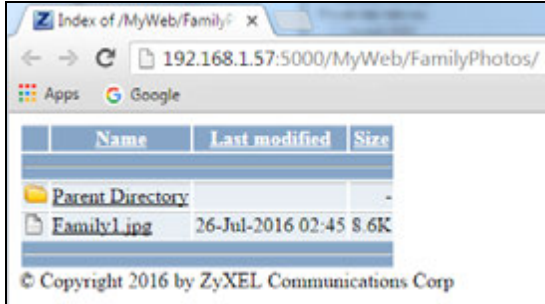
10.8.3 How to Configure Web Publishing

This example covers how to configure the **Web Publishing** screen to let people use a web browser to access a share named **FamilyPhotos** (created using the **Control Panel > Privilege and Sharing > Shared Folders** screen) without logging into the Web Configurator and shows how to access the share through the Internet.

- 1 Click **Control Panel > Service > Web Publishing** and configure the screen as shown (enable the web publishing in the **Web Publishing > Status** screen and select **FamilyPhotos** to publish in the **Web Publishing > Share Publish** screen) and click **Apply**.

Figure 127 Control Panel > Service > Web Publishing > Status (Example)**Figure 128** Control Panel > Service > Web Publishing > Share Publish (Example)

- Now open your web browser and type in the address of the NAS's FamilyPhotos web page. In this example, the NAS's IP address is 192.168.1.57, and the name of the web-published share is FamilyPhotos. So you would enter "http://192.168.1.57:5000/MyWeb/FamilyPhotos/" in your browser's address bar. Then press [ENTER] or click **Go**. A screen displays listing the share's files.

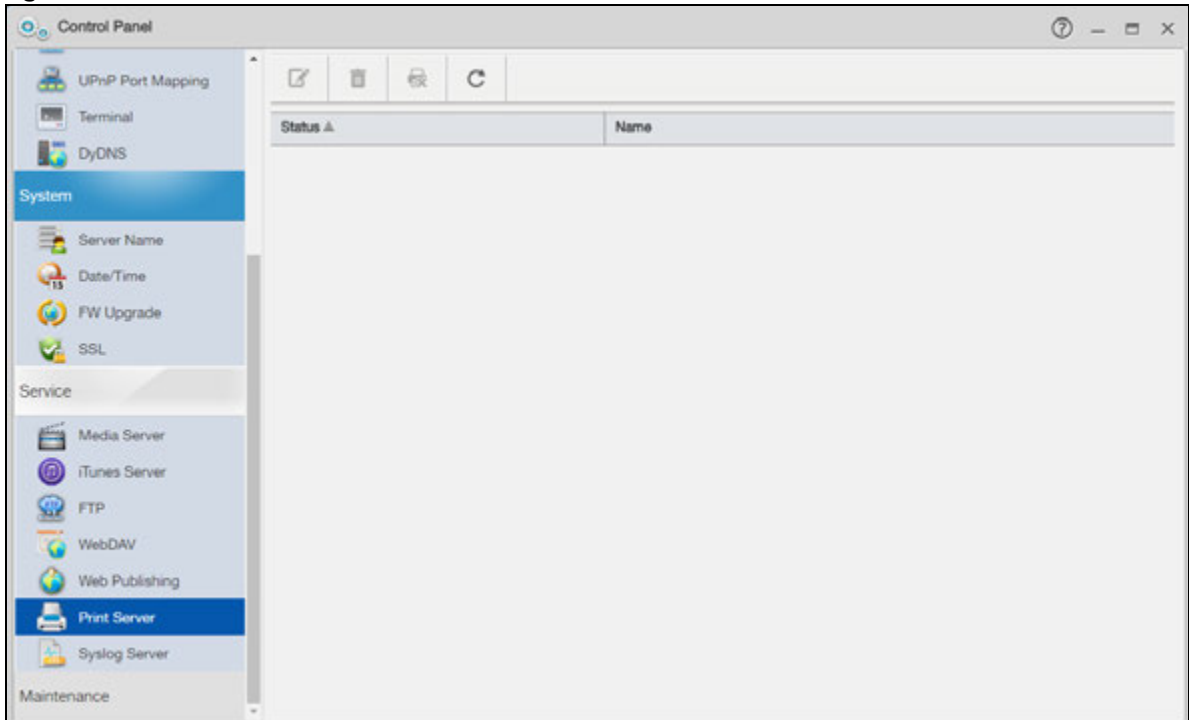
Figure 129 Browsing to an NAS Share Example

- Click a file's link to open the file.
- Right-click a file's link and select **Save Target As..** to save a copy of the file.
- Click a label in the heading row to sort the files by that criteria.
- To customize how the page looks and works, create an index.html or index.htm file and store it in the share.

10.9 Print Server Screen

Use the **Print Server** screen to view and manage the NAS's list of printers and print jobs.

Click **Control Panel > Service > Print Server** to open the following screen.

Figure 130 Control Panel > Service > Print Server

The following table describes the labels in this screen.

Table 98 Control Panel > Service > Print Server

LABEL	DESCRIPTION
Edit	Select a printer and click this to change the name the NAS uses for the printer.
Delete	Select a printer and click this to remove a printer from the NAS's printer list. To add the printer back into the list, disconnect the printer from the NAS's USB port and reconnect it. If that does not work, disconnect the USB port and turn off the printer's power. Then reconnect the printer and turn it back on.
Cancel Job	Select a printer and click this to remove all print jobs from the NAS queue for a particular printer. However, since the NAS sends print jobs to the printer as soon as it can, this button may only have an effect if there are very large or many print jobs in the queue. To stop a print job that has already started, you may have to turn off the printer.
Refresh	Click this to update the list of printers and print jobs.
	The table lists printers and their queued print jobs. Click a column's heading to sort the entries by that criteria.
Status	This fields shows whether the printer is connected and turned on (on-line) or not (off-line).
Name	This identifies the printer. Each printer connected to the NAS must use a unique name.

10.9.1 Print Server Edit

Click **Control Panel > Service > Print Server** and a printer's **Edit** icon to open the following screen. Use this screen to change the name the NAS uses for the printer.

Figure 131 Control Panel > Service > Print Server > Edit

The following table describes the labels in this screen.

Table 99 Control Panel > Service > Print Server > Edit

LABEL	DESCRIPTION
Name	Type a new name to identify the printer. The name must be unique from all the other names of printers connected to the NAS.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

10.10 Syslog Server Screen

Use this screen to configure the NAS to accept syslog logs from syslog clients such as Zyxel's G-4100 v2.

Note: You may need to configure any firewalls between the NAS and the syslog clients in order to let the syslog traffic go to the NAS.

Click **Control Panel > Service > Syslog Server** to open the following screen.

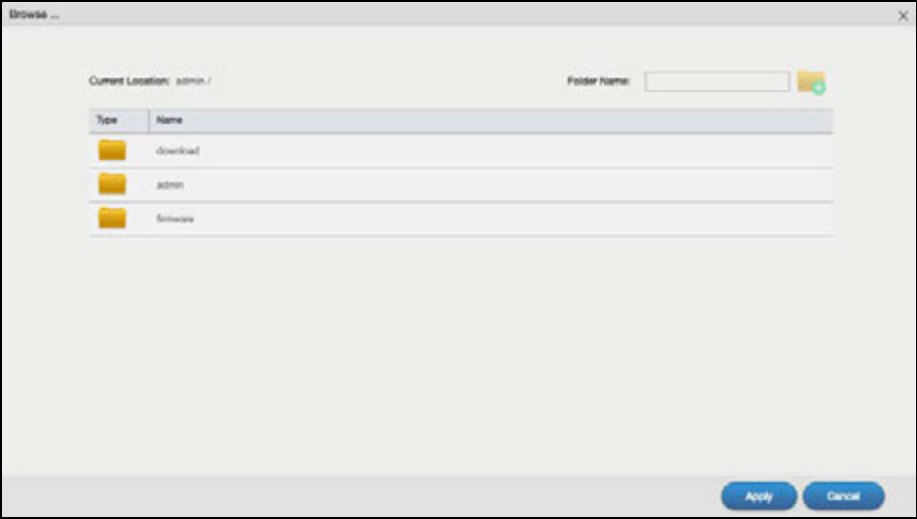
Figure 132 Control Panel > Service > Syslog Server

The following table describes the labels in this screen.

Table 100 Control Panel > Service > Syslog Server

LABEL	DESCRIPTION
Enable Syslog Server	Select this to have the NAS accept syslog logs from syslog clients. Clear it to stop the NAS from accepting syslog logs from syslog clients.
Log Location	Click View Files to browse to where you want to store the syslog logs on the NAS after you click Apply .
Share	Select the share in which to store the syslog logs.

Table 100 Control Panel > Service > Syslog Server (continued)

LABEL	DESCRIPTION
Path	<p>Use this if you want to further specify a folder within the share. This field displays the share folder's path. Type the location of the folder using forward slashes as branch separators or use Browse to find or create a folder on the NAS.</p>  <p>After you click Apply in the Syslog Server screen the NAS creates a folder for the current month's logs. The folder's name uses the year and month in YYYYMM format.</p>
Purge Policy	<p>Select Enable Purge Policy and set a number of months in the Log Deletion Interval field that displays to have the NAS delete the syslog messages after keeping them for the specified period of time.</p> <p>Regardless of how you set the purge policy, to save hard disk space the NAS archives the syslog logs in a .tgz file on the second day of each month and deletes the original folder and syslog files. The NAS creates a new folder for the syslog logs it receives after that. You can use a zip program such as 7-zip to open the archives.</p>
Log Format	<p>Select the format you want to use for recording the received logs.</p> <p>The Example item below the drop-down list boxes displays how the selected custom format looks. For example, if you select Full Date, the individual log entries would display with something like 2009 May 13 17:15:51 in front of them.</p>
Apply	Click this to save your changes.
Reset	Click this to restore the screen's last-saved settings.

10.11 Technical Reference

This section provides technical background information on the topics discussed in this chapter.

10.11.1 Share Media Files on Your Network

The media server feature lets anyone on your network play video, music, and photos from the NAS (without having to copy them to another computer). The NAS can function as a DLNA-compliant media server and/or an iTunes server. The NAS streams files to DLNA-compliant media clients or computers using iTunes. The Digital Living Network Alliance (DLNA) is a group of personal computer and electronics companies that works to make products compatible in a home network.

- Publish shares to let others play the contained media files.
- The media server is a convenient way to share files you download.
- Hardware-based media players can also play the files. See [Supported Media Server Content Formats on page 331](#) for the supported multimedia file formats.

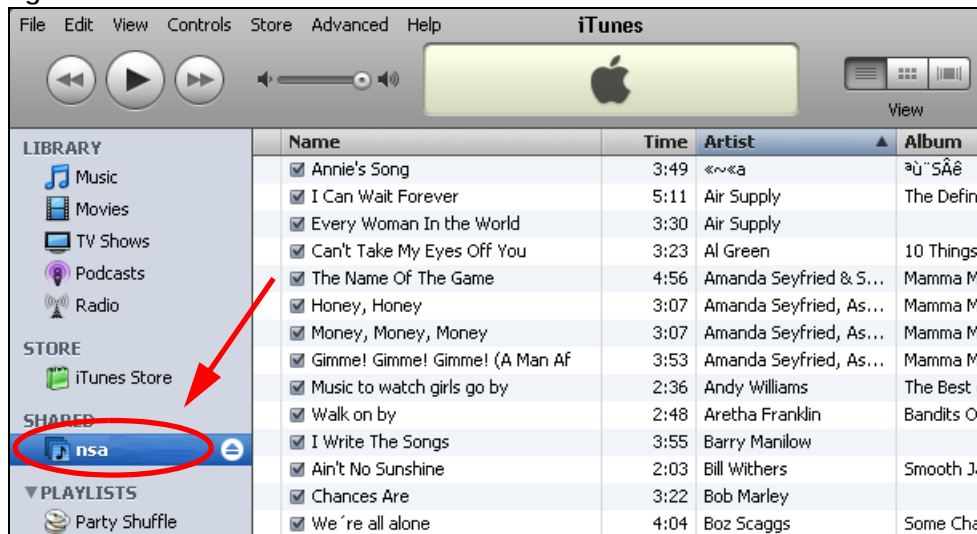
Note: Anyone on your network can play the media files in the published shares. No user name and password or other form of security is used. The media server is enabled by default with the video, photo, and music shares published.

Songs from the iTunes Store

After using iTunes on your computer to download songs from Apple's iTunes Store, you can copy them to the NAS. Many of these songs have DRM (Digital Rights Management). At the time of writing, you can use your Apple account ID and password to authorize up to a total of five computers to play the files. To authorize a computer, open iTunes and click **Store > Authorize Computer**.

A link for the NAS in iTunes under **SHARED**. Click it to display the NAS's published media files as shown next.

Figure 133 NAS link in iTunes



10.11.2 Web Publishing

Web publishing lets you "publish" shares (containing folders and files) on the NAS so people can access the files using a web browser without having to log into the Web Configurator. This way you can share files with others without them having to know and enter a user name and password.

For example, if you want to share photos in a FamilyPhotos share, you could "web publish" it and others could use a web browser to access the photos at <http://my-NAS's-IP-Address/MyWeb/FamilyPhotos>.

Note: The NAS does not use any security for the files in the published folders. It is not recommended to publish shares if you do not have the NAS behind a good hardware-based firewall. See [page 243](#) for more on firewalls.

Additionally, you can use HTML editing software (not included) to create an index.html or index.htm file to define and customize how your website works and looks.

Accessing Web-published Shares from the Internet

You need to use a public address to access the NAS's web-published shares from the Internet. If your NAS uses a private IP address, you may need to use the public IP address of your Internet gateway and configure NAT or port forwarding on your Internet gateway and possibly firewall rules in order to let people access the NAS's web-published shares from the Internet.

Web Publishing Port Number

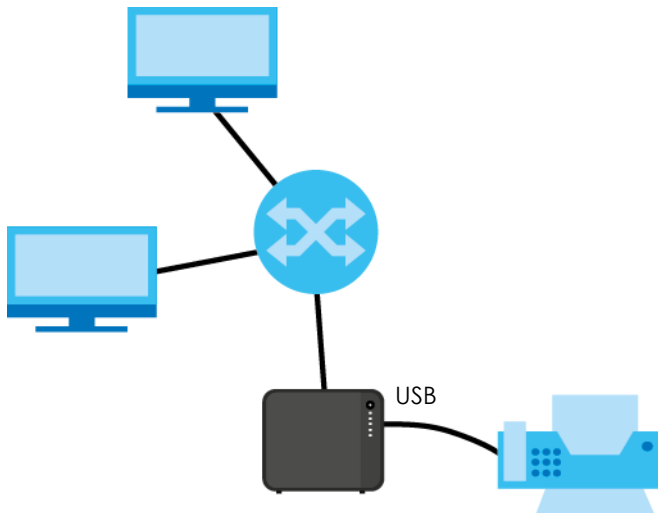
By default, the web-published shares use port 5000 for HTTP and 5001 for HTTPS. Users must include it after the NAS's IP address in order to access the NAS's web-published shares. For example, the NAS's IP address is 192.168.1.23, and the name of the web-published share is FamilyPhotos. You would have to enter "http://192.168.1.23:5000/MyWeb/FamilyPhotos/" in your browser's address bar to access the share's web page.

you can configure one set of firewall rules and NAT or port forwarding settings on your Internet gateway specifically for allowing access to the web-published shares and another separate set of rules for accessing the NAS's web configurator.

10.11.3 Printer Sharing

The NAS can act as a print server. A print server lets multiple computers share a printer. Connect a printer to the NAS's USB port to let multiple computers on your network use it. See www.zyxel.com for a list of compatible printers.

Figure 134 Printer Sharing



CHAPTER 11

Control Panel: Maintenance

11.1 Overview

This chapter discusses the **Maintenance** screens. The **Maintenance** screens allow you to manage system configurations.

11.2 What You Can Do

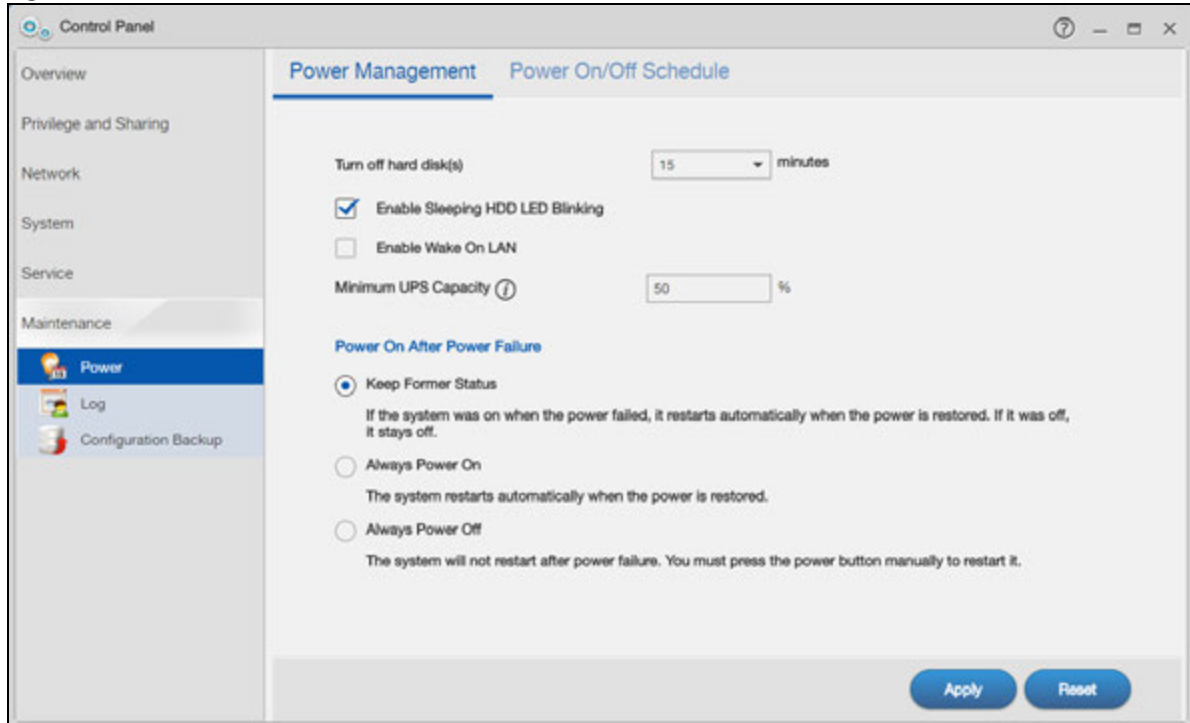
- Use the **Power** screen ([Section 11.3 on page 170](#)) to configure power settings for the NAS, including power saving, UPS, power on/off after power failure, power on/off schedule, and Wake on LAN.
- Use the **Log** screen ([Section 11.4 on page 174](#)) to check the system's logs.
- Use the **Configuration Backup** screen ([Section 11.5 on page 178](#)) to backup or restore the NAS configuration file.

11.3 Power Screens

Use these screens to manage power settings for the NAS.

11.3.1 Power Management

Click **Maintenance > Power > Power Management** to display the following screen.

Figure 135 Control Panel > Maintenance > Power > Power Management

The following table describes the labels in this screen.

Table 101 Control Panel > Maintenance > Power > Power Management

LABEL	DESCRIPTION
Power Management	
Turn off hard disk(s)	Enter the number of minutes to wait when the NAS is idle before spinning the hard disks down to sleep (hibernation). The default time is 15 minutes.
Enable Sleeping HDD LED Blinking	Select this to have the HDD LED blink slowly when the hard disk is sleeping (hibernating). Clear this to have the HDD LED stay on when the hard disk is sleeping.
Enable Wake On LAN	<p>Select this to be able to turn on the NAS through its wired Ethernet connection.</p> <p>You must have a computer or router on your LAN that supports sending Wake On LAN "magic packets" to turn on the NAS.</p> <p>To use Wake On LAN from a computer on your LAN, install a program such as Wake On LAN EX or another Wake On LAN program that supports sending magic packets.</p> <p>You can use Wake On LAN from a remote location if the router in front of the NAS supports sending magic packets.</p> <p>Use the NAS's power button or the User > Restart/Shutdown menu in the upper right corner of the Web Configurator screen to turn off the NAS.</p>
Minimum UPS Capacity	<p>When you use an APC Uninterruptible Power Supply (UPS) with a USB connection to the NAS, the NAS shuts itself down if the APC UPS's battery charge gets down to the percentage you specify in this field. This allows the NAS to shut down properly and avoid data loss caused by a power failure when the UPS stops supplying power.</p> <p>A setting around 50% is recommended. A setting close to 100% is not recommended since it would cause the NAS to shut down whenever the UPS is charging. A setting close to 0 is also not recommended since the UPS would not have enough power to allow the NAS to shutdown properly.</p>
Power On After Power Failure	Select an option to set whether or not the NAS restarts when the power is restored after a power failure.

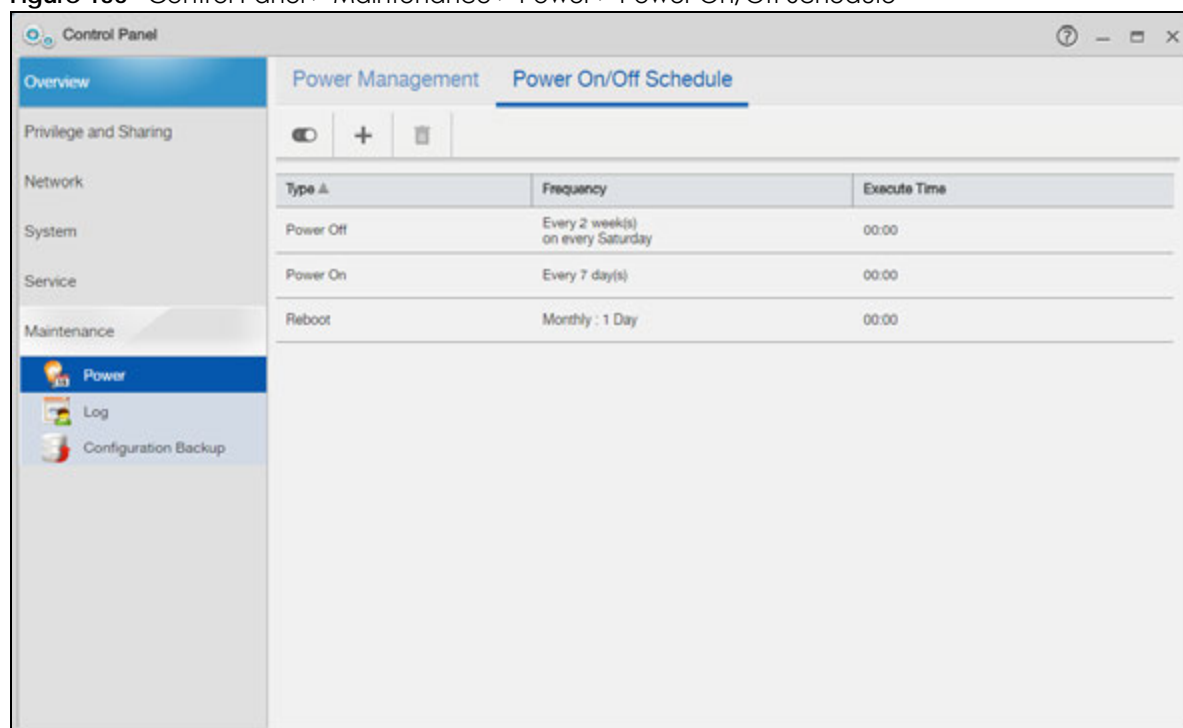
Table 101 Control Panel > Maintenance > Power > Power Management (continued)

LABEL	DESCRIPTION
Keep Former Status	Select this option to have the NAS automatically restart only if it was operating when the power failed. The NAS remains off if it was already off when the power failed.
Always Power On	Select this option to keep the NAS operating as much of the time as possible. The NAS restarts automatically even if it was turned off when the power failed.
Always Power Off	Select this option to keep the NAS from automatically restarting when the power is restored after a power failure. This is a computer's "traditional" behavior. Select this if you have other servers such as a domain controller or DNS server that you want to start or check after a power failure before the NAS turns on.
Apply	Click this to save your changes.
Reset	Click this to restore previously saved settings.

11.3.2 Power On/Off Schedule

Click **Maintenance > Power > Power On/Off Schedule** to display the following screen.

Figure 136 Control Panel > Maintenance > Power > Power On/Off Schedule



The following table describes the labels in this screen.

Table 102 Control Panel > Maintenance > Power > Power On/Off Schedule

LABEL	DESCRIPTION
Enable Power Control Schedule	Click this to have the NAS turn itself off and on or reboot according to the schedules you configured.
Add Power Control Schedule	Click this to go to the screen where you can configure the power control schedules. Refer to Section 11.3.3 on page 173 for this screen.
Delete	Click this to remove the selected power control schedule(s) from the list.

Table 102 Control Panel > Maintenance > Power > Power On/Off Schedule (continued)

LABEL	DESCRIPTION
	This table lists the power on, power off, and reboot schedules. For example, you could have one schedule to turn the NAS on every morning, at 8:00, another schedule to turn it off every evening at 18:00, and a third schedule to have it reboot every Friday at 14:00. Click a column's heading cell to sort the schedules by that column's criteria. Click the heading cell again to reverse the sort order.
Type	This field displays whether the power control schedule has the NAS turn on, turn off, or reboot.
Frequency	This field shows how often (monthly, weekly, or daily) the NAS is to apply this power control schedule.
Execute Time	This field shows when the NAS is to use this power control schedule (when the NAS is to turn on, turn off, or reboot).

11.3.3 Add the Power Control Schedule

Click the **Add Power Control Schedule** icon in the **Control Panel > Maintenance > Power > Power On/Off Schedule** screen to open this screen. Use this screen to configure power control schedules to have the NAS turn on, turn off, or reboot at specified times.

Figure 137 Control Panel > Maintenance > Power > Power On/Off Schedule: Add

The following table describes the labels in this screen.

Table 103 Control Panel > Maintenance > Power > Power On/Off Schedule: Add

LABEL	DESCRIPTION
Type	Select whether this power control schedule has the NAS turn on, turn off, or reboot.
Frequency	Select whether the NAS is to apply this power control schedule entry on a monthly, weekly, or daily basis.

Table 103 Control Panel > Maintenance > Power > Power On/Off Schedule: Add (continued)

LABEL	DESCRIPTION
Execute Time (hh:mm)	<p>Enter the time, day, and/or day of the month as appropriate for this power control schedule entry. Leave more than 10 minutes between the execution times of the entries.</p> <p>If the NAS turns off or restarts while a user is transferring files to or from the NAS, the transfer fails. The user will need to restart the transfer.</p> <p>The NAS skips a scheduled restart or power off if the execution time comes while the NAS is doing any of the following:</p> <ul style="list-style-type: none"> • Resynchronizing a RAID • Upgrading firmware • Replacing the configuration file <p>If the NAS is turned off at the time when a restart or power off is scheduled, the NAS does not perform the restart or power off.</p> <p>If the NAS is turned on at the time when a power on is scheduled, the NAS does not perform the power on.</p>
Use this part of the screen to configure power on, power off, and reboot times.	
Please select the day of the month	<p>This is only available if you set the Frequency to Monthly.</p> <p>Choose the day of each month for the power control schedule entry.</p>
Every how many weeks?	<p>This is only available if you set the Frequency to Weekly.</p> <p>Enter the interval between weeks.</p>
on every	<p>This is only available if you set the Frequency to Weekly.</p> <p>Choose the day of the week for the power control schedule entry</p>
Every	<p>This is only available if you set the Frequency to Daily.</p> <p>Enter the interval between days for the power control schedule entry.</p>
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

11.4 Log Screen

Click **Control Panel > Service > Maintenance > Log** to open the following screen.

Use this screen to display all NAS logs. There are at most 512 entries in the log. Older logs are removed by the system. You cannot download the log file via FTP or CIFS.

Figure 138 Control Panel > Service > Maintenance > Log

#	Time	Class	Severity	Message
1	2016-07-26 05:01:01	built-in-service	info	Auto daylight saving setting: SUCCESS
2	2016-07-26 05:01:01	system	info	NTP updates successfully from time.stdtime.gov.tw
3	2016-07-26 02:39:14	share	notice	Delete group FamilyPhotos.
4	2016-07-26 02:26:18	system	info	Enable SYSLOG Server: SUCCESS
5	2016-07-25 17:01:02	built-in-service	info	Auto daylight saving setting: SUCCESS
6	2016-07-25 17:01:01	system	info	NTP updates successfully from time.stdtime.gov.tw
7	2016-07-25 05:01:02	built-in-service	info	Auto daylight saving setting: SUCCESS
8	2016-07-25 05:01:02	system	info	NTP updates successfully from time.stdtime.gov.tw
9	2016-07-25 03:05:51	built-in-service	notice	FTP server starts with TLS mode
10	2016-07-25 01:59:55	user	info	User admin from Web has been logged out (lease tim...
11	2016-07-25 01:55:38	built-in-service	info	Download service initialized
12	2016-07-25 01:35:25	user	info	User admin has logged in from Web!
13	2016-07-24 17:01:02	built-in-service	info	Auto daylight saving setting: SUCCESS

The following table describes the labels in this screen.

Table 104 Control Panel > Service > Maintenance > Log

LABEL	DESCRIPTION
Refresh	Click this to update the log display.
Purge all Logs	Click this to erase all logs from the NAS.
Report Config	Click this to open a screen where you can configure email alerts for logs. Refer to Section 11.4.1 on page 175 to see the screens for this.
The screen always shows all logs by default. Choose a specific log category to view logs for just that category.	
#	This is the log entry's number in the list according to the currently selected sort order.
Time	This shows the date and time the log was created. Click the top of the column to sort by oldest or newest.
Class	This displays the log category; see Table 108 on page 182 for details.
Severity	This displays how serious the log is rated by the NAS. See Table 109 on page 182 for more information.
Message	This displays a description of the log. Click the top of the column to sort by alphabetical or reverse alphabetical order.

11.4.1 Log Report Configuration Screen

In the **Log** screen, click **Report Config** to do the following:

- Use the **Email Setting** screen ([Section 11.4.2 on page 176](#)) to enable and configure e-mail alerts from the NAS.
- Use the **Report Setting** screen ([Section 11.4.3 on page 177](#)) to select the type of alerts you want to receive through e-mail and schedule when the NAS e-mails the alerts.

- Use the **Syslog Server Setting** screen ([Section 11.4.4 on page 177](#)) to enable the syslog server and select the categories to include in the log report.

11.4.2 Email Setting

You can enable and configure e-mail alerts from the NAS. In the **Log Report Configuration** screen, click the **Email Setting** tab to open the following screen.

Figure 139 Control Panel > Service > Maintenance > Log > Report Config: Email Setting

The following table describes the labels in this screen.

Table 105 Control Panel > Service > Maintenance > Log > Report Config: Email Setting

LABEL	DESCRIPTION
Enable Log Email	Click this to have the NAS e-mail log alerts to your e-mail account.
Email To	Enter the e-mail address where you want to receive the log alerts.
Email From	Enter the e-mail address the NAS uses in the From field of the e-mail header for its log alerts.
Email Server	Enter the e-mail server address the NAS uses to send e-mail alerts,
Email Format	Select the e-mail format you want the NAS to use in its e-mail alerts.
Use SMTP Authentication	Click this if the e-mail server you want the NAS to use for its e-mail alerts requires a username and password.
User	Enter the username for the e-mail server.
Password	Enter the password for the e-mail server.
Password (Confirm)	Re-enter the password to confirm it.
After apply settings, send a test email	Click this to have the NAS send a test e-mail to the settings you have entered.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

11.4.3 Report Setting

You can have the NAS email you alerts and reports. In the **Log Report Configuration** screen, click the **Report Setting** tab to open the following screen.

Figure 140 Control Panel > Service > Maintenance > Log > Report Config: Report Setting

The following table describes the labels in this screen.

Table 106 Control Panel > Service > Maintenance > Log > Report Config: Report Setting

LABEL	DESCRIPTION
Email Alert	Select the Enable Email Log check box to have the NAS send an alert email to the configured email address whenever the NAS generates a critical severity log.
Report Time	Select how often (Weekly , Daily or Hourly), the day of the week (for weekly reports), and the time (hour:minutes) the NAS sends a report email.
Enable Email Log	Select the check box to have the NAS email reports of all logs the NAS generates to the configured email address.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

11.4.4 Syslog Server Setting

You can enable the syslog server and select the categories to include in the log report. In the **Log Report Configuration** screen, click the **Syslog Server Setting** tab to open the following screen.

Figure 141 Control Panel > Service > Maintenance > Log > Report Config: Syslog Server Setting

The following table describes the labels in this screen.

Table 107 Control Panel > Service > Maintenance > Log > Report Config: Syslog Server Setting

LABEL	DESCRIPTION
Enable Syslog Server	Check this to enable syslog server.
Server Address	Enter the syslog server address you want the NAS to use for its log alerts.
Syslog	Select the type of log alerts you want to receive in your e-mail. Select All Logs to include all types of log alerts.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

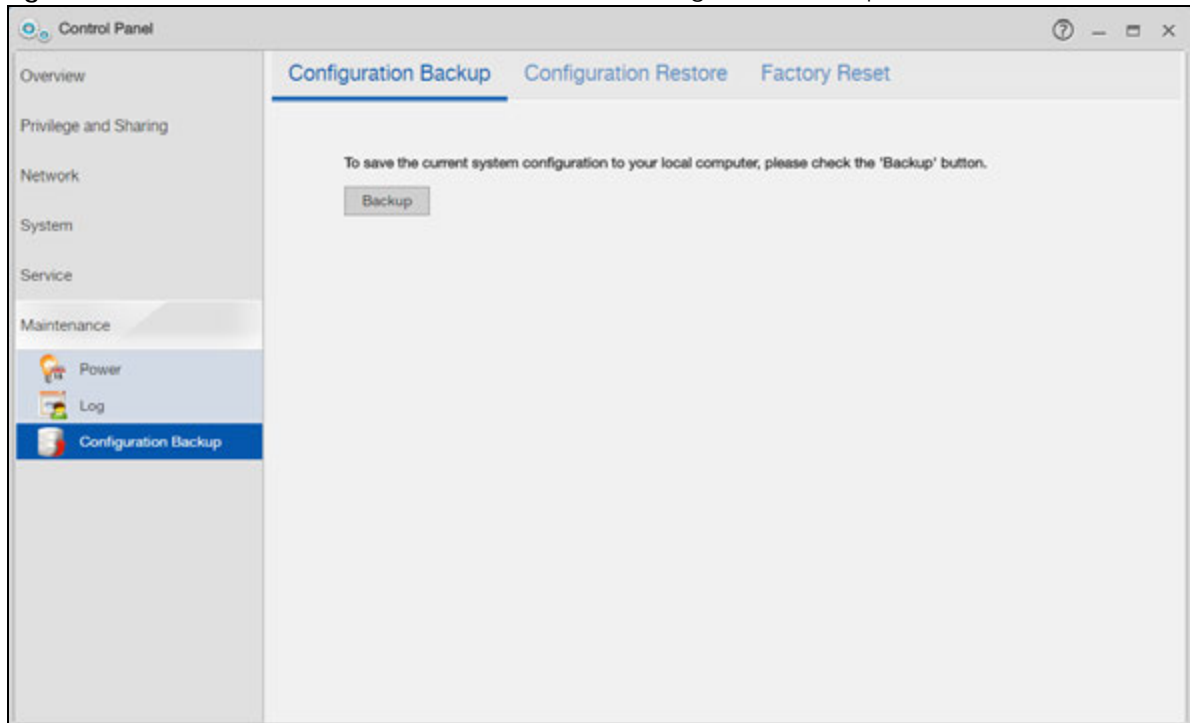
11.5 Configuration Backup Screens

Use these screens to backup or restore the NAS configuration settings. You can also reset your device settings back to the factory default.

11.5.1 Configuration Backup

Click **Control Panel > Service > Maintenance > Configuration Backup** to open the following screen.

Click **Backup** to save the current configuration of the NAS to your computer. A pop-up screen appears asking you to confirm.

Figure 142 Control Panel > Service > Maintenance > Configuration Backup

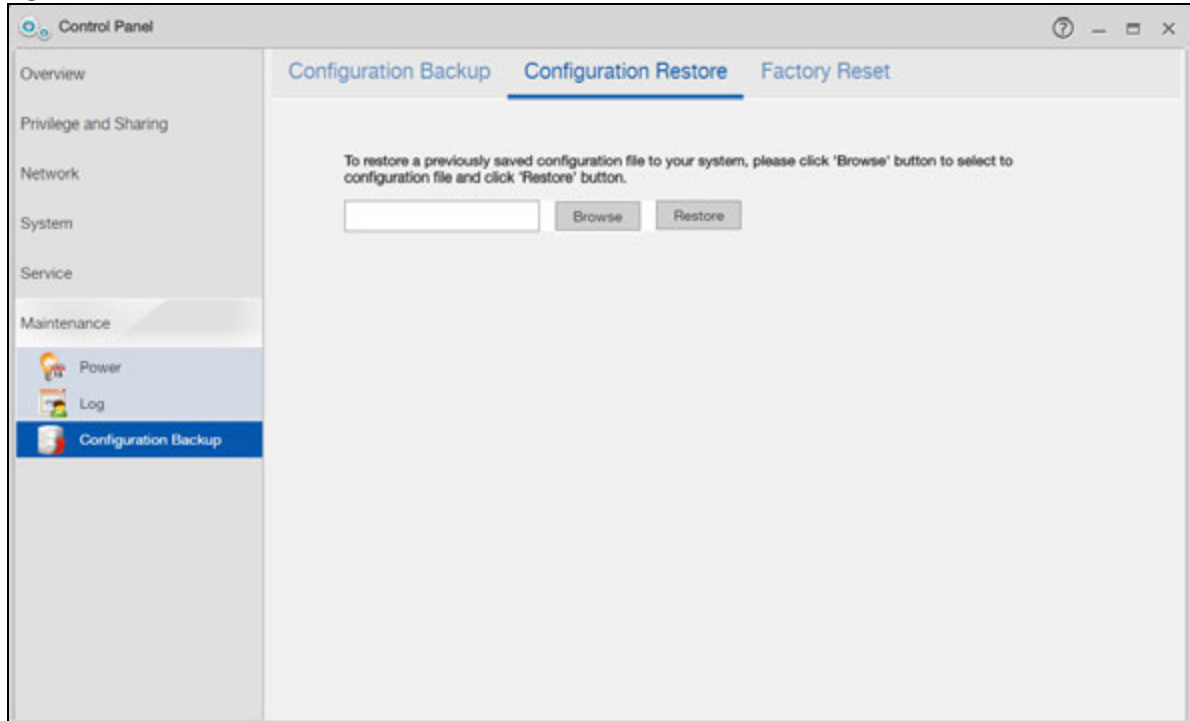
11.5.2 Configuration Restore

Click **Control Panel > Service > Maintenance > Configuration Backup > Configuration Restore** to open the following screen. Restore Configuration allows you to upload a new or previously saved configuration file from your computer to your NAS.

Note: When you restore a file configuration, the NAS checks the volumes/share paths on the NAS and the configuration file.

If the volume exists but the share path is missing in the NAS, the NAS automatically creates this share path.

If the volume does not exist on the NAS, the **Status** of the share will show "Lost" in the **Control Panel > Privilege and Sharing > Shared Folders** screen (see [Table 65 on page 115](#)).

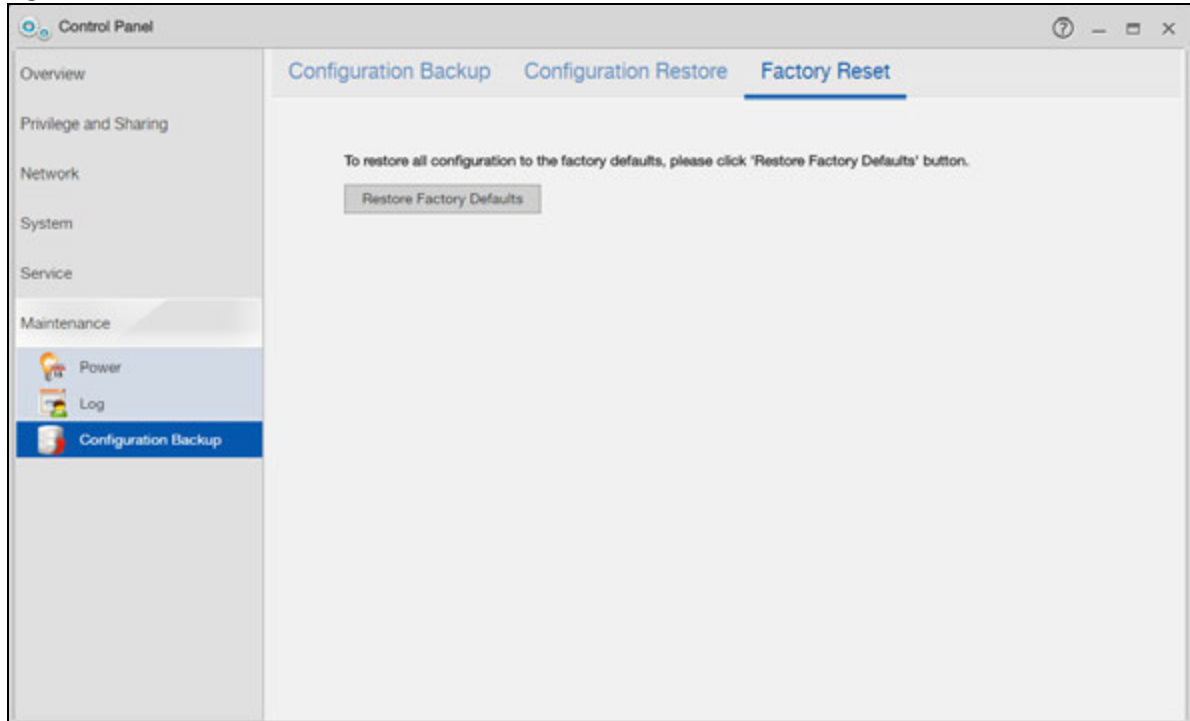
Figure 143 Control Panel > Service > Maintenance > Configuration Backup > Configuration Restore

Click **Browse** to locate a previously-saved configuration file. Then click **Restore** to load the previously-saved configuration file to the NAS. This replaces your current NAS configuration settings with the settings in the previously-saved configuration file.

A pop-up screen appears asking you to confirm. Click **OK** to continue or **Cancel** to quit.

11.5.3 Factory Reset

Click **Control Panel > Service > Maintenance > Configuration Backup > Factory Reset** to open the following screen.

Figure 144 Control Panel > Service > Maintenance > Configuration Backup > Factory Reset

Click **Restore Factory Defaults** to clear all user-entered configuration information and return the NAS to its factory defaults.

A warning screen appears asking you to confirm. Enter "FACTORY" and click **OK** to continue or click **Cancel** to quit.



11.6 Technical Reference

This section provides technical background information on the topics discussed in this chapter.

11.6.1 Log Classes

The following table shows information on log classes.

Table 108 Log Classes

LOG CATEGORY	DESCRIPTION
Users	This log class shows information on user access to the NAS.
Shares	This log class shows information on shares being created or deleted.
Services	This log class shows information on the operation of the NAS's built-in services.
System	This log class shows all other system related messages.
Network	This log class shows information on network configuration, setting changes and so on.
Storage	This log class shows information on the NAS's internal and external storage activities.
Backup	This log class shows information on all backup-related activities.
Auto Upload	This log class shows information on automatic uploads done by the NAS.

11.6.2 Log Severity Levels

The following table shows information on log severity levels. Levels range from 0 to 6 with 0 being the most severe level log and 6 being an informational log only. Log levels are not displayed in the logs and are for your reference only.

Table 109 Log Severity Levels

LEVEL	DESCRIPTION
0	Emergency
1	Alert
2	Critical
3	Error
4	Warning
5	Notice
6	Info

11.6.3 Log Messages

Here are some example log messages.

Table 110 Log Messages

CLASS	SEVERITY	MESSAGE
Auto upload	INFO	%s is queued.
Auto upload	INFO	%s uploaded (Flickr or YouTube Upload).
Auto upload	WARNING	error uploading "%s" (%s): %s
Auto upload	INFO	%s will not be uploaded to %s for there is already a duplicate file.
Auto upload	INFO	Failed to upload %s to %s (FTP Upload) : %s
Auto upload	INFO	Successfully upload %s to %s (FTP Upload)
Copy/Sync Button	ERROR	[USB %s] Backup Folder Does Not Exist.
Copy/Sync Button	ERROR	[USB %s] Target Folder Does Not Exist.

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
Copy/Sync Button	ERROR	[USB Sync] Failed at %s: It is a Folder in Internal Volume. But It is not a Folder in USB.
Copy/Sync Button	ERROR	[USB Sync] Failed at %s: It is a Folder in USB. But It is not a Folder in Internal Volume.
Copy/Sync Button	ERROR	[USB Sync] Failed at File %s.
Copy/Sync Button	ERROR	[USB Sync] Sync Failed at Folder %s.
Copy/Sync Button	ERROR	Modify COPY/SYNC Button Configuration: %s
Copy/Sync Button	ERROR	Please Change Your Folder Name. Invalid Path: %s
Copy/Sync Button	INFO	[USB Sync] Copying %s from Internal Volume to Backup Folder.
Copy/Sync Button	INFO	[USB Sync] Copying %s from Internal Volume to USB.
Copy/Sync Button	INFO	[USB Sync] Copying %s from USB to Backup Folder.
Copy/Sync Button	INFO	[USB Sync] Copying %s from USB to Internal Volume.
Copy/Sync Button	INFO	[USB Sync] Deleting %s from Internal Volume.
Copy/Sync Button	INFO	[USB Sync] Deleting %s from USB.
Copy/Sync Button	INFO	[USB Sync] Deleting %s from USB Recursively.
Copy/Sync Button	INFO	[USB Sync] Finished. Elapsed Time %s Seconds.
Copy/Sync Button	INFO	[USB Sync] Moving %s from Internal Volume to Backup Folder.
Copy/Sync Button	INFO	[USB Sync] Moving %s from USB to Backup Folder
Copy/Sync Button	INFO	[USB Sync] Skip %s: File not Exist
Copy/Sync Button	INFO	[USB Sync] Skip %s: Not a Regular File.
Copy/Sync Button	INFO	[USB Sync] Start Pre-Processing: Generating File Lists.
Copy/Sync Button	NOTICE	[USB Sync] Start Copying Files.
Download Service	ERROR	Download service cannot find a volume
Download Service	ERROR	Download service failed to find ipfilter.dat
Download Service	INFO	Download service add a URL download job %s
Download Service	INFO	Download service delete %s by user
Download Service	INFO	Download service download %s error (0x%08x)
Download Service	INFO	Download service download %s finished in %s
Download Service	INFO	Download service found a new torrent file %s
Download Service	INFO	Download service initialized
Download Service	INFO	Download service pause %s by user
Download Service	INFO	Download service set %s to %s priority by user
Download Service	INFO	Download service set default download location to %s
Download Service	INFO	Download service set max P2P download rate to %d KB/s by user
Download Service	INFO	Download service set max P2P upload rate to %d KB/s by user
Download Service	INFO	Download service set max download slot to %d
Download Service	INFO	Download service set seeding time to %d minutes
Download Service	INFO	Download service set TCP port to %d and UDP port to %d
Download Service	INFO	Download service set torrent monitor location to %s
Download Service	INFO	Download service start to download %s
Download Service	INFO	Download service stopped

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
Download Service	INFO	Download service suspend %s because of no data income detected or to limit max download slot
Download Service	INFO	Download service add comment %s to %s by user
Download Service	INFO	Download service set min upload/download ratio to %d%
Download Service	INFO	Download service set max seed slot to %d
Download Service	INFO	Download service start loading ipfilter.dat
Download Service	INFO	Download service clear all ipfilter rules
Download Service	INFO	Download service blocked peer removed from peer list
Download Service	INFO	Download service disconnected blocked peer
Download Service	INFO	Download service incoming connection blocked by IP filter
Download Service	INFO	Download service peer from tracker blocked by IP filter
Download Service	INFO	Download service abort loading ipfilter.dat
Download Service	INFO	Download service will update ipfilter.dat from %s after %d day(s)
Download Service	INFO	Download service added %d rules from ipfilter.dat
Download Service	INFO	Download service detected invalid ip range %s in ipfilter.dat
Download Service	WARNING	Download service default location does not exist. Load default
Download Service	WARNING	Download service default torrent location does not exist. Load default
Groups	NOTICE	Add new group %s.
Groups	NOTICE	Delete group %s.
Network	INFO	DyDNS: Start Success
Network	INFO	DyDNS: Stop Success
Network	NOTICE	%s is active because of changing Port Group. Enable DHCP client.
Network	NOTICE	%s is inactive because of changing Port Group. Disable DHCP client.
Network	NOTICE	%s MTU > (%s MTU - 8), %s may not work correctly.
Network	NOTICE	(%s MTU - 8) < %s MTU, %s may not work correctly.
Network	NOTICE	Add interface %s.
Network	NOTICE	Because %s link down. Default route will not apply until %s link up.
Network	NOTICE	Because base interface %s will be disabled. Interface %s is disabled now., base_ud_iface
Network	NOTICE	Network Config setting is changed
Network	NOTICE	Interface %s was disabled.
Network	NOTICE	Interface %s was enabled.
Network	NOTICE	Port Group on %s is changed. Renew DHCP client.
Network	NOTICE	Account pppoe was changed
Network	NOTICE	Add account pppoe
Network	NOTICE	ADD interface ppp0
Network	NOTICE	Interface ppp0 will reapply because Device-Ha become active status.
Network	NOTICE	Interface ppp0 will reapply because Device-Ha is not running.
Network	NOTICE	Network port is disabled
Network	NOTICE	Network port is enabled
Network	ERROR	DyDNS: Start Error
Network	ERROR	DyDNS: Stop Error

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
Services	INFO	HTTP management port has changed to %s
Services	INFO	Clock timezone is set to GMT%s
Services	INFO	Clock timezone is set to default
Services	INFO	Clock daylight saving is enabled
Services	INFO	Clock daylight saving is disabled
Services	INFO	Clock has disable daylight saving
Services	INFO	MyClock has enable daylight saving
Services	INFO	MyClock has set timezone to %s
Services	INFO	MyClock has set timezone to default
Services	INFO	The date and time are updated from NTP server.
Services	INFO	The date and time are updated manually.
Services	INFO	The time is updated manually.
Services	NOTICE	FTP server stops
Services	NOTICE	FTP server starts
Services	NOTICE	MyClock has changed daylight saving interval
Services	NOTICE	MyClock has disabled daylight saving interval
Services	NOTICE	NTP server has set to '%s'
Services	NOTICE	NTP server has set to null
Services	NOTICE	The NTP service is disabled.
Services	NOTICE	The NTP service is enabled.
Services	WARNING	Reaching Maximum Allowed Rules
Services	WARNING	Rule is empty
Services	WARNING	The Rule Does Not Exist
Shares	INFO	Expire recycle-bin finish for share %s, process time: %s seconds, remove %s file (%s bytes)
Shares	NOTICE	Add new disabled share %s for unshared folder: %s in volume: %s.
Shares	NOTICE	Add new share %s.
Shares	NOTICE	Delete share %s.
Shares	NOTICE	Purge all files in recycle-bin folder in share: %s.
Shares	NOTICE	Recycle-bin disabled. Remove recycle-bin folder in share: %s.
Storage	ERROR	Eject External Disk (%s): FAILED
Storage	INFO	Eject External Disk (%s): SUCCESS
Storage	ERROR	Cancel External Volume Scan: FAILED
Storage	ERROR	Cannot Unmount Volume and RAID. System Busy Using Volume and RAID: Please Reboot and Try Again
Storage	ERROR	Create External Normal Volume [%s] (%s): FAILED
Storage	ERROR	Rename External Volume to [%s]: FAILED
Storage	ERROR	Scan External Volume: FAILED
Storage	INFO	Cancel External Volume Scan: SUCCESS
Storage	INFO	Create External Normal Volume [%s] (%s): SUCCESS
Storage	INFO	Rename External Volume to [%s]: SUCCESS
Storage	INFO	Scan External Volume: SUCCESS

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
storage	Info	Create raidType [Volume1]: SUCCESS
storage	error	Create raidType [Volume1]: FAILED
storage	Info	Create raidType [Disk group 1]: SUCCESS
storage	error	Create raidType [Disk group 1]: FAILED
storage	Info	Create Internal Volume [Volume1] (Size=512MB): SUCCESS
storage	error	Create Internal Volume [Volume1] (Size=512MB): FAILED
storage	Info	Delete Volume [Volume1] SUCCESS
storage	error	Delete Volume [Volume1] FAILED
storage	Info	Delete Disk Group [Disk Group 1] SUCCESS
storage	error	Delete Disk Group [Disk Group 1] FAILED
storage	Info	initialize Repair Degraded Raid [Volume1]: SUCCESS
storage	error	initialize Repair Degraded Raid [Volume1]: FAILED
storage	Info	initialize Repair Degraded Raid [Disk Group 1]: SUCCESS
storage	error	initialize Repair Degraded Raid [Disk Group 1]: FAILED
storage	Info	Add disk1 to Volume1: SUCCESS
storage	error	Add disk1 to Volume1: FAILED
storage	Info	Add disk1 to Disk Group 1: SUCCESS
storage	error	Add disk1 to Disk Group 1: FAILED
storage	Info	Change Volume1 Raid type to raid5: SUCCESS
storage	error	Change Volume1 Raid type to raid5: FAILED
storage	Info	Change Disk Group 1 Raid type to raid5: SUCCESS
storage	error	Change Disk Group 1 Raid type to raid5: FAILED
storage	Info	Add Hot-Spare disk1 to Raid [Volume1]: SUCCESS
storage	error	Add Hot-Spare disk1 to Raid [Volume1]: FAILED
storage	Info	Add Hot-Spare disk1 to Raid [Disk Group 1]: SUCCESS
storage	error	Add Hot-Spare disk1 to Raid [Disk Group 1]: FAILED
storage	Info	Remove Hot-Spare disk1 from Raid [Volume1]: FAILED
storage	error	Remove Hot-Spare disk1 from Raid [Volume1]: SUCCESS
storage	Info	Remove Hot-Spare disk1 from Raid [Disk Group1]: FAILED
storage	error	Remove Hot-Spare disk1 from Raid [Disk Group1]: SUCCESS
storage	Info	Expand Volume [Volume1]: SUCCESS
storage	error	Expand Volume [Volume1]: FAILED
storage	Info	Expand Disk Group [Disk Group 1] SUCCESS
storage	error	Expand Disk Group [Disk Group 1] FAILED
System	INFO	NTP update failed
System	INFO	NTP updates successfully from %s
System	INFO	NTP fails to update from %s
System	INFO	Device is rebooted by administrator!
System	INFO	Device is shutdown by administrator!
System	NOTICE	DNS server is changed.
System	NOTICE	Hostname is cleared.

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
System	NOTICE	Hostname is set to '%s'.
System	NOTICE	System description is changed.
System	NOTICE	System description is empty now.
System	NOTICE	DNS server setting is changed
System	NOTICE	DNS server address is changed to be given from DHCP server
System	NOTICE	DNS server address is changed to be assigned by user
System	NOTICE	Name server is changed.
USB	NOTICE	An external APC UPS device is plugged/unplugged.
USB	NOTICE	An external Mass Storage device is plugged/unplugged.
USB	NOTICE	An external Printer device is plugged/unplugged.
USB	NOTICE	An external USB hub device is plugged/unplugged.
Users	ALERT	Failed %s login attempt (incorrect password or inexistent username)
Users	ALERT	Failed %s login attempt (incorrect password or inexistent username)
Users	INFO	User %s has logged in from %s!
Users	INFO	User %s has logged out from %s!
Users	INFO	User %s from %s has been logged out (re-auth timeout)!
Users	INFO	User %s from %s has been logged out (lease timeout)!
Users	NOTICE	Add new user %s by %s from %s.
Users	NOTICE	User %s password has been changed.
Users	NOTICE	Delete user %s by %s from %s.
Users	NOTICE	The user %s from %s has attempted to change the user %s password but old password verification fail.
Users	NOTICE	User %s on %u.%u.%u.%u has been denied access from %s
Users	NOTICE	User %s password has been changed by %s from %s.
Backup/Restore	ERROR	When query remote target [%s]: %s
Backup/Restore	INFO	Backup job [%s] successfully
Backup/Restore	ERROR	When backup [%s]: %s
Backup/Restore	ERROR	When backup [%s], error happens: %s
Backup/Restore	INFO	Start to restore backup job [%s].
Backup/Restore	INFO	Restore backup job [%s] successfully.
Backup/Restore	ERROR	Restore backup job [%s] failed: %s
Backup/Restore	INFO	Start to restore backup job [%s] from [%s].
Backup/Restore	INFO	Restore from [%s] successfully.
Backup/Restore	ERROR	Restore from [%s] failed: %s
Backup/Restore	ERROR	When restore [%s]: %s
Backup/Restore	ERROR	When restore job [%s], error happens: %s
Power Management	INFO	Job [%s] is triggered by schedule
Power Management	INFO	Job [%s] is triggered by user
Power Management	ERROR	Job [%s] is resulted as failed

Table 110 Log Messages (continued)

CLASS	SEVERITY	MESSAGE
Power Management	INFO	Job [%s] is finished successfully
Power Management	INFO	Job [%s] is pending because other job is running
Power Management	INFO	Job [%s] is canceled by user
Power Management	INFO	Restore job [%s] is triggered by user
Power Management	INFO	[Power On] schedule is triggered.
Power Management	INFO	[Power Off] schedule is triggered.
Power Management	INFO	[Reboot] schedule is triggered.

CHAPTER 12

Status Center

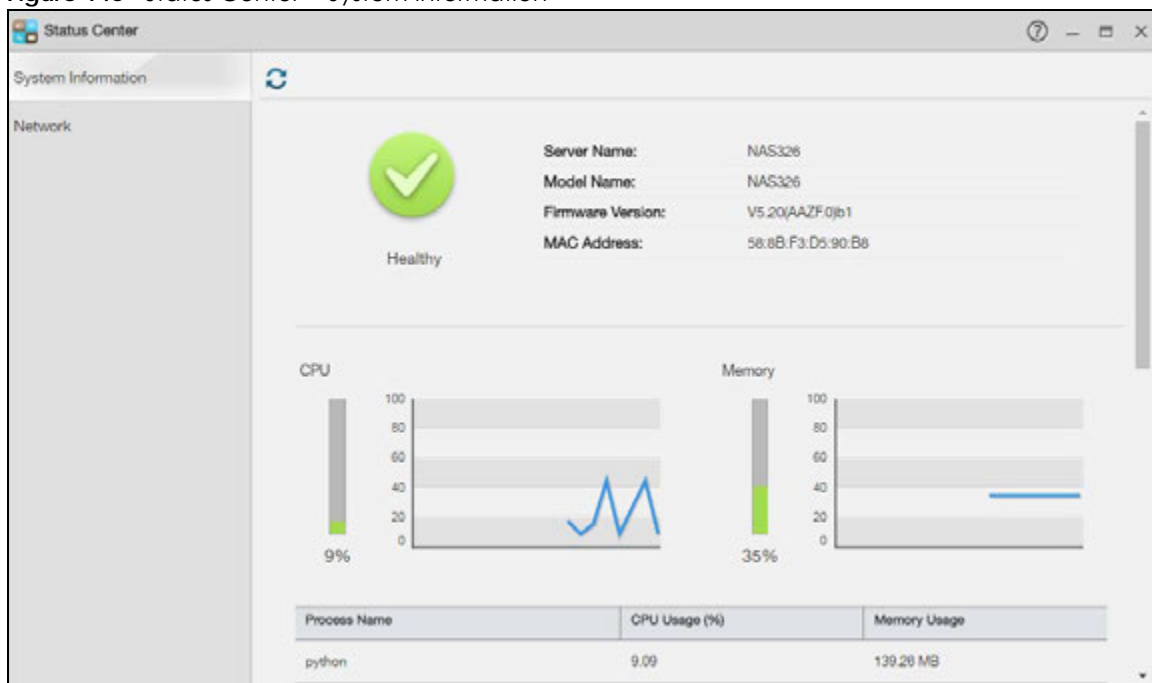
12.1 Overview

Status Center displays the system information or network connection status. You can also click the **System Status** icon from the **Status Zone** (see [Section 3.3.1 on page 27](#)) to open the **Status Center** screen.

12.1.1 System Information

In the **Desktop** screen, click **Status Center** to display **System Information** for detailed NAS status information.

Figure 145 Status Center > System Information



The following table describes the labels in this screen.

Table 111 Status Center > System Information

LABEL	DESCRIPTION
Refresh	Click the Refresh icon to update this display.
Status	The circular icon displays the health state of the NAS. A green circle with a check mark indicates healthy.
Server Name	This displays the name which helps you find the NAS on the network.
Model Name	This displays which model this NAS device is.

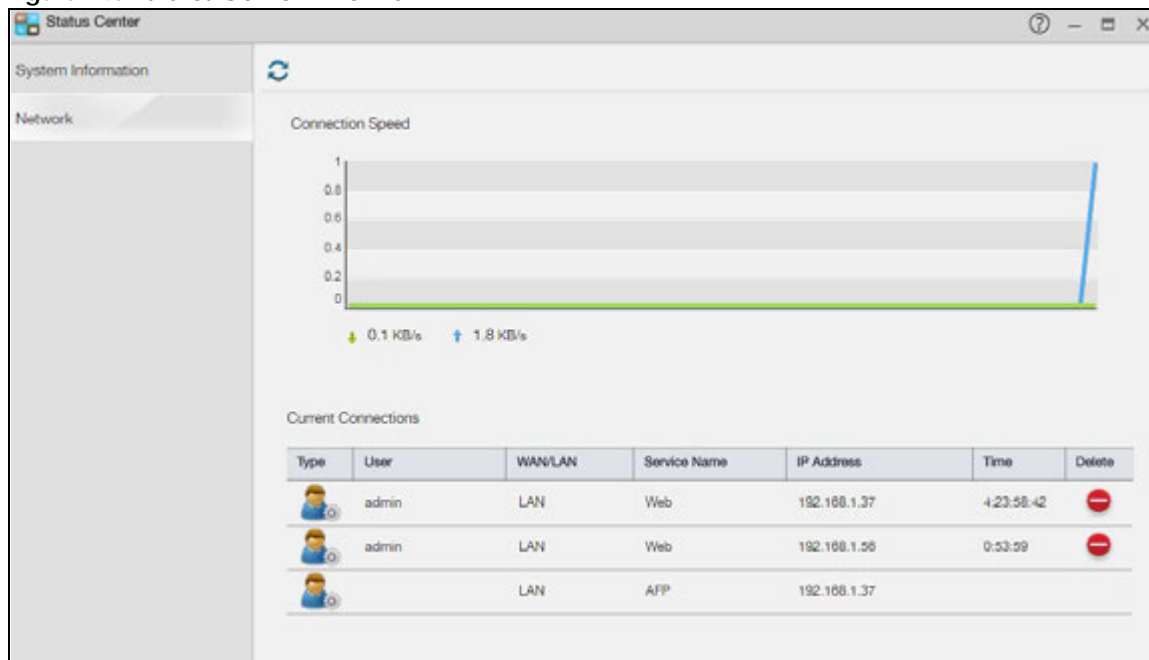
Table 111 Status Center > System Information (continued)

LABEL	DESCRIPTION
Firmware Version	This is the NAS firmware version.
MAC Address	This displays the NAS's unique physical hardware address (MAC) for the LAN Ethernet port. You need the MAC address to register the product at myZyxel.com. Customer support may also request it for troubleshooting purposes.
CPU	This displays a summary of CPU usage by all current processes. Note: If too many users are using the NAS then the NAS may appear sluggish.
Memory	This shows how much of the NAS's total memory is being used.
Process Name	This displays the top 10 processes that occupy the most CPU usage.
CPU Usage	This displays a summary of CPU usage by all current processes.
Memory Usage	This shows how much of the NAS's total memory is being used.
UPS	This shows the Uninterruptible Power Supply (UPS) capacity.
Fan Speed	This is the RPM (Rotations Per Minute) of the NAS's fans.
CPU Temperature	This displays the temperature near the NAS's CPU. The NAS generates an emergency log if the temperature goes out of the normal operating range. If the temperature goes even higher, the NAS shuts down automatically to avoid damage from overheating. If the NAS overheats, make sure the fans are working and it is in a well ventilated place.

12.1.2 Network

The **Network** screen display the NAS connection status. From the **Status Center** screen, click **Network** to open the screen as shown.

Figure 146 Status Center > Network



The following table describes the labels in this screen.

Table 112 Status Center > Network

LABEL	DESCRIPTION
Type	Displays the type of the user account.
User	Displays the user name.
WAN/LAN	Displays whether the connection is from the WAN or the LAN.
Service Name	Displays the service name.
IP Address	Displays the IP address of the user.
Time	Displays the connection time.
Delete	Click this to disconnect the user.

CHAPTER 13

App Center and Packages

13.1 About Packages

Packages extend the functions of your NAS. Your NAS supports various packages that let you do more. The **App Center** screen includes a list of packages to add. This chapter also describes the screens for features you can add to the NAS by installing packages.

Note: Check what packages do before you install them. Only install packages you actually plan to use.

Note: Get support for each package through its individual vendor.

13.1.1 Available Packages

You can install and use the following applications.

Note: Once you install applications and enable them, additional icons show up on the Desktop.

- **AuroraSyncBackup** - Use this to copy videos stored on a Zyxel Aurora IP camera to the NAS share. See [Section 13.3 on page 198](#).
- **DropboxClient** - Use this to synchronize local NAS shares or folders and Dropbox accounts. See [Section 13.4 on page 201](#).
- **GoogleDriveClient** - Use this to synchronize local NAS shares or folders and Google Drive accounts. See [Section 13.5 on page 209](#).
- **Gallery** - This web-based application allows your NAS to host pictures. You can upload images in your local computer or shares to this application. Use the Gallery administrator account (default username admin, password 1234) to log into the Gallery console. There you can create accounts for other users.
- **NFS** - NFS (Network File System) is a file-sharing protocol most commonly implemented on Unix-like systems. See [Section 13.6 on page 215](#).
- **NZBGet** - This news grabber helps download files from UseNet.
- **PHP-MySQL-phpMyAdmin** - This tool can be used to manage MySQL through the web. Enter 'root' as the username and '1234' as the password to log in. This includes MySQL, PHP, and phpMyAdmin. See [Section 13.7 on page 220](#).
- **Logitech® Media Server** - This enables you to manage a Logitech's Squeezebox device connected to the NAS.
- **TFTP** - Use this to configure the NAS to accept log files from TFTP clients. See [Section 13.8 on page 221](#).
- **Transmission** - This Bit Torrent client supports adding tasks through torrent files and magnet links.
- **WordPress** - This allows you to create and manage a blog. Use the WordPress administrator account (default username admin, password 1234) to log in. You can then create accounts for other users.

- **pyLoad** - Use this to have the NAS manage your downloads including those from one-click hosting sites. One-click hosting sites allow Internet users to easily upload files to the one-click host's server so others can download them. See [Section 13.9 on page 223](#).
- **Memopal** - Use this to back up files on the NAS to your Memopal online backup and storage account. See [Section 13.10 on page 224](#).
- **ownCloud** - Use this to store, synchronize, and share files, photos, calendars, and more with computers and mobile devices using an ownCloud client. See [Section 13.11 on page 227](#).
- **myZyxelcloud-Agent** - Use this to go to mycloud.zyxel.com to set up a free DDNS hostname for the NAS so you can connect to it easily from the Internet.

The following applications come with their own configuration screens and documentation:

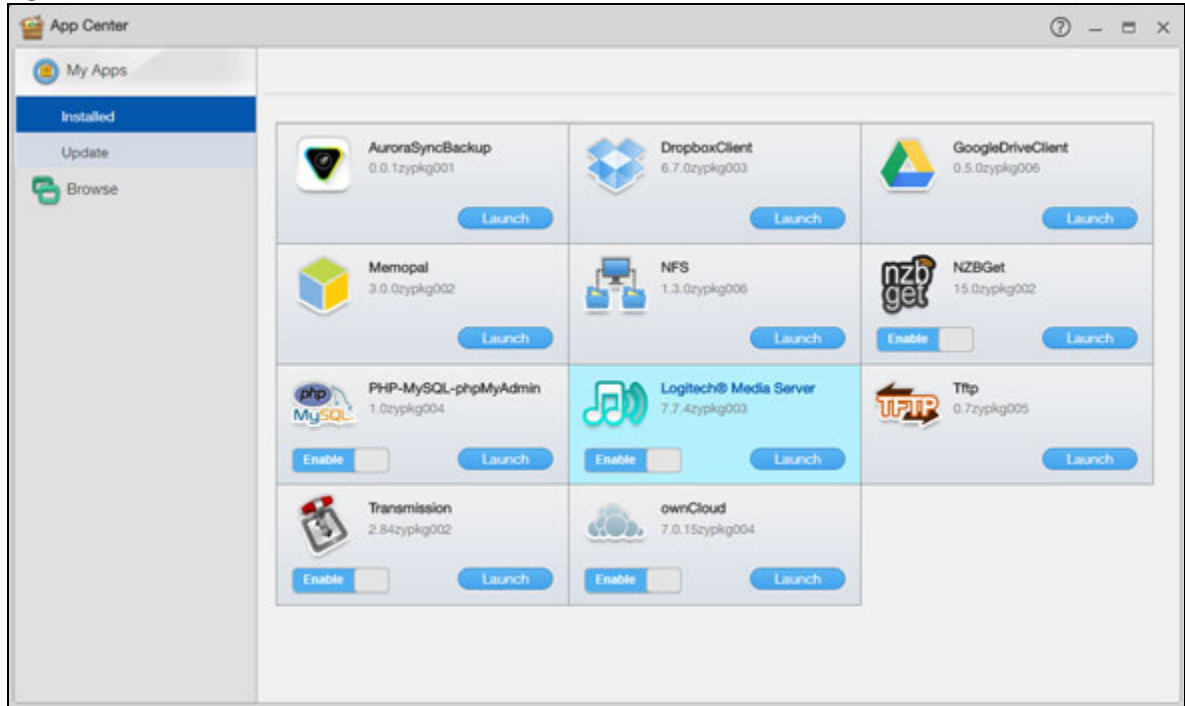
- Gallery
- NZBGet
- PHP-MySQL-phpMyAdmin
- Logitech® Media Server
- Transmission
- WordPress
- myZyxelcloud-Agent
- ownCloud

13.2 App Center Screens

The **App Center** screens allow you to download and install, remove, or upgrade packages.

After logging into the NAS with an administrator account, click **App Center** on the Desktop to open the following screen.

Figure 147 App Center



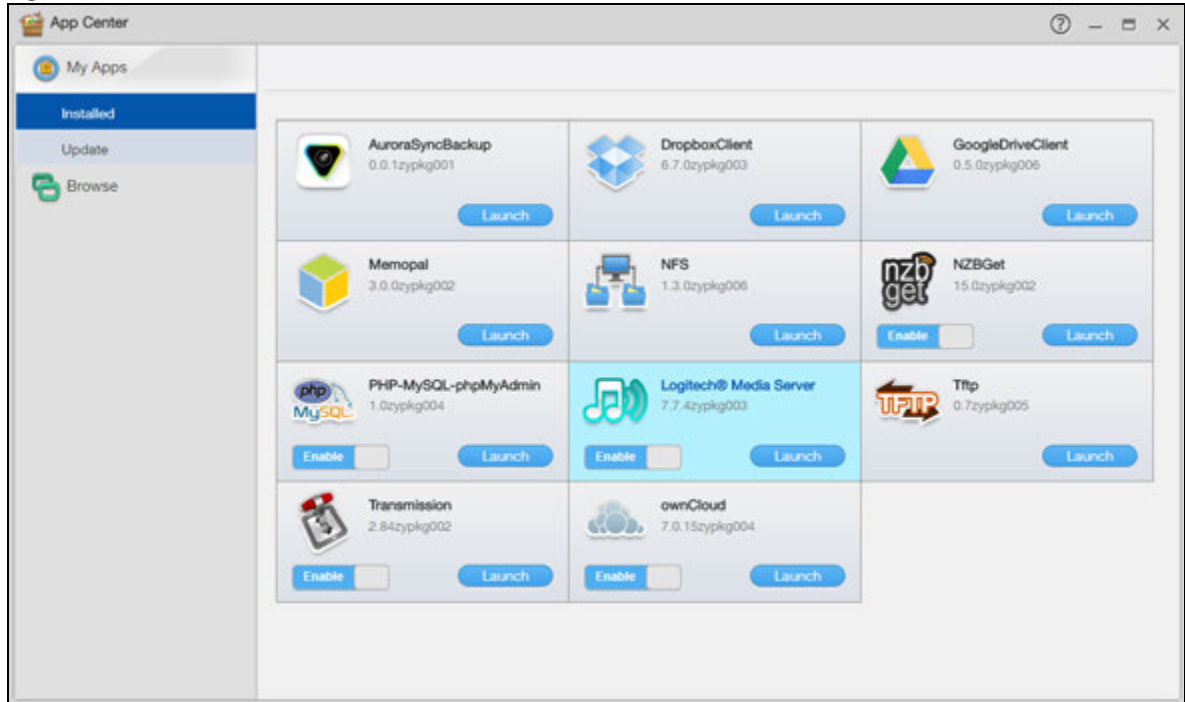
13.2.1 Installed Applications

Use this screen to view the applications that you have installed in the NAS. Click **App Center > My Apps > Installed** on the Desktop to open the following screen.

The **Enable/Disable** button is only for non built-in packages and available only if you have previously installed the package. Click the button to enable or disable the application(s) on your system.

Click **Launch** to open the web configuration screen for the application.

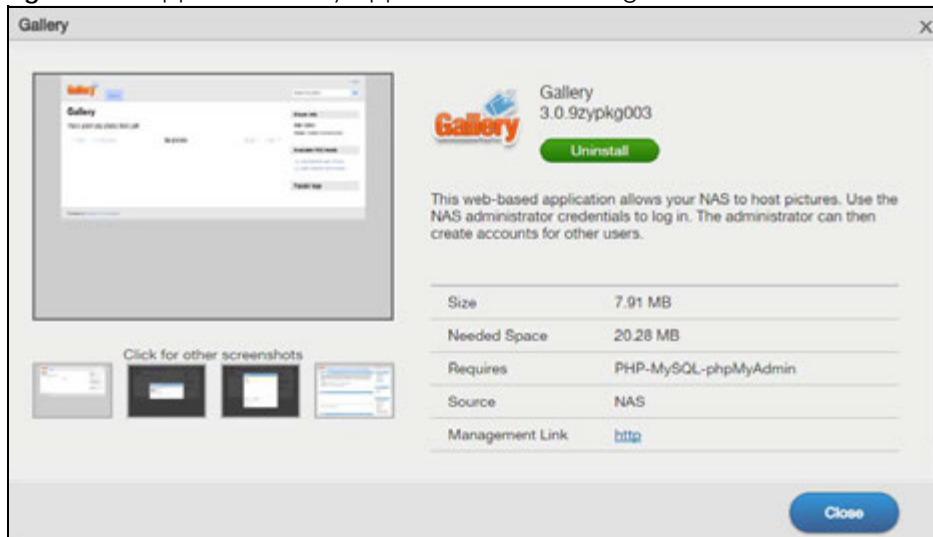
Figure 148 App Center > My Apps > Installed



13.2.1.1 Display package information

Click a package's name or icon to open the screen, where you can view information about the package or uninstall the package.

Figure 149 App Center > My Apps > Installed: Package Information



The following table describes the labels in this screen.

Table 113 App Center > My Apps > Installed: Package Information

LABEL	DESCRIPTION
	The left side shows the screenshots of the application web configurator. It also shows the name, version number and a brief description of the application at the right side.
Install/Upgrade	Click this to install the application on your system or upgrade to the latest version if you have previously installed the application.
Uninstall	Click this to uninstall the application from your system. This is only available if you have previously installed the package.
Size	This is the size of the application at initial download.
Needed Space	This is the needed space to complete the installation of the application.
Requires	This shows the other packages required in order to run this application. Note: A package would be disabled/enabled simultaneously if its prerequisite package(s) has been disabled/enabled. For example, when you enable WordPress, this also enables PHP-MySQL-phpMyAdmin automatically. However when you enable PHP-MySQL-phpMyAdmin, this does not automatically enable WordPress.
Required By	This shows which other packages require this application in order to be usable.
Source	This shows the location of the installed files of the application.
Management Link	This shows the link to the screens, console or web configurator where you can manage the application (after the package has been installed on the system).

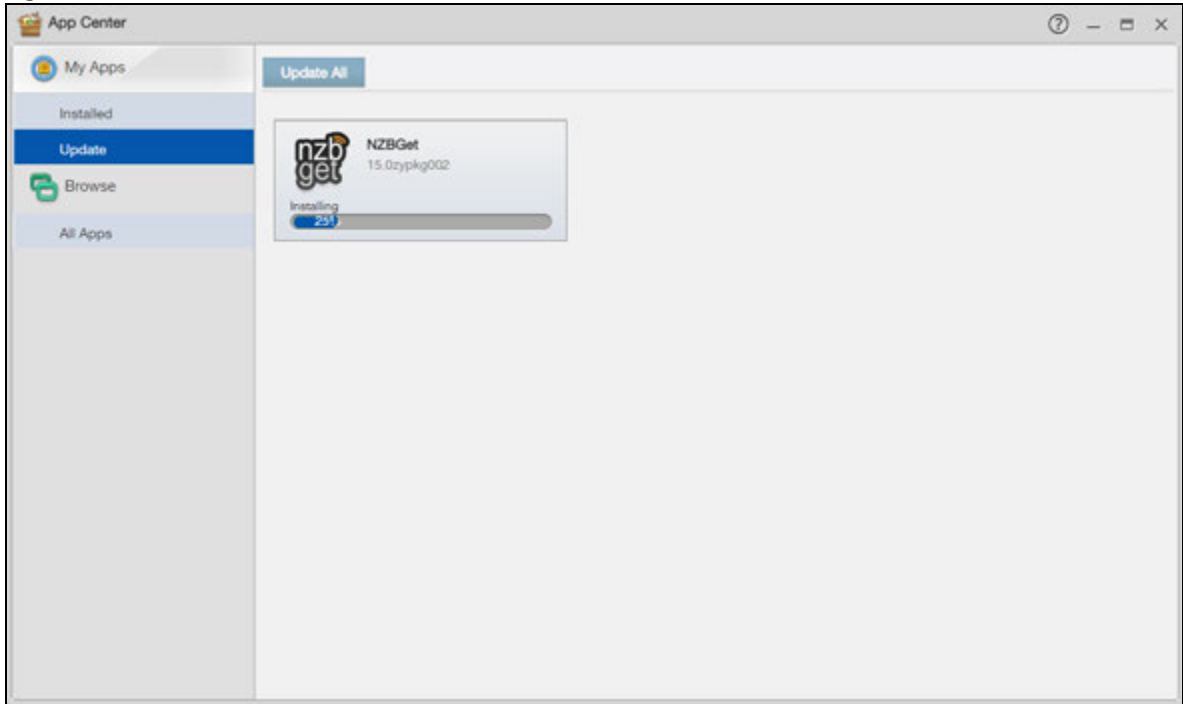
13.2.2 Application Update

This screen displays the applications that you have installed when a more recent version of the application is available. It also shows the progress bar when you install a new package.

Click **App Center > My Apps > Update** to open the following screen.

You can upgrade an application at a time, or click **Update All** to upgrade all the previously installed applications to the latest version.

Figure 150 App Center > My Apps > Update



13.2.3 Browse All Apps

This screen shows a list of packages supported by the NAS. Click **App Center > Browse > All Apps** to open the following screen.


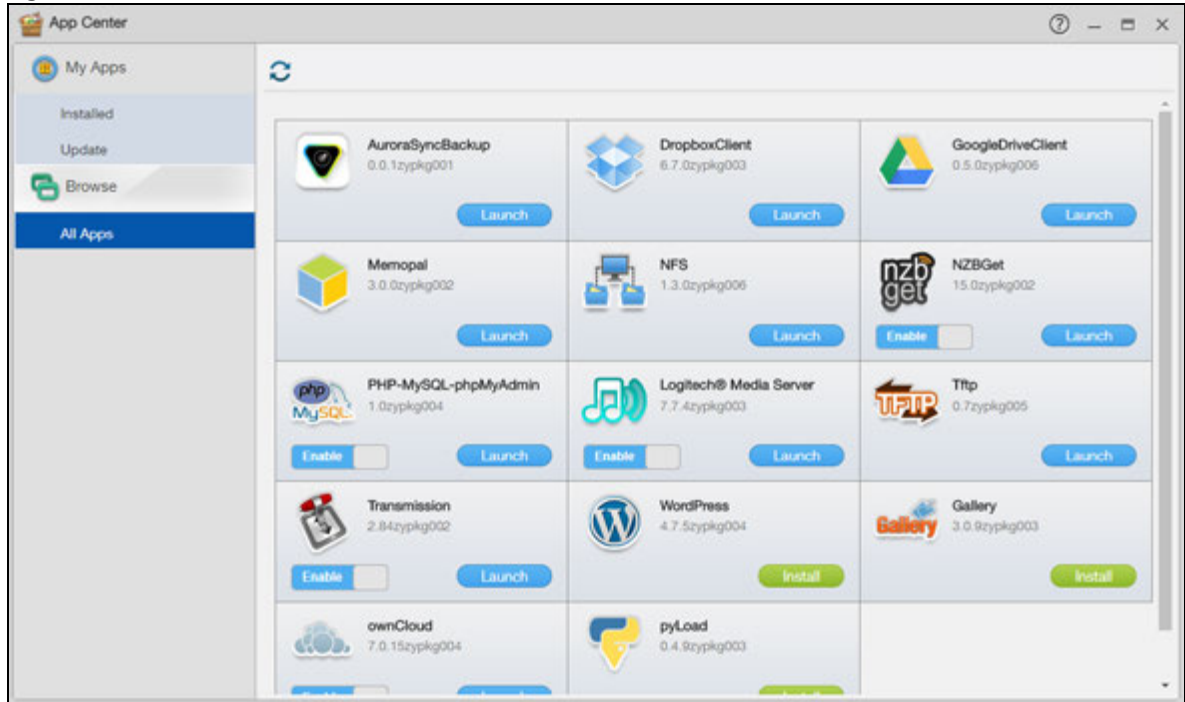
- Click the **Retrieve List From Internet** icon () to retrieve a list of available packages from the Zyxel website.
- Click **Install** to install the application on the NAS.
- Click **Cancel** to stop downloading or cancel the current installation process.
- The **Enable/Disable** button is only for non built-in packages and available only if you have previously installed the package. Click the button to enable or disable the application(s) on your system.
- Click **Launch** to open the web configuration screen for the application.
- Click a package's name or icon to open a screen, where you can view information about the package or uninstall the package. See [Section 13.2.1.1 on page 195](#).
- **Unknown error** displays if the web location for the application is unavailable.

Figure 151 App Center > Browse > All Apps



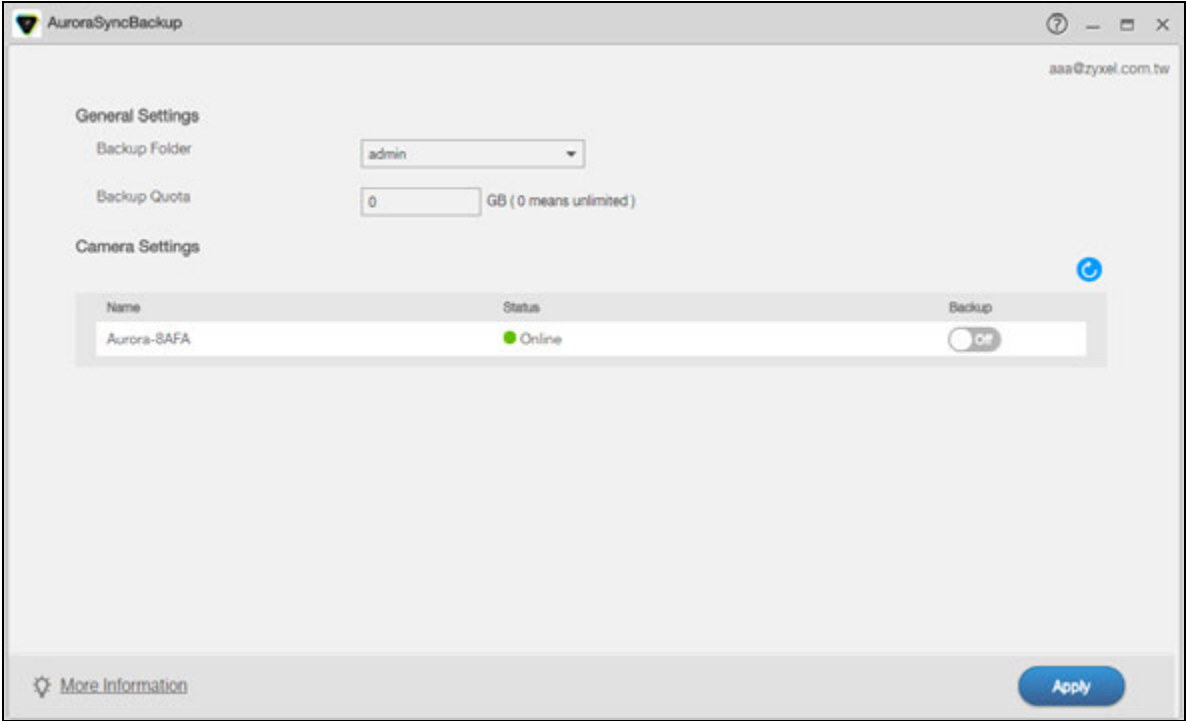
13.3 AuroraSyncBackup

Use **AuroraSyncBackup** to back up videos from a Zyxel Aurora camera to the NAS local shared folder.

Note: You must pair the NAS and the Zyxel Aurora camera with the same myZyXelCloud account before you can activate and configure Aurora backup settings.


Click **AuroraSyncBackup** on the Desktop or the **Launch** button in the **App Center** screen to open the following screen.

Figure 152 AuroraSyncBackup



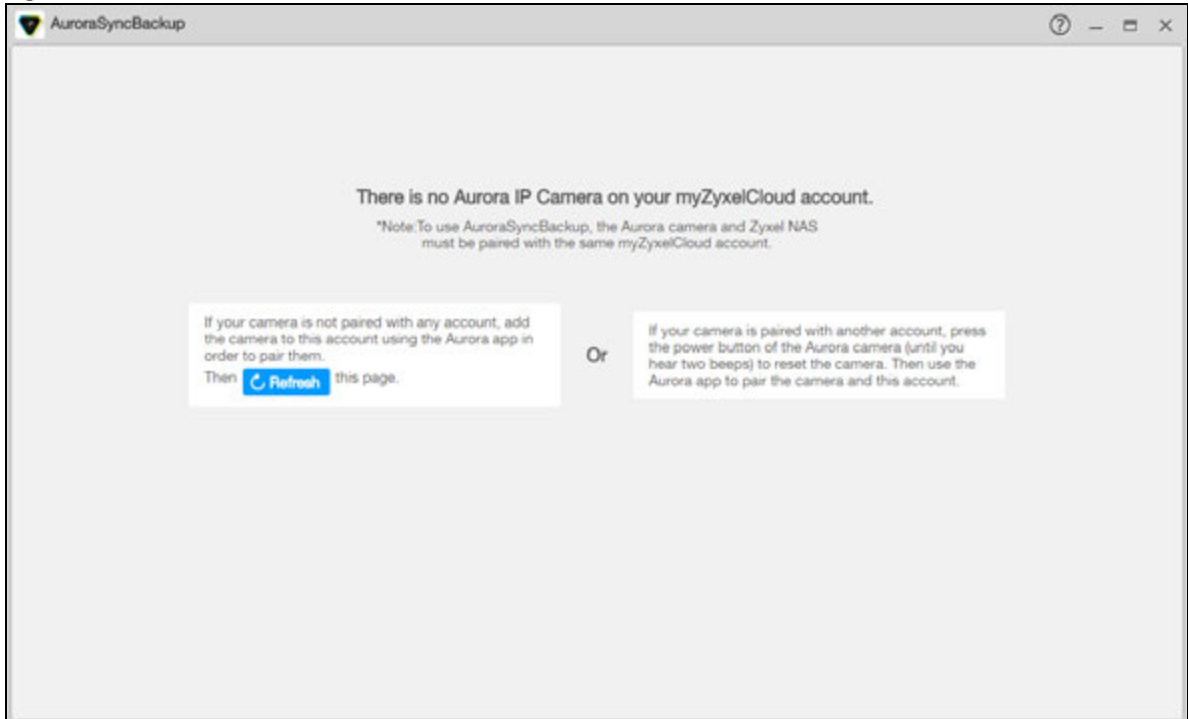
The following table describes the labels in this screen.

Table 114 AuroraSyncBackup

LABEL	DESCRIPTION
Backup Folder	Select the name of a share on the NAS where you want to place the video backup.
Backup Quota	Enter how much space (in gigabytes) you want to allow for the NAS to store videos from the associated Zyxel Aurora camera.
	Click this to renew this screen.
Name	This shows the name of the Aurora camera.
Status	This shows whether the Aurora camera is online or goes off-line.
Backup	Select On to allow the NAS to copy videos from the Aurora camera to the specified share. Otherwise, select Off to disable it.
More Information	Click this to open a screen that shows you where and how to find the video backups. See also Section 13.3.1 on page 200 .
Apply	Click this to save your changes.

If the following screen displays after you click **AuroraSyncBackup** on the Desktop, the NAS cannot discover any Aurora camera. Make sure the NAS and the Aurora camera(s) are both paired with an identical myZyxelCloud account, and then follow the on-screen instructions.

Figure 153 AuroraSyncBackup: No Aurora camera detected



13.3.1 How to check video backups

A folder named "Aurora" is created automatically under the specified share after you click **Apply** in the **AuroraSyncBackup** screen. You can use File Browser, Windows Explorer, or the Zyxe Drive app to access, open or download a video.

Figure 154 Check video backups via file browser

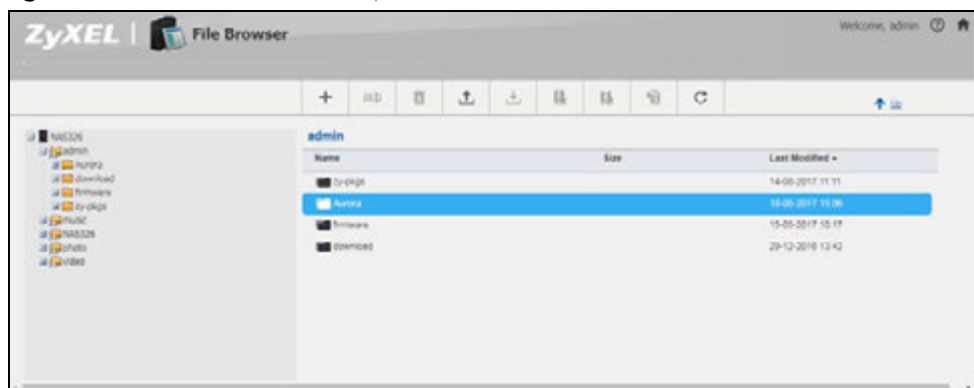


Figure 155 Check video backups via Windows Explorer

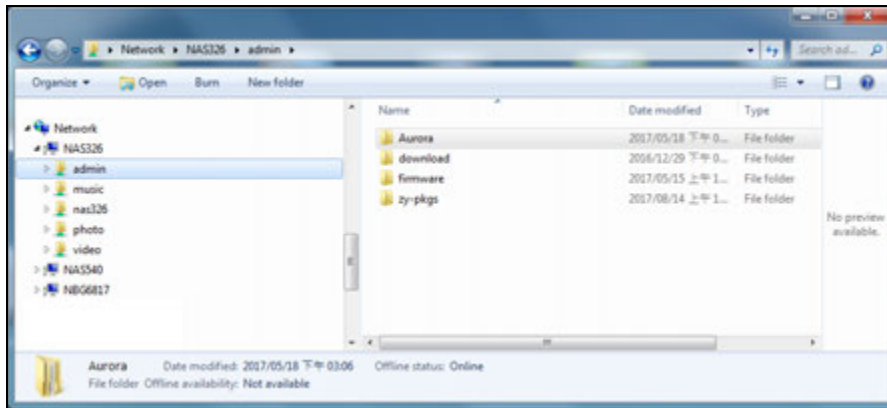
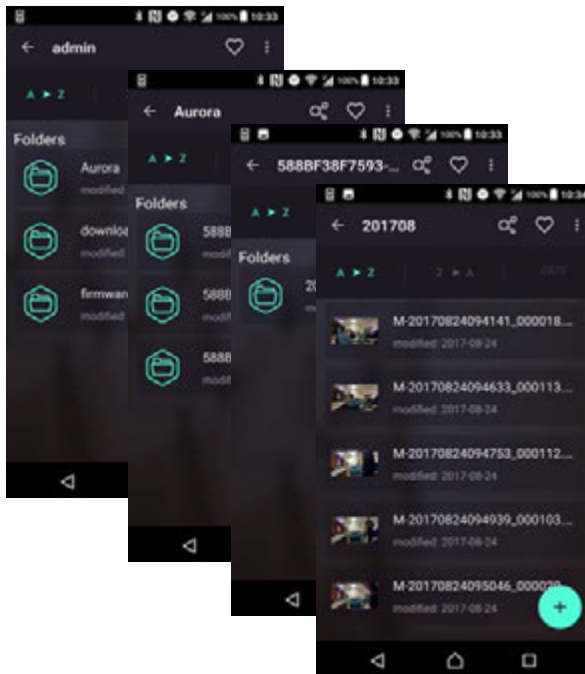


Figure 156 Check video backups via Zyxel Drive app

Android



iOS



13.4 DropboxClient

Use **DropboxClient** to synchronize NAS local shared folders and your Dropbox accounts. You need to associate a shared folder and user account with your Dropbox account before the NAS can copy or synchronize files between the folder and the associated Dropbox account. The NAS checks the Dropbox account's individual files at the end of the specified time interval. This two-way synchronization means changes in the Dropbox account appear in the local sync folder and changes in the local sync folder appear in the Dropbox account.

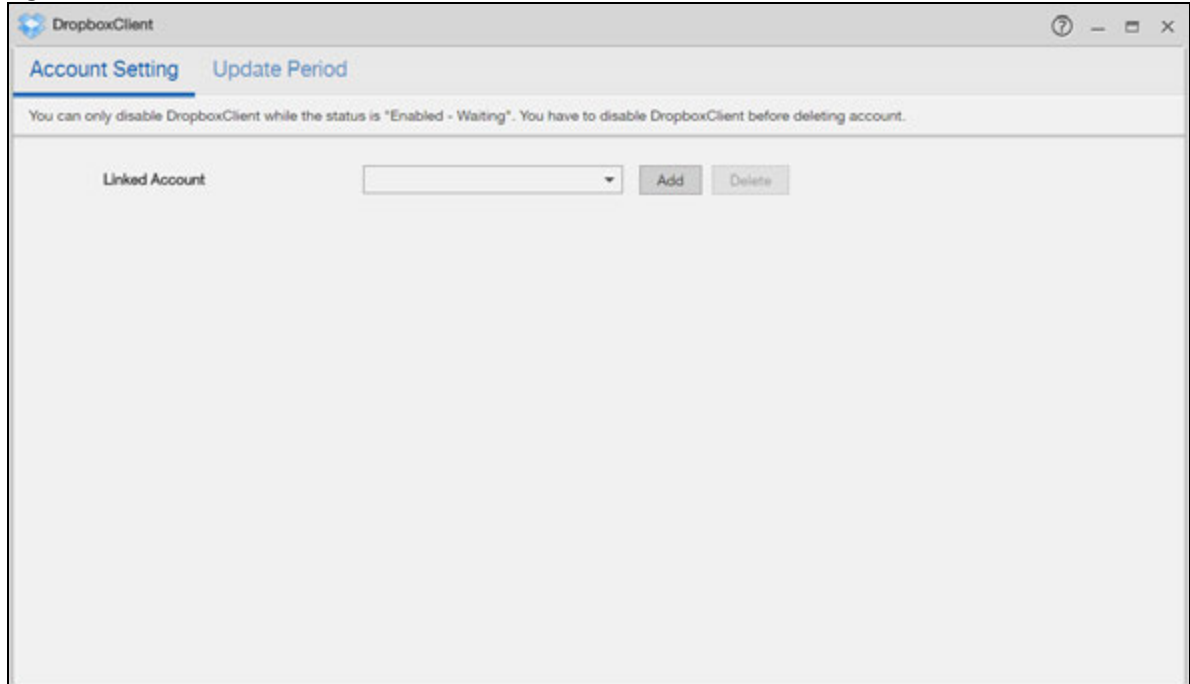
Note: Do not store your only copy of a document in Dropbox or the local sync folder.

- Modifying or deleting a file or folder at either end modifies or deletes it at the other end.

- Moving a file out of the local sync folder or Dropbox deletes it at the other end.
- Use the **Backup Planner** screens instead of Dropbox for backups (see [Chapter 16 on page 260](#)).
- You can link multiple NAS user accounts to Dropbox accounts.
- You can link an individual NAS user account to multiple Dropbox accounts.
- You can only link each individual Dropbox account to one NAS user account.

Click **DropboxClient** on the Desktop or the **Launch** button in the **App Center** screen to open the following screen.

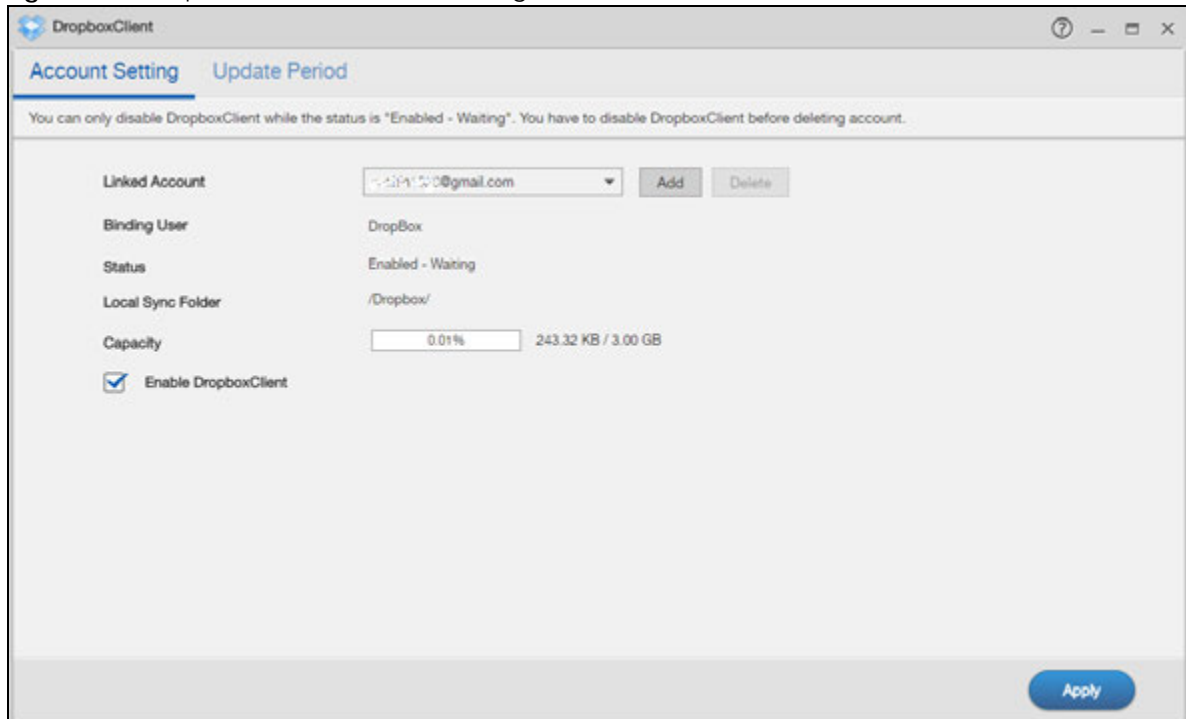
Figure 157 DropboxClient



13.4.1 Configure Account Setting

Click **DropboxClient** > **Account Setting** to open the following screen. Use this screen to associate the NAS shared folder and account with a Dropbox account.

Figure 158 DropboxClient > Account Setting



The following table describes the labels in this screen.

Table 115 DropboxClient > Account Setting

LABEL	DESCRIPTION
Linked Account	<p>This displays the e-mail address of the owner of the Dropbox account the NAS is configured to use. Select a Dropbox account linked to an NAS user account.</p> <p>Click Add to open a screen where you can link an NAS user account and a Dropbox account.</p> <p>Click Delete to remove the NAS's link to the selected Dropbox account. You must disable the DropboxClient feature for the account before you can do this. A screen pops up to let you decide what to do with the data in the NAS's linked local sync folder.</p> <div data-bbox="673 1323 1325 1593"> </div> <p>Select the check box to delete all data in the local sync folder. Clear the check box to remove the link to the selected Dropbox account but keep the data in the local sync folder. Click Cancel to do nothing (keep the account link and data).</p>
Binding User	This displays the NAS user account which is linked to the selected Dropbox account.

Table 115 DropboxClient > Account Setting (continued)

LABEL	DESCRIPTION
Status	<p>This displays the current status of the DropboxClient feature for the selected Dropbox account.</p> <ul style="list-style-type: none"> • Disabled - The DropboxClient feature is turned off. During this state you can use the other sections of this screen to add or delete linked accounts or enable Google Drive. • Enabled - Waiting - The DropboxClient feature is configured, enabled, and waiting to perform the next Dropbox update. During this state you can use the other sections of this screen to add or delete linked accounts or disable DropboxClient. • Enabled - Synchronizing - The DropboxClient feature is synchronizing the local sync folder and the Dropbox account. During this state you can use the other sections of this screen to add linked accounts during this state.
Local Sync Folder	This displays the NAS folder or share the NAS synchronizes with the linked Dropbox account.
Capacity	This displays the Dropbox account's used, available, and total online Dropbox storage space.
Enable DropboxClient	<p>Select this to have the NAS periodically synchronize the selected linked account's local sync folder and Dropbox storage. You can enable synchronizing with Dropbox for individual accounts and disable it for other accounts.</p> <p>Clear this option to disable synchronizing the selected linked account's local sync folder and Dropbox storage.</p>
Apply	Click this to save your changes.

13.4.2 How to associate NAS share/account with Dropbox account

Use the **Add Account** screens to link an NAS user account and a Dropbox account. Click **Add** in the **DropboxClient > Account Setting** screen to open the following screen.

Note: The user has to log into the Dropbox account on the same computer to allow the NAS to link to it.


Step1 Local Sync Folder

Use this screen to specify the folder on the NAS to synchronize with Dropbox for the local user.

Figure 159 DropboxClient > Account Setting > Add: Step1 Local Sync Folder

The following table describes the labels in this screen.

Table 116 DropboxClient > Account Setting > Add: Step1 Local Sync Folder

LABEL	DESCRIPTION
Share	Select the name of a share on the NAS containing the folder the NAS synchronizes with Dropbox.
Path	This shows the location of the folder the NAS synchronizes with Dropbox.
Browse	<p>Click this to open the following screen where you can specify the share or folder to synchronize with Dropbox. The NAS's sharing configuration must allow the user access. The user must also have a large enough quota on both the NAS and Dropbox to hold whatever files go in the local sync folder and in the Dropbox account (since they both end up containing everything you put in either).</p>  <ul style="list-style-type: none"> • Current Location - This shows the folder location in the share. • Folder Name - Enter a descriptive name and click Create New Folder to add a new folder in the current share or folder.
Next	Click this to save your changes and proceed.
Cancel	Click this to return to the previous screen without saving.

Step2 Binding User

Use this screen to select the local NAS user account to link with Dropbox. Click **Next** to continue.

Figure 160 DropboxClient > Account Setting > Add: Step2 Binding User

Add Account

① Local Sync Folder / ② Binding User / ③ Authorization

Select A User To Bind With Dropbox Account

Username

⚠ Please make sure that the user has enough quota.

Back Next Cancel

Step3 Authorization

Click the link in this screen to get the authorization code from Dropbox.

Figure 161 DropboxClient > Account Setting > Add: Step3 Authentication

Add Account

① Local Sync Folder / ② Binding User / ③ Authorization

[Click here to get the authorization code from Dropbox](#)

Enter the authorization code below

Back Apply Cancel

The user must sign into the Dropbox account. You may need to sign out of Dropbox's services first if another user account is already signed in.



Sign in to Dropbox to link with ZyXEL NAS

[Forgot your password?](#)

[Sign in](#)

Click **Allow** when the following screen displays to allow access to the files in your Dropbox.

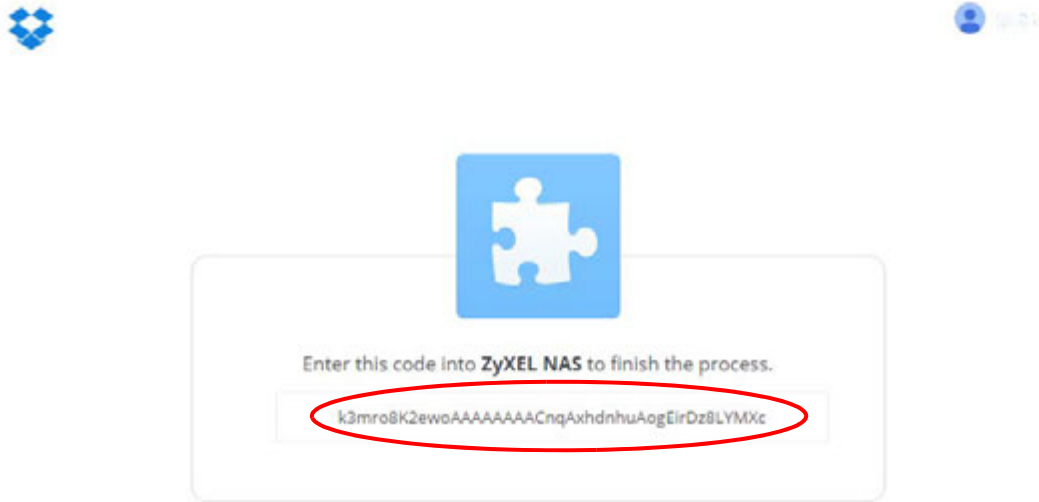


ZyXEL NAS would like access to the files and folders in
your Dropbox. [Learn more](#)

Cancel

Allow

Copy the code and paste it into the field in the Web Configurator screen.



Click **Apply** to have the NAS connect to Dropbox and complete the authorization.

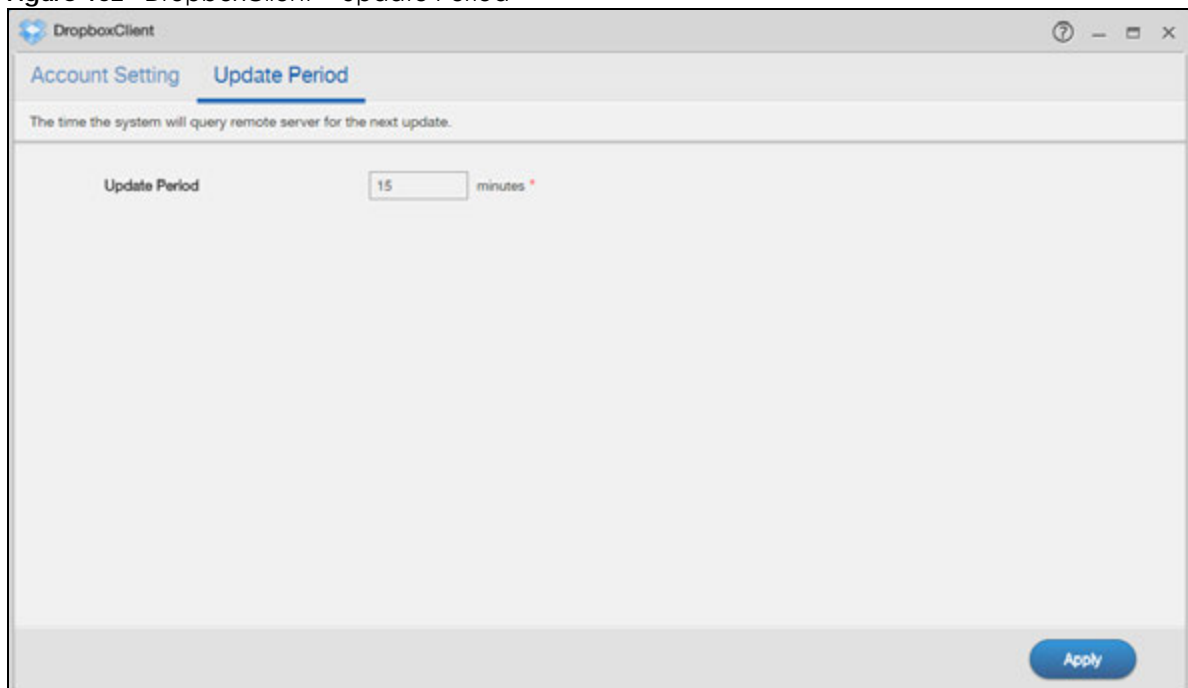
In the **DropboxClient > Account Setting** screen, select the **Enable DropboxClient** option and click **Apply** to start synchronizing your files with Dropbox.

13.4.3 Configure Update Period

Use the **Update Period** screen to set how often the NAS synchronizes with the associated Dropbox account. The NAS initiates the connections, thus you do not have to configure rules on a firewall located in front of the NAS to allow access.

Click **DropboxClient > Update Period** to open the following screen.

Figure 162 DropboxClient > Update Period



The following table describes the labels in this screen.

Table 117 DropboxClient > Update Period

LABEL	DESCRIPTION
Update Period	Specify how frequently the NAS synchronizes the local sync folders and the linked Dropbox accounts. The range is 1 to 4320 minutes (3 days).
Apply	Click this to save your changes.

13.5 GoogleDriveClient

Use GoogleDriveClient to synchronize local NAS user folders and Google Drive cloud storage accounts. This two-way synchronization means changes in the Google Drive account appear in the local sync folder and changes in the local sync folder appear in the Google Drive account.

Note: Do not store your only copy of a document in Google Drive or the local sync folder.

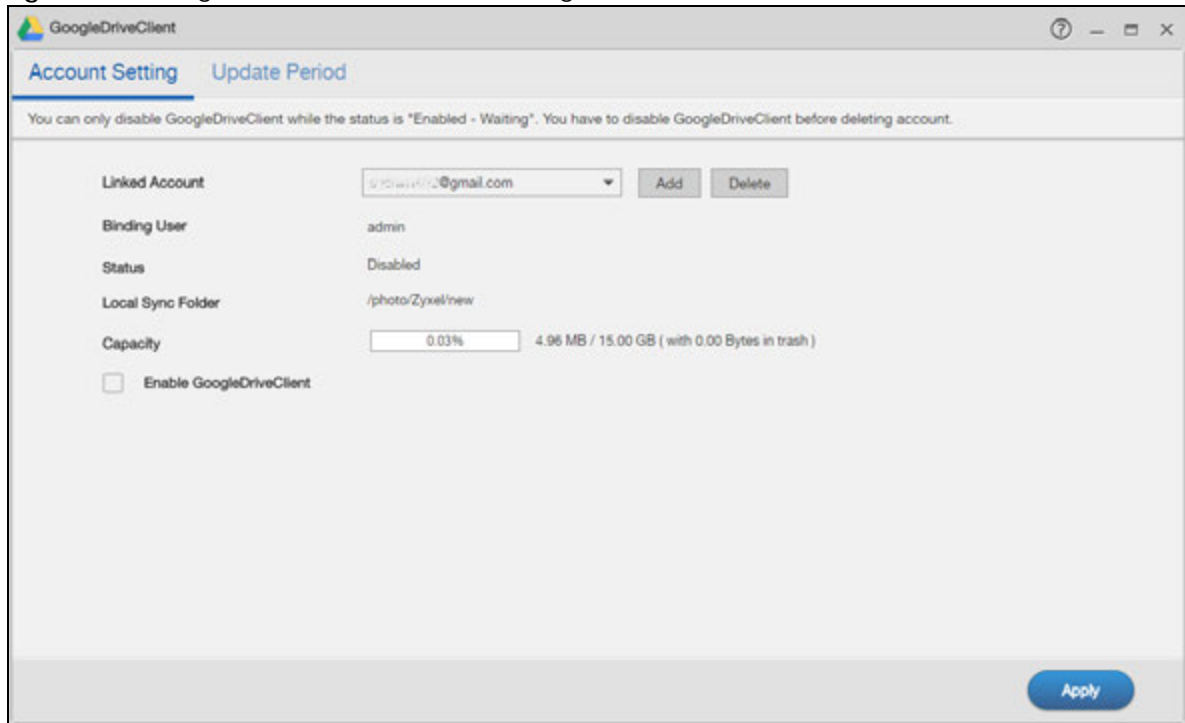
- Modifying or deleting a file or folder at either end modifies or deletes it at the other end.
- Moving a file out of the local sync folder or Google Drive deletes it at the other end.
- Use the **Backup Planner** screens instead of Google Drive for backups (see [Chapter 16 on page 260](#)).
- You can link multiple NAS user accounts to Google accounts.
- You can link an individual NAS user account to multiple Google accounts.
- You can only link each individual Google account to one NAS user account.
- This feature does not currently download Google Documents.

Click **GoogleDriveClient** on the Desktop or the **Launch** button in the **App Center** screen to open the configuration screen.

13.5.1 Configure Account Setting

Use the **Account Setting** screen to synchronize local NAS shares or folders and Google Drive accounts.

Click **GoogleDriveClient > Account Setting** to open the following screen.

Figure 163 GoogleDriveClient > Account Setting

The following table describes the labels in this screen.

Table 118 GoogleDriveClient > Account Setting

LABEL	DESCRIPTION
Linked Account	<p>This displays the e-mail address of the owner of the Google account the NAS is configured to use. Select a Google account linked to an NAS user account.</p> <p>Click Add to open a screen where you can link an NAS user account and a Google account.</p> <p>Click Delete to remove the NAS's link to the selected Google account. You must disable the Google Drive feature for the account before you can do this. A screen pops up to let you decide what to do with the data in the NAS's linked local sync folder.</p> <div data-bbox="599 1320 1403 1654"> </div> <p>Select the check box to delete all data in the local sync folder. Clear the check box to remove the link to the selected Google account but keep the data in the local sync folder. Click Cancel to do nothing (keep the account link and data).</p>
Binding User	This shows the NAS user account which is linked to the selected Google account.

Table 118 GoogleDriveClient > Account Setting (continued)

LABEL	DESCRIPTION
Status	<p>This shows the current status of the GoogleDrive feature for the selected Google account.</p> <ul style="list-style-type: none"> • Disabled - The GoogleDrive feature is turned off. During this state you can use the other sections of this screen to add or delete linked accounts or enable Google Drive. • Enabled - Waiting - The GoogleDrive feature is configured, enabled, and waiting to perform the next Google Drive update. During this state you can use the other sections of this screen to add or delete linked accounts or disable Google Drive. • Enabled - Synchronizing - The GoogleDrive feature is synchronizing the local sync folder and the Google account. During this state you can use the other sections of this screen to add linked accounts during this state.
Local Sync Folder	The NAS folder or share the NAS synchronizes with the linked Google account.
Capacity	The Google account's used, available, and total online Google Drive storage space.
Enable GoogleDrive	<p>Select this to have the NAS periodically synchronize the selected linked account's local sync folder and Google Drive storage. You can enable synchronizing with Google Drive for individual accounts and disable it for other accounts.</p> <p>Clear this option to disable synchronizing the selected linked account's local sync folder and Google Drive storage.</p>
Apply	Click this to save your changes.

13.5.2 How to link NAS account, share and Google account

Use the **Add Account** screens to link an NAS user account and a Google account. Click **Add** in the **GoogleDriveClient > Account Setting** screen to open the following screen.

Note: The user has to log into the Google account on the same computer to allow the NAS to link to it.


Step1 Local Sync Folder

Use this screen to specify the folder on the NAS to synchronize with Google Drive for the local user.

Figure 164 GoogleDriveClient > Account Setting > Add: Step1 Local Sync Folder

The following table describes the labels in this screen.

Table 119 GoogleDriveClient > Account Setting > Add: Step1 Local Sync Folder

LABEL	DESCRIPTION
Share	The name of a share on the NAS containing the folder the NAS synchronizes with Google Drive.
Path	The location of the folder the NAS synchronizes with Google Drive.
Browse	<p>Click this to open the following screen where you can specify the share or folder to synchronize with Google Drive. The NAS's sharing configuration must allow the user access. The user must also have a large enough quota on both the NAS and Google Drive to hold whatever files go in the local sync folder and in the Google Drive account (since they both end up containing everything you put in either).</p>  <ul style="list-style-type: none"> • Current Location - This shows the folder location in the share. • Folder Name - Enter a descriptive name and click Create New Folder to add a new folder in the current share or folder.
Next	Click this to save your changes and proceed.
Cancel	Click this to return to the previous screen without saving.

Step2 Binding User

Use this screen to select the local NAS user account to link with Google Drive. Click **Next** to continue.

Figure 165 GoogleDriveClient > Account Setting > Add: Step2 Binding User

Add Account

① Local Sync Folder / ② Binding User / ③ Authorization

Select A User To Bind With Google Account

Username

⚠ Please make sure that the user has enough quota.

Back Next Cancel

Step3 Authorization

Click the link in this screen to get the authorization code from Google.

Figure 166 GoogleDriveClient > Account Setting > Add: Step3 Authentication

Add Account

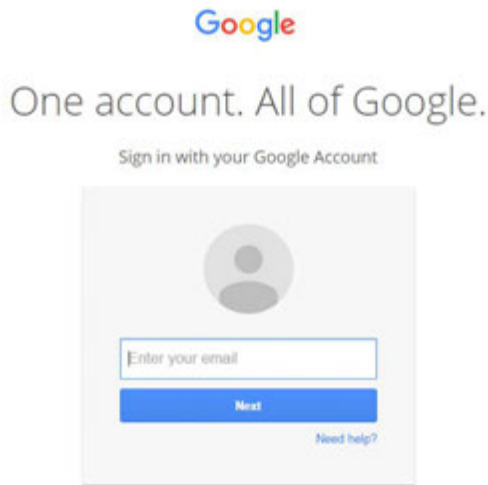
① Local Sync Folder / ② Binding User / ③ Authorization

[Click here to get the authorization code from Google](#)

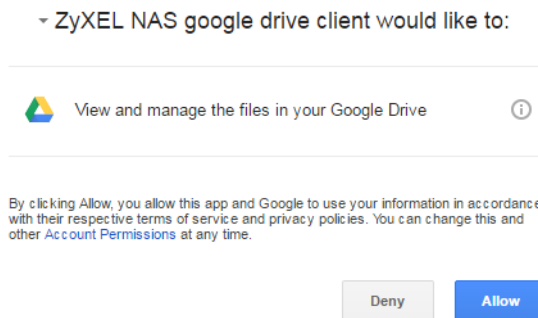
Enter the authorization code below

Back Apply Cancel

The user must sign into the Google account. You may need to sign out of Google's services first if another user account is already signed in.



Click **Allow** when the following screen displays to allow access to the files in your Google Drive.



Copy the code and paste it into the field in the Web Configurator screen.

Please copy this code, switch to your application and paste it there:
4rjN19KHU1KjRey9G3NCXZl4e_fl_9etgMb_wnXm

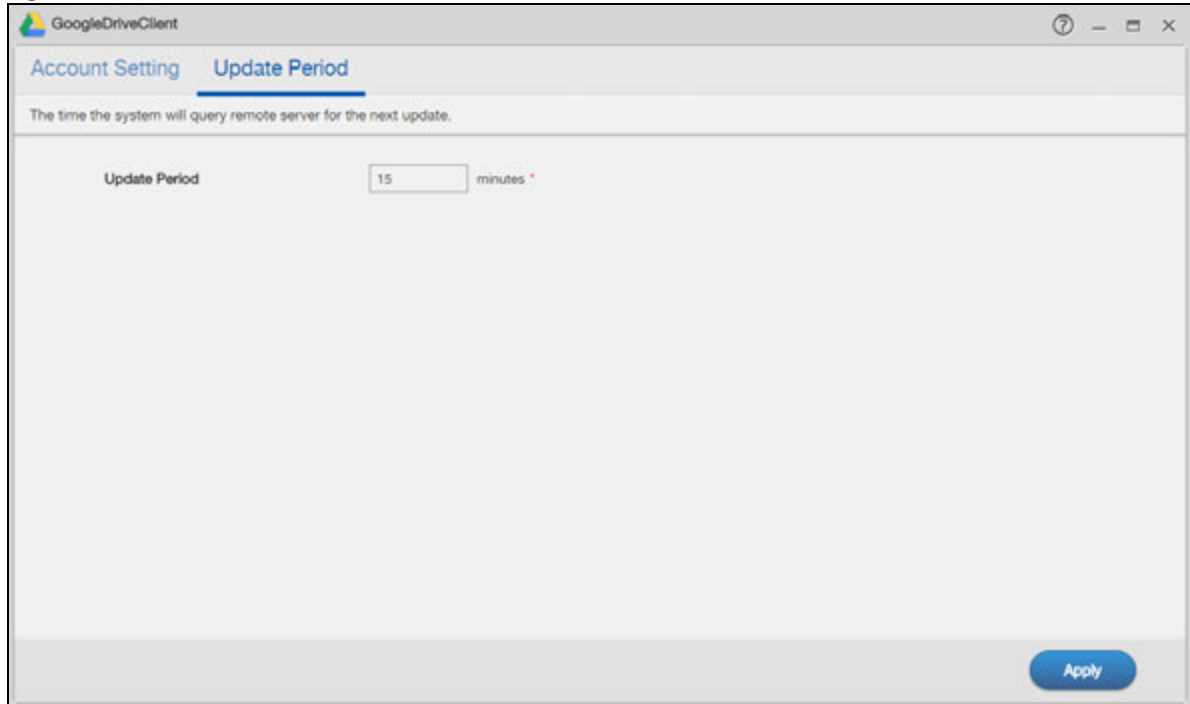
Click **Apply** to have the NAS connect to Google and complete the authorization.

In the **DropboxClient > Account Setting** screen, select the **Enable GoogleDriveClient** option and click **Apply** to start synchronizing your files with Google Drive.

13.5.3 Configure Update Period

Use the **Update Period** screen to set how often the NAS synchronizes with Google Drive. The NAS initiates the connections, thus you do not have to configure rules on a firewall located in front of the NAS to allow access.

Click **GoogleDriveClient > Update Period** to open the following screen.

Figure 167 GoogleDriveClient > Update Period

The following table describes the labels in this screen.

Table 120 GoogleDriveClient > Update Period

LABEL	DESCRIPTION
Update Period	Specify how frequently the NAS synchronizes the local sync folders and the linked Google Drive accounts. The range is 1 to 4320 minutes (3 days).
Apply	Click this to save your changes.

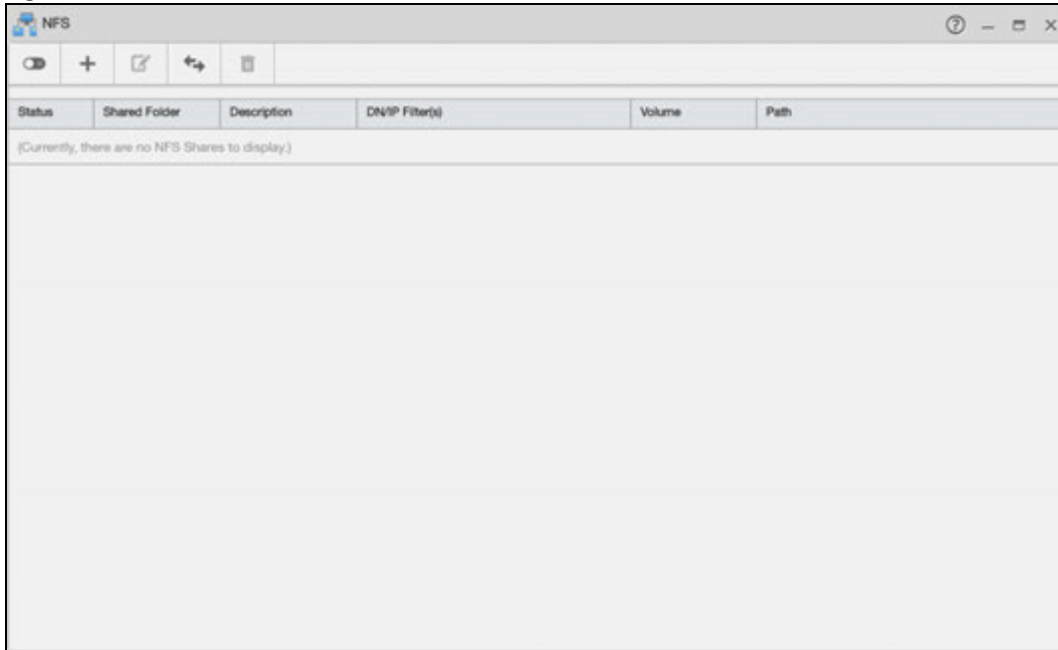
13.6 NFS

NFS is a distributed file service that provides transparent file sharing for network environments. This allows shared folders in your NAS to be accessible like a local folder in a user's computer.

Use the NFS screens to enable and configure Network File System (NFS) settings on your NAS.

Click **NFS** on the Desktop or the NFS **Launch** button in the **App Center** screen to open the following screen.

Figure 168 NFS



The following table describes the labels in this screen.

Table 121 NFS

LABEL	DESCRIPTION
Enable	Click this to employ NFS in your NAS.
Disable	Click this to stop using NFS. This makes all NFS shares unavailable.
Add NFS Share	Click this to add an NFS share. Refer to Section 13.6.1 on page 217 for the Add NFS Share screen.
Edit NFS Share	Select an NFS share from the list and click this to edit it. Refer to Section 13.6.1 on page 217 for the Edit NFS Share screen.
NFS Session	Click this to view active NFS sessions. You can see the list of users who have access to the NFS shares. Refer to Section 13.6.2 on page 219 for the NFS Session screen.
Delete NFS Share (s)	Select an NFS share from the list and click this to delete it.
The table lists your NFS shares. Click a column's heading to sort the entries by that criteria.	
Status	This shows whether the share is active or not.
Shared Folder	This shows the name of the NFS share.
Description	This shows a short description of the share.
DN/IP Filter(s)	This shows which domain name(s) or IP address(es) have read/write access to the NFS shares. Refer to Section 13.6.1 on page 217 for the screen where you can configure this.
Volume	This shows the volume where the NFS share is located.
Path	This shows the location of the share in the NAS.

You see a warning screen before you delete an NFS share.

Figure 169 Delete an NFS Share

13.6.1 Add/Edit NFS Share

Use this screen to add or edit an NFS share.

Note: Some attributes of the NFS share cannot be edited.

Click **Add NFS Share** or **Edit NFS Share** in the **NFS** screen to open the following screen.

Step 1 General Settings

Use this screen to set the NFS share name and location.

Figure 170 NFS: Add/Edit: Step 1 General Settings

 A screen titled "Add NFS Share" with a close button (X) in the top right corner. Below the title is a breadcrumb navigation bar: "① General Settings / ② Shared Folder Access / ③ Summary". The screen contains four input fields:

- NFS Share Name**: A text box containing "NFSExample".
- Description**: A text box containing "ndjkaqao".
- Volume Name**: A dropdown menu showing "Volume1 (294.42 GB available)".
- Full Path**: A text box showing the path "/-data/a6e6c0b8/nfs/NFSExample".

 At the bottom right are two blue buttons labeled "Next" and "Cancel".

The following table describes the labels in this screen.

Table 122 NFS: Add/Edit: Step 1 General Settings

LABEL	DESCRIPTION
NFS Share Name	Enter the name you want to give to the NFS share.
Description	Enter a short description for the share.

Table 122 NFS: Add/Edit: Step 1 General Settings (continued)

LABEL	DESCRIPTION
Volume Name	Select the volume where the folder you want to add as an NFS share is located.
Full Path	This shows the location of the NFS share in the NAS. The NFS server assigns this path to the share folder you input.
Next	Click this to go to the next screen.
Cancel	Click this to close the screen without saving.

Step 2 Shared Folder Access

Use this screen to configure the access rights you want to grant to each domain name or IP address.

Note: NFS v4 supports **Read/Write** only, and NFS v3 supports both **Read Only** and **Read/Write**.

Figure 171 NFS: Add/Edit: Step 2 Shared Folder Access

Add NFS Share

① General Settings / ② Shared Folder Access / ③ Summary

Please enter a domain name or IP address and select the access rights that can have access the NFS shared folder. Use '*' to make the shared folder available to all users in the network. For example, '*zyxel.com.tw'.

DN/IP	<input checked="" type="checkbox"/> Read Only	<input type="checkbox"/> Read/Write	Action
*example.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Delete"/>

The following table describes the labels in this screen.

Table 123 NFS: Add/Edit: Step 2 Shared Folder Access

LABEL	DESCRIPTION
Add	Click this to create a new entry.
DN/IP	Enter the domain name(s) or IP address(es) that can have access to the NFS share. Enter '*' to make the share available to all users in the network. You can also enter a wildcard, such as '*.domain.com' to indicate that all users within that network have access to the share.
Read Only	Users with this access right can only view and copy files in the NFS share but cannot modify or delete them.
Read/Write	Users with this access right can view, edit or delete files in the NFS share.
Action	Click this to delete an entry.
Back	Click this to go back to the previous screen.

Table 123 NFS: Add/Edit: Step 2 Shared Folder Access (continued)

LABEL	DESCRIPTION
Next	Click this to go to the next screen.
Cancel	Click this to close the screen without saving.

Step 3 Summary

This screen is not available when you are editing an existing NFS share.

Use this screen to review the settings you configured. Click **Apply** to complete the setup. Otherwise, click **Back** to return to the previous screen, or click **Cancel** to close the screen without saving.

Figure 172 NFS: Add/Edit: Step 3 Summary

The screenshot shows a window titled "Add NFS Share" with a close button (X) in the top right corner. Below the title bar is a breadcrumb navigation bar: "① General Settings / ② Shared Folder Access / ③ Summary". The main content area contains a table with two columns: "Item" and "Value".

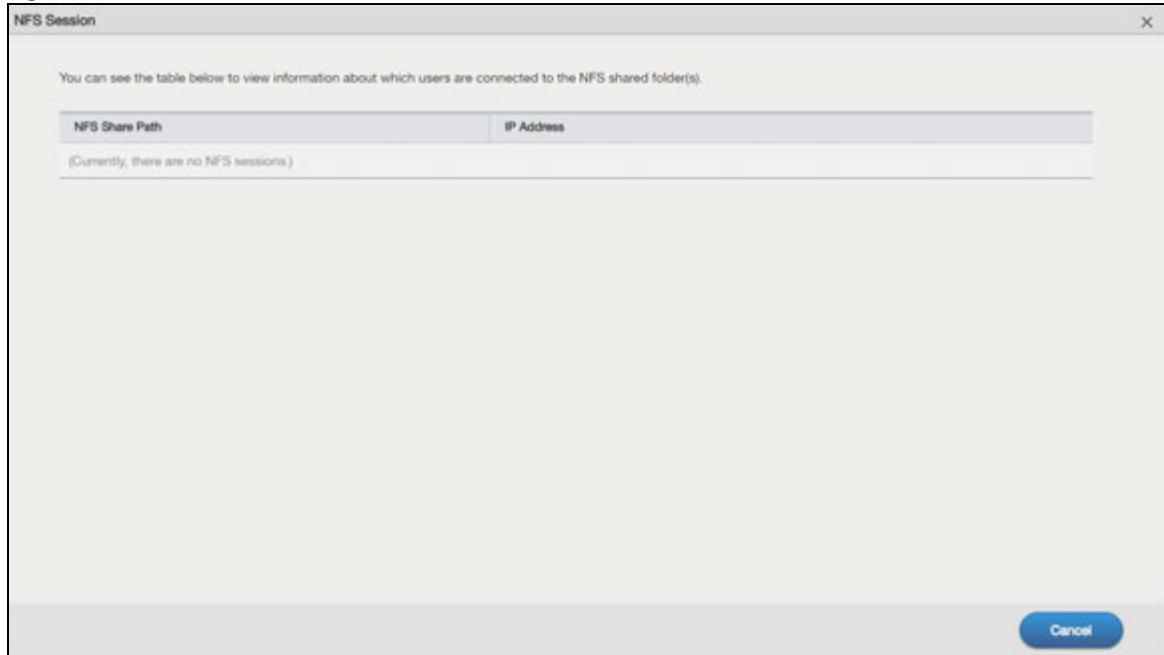
Item	Value
NFS Share Name	NFSexample
Description	nfskjafao
Volume Name	Volume1
Full Path	/i-data/a0e6c0b6/nfs/NFSexample
Read Only	*.example.com
Read/Write	

At the bottom right of the dialog are three buttons: "Back", "Apply", and "Cancel".

13.6.2 NFS Session

Use this screen to view a list of active NFS sessions. You can see which users are connected the NFS shares.

Click **NFS Session** in the **NFS** screen to open the following.

Figure 173 NFS: NFS Session

The following table describes the labels in this screen.

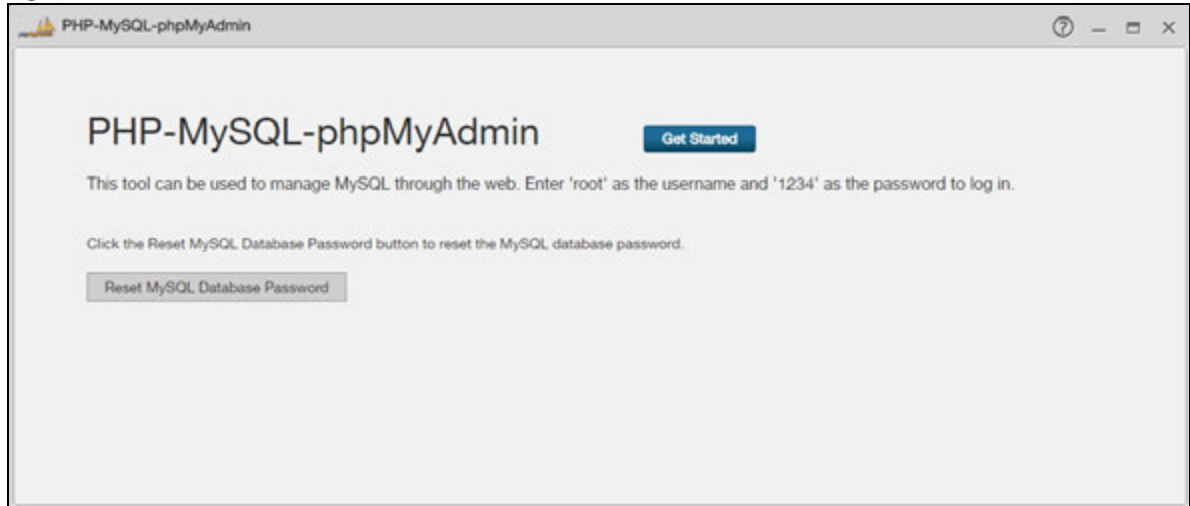
Table 124 NFS: NFS Session

LABEL	DESCRIPTION
NFS Share Path	This shows the location of the share in the NAS.
IP Address	This shows the IP address of the user accessing the NFS share.
Cancel	Click this to close the window.

13.7 PHP-MySQL-phpMyAdmin

This tool can be used to manage MySQL through the web. This includes MySQL, PHP, and phpMyAdmin. phpMyAdmin allows you to view and modify a database.

Click **PHP-MySQL-phpMyAdmin** on the **Desktop** to display the following screen.

Figure 174 PHP-MySQL-phpMyAdmin

The following table describes the labels in this screen.

Table 125 PHP-MySQL-phpMyAdmin

LABEL	DESCRIPTION
Get Started	Click this to access and log into phpMyAdmin to manage your databases. Enter 'root' as the username and '1234' as the password to log in.
Reset MySQL Database Password	If you change and forget your password, you will need to use this button. The password will be reset to "1234".

13.8 TFTP

Trivial File Transfer Protocol (TFTP) is an Internet file transfer protocol similar to FTP and often used for transmitting large numbers of small files. Use this screen to configure the NAS to accept log files from TFTP clients such as Zyxel's G-4100 v2.

Note: You may need to configure any firewalls between the NAS and the TFTP clients in order to let the log files go to the NAS.

Click **TFTP** on the Desktop or the **Launch** button in the **App Center** screen to open the following screen.

Figure 175 TFTP

The following table describes the labels in this screen.

Table 126 TFTP

LABEL	DESCRIPTION
Enable TFTP Server	Select this to have the NAS accept log files from TFTP clients. Clear it to stop the NAS from accepting log files from TFTP clients.
Upload / Download Directory Setting	Click View Files to browse to where you want to store the log files on the NAS.
Shares	Select the share in which to store the log files.
Path	<p>This field displays the share folder's path. If you want to further specify a folder within the share, click Browse to find or create a folder on the NAS.</p>
Apply	Click this to save your changes.
Reset	Click this to restore the screen's last-saved settings.

13.9 pyLoad

Use this screen to configure the NAS so you can use pyLoad to manage your downloads, including those from one-click hosting sites.

Click **pyLoad** on the Desktop or the **Launch** button in the **App Center** screen to open the following screen.

Figure 176 pyLoad

The following table describes the labels in this screen.

Table 127 Applications > pyLoad

LABEL	DESCRIPTION
Get Started	This is available only when you select Enable pyLoad and click Apply . Click this button to go to the pyLoad management login screen.
Enable pyLoad	Select this to have the NAS manage your downloads. Clear it to turn the feature off.
Username	Only the admin account can log into the pyLoad management screen.
Password	You can configure a separate password for using the admin account to access the NAS's pyLoad management screen.
Password (Confirm)	Type the same password again to make sure you entered it correctly.
Port Number	Set the pyLoad management page's port number. The range of valid port numbers is 1024~65536. Include this port number after the IP address when manually entering the pyLoad management login page's address in your browser's address bar. For example, 192.168.1.2:7272.
Apply	Click this to save your changes.
Reset	Click this to restore the screen's last-saved settings.

13.10 Memopal

Install the **Memopal** package to back up folders of files on the NAS to your Memopal online backup and storage account.

Note: Deleting files from your Memopal account's online backup set does not delete the files from the NAS, just as deleting a file from the NAS does not delete a backup copy in your Memopal account's online backup set.

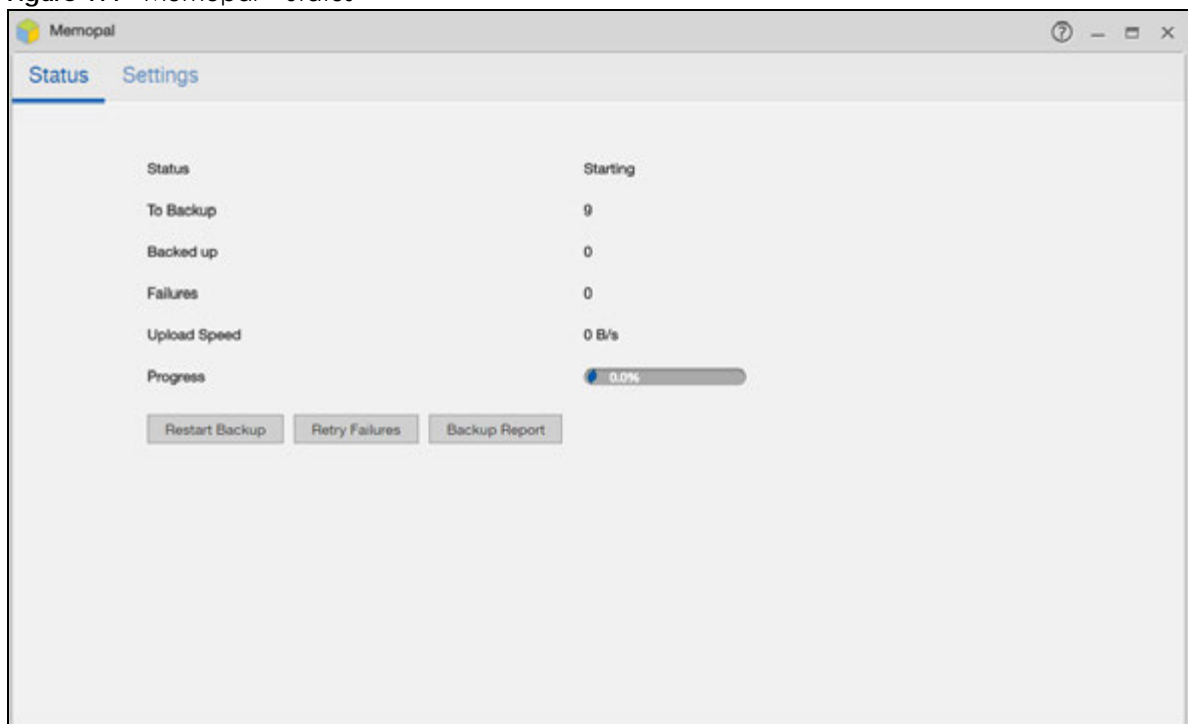
Deleting a file or a folder from your Memopal account's online backup set deletes all versions of that file from the online backup set.

Click **Memopal** on the Desktop or the **Launch** button in the **App Center** screen to open the following screen.

13.10.1 Memopal Status

Click **Memopal > Status** on the Desktop to open the following screen.

Figure 177 Memopal > Status



The following table describes the labels in this screen.

Table 128 Memopal > Status

LABEL	DESCRIPTION
Status	<p>This shows the status of the Memopal application's interaction with the Memopal server.</p> <p>Disabled: The NAS Memopal application is turned off.</p> <p>Starting: The backup job is initializing and the NAS is getting ready to back up.</p> <p>Running: The backup job is executing.</p> <p>Stopped: The backup job is stopped. This may be due to a network error, remote server error, or other issue.</p> <p>Completed: The backup job finished.</p>
To Backup	The number of files remaining to back up.
Backed up	The number of files backed up already.
Failures	The number of files the NAS failed to back up to the Memopal server.
Upload Speed	This is how fast in Bytes per second the NAS is backing up to the Memopal server.
Progress	This shows the percentage of the files already backed up from the total files to be backed up.
Restart Backup	<p>This button is available only when you enable Memopal in the Memopal > Settings screen.</p> <p>Click this to re-scan all files and perform a backup.</p>
Retry Failures	<p>This button is available only when you enable Memopal in the Memopal > Settings screen.</p> <p>Click this to only re-scan and back up files the NAS failed to back up.</p>
Backup Report	<p>This button is available only when you enable Memopal in the Memopal > Settings screen.</p> <p>Click this to display backup record details.</p>

13.10.2 Memopal Settings

Use this screen to enable and configure Memopal backup settings. Click **Memopal > Settings** on the Desktop to open the following screen.

Figure 178 Memopal > Settings

The following table describes the labels in this screen.

Table 129 Memopal > Settings

LABEL	DESCRIPTION
Enable Memopal	Select this to back up files to your Memopal account. The rest of the configuration fields display.
Email	Enter the email address you use for your Memopal account.
Password	Enter the password for your Memopal account.
Limit File Size	Select this and enter a number of MegaBytes if you want to restrict the size of files the NAS uploads to the Memopal account. You have to enter your password again if you select this.
Enable Schedule	Select this to set when the Memopal backups occur. You have to enter your password again if you select this. Clear this to have the NAS back up files in the selected folders to your Memopal account in real-time whenever you add or modify the files.
Weekly	Select this to perform a Memopal backup on a weekly basis. The NAS performs the backup job every Sunday at 2:00 AM and continues until the job finishes.
Daily	Select this to perform a Memopal backup every day. The NAS performs the backup job every day at 2:00 AM. Use hours to specify for up to how many hours the NAS can perform a Memopal backup. Enter 0 in hours to have the NAS continue the backup job until it finishes (no time limit).
Hourly	Select this to perform a Memopal backup every hour. Use minutes to specify for up to how many minutes the NAS can perform a Memopal backup. Enter 0 in minutes to have the NAS continue the backup job until it finishes (no time limit).
Add	Click Add to add a folder to the list of folders the NAS Memopal application backs up to the Memopal server.
Share Name	This is the name of the share containing a folder the NAS Memopal application backs up to the Memopal server. Select the share containing the folder to back up to the Memopal server.

Table 129 Memopal > Settings (continued)

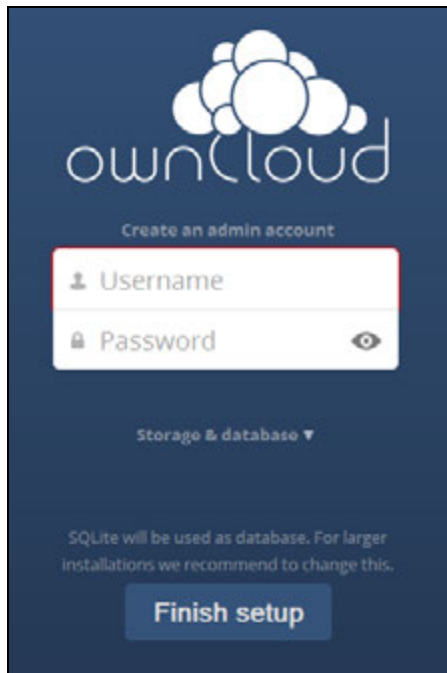
LABEL	DESCRIPTION
Path	<p>This field displays the share folder's path.</p> <p>Identify the folder to back up to the Memopal server.</p> <p>Use Browse to find or create a folder on the NAS or type the location of the folder using forward slashes as branch separators.</p>
Action	Click the Delete icon to remove the folder from the list of folders the NAS Memopal application backs up to the Memopal server.
Apply	Click this to save your changes.
Reset	Click this to restore the screen's last-saved settings.

13.11 ownCloud

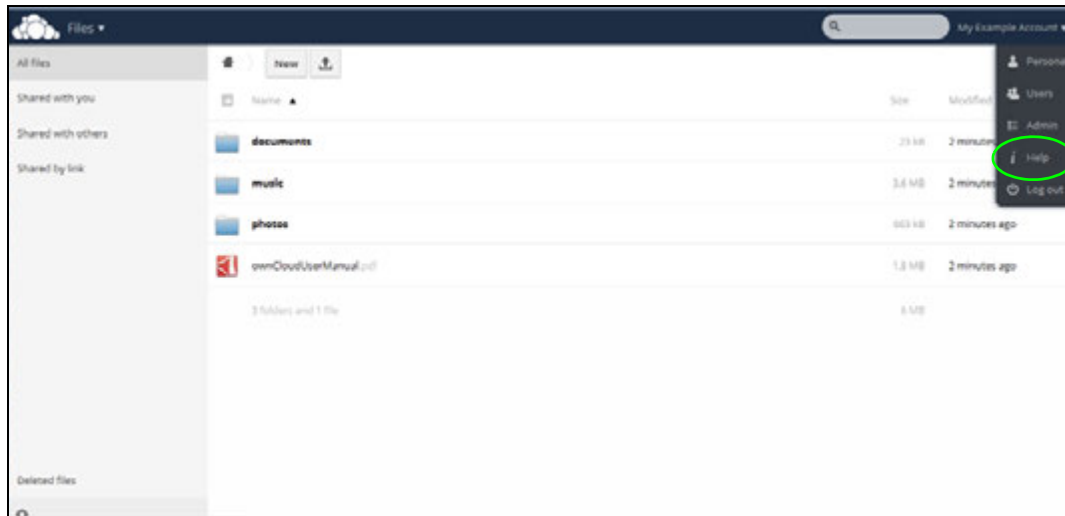
Install the ownCloud package to store, synchronize, and share files, photos, calendars, and more with computers and mobile devices.

Refer to the applications' own documentation for further information.

- 1 Click **ownCloud** on the Desktop or the **Launch** button in the **App Center** screen.
- 2 The ownCloud login screen appears. Create an administrator user name and password and click **Finish Setup**.



- 3 The main ownCloud screen displays. Use this web interface to manage files on the NAS ownCloud server. Click your user name in the upper-right corner to see the help for more information on using ownCloud.



Note: Get ownCloud desktop clients from owncloud.org and ownCloud mobile apps from Google Play or the Apple App Store.

CHAPTER 14

Download Service

14.1 Overview

This chapter discusses the features in the **Download Service** screens. Use the **Download Service** screen to download files from the Internet.

14.2 What You Need to Know

Download Service

The NAS's download service downloads files from the Internet directly to the NAS. You do not have to download to your computer and then copy to the NAS. This can free up your computer's system resources.

The NAS can download using these protocols.

- HTTP: The standard protocol for web pages.
- FTP: A standard Internet file transfer service.
- P2P download: Peer-to-peer files sharing protocol.

RSS

RSS (Really Simple Syndication) is a format for delivering frequently updated digital content. A channel uses a feed to deliver its contents (items). Subscribe the NAS to a feed to be able to download the contents.

14.3 Download Service Screen

The **Download Service** screen allows you to download files from the Internet.

Click **Download Service > Download Service** to open the following screen. Use this screen to manage the NAS's file downloads. The screen varies depending on the type of downloads you select.

Note: By default, the NAS saves downloads in the **admin** share's **download** folder.

Figure 179 Download Service > Download Service



The following table describes the labels in this screen.

Table 130 Download Service > Download Service

LABEL	DESCRIPTION
Enable Download Service	Use this option to turn the download service off or on. If you turn off the service, all downloads are paused. Files currently downloading are queued. Turning on the download service resumes downloads (or restarts them if they are not able to resume).
Add	After you find a file to download, copy the file's URL. Then log into the NAS web configurator and go to the Download Service screen and click this button. A screen opens where you create a new download task. You can paste the file's URL or use a P2P download file. See Section 14.3.1 on page 232 .
Preferences	Click this to open a screen where you can set the default location for saving downloads and configure your P2P download settings. See Section 14.3.2 on page 233 .
Refresh	Click this to update the information displayed on the screen.
Select Files	A single P2P download torrent file is often for multiple files. If you do not need all of the files the torrent file specifies, click this to select which files to download.
Delete	<p>To delete download tasks (or manually clear out completed download tasks), select a download task and click this to remove it from the list. A pop-up screen asks you to confirm. Click Apply to delete or Cancel to quit. When you delete a download task, you are given the option to delete the associated files. Selecting this option deletes a downloaded file and in the case of a P2P download task, also deletes the related .torrent file.</p> <p>Use your keyboard's [SHIFT] key to select a range of download tasks. Use the [CTRL] key and click individual download tasks to select multiple individual download tasks.</p>
Pause	<p>Select a downloading item and click this to temporarily stop the download. Paused downloads appear in the Download Service screen.</p> <p>Use your keyboard's [SHIFT] key to select a range of download tasks. Use the [CTRL] key and click individual download tasks to select multiple individual download tasks.</p>
Resume	<p>Select a paused item and click this to continue downloading the file.</p> <p>Select a completed item and click this to re-seed a P2P file or download a file again. If you want to re-seed a P2P task, keep the P2P file and the completed file in their original locations.</p>
Task Info	Select an item on the list and click this to display information about the download task. See Section 14.3.7 on page 239 for more details.
Select the type from the drop-down list box to list your downloads.	
Active	<p>Select this to see the list of files the NAS is currently downloading or sharing with other P2P users. The NAS handles a maximum of 10 active tasks at a time (or fewer depending on how much of the NAS's system memory is available). If you add more, they appear in the screen for the Inactive downloads type.</p> <p>P2P downloads may appear in the screen for a while when you select Inactive from the downloads type list. The NAS automatically moves completed tasks to the screen for the Completed type.</p>
Inactive	Select this to see the list of files that are queued (waiting in line) for the NAS to download or the downloads that have been manually paused.

Table 130 Download Service > Download Service (continued)







LABEL	DESCRIPTION
Completed	Click this to see the list of files that the NAS has finished downloading. The Location column shows where a downloaded file is saved on the NAS. Click on the location link to open the share browser and access the file.
Error	Click this to see the list of files that the NAS was not able to download. The NAS automatically retries unsuccessful download attempts. The download displays in the error tab when the re-attempts are also unsuccessful and the NAS stops trying to download the file. To try the download again, use the Add button to create a new download task.
Status	<p>Completed : The NAS has downloaded the whole file.</p> <p>Seeding : The download is finished and the NAS is allowing other P2P users to download it.</p> <p>Downloading : The NAS is getting the file.</p> <p>Queued : The download is waiting in line for the NAS to download it.</p> <p>Pause : The download has been manually stopped. Select it and click Resume to continue it.</p> <p>Error : The NAS was not able to complete the download. Select it and click Resume to reattempt the download.</p>
Name	This identifies the download file. A "..." indicates an abbreviated name. Hold your cursor over the name to display the full name.
Complete (%)	This is the percentage of the file that the NAS has downloaded.
Location	This appears in the screen for the Completed type. It displays the path for where the file is saved. Click on the location link to open the share browser and access the file.
Seeds	Seeds apply to P2P downloads. This is the number of computers that are sharing the complete file that you are downloading. This value is in the format "Leeches(Seeds)" where Leeches refer to peers that do not have a complete copy of the file yet and are still downloading; Seeds refer to peers that have the complete file.
Peers	Peers apply to P2P downloads. This is the number of other computers that are also downloading (and sharing) the file you are downloading. This value is in the format "ConnectedPeers(AllPeers)[Health]" where Connected Peers is the number of computers to which the NAS is connected in order to download the file; AllPeers refer to the total number of computers to which the NAS can connect in order to download the file; Health indicates the availability of the file.
Download Speed	This is how fast the NAS is getting the file. It is normal for a P2P download to start out with a slow download speed since it has to set up numerous connections. The speed should increase as the download progresses and decrease near the end of the download.
Upload Speed	This is how fast the NAS is sending the file to other P2P users.
Time Left	This is how much longer (in hours, minutes, and seconds) it should take to finish the download at the current download speed.

Table 130 Download Service > Download Service (continued)

LABEL	DESCRIPTION
Priority	This is the download priority on the NAS. Select Auto to have the NAS automatically determine the task's priority. Select High to have the NAS download this file before the other files. You can set a download to high priority to have the NAS try to download it before the other files. However the actual download speed depends more on factors like the speed of you Internet connection, the speed of the download source's Internet connection, how many others are trying to download at the same time, the peers and seeds available and general network conditions.
Error Message	This appears in the screen for the Error type. This message states what went wrong with the download.

14.3.1 Add a Download Task

Click **Download Service > Download Service > Add** to open the following screen. Use this screen to specify a file for the NAS to download.

Figure 180 Download Service > Download Service > Add

Add Download Task From URL

Source

☒ URL

☐ Torrent File Browse

Location of Downloaded Files	Share	Path
Put incomplete downloads in	admin	/download
Move completed downloads to	admin	/download

1. P2P download jobs are stored in /admin/download/incoming.
 2. HTTP/FTP jobs are stored in /admin/download.
 3. All jobs triggered by RSS channels create the subfolder in /admin/download using the channel name where it store all files downloaded from that channel.

Do not use the NAS for illegal downloads. Illegal downloading or sharing of files can result in severe civil and criminal penalties. You are subject to the restrictions of copyright laws and any other applicable laws and will bear the consequences of any infringements thereof. ZyXEL takes NO responsibility or liability for your use of the download service feature.

Apply Cancel

The following table describes the labels in this screen.

Table 131 Download Service > Download Service > Add

LABEL	DESCRIPTION
URL	<p>Paste the URL or magnet link of the file you want to download into this field. The URL can be for an HTTP, FTP, or P2P download. A magnet link is for a P2P download.</p> <p>For a P2P download using a magnet link the NAS automatically downloads the file related to the magnet link.</p> <p>For a P2P download using a .torrent file, you can copy and paste the URL of the .torrent file. The NAS will automatically download the .torrent file and use it. You do not have to manually download the .torrent file or save it to your computer.</p> <p>Note: Make sure the link opens either the file you want or a pop-up window about how to handle the file.</p> <p>It is also OK for the link to open a .torrent file. If you are redirected to a screen that says the download should start in a few seconds, there may be a link to click if the download does not start automatically. See if that link opens the file or the pop-up window.</p>
Torrent File	<p>A "torrent" file has information the NAS uses to do a P2P download. A torrent file uses a .torrent extension. If you already have a torrent file saved on your computer, select the Torrent File option and specify its path or click Browse and look for its location.</p>
Location of Downloaded Files	<p>This shows where the NAS stores new downloads (Put incomplete downloads in) and where the NAS moves completed downloads (Move completed downloads to).</p> <p>The Share column shows the name of the share where the file is downloaded.</p> <p>The Path column points to the location in the share where the NAS will save the downloaded files.</p> <ul style="list-style-type: none"> • P2P download jobs are stored in /*/incoming (where '*' is a folder that you have set.) • HTTP/FTP jobs are stored in /* (where '*' is a folder that you have set.) • All jobs triggered by RSS channels create the subfolder in /* using the channel name where it stores all files downloaded from that channel (where '*' is a folder that you have set.)
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

14.3.2 Configure General Download Settings

Click **Download Service > Download Service > Preferences** to open the following screen. Use this screen to set the default location for saving downloads and configure the download period.

Figure 181 Download Service > Download Service > Preferences > General Settings

Preferences

General Settings P2P download IP Filter Email notifications

Put incomplete downloads in

Share admin

Path /download Browse

Move completed downloads to

Share admin

Path /download Browse

1. P2P download jobs are stored in /admin/download/incoming.
2. HTTP/FTP jobs are stored in /admin/download.
3. All jobs triggered by RSS channels create the subfolder in /admin/download using the channel name where it store all files downloaded from that channel.

Download Period Control

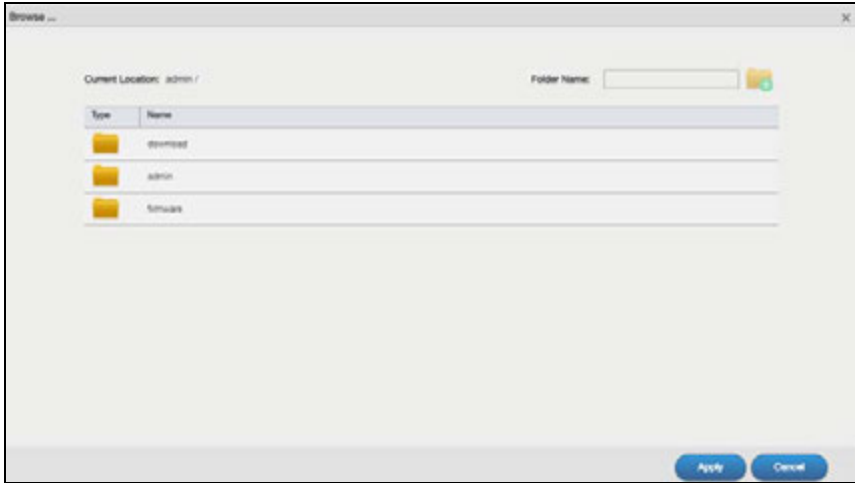

☐ Enable Download Period Control ⓘ

00 : 00 - 00 : 00

Apply Reset Cancel

The following table describes the labels in this screen.

Table 132 Download Service > Download Service > Preferences > General Settings

LABEL	DESCRIPTION
Put incomplete downloads in/ Move completed downloads to	<p>Set the default folder location where you “Put incomplete downloads in” and “Move complete downloads to”:</p> <ul style="list-style-type: none"> • Share - Select the share from the list. • Path - Type the folder location in the share directly or click Browse to open the following screen and navigate to the file's location.  <ul style="list-style-type: none"> • Current Location - This is the location of the selected folder. • Folder Name - Enter a new folder name and click  to create it. • Type - This identifies the item as a file or folder. • Name - This is the name of the folder/file. <p>Select a folder. If you don't select a folder, a forward slash (/) displays in the Path field. All contents within the specified share are automatically selected.</p> <p>Click Apply to save your settings and Cancel to close the screen. P2P download jobs are stored in /*/incoming (where '*' is a folder that you have set.)</p> <ul style="list-style-type: none"> • HTTP/FTP jobs are stored in /* (where '*' is a folder that you have set.) • All jobs triggered by RSS channels create the subfolder in /* using the channel name where it store all files downloaded from that channel (where '*' is a folder that you have set.)
Download Period Control	This feature sets the NAS to download files only within a specified time period.
Enable Download Period Control	<p>Use the check box to turn the download period control on or off.</p> <p>Specify the time period for the NAS to download files.</p> <p>Note: If you also configured the Power On/Off Schedule feature in the Control Panel > Maintenance > Power > Power Management screen, make sure your active download period does not conflict with the power-off period.</p>
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.
Cancel	Click this to return to the previous screen without saving.

14.3.3 Configure the P2P Download Settings

Click **Download Service > Download Service > Preferences > P2P download** to open the following screen. Use this screen to configure P2P download settings.

Figure 182 Download Service > Download Service > Preferences > P2P download

Preferences

General Settings **P2P download** IP Filter Email notifications

Port Number

DHT ☒ Enable ☐ Disable

Note: For Distributed Hash Table (DHT) support, the P2P download service will also attempt to open the following UDP port: 9089

Max. Download Rate KB/s

Max. Upload Rate KB/s

Maximum Number of Active Torrents

Maximum Number of Seeding Jobs

Maximum Number of Active Connections

Keep Sharing While

☐ Upload/Download Ratio is %

☒ Or Seeding Time is minutes

Apply Reset Cancel

The following table describes the labels in this screen.

Table 133 Download Service > Download Service > Preferences > P2P download

LABEL	DESCRIPTION
Port Number	Assign a port number for P2P downloads. You can select a number from 2 to 65536. It is recommended to use a port number greater than 1025.
DHT	Select Enable or Disable to use Distributed Hash Table (DHT) or not. Note: When you use DHT, the NAS will also attempt to open a UDP port one number smaller than the P2P download port number. So if the P2P download port number is 9090, the NAS uses UDP port 9089.
Max. download rate	You may need to limit the bandwidth the NAS uses for P2P downloads if your network's other Internet applications are not getting enough downstream bandwidth. 0 has the NAS impose no restriction.
Max. upload rate	You may need to limit the bandwidth the NAS uses to share files through P2P download if your network's other Internet applications are not getting enough upstream bandwidth. 0 has the NAS impose no restriction. If you do not allow any uploads, (for example, you set a limit of 1 KB/s) you will not have a good standing in the P2P download community. Note: The settings for maximum download/upload rates would not affect peers accessing the NAS from the same LAN.
Maximum Number of Active Torrents	Specify how many simultaneous P2P downloads are allowed on the NAS. You can enter a number from 1 to 10.
Maximum Number of Seeding Jobs	Specify how many simultaneous seeds are allowed on the NAS. Enter a number from 1 to 10. This value cannot exceed the one you configured in the Maximum Number of Active Torrents field.
Maximum Number of Active Connections	Specify how many active connections are allowed on the NAS. Enter a number from 1 to 500. This specifies the number of computers that can connect to the NAS to download files being shared by the NAS.

Table 133 Download Service > Download Service > Preferences > P2P download (continued)

LABEL	DESCRIPTION
Keep Sharing While	<p>With P2P download, the NAS starts sharing a file while you are downloading it. Set how long to continue sharing a file after the NAS finishes the download.</p> <p>Select Upload/Download Ratio to keep sharing a file until the NAS has uploaded a specific percent compared to the download.</p> <p>Select Seeding Time to keep sharing a file for a specific number of minutes after the download finishes.</p> <p>Continuing to share a file helps other P2P download users finish downloading it. Sharing out at least as much as you download helps keep you in good standing in the P2P download community.</p> <p>Enter -1 to share a file indefinitely. Leave both check boxes blank to have the NAS stop sharing the file as soon as the download finishes.</p> <p>If you select both options, the NAS keeps sharing a file until both conditions exceed the values you configure. For example, you entered 150% in the Upload/Download Ratio field and 120 minutes in the Seeding Time field. The NAS keeps sharing a file until it has shared 1.5 times the size of the file and has passed 120 minutes.</p>
Apply	Click this to save your changes.
Reset	Click this to restore your previously saved settings.
Cancel	Click this to return to the previous screen without saving.

14.3.4 Configure the IP Filter Settings

Use this screen to enable or disable IP filtering for P2P downloads. IP filtering blocks IP addresses known to share fake files. You can either get an IP filter table from a website or use your own table.

Click **Download Service > Download Service > Preferences > IP Filter** to open the following screen.

Figure 183 Download Service > Download Service > Preferences > IP Filter

The screenshot shows the 'IP Filter' settings page within the 'Preferences' window. The page has tabs for 'General Settings', 'P2P download', 'IP Filter' (selected), and 'Email notifications'. The 'Enable IP Filter' checkbox is checked, with a note '(Last Update Time: N/A)'. Below this, there are two radio button options: 'Update IP Filter Table File from the Internet Every Week' (selected) and 'Upload IP Filter Table'. The 'Update IP Filter Table File from the Internet Every Week' option has a 'URL' text input field next to it. The 'Upload IP Filter Table' option has a file selection input field with 'Browse' and 'Upload' buttons. At the bottom, it says 'Current IP Filter Table: Not Found' and 'New settings will take effect after applying'. There are 'Apply', 'Reset', and 'Cancel' buttons at the bottom right.

The following table describes the labels in this screen.

Table 134 Download Service > Download Service > Preferences > IP Filter

LABEL	DESCRIPTION
Enable IP Filter	Click this to enable or disable IP filtering for P2P downloads.
Update IP Filter Table File from the Internet Every Week	Select this option and enter a URL to use an online IP filter table. You can find an online IP filter table in websites such as http://www.bluetack.co.uk/config/level1.gz . When you change the URL of the online IP filter table, the NAS also performs an update after you click Apply .
Upload IP Filter Table	Select this option to upload your own IP filter table. Use the Browse button to locate the file and click Upload to save it on the NAS. The NAS supports .txt, .dat, .gz, .tgz, and .tar.gz file extensions. The NAS saves the IP filter table as <code>/admin/download/ipfilter.dat</code> .
Current IP Filter Table	If there is an online IP filter table, it will display Exist in this field. Click Download to save a copy of the IP filter table on your computer.
Apply	Click Apply to update the IP filter table from the specified URL.
Reset	Click this to restore your previously saved settings.
Cancel	Click this to return to the previous screen without saving.

14.3.5 Configure the Email notifications Settings

Select whether or not to send emails to the email address configured for emailing log reports (see [Section 11.4.2 on page 176](#)) when the NAS starts downloading the file, seeding the file, and/or finishes downloading the file.

Click **Download Service > Download Service > Preferences > Email notifications** to open the following screen.

Figure 184 Download Service > Download Service > Preferences > Email notifications

The screenshot shows the 'Email notifications' tab in the 'Preferences' window. It contains three settings, each with an 'Enable' radio button and a selected 'Disable' radio button:

- Send an email notice when download starts
- Send an email notice when seeding starts
- Send an email notice when download finishes

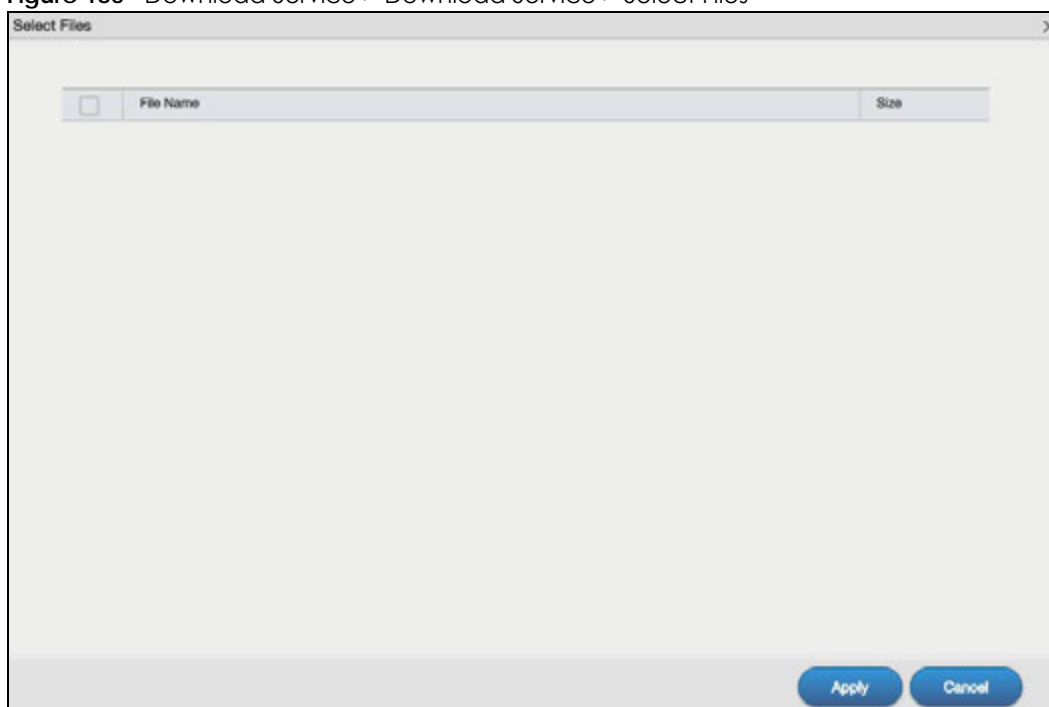
At the bottom, there is a blue information icon and a message: "Please go to 'Control Panel > Maintenance > Log > Report Config' to configure email settings." At the very bottom right, there are three buttons: 'Apply', 'Reset', and 'Cancel'.

Click **Apply** to save your changes. Click **Reset** to restore your previously saved settings. Click **Cancel** to return to the previous screen without saving.

14.3.6 Select Files to Download

Select an item in the **Download Service > Download Service** screen's list and click **Select Files** to open the following screen. Use this screen to select which of the torrent's files to download.

Figure 185 Download Service > Download Service > Select Files



The following table describes the labels in this screen.

Table 135 Download Service > Download Service > Select Files

LABEL	DESCRIPTION
Select Files	
File Name	This is the name of a file specified in the torrent file. Select the check boxes of the files you want to download.
Size	This is the size of the file to be downloaded.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

14.3.7 Display the Task Information

Select an item on the list and click **Task Info**. Use this screen to check detailed information about the task.

Figure 186 Download Service > Download Service > Task Info

Item	Value
Status	Completed
Name	20160217_da_nbg6816_tw_v1.pdf
Size	2667613
Uploaded/Downloaded Ratio	0 (0.00 Bytes/2.54 MB)
Complete(%)	100.00 %
Seeds	--
Peers	--
Download Speed	--
Upload Speed	--
Health	0.000000
Time Left	--
Priority	auto
Comment	
Start Time	N/A
Completed On	N/A
Info-Hash	--
Tracker	--

The following table describes the labels in this screen.

Table 136 Download Service > Download Service > Task Info

LABEL	DESCRIPTION
Status	This is the current status of the task.
Name	This is the name of the task.
Size	This is the size of the file to be downloaded.
Uploaded/ Downloaded Ratio	This is the ratio of total uploaded data to downloaded data.
Complete(%)	This field displays how much has been downloaded to the NAS.
Seeds	This is the number of computers that are sharing the complete file that you are downloading.
Peers	This is the number of other computers that are also downloading (and sharing) the file you are downloading.
Download Speed	This field displays how fast the NAS downloads the file.
Upload Speed	This field displays how fast the NAS uploads the file.

Table 136 Download Service > Download Service > Task Info (continued)

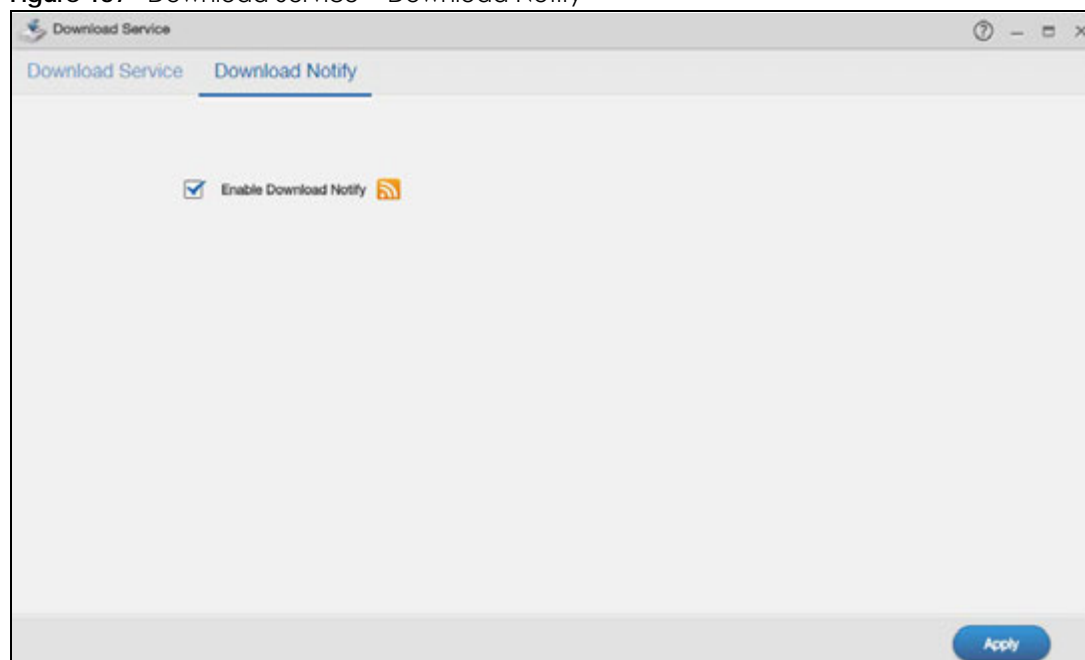
LABEL	DESCRIPTION
Health	This field displays how many full copies of the file are available for this task. The NAS can download a file with a higher health value more efficiently. If the health value is less than 1 (0.65 for example), there is no full copy of the file, and the NAS may not be able to complete downloading the file.
Time Left	This is the time remaining to complete the task.
Priority	This field displays the priority of the task.
Comment	This field displays the description of the task.
Start Time	This field displays when the NAS started to download files.
Completed on	This field displays when the file was successfully downloaded to the NAS.
Info-Hash	This information is used to verify the torrent file.
Tracker	This field displays the tracker that NAS is currently connected to. A tracker is a server used for finding peers sharing the file.
Close	Click this to close the screen.

14.4 Download Notify Screen

Click **Download Service > Download Notify** to open the following screen. Use this screen to keep track of downloaded files on the NAS.


Note: The download service notification only keeps track of files downloaded via P2P download.

Figure 187 Download Service > Download Notify



The following table describes the labels in this screen.

Table 137 Download Service > Download Notify

LABEL	DESCRIPTION
Enable Download Notify	Select this to keep track of downloaded files on the NAS.
	At the time of writing, the NAS supports RSS 2.0 feeds. Click this to get and subscribe to the NAS channel feed. This enables you to keep track and download the NAS's new contents (items).
Apply	Click this to save your changes.

14.5 Technical Reference

This section provides technical background information on the topics discussed in this chapter.

14.5.1 Download Service

The NAS's download service downloads files from the Internet directly to the NAS. You do not have to download to your computer and then copy to the NAS. This can free up your computer's system resources.

The NAS can download using these protocols.

- HTTP: The standard protocol for web pages.
- FTP: A standard Internet file transfer service.
- P2P download: Peer-to-peer files sharing protocol.

Note: Do not use the NAS for illegal purposes. Illegal downloading or sharing of files can result in severe civil and criminal penalties. You are subject to the restrictions of copyright laws and any other applicable laws and will bear the consequences of any infringements thereof. Zyxel bears NO responsibility or liability for your use of the download service feature.

Torrent Files

The NAS needs a ".torrent" file for P2P download to download a file. The torrent file gives the NAS information about the file to be downloaded (and shared) and the tracker(s) (computers) that coordinates the distribution of the file.

When you add a P2P download task in the NAS's web configurator screens, you can copy and paste the URL of the torrent file. The NAS automatically downloads the torrent file and saves it in a **torrent** folder within the folder where the NAS stores downloaded files (the **admin** share's **download** folder by default).

If you already have the torrent file saved on your computer, you can just specify its location when adding a download task through the web configurator. Another method is to use FTP or a CIFS program (Windows Explorer for example) to copy the torrent file into the **torrent** folder. The NAS automatically uses the torrent file.

After your P2P download and sharing are finished, you can go to the **incoming** folder within the destination share or folder and delete the .torrent file if you need to free up hard disk space.

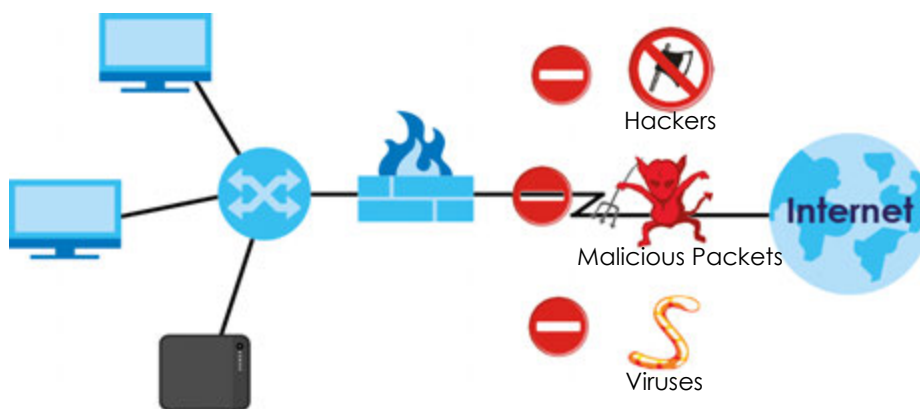
14.5.2 P2P Download Security

When you download using P2P, you reveal your IP address. This increases the risk of hacking attacks, which can be protected against by a good firewall.

Use a Hardware-based Firewall

Place a hardware-based firewall between your network and the Internet (a software-based firewall on your computer would just protect the computer itself, not the NAS since your computer is not between your NAS and the Internet).

Figure 188 Firewall



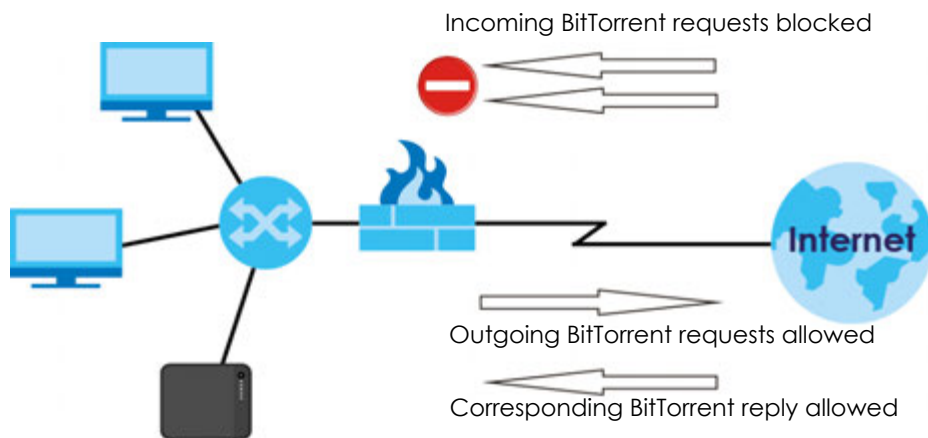
Ideally your firewall should have the following:

- Stateful packet inspection to control access between the Internet and your network and protect your NAS (and computers) from hacking attacks.
- IDP (Intrusion Detection and Prevention) to detect malicious packets within normal network traffic and take immediate action against them.
- Anti-virus to check files you download for computer viruses.

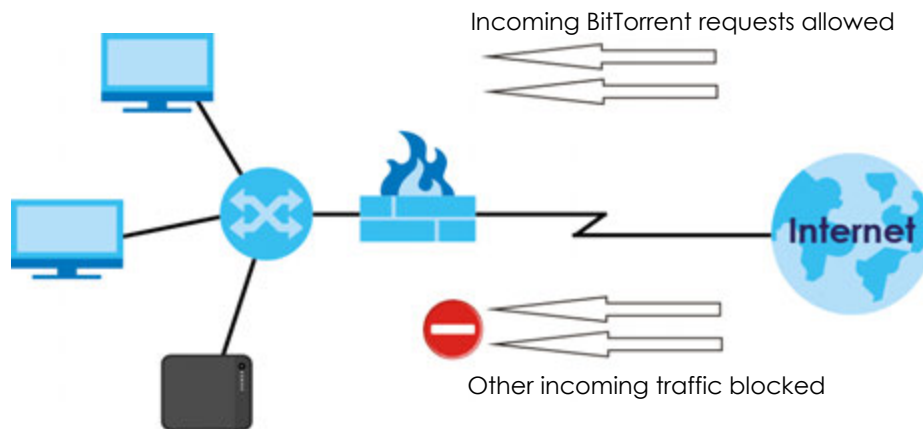
P2P Download and Your Firewall

The anti-virus feature on a firewall probably cannot check P2P downloads for viruses, so use anti-virus software on your computer to scan the NAS for viruses.

When you download using P2P download, many other P2P download users are also trying to download the file from you. The firewall slows this down because by default, it only allows traffic from the Internet in response to a request that originated on the LAN (it lets you get files from the Internet and blocks those on the Internet from getting files from you).

Figure 189 Firewall Blocking Incoming P2P Download Requests

To speed up P2P download file transfers, configure your firewall's port forwarding to send incoming TCP port 9090 and UDP port 9089 connections to the NAS. You probably need to use your firewall's HTML (web-based) configuration interface to set this up (see the firewall's manual for details). You may also have to configure a corresponding firewall rule.

Figure 190 Firewall Configured to Allow Incoming P2P Download Requests

CHAPTER 15

Upload Manager

15.1 Overview

This chapter discusses the features in the **Upload Manager** screens.

The auto upload feature uploads media files stored in the NAS to the Flickr and/or YouTube sharing websites or uploads files stored in the NAS to FTP servers. Besides web publishing and media server, auto upload is another convenient way to share media files with your friends and family.

You can link the NAS to your Flickr and/or YouTube account and select shares for the NAS to upload. The NAS uploads the media files stored in the specified shares to your Flickr and/or YouTube account. When you add new files to the specified shares, the NAS also automatically uploads the new files to your Flickr and/or YouTube account.

You can also link the NAS to the FTP server or the FTP server on another NAS and select shares or folders for the NAS to upload. The NAS uploads the files stored in the specified shares to the FTP server. When you add new files to the specified shares, the NAS also automatically uploads the new files to the FTP server.

15.2 What You Can Do

- Use the **Flickr/YouTube** screen ([Section 15.4 on page 246](#)) to upload photos and videos to your Flickr and YouTube accounts.
- Use the **FTP Uploadr** screen ([Section 15.5 on page 254](#)) to upload files to FTP servers.

15.3 What You Need to Know

FTP

File Transfer Protocol (FTP) is a file transfer service that operates on the Internet. A system running the FTP server accepts commands from a system running an FTP client. FTP is not a secure protocol. Your file transfers could be subject to snooping.

FTPES (File Transfer Protocol over Explicit TLS/SSL)

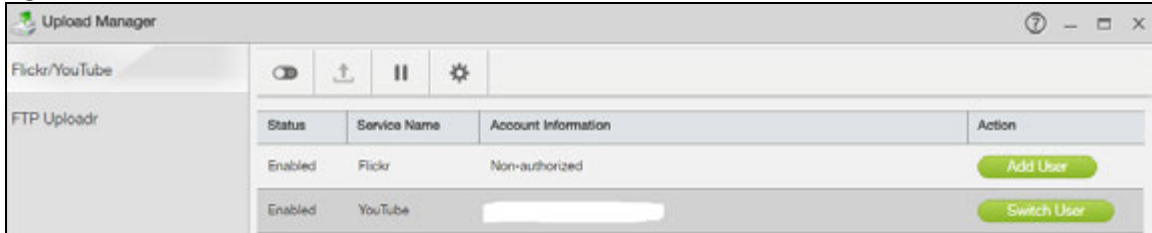
File Transfer Protocol over Explicit TLS/SSL (FTPES) is a file transfer service that uses TLS (Transport Layer Security) or Secure Socket Layer (SSL) for secure transfers across the Internet.

15.4 Flickr/YouTube Screen

Use this screen to upload photos and videos to your Flickr and YouTube accounts.

Click **Upload Manager > Flickr/YouTube** to open the following screen.

Figure 191 Upload Manager > Flickr/YouTube



The following table describes the labels in this screen.

Table 138 Upload Manager > Flickr/YouTube

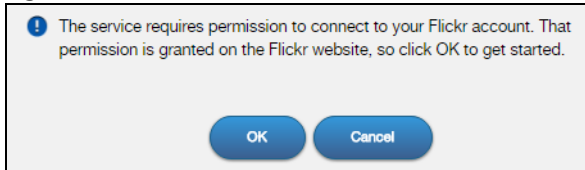
LABEL	DESCRIPTION
Flickr/YouTube	
Disable/Enable	Select a service from the list and click this to turn the service on or off. If you disable the service and add more files to the watch folder(s), the NAS will not auto upload these files. However, the NAS still uploads any files added before you turned off the service.
Resume	Select a service from the list and click this to resume the auto upload feature.
Pause	Select a service from the list and click this to pause the auto upload feature.
Config	Select a service from the list and click this to manage the service's settings.
Status	This field displays the service's status. The service may be Enabled , Disabled , Uploading or Paused .
Service Name	This field displays the name of a sharing website to which the NAS can automatically upload files.
Account Information	This field displays the username of the account to use with the auto upload feature.
Action	Click Add User to link the NAS to your Flickr and/or YouTube account. Click Switch User to use a different Flickr and/or YouTube account for the auto upload feature.

15.4.1 Configure the Flickr Settings

In the **Upload Manager > Flickr/YouTube** screen, select **Flickr** from the list and then click the **Config** button.

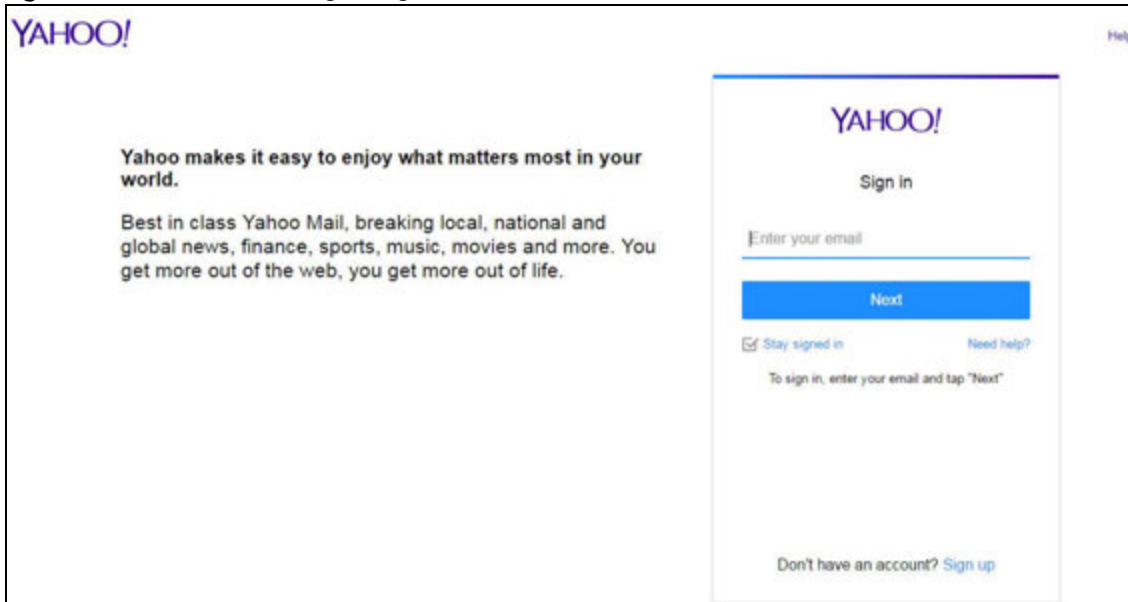
The following screen displays if you have not authorized the NAS to use a Flickr account. Click **OK** to continue the authorization process.

Figure 192 Linking NAS to Flickr



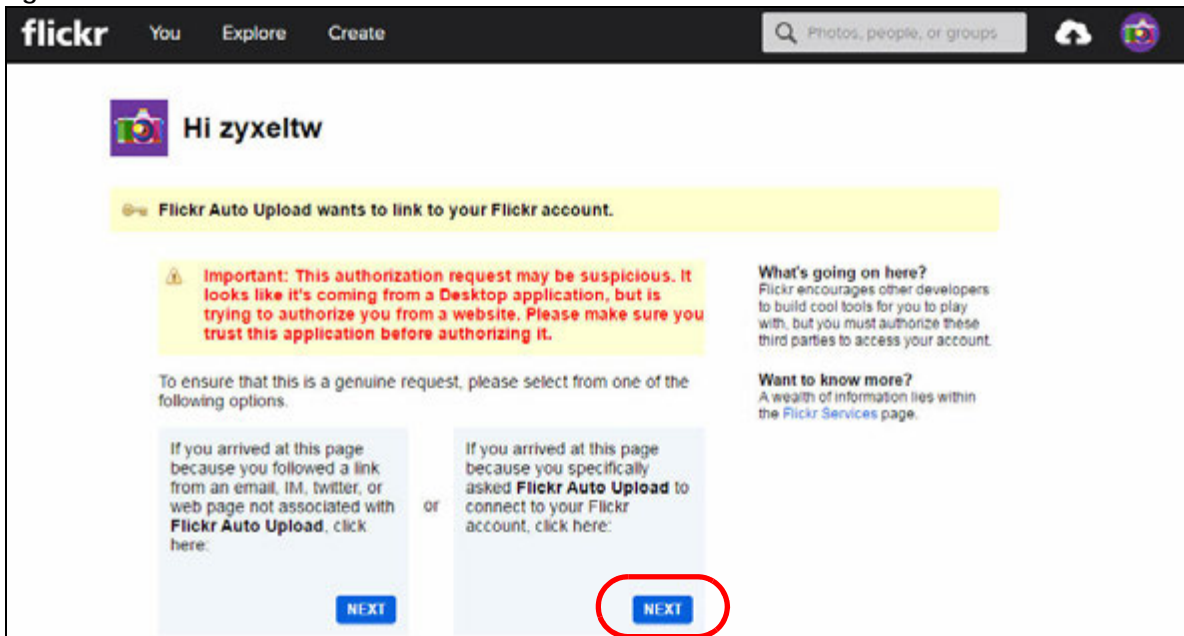
The web browser opens the Yahoo! Flickr login page. Enter your Yahoo account's information and click **Sign In**.

Figure 193 Yahoo! Flickr Login Page



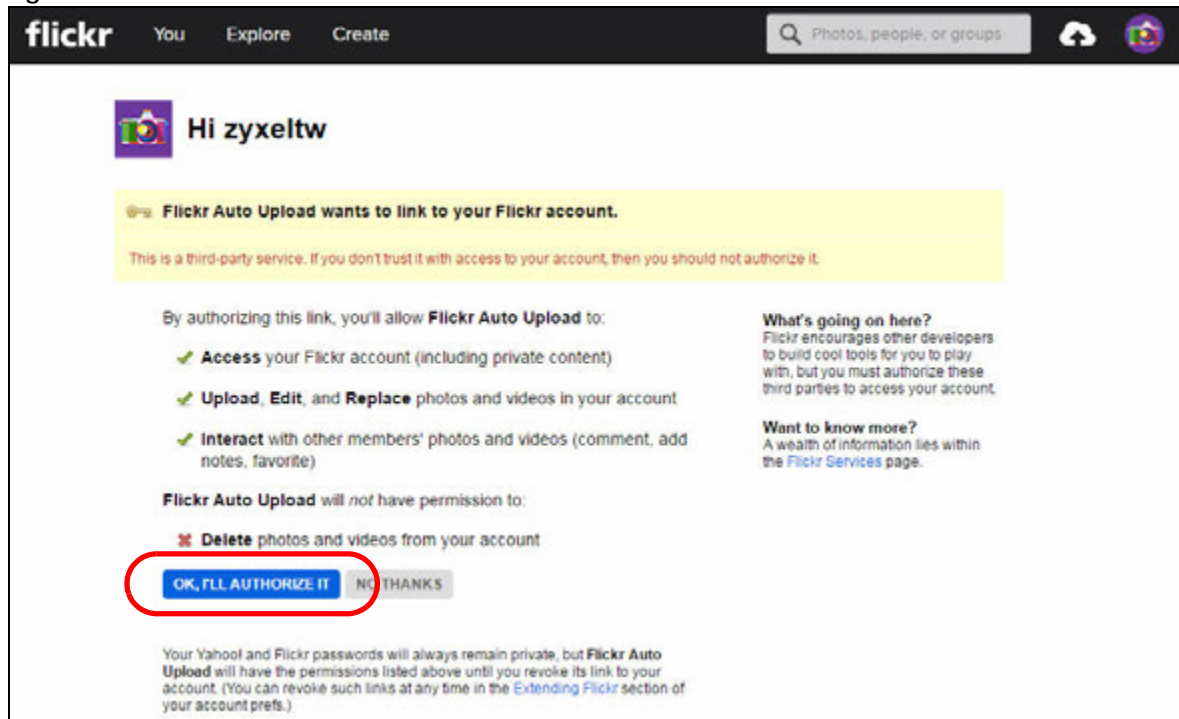
The following page displays asking for your authorization. Click **NEXT** to go to the next page.

Figure 194 Flickr Authorization



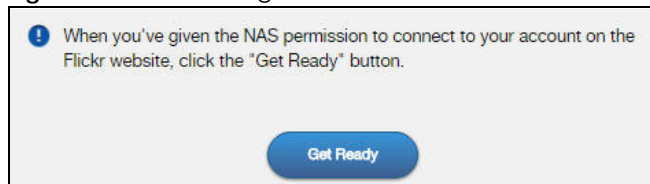
Click **OK, I'LL AUTHORIZE IT** to establish a link between the NAS and your Flickr account.

Figure 195 Flickr Authorization



A confirmation page displays indicating successful authorization. Return to the NAS web configurator. Click **Get Ready** in the following screen to complete the authorization process.

Figure 196 Confirming Flickr Authorization



Once the NAS is associated with your Flickr account, you can configure auto upload settings in the following screens.

Folder Selection

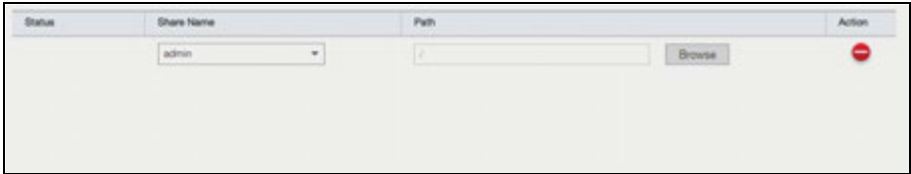
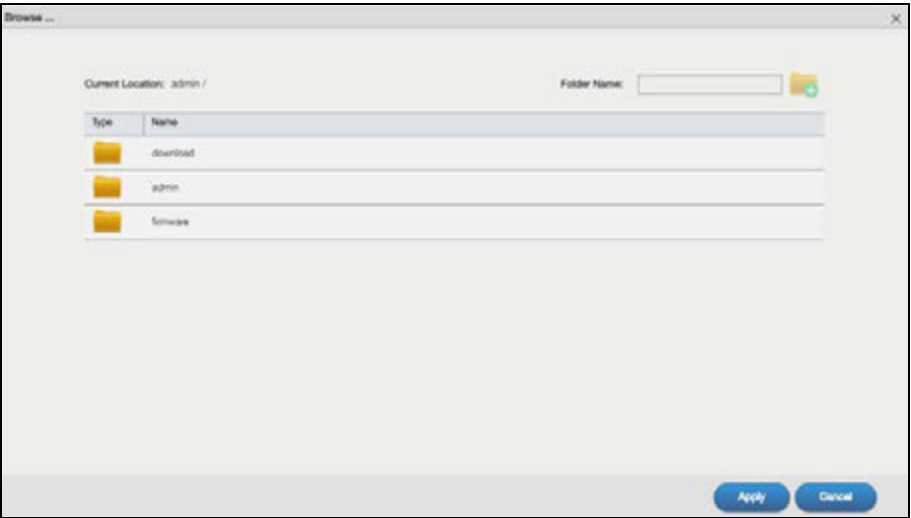



Figure 197 Upload Manager > Flickr/YouTube > Config (Flickr): Folder Selection

The screenshot shows a 'Configure' dialog box with two tabs: 'Folder Selection' (active) and 'General Settings'. Below the tabs, a text line states: 'Only the following file formats will be automatically uploaded: bmp, gif, jpeg, jpg, png, tif, tiff, 3gp, 3g2, avi, mov, mpeg, mpg, wmv, mp4'. An 'Add' button is located below this text. A table with four columns is shown: 'Status', 'Share Name', 'Path', and 'Action'. Below the table, a message reads: '(There are currently no folders on the watch list.)'. At the bottom right of the dialog are 'Apply' and 'Cancel' buttons.

Status	Share Name	Path	Action
(There are currently no folders on the watch list.)			

The following table describes the labels in this screen.

Table 139 Upload Manager > Flickr/YouTube > Config (Flickr): Folder Selection

LABEL	DESCRIPTION
Add	<p>Click this to set a folder that contains files you want the NAS to automatically upload.</p>  <ul style="list-style-type: none"> • Share Name - Select the share from the list. • Path - Type the folder location in the share directly or click Browse to open the following screen and navigate to the folder's location.  <ul style="list-style-type: none"> • Current Location - This is the location of the selected folder. • Folder Name - Enter a new folder name and click  to create it. • Type - This is the type of the folder/file. • Name - This is the name of the folder/file. <p>Select a folder. If you don't select a folder, a forward slash (/) displays in the Path field. All contents within the specified share are automatically selected.</p> <p>Click Apply to save your settings and Cancel to close the screen.</p>
Status	<p>This indicates whether the folder or share is available.</p> <ul style="list-style-type: none">  represents a valid folder. The folder is available for auto upload.  represents a missing folder. The share may be deleted from the NAS, or the hard disk was removed from the NAS.
Share Name	This is the share selected for auto upload.
Path	This is the path of a folder selected for auto upload. The NAS only uploads files stored in the specified share or folder to your Flickr account.
Action	Use the Delete icon to remove a folder from the list.
Apply	Click this to save your changes.
Cancel	Click this to restore your previously stored settings.

General Settings

Figure 198 Upload Manager > Flickr/YouTube > Config (Flickr): General Settings

The following table describes the labels in this screen.

Table 140 Upload Manager > Flickr/YouTube > Config (Flickr): General Settings

LABEL	DESCRIPTION
Grace Period N minutes	Specify how long the NAS should wait when you add a new file for auto upload. For example, if you set the grace period to 5 minutes, the NAS uploads a new file after it has been in a watched folder for 5 minutes. You can choose from a range of 1 to 10080 minutes (up to one week).
Default Privacy	
Who can see your media files on Flickr?	Determine who has the right to see files uploaded to your Flickr account. Select Only You if you do not want anyone else to see your files. You may also restrict the access to Your friends and/or Your family . You can set up a friend/family list in your Flickr account. Select Anyone to allow everyone to see your files.
Hide from public site area	Check this option to prevent others from finding your files when they perform a search in the Flickr website.
Default Safety Level	Assign a safety level to your files. Select Safe if the contents of your files are suitable for the general public. Select Moderate if the contents of your files may be offensive to some people. Select Restricted if the contents of your files are not suitable for certain people, such as children or your colleagues.
Default Content Type	Select a content type for your files. You can choose Photo/Video , Screenshots/Screencasts , or Illustration/Art/Animation/CGI .
Apply	Click this to save your changes.
Cancel	Click this to restore previously saved settings.

15.4.2 Configure the YouTube Settings

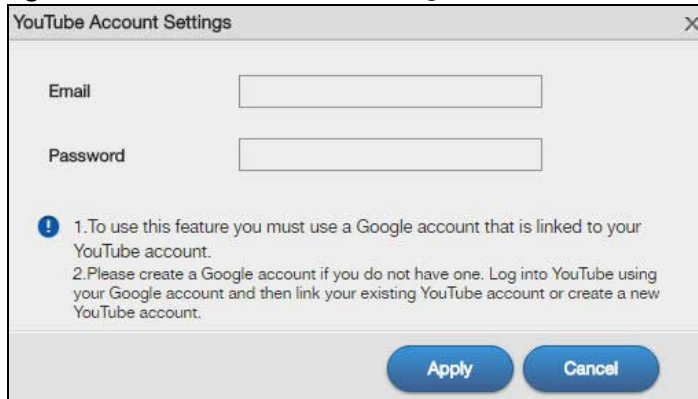
In the **Upload Manager > Flickr/YouTube** screen, select YouTube from the list and then click the **Config** button.

Note: Your YouTube account must be associated with a Google account.

Get a Google account and use it to log into YouTube. You can then merge the existing YouTube account to your Google account.

If you have not authorized a YouTube account on the NAS, the following screen displays. Enter your Google account's e-mail address and password in the fields and click **Apply** to authorize the service.

Figure 199 YouTube Account Settings

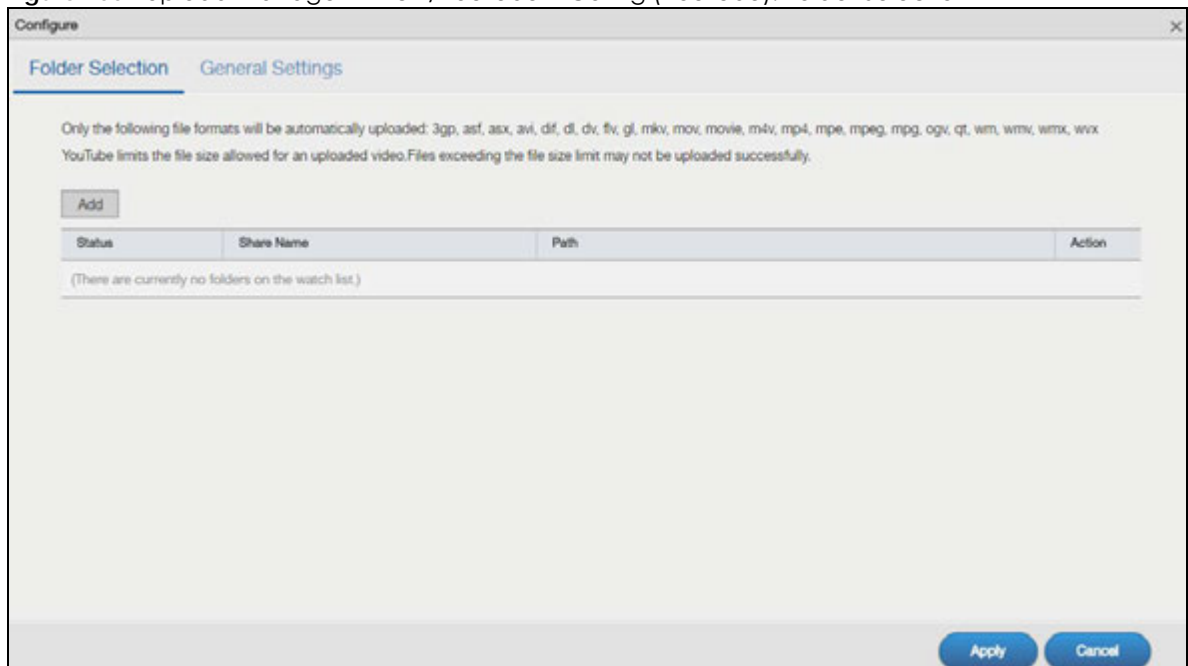


The dialog box titled "YouTube Account Settings" contains two input fields: "Email" and "Password". Below these fields is a blue information icon followed by two numbered instructions: "1. To use this feature you must use a Google account that is linked to your YouTube account." and "2. Please create a Google account if you do not have one. Log into YouTube using your Google account and then link your existing YouTube account or create a new YouTube account." At the bottom right are two buttons: "Apply" and "Cancel".

Once the NAS is associated with your YouTube account, you can configure auto upload settings in the following screens.

Folder Selection

Figure 200 Upload Manager > Flickr/YouTube > Config (YouTube): Folder Selection

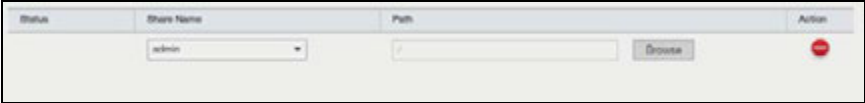
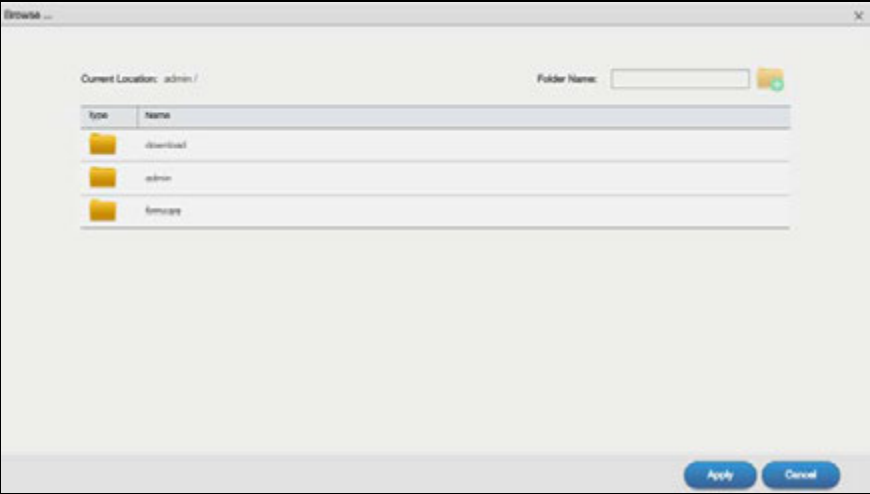





The "Configure" window has two tabs: "Folder Selection" (active) and "General Settings". Under "Folder Selection", there is a text block stating: "Only the following file formats will be automatically uploaded: 3gp, asf, asx, avi, dif, dl, dv, flv, gl, mkv, mov, movie, m4v, mp4, mpe, mpeg, mpg, ogv, qt, wim, wmm, wmx, wvx. YouTube limits the file size allowed for an uploaded video. Files exceeding the file size limit may not be uploaded successfully." Below this is an "Add" button. A table with four columns is shown: "Status", "Share Name", "Path", and "Action". The table is currently empty, with a note below it stating "(There are currently no folders on the watch list.)". At the bottom right are "Apply" and "Cancel" buttons.

Status	Share Name	Path	Action
(There are currently no folders on the watch list.)			

The following table describes the labels in this screen.

Table 141 Upload Manager > Flickr/YouTube > Config (YouTube): Folder Selection

LABEL	DESCRIPTION
Add	<p>Click this to set a folder that contains files you want the NAS to automatically upload.</p>  <ul style="list-style-type: none"> • Share Name - Select the share from the list. • Path - Type the folder location in the share directly or click Browse to open the following screen and navigate to the folder's location.  <ul style="list-style-type: none"> • Current Location - This is the location of the selected folder. • Folder Name - Enter a new folder name and click  to create it. • Type - This is the type of the folder/file. • Name - This is the name of the folder/file. <p>Select a folder. If you don't select a folder, a forward slash (/) displays in the Path field. All contents within the specified share are automatically selected.</p> <p>Click Apply to save your settings and Cancel to close the screen.</p>
Status	<p>This field indicates whether the share or folder is available.</p> <ul style="list-style-type: none">  represents a valid folder. The folder is available for auto upload.  represents a missing folder. The share may be deleted from the NAS, or the hard disk was removed from the NAS.
Share Name	This field displays the share selected for auto upload.
Path	This field displays the path of a folder selected for auto upload. The NAS only uploads the files stored in the specified share or folder to your YouTube account.
Action	Use the Delete icon to delete a folder from the list.
Apply	Click this to save your changes.
Cancel	Click this to restore your previously stored settings.

General Settings

Figure 201 Upload Manager > Flickr/YouTube > Config (YouTube): General Settings

The screenshot shows a 'Configure' window with a 'General Settings' tab. It includes a 'Grace Period' input field set to 15 minutes, a 'Video Category' section with radio buttons for various categories (Film & Animation is selected), and a 'Default Privacy' section with radio buttons for 'Only You' (selected) and 'Anyone'. 'Apply' and 'Cancel' buttons are at the bottom right.

The following table describes the labels in this screen.

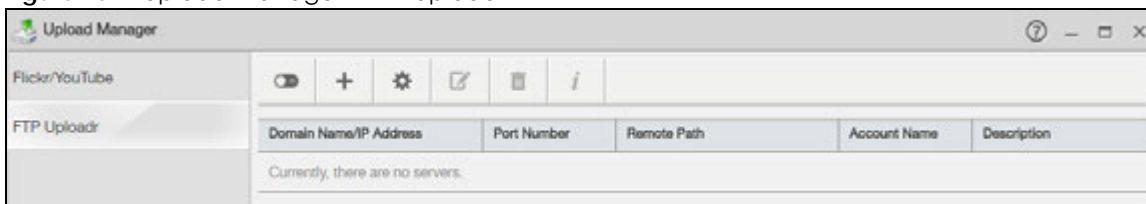
Table 142 Upload Manager > Flickr/YouTube > Config (YouTube): General Settings

LABEL	DESCRIPTION
Grace Period N minutes	Specify how long the NAS should wait when you add a new file for auto upload. For example, if you set the grace period to 5 minutes, the NAS uploads a new file after it has been in a watched folder for 5 minutes. You can choose from a range of 1 to 10080 minutes (up to one week).
Video Category	Select the category that best describes the media files you want to upload.
Default Privacy	
Who can see your media files on YouTube?	Determine who has the right to see files uploaded to your YouTube account. Select Only You if you do not want anyone else to see your files. Select Anyone to allow everyone to see your files.
Apply	Click this to save your changes.
Cancel	Click this to restore your previously stored settings.

15.5 FTP Uploadr Screen

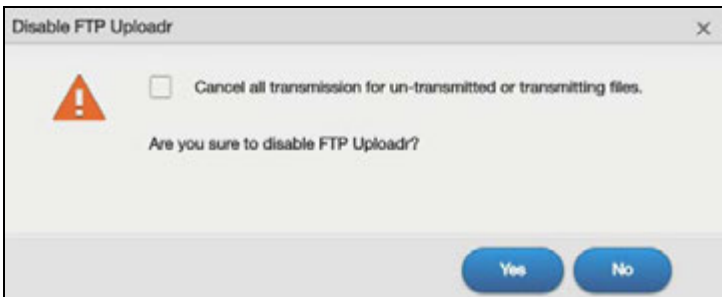
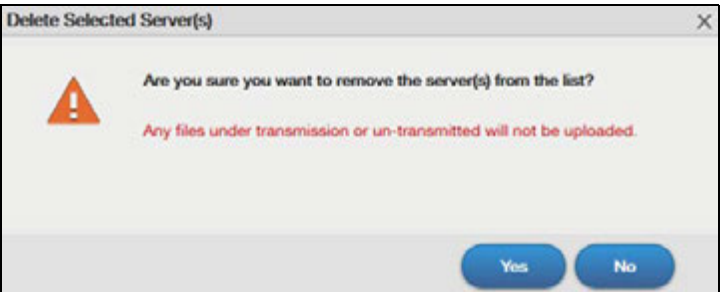
Use this screen to configure the FTP Uploadr.

Click **Upload Manager > FTP Uploadr** to open the screen shown next.

Figure 202 Upload Manager > FTP Uploadr

The following table describes the labels in this screen.

Table 143 Upload Manager > FTP Uploadr

LABEL	DESCRIPTION
Enable FTP Uploadr	<p>Click this to enable or disable the FTP Uploadr.</p> <p>When you disable the FTP Uploadr, a screen opens requesting confirmation. Select the check box to stop any current or queued uploads. If you do not select the check box, the FTP Uploadr will finish uploading the files that are already in the queue list. Clicking Yes will disable the FTP Uploadr.</p> 
Add Server	Click this to add a target FTP server entry. See Section 15.5.1 on page 256 for more details.
Preferences	Click this to manage the settings of the FTP Uploadr.
Edit Server	Select a server from the list and click this to edit the FTP server entry.
Delete Selected Server(s)	<p>Select a server from the list and click this to remove the FTP server entry.</p> 
Server Information	Select a server from the list and click this to display the status and settings about the FTP server.
Domain Name/IP Address	This is the domain name or IP address of the FTP server.
Port Number	This is the port number used by the FTP server.
Remote Path	The NAS automatically uploads files to this location of the FTP server.
Account Name	This is the login account for the FTP server.
Description	This is the information related to the FTP server.

15.5.1 Add or Edit an FTP Server Entry

Use this screen to add or edit an FTP server entry for auto upload.

In the **FTP Uploadr** screen, click the **Add Server** or **Edit Server** button to open the following screen.

Figure 203 Upload Manager > FTP Uploadr > Add or Edit a Server

The following table describes the labels in this screen.

Table 144 Upload Manager > FTP Uploadr > Add or Edit a Server

LABEL	DESCRIPTION
Domain Name/IP Address	Enter the domain name or IP address of the FTP server.
Account Name	Enter the account name used to access the FTP server.
Password	Enter the password associated with the account name.
Port Number	Enter the port number for the FTP server.
Remote Path	Enter the path of the FTP server where the NAS automatically uploads files.
Description	Enter additional information about this FTP server.
Test Connection	Click this to test your settings and check whether you can use the settings to connect to the FTP server.
Apply	Click this to save your changes.
Cancel	Click this to return to the previous screen without saving.

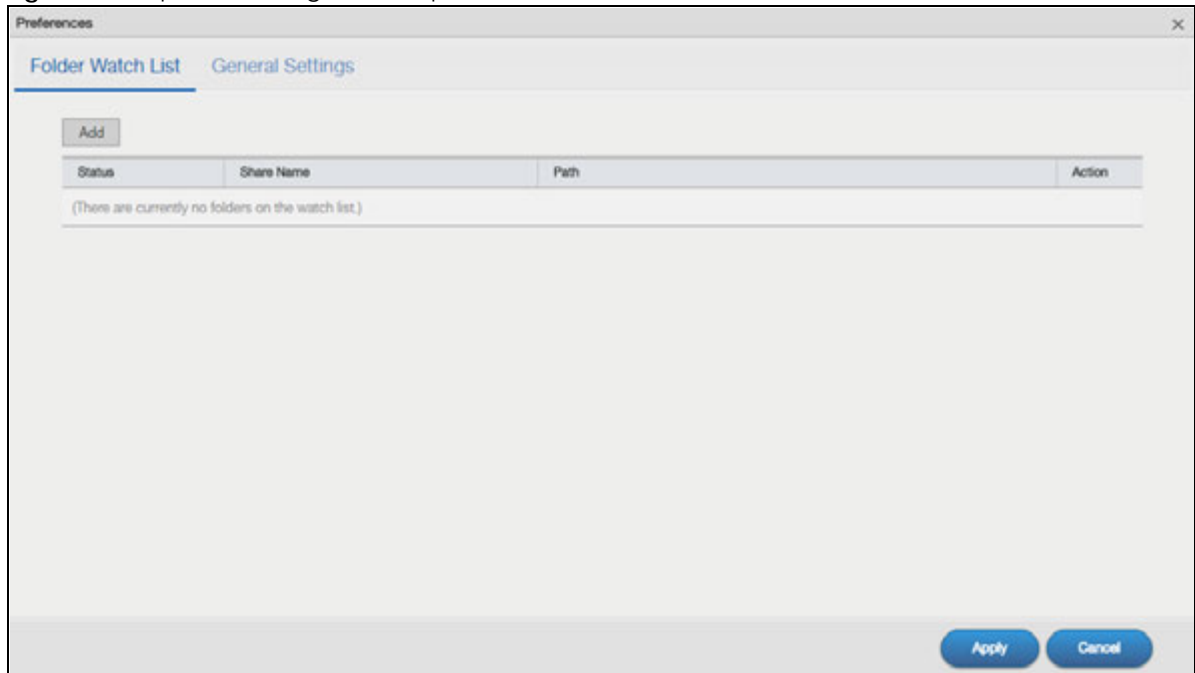
15.5.2 FTP Uploadr Preferences Screen

Use this screen to configure the general settings for the FTP Uploadr.

In the **FTP Uploadr** screen, click the **Preferences** icon to open the following screens.

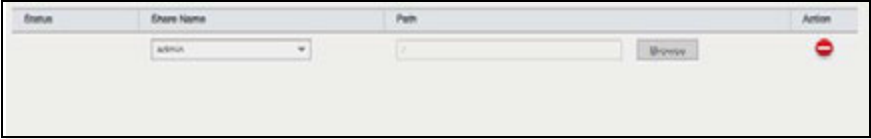
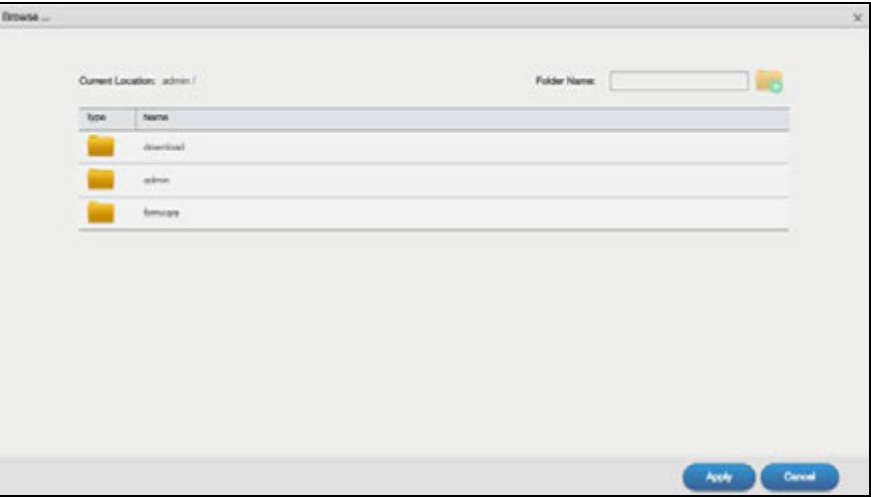



Folder Watch List

Figure 204 Upload Manager > FTP Uploadr > Preferences: Folder Watch List



The following table describes the labels in this screen.

Table 145 Upload Manager > FTP Uploadr > Preferences: Folder Watch List

LABEL	DESCRIPTION
Add	<p>Click this to set a folder that contains files you want the NAS to automatically upload.</p>  <ul style="list-style-type: none"> • Share Name - Select the share from the list. • Path - Type the folder location in the share directly or click Browse to open the following screen and navigate to the folder's location.  <ul style="list-style-type: none"> • Current Location - This is the location of the selected folder. • Folder Name - Enter a new folder name and click  to create it. • Type - This is the type of the folder/file. • Name - This is the name of the folder/file. <p>Select a folder. If you don't select a folder, a forward slash (/) displays in the Path field. All contents within the specified share are automatically selected.</p> <p>Click Apply to save your settings and Cancel to close the screen.</p>
Status	<p>This field indicates whether the share or folder is available.</p> <ul style="list-style-type: none">  represents a valid folder. The folder is available for auto upload.  represents a missing folder. The share may be deleted from the NAS, or the hard disk was removed from the NAS.
Share Name	This is the share selected for auto upload.
Path	This is the path of a folder selected for auto upload. The NAS only uploads files stored in the specified share or folder to your FTP server.
Action	Use the Delete icon to delete a folder from the list.
Apply	Click this to save your changes in this section.
Cancel	Click this to return to the previous screen without saving.

General Settings

Figure 205 Upload Manager > FTP Uploadr > Preferences: General Settings

The following table describes the labels in this screen.

Table 146 Upload Manager > FTP Uploadr > Preferences: General Settings

LABEL	DESCRIPTION
Grace Period	
Grace Period	Specify how long the NAS should wait when you add a new file for auto upload. For example, if you set the grace period to 5 minutes, the NAS uploads a new file after it has been in a watched folder for 5 minutes. You can choose from a range of 1 to 10080 minutes (up to one week).
Bandwidth Limit	
Max. Upload Rate	Enter the maximum upload rate for auto upload. You can choose from a range of 0 to 100,000 KB/s. Enter 0 if you do not want to set any limit. Use this to leave bandwidth on your network connection for other traffic, especially if your Internet connection has restricted upload speed.
Apply	Click this to save your changes in this section.
Cancel	Click this to return to the previous screen without saving.

CHAPTER 16

Backup Planner

16.1 About Backups

Backup before you need it. The NAS's multiple backup methods make it easy to follow the 3-2-1 backup rule:

- At least **3** copies of data
- Stored on at least **2** different media
- With at least **1** copy off-site.

16.1.1 Manage a USB Device and USB Backups

Use the USB ports and SD card slot to copy or synchronize files between a connected USB or SD device and the NAS. You can use the USB drive or SD card for off-site backups.

- Use the **Copy/Sync** button on the front panel to copy or synchronize files between a connected USB or SD storage device and the NAS. See [Section 16.4 on page 279](#) to configure the copy/sync settings.
- Use the NAS's **Backup** screens ([Section 16.3 on page 261](#)) to schedule backups of files and folders on your NAS to a USB device or SD card.

16.1.2 Remote Backups

Use the NAS's **Backup** screens ([Section 16.3 on page 261](#)) to schedule backups of files and folders on your NAS to another Zyxel NAS or a NAS using rsync.

- Use the **Restore** screens ([Section 16.3.3 on page 273](#)) to restore previous backups based on the backup job.
- If you deleted an archive backup job or the NAS or the RAID array containing the backup job failed, you can restore by backup files.

16.1.3 Internal Backups

Use the NAS's **Backup** screens ([Section 16.3 on page 261](#)) to schedule backups of files and folders on your NAS to another folder on the NAS.

Use the **Restore** screens ([Section 16.3.3 on page 273](#)) to restore previous backups based on the backup job or backup files.

16.1.4 Cloud Backups

Use the NAS with cloud services for off-site backups and synchronization.

- Use **Memopal** ([Section 13.10 on page 224](#)) to back up files on the NAS to your Memopal online backup and storage account.

16.1.5 Synchronize Files

Besides backups, the NAS also provides pure synchronization solutions.

Note: Synchronization is not backup. When you delete a file in one location, synchronization deletes it in the other location. Do not store your only copy of a document in a synchronized folder.

- Use the **DropboxClient** package ([Section 13.4 on page 201](#)) to two-way synchronize local NAS folders and Dropbox accounts. Changes in the Dropbox account appear in the local sync folder and changes in the local sync folder appear in the Dropbox account.
- Use the **GoogleDriveClient** package ([Section 13.5 on page 209](#)) to two-way synchronize local NAS folders and Google Drive accounts. Changes in the Google Drive account appear in the local sync folder and changes in the local sync folder appear in the Google Drive account.
- Use the **ownCloud** package ([Section 13.11 on page 227](#)) to host your own private cloud on the NAS. The ownCloud package lets the NAS work as an ownCloud server so computers and mobile devices using the ownCloud client can access, sync, and share files across devices.

16.2 What You Can Do

- Use the **Backup** screens ([Section 16.3 on page 261](#)) to create and customize backup jobs.
- Use the **Restore** screens ([Section 16.3.3 on page 273](#)) to restore previous backups made with the NAS.
- Use the **Copy/Sync Button** screens ([Section 16.4 on page 279](#)) to configure the copy/sync settings.
- Use the **Time Machine** screens ([Section 16.5 on page 283](#)) to turn Time Machine support on or off, and designate the share for Time Machine backups.

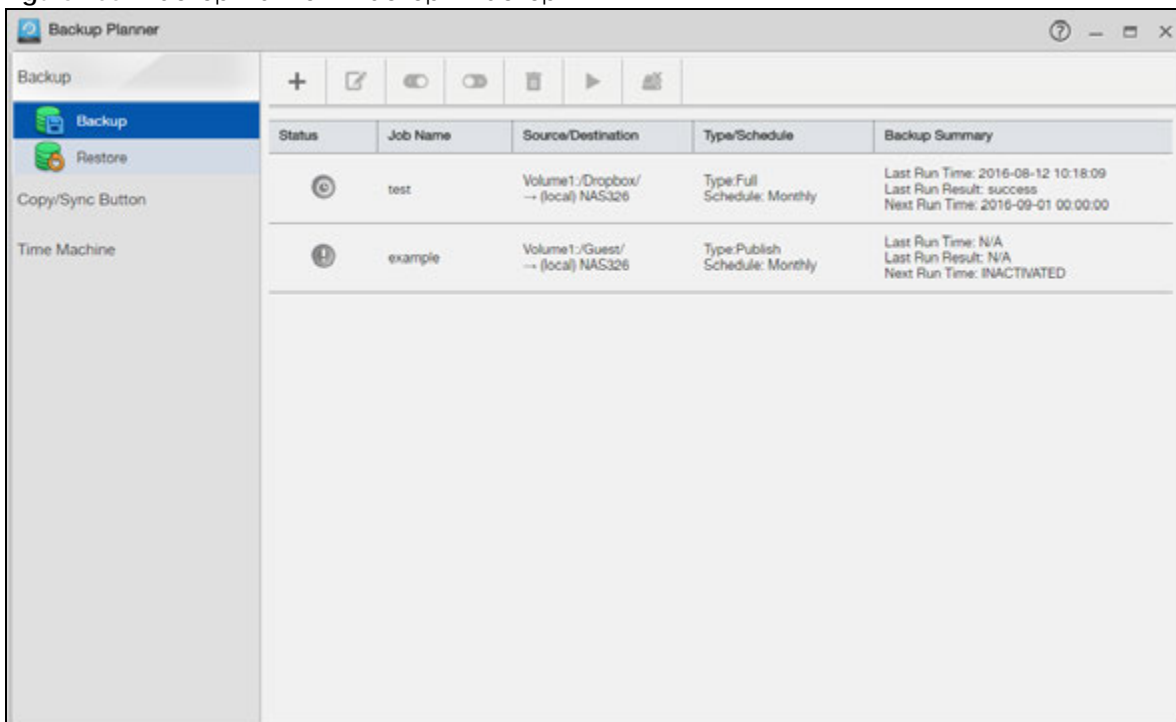
16.3 Backup Screens

Use this screen to create and customize scheduled backup jobs for your files.

You can have several backup jobs for specific folders and time periods.

Click **Backup Planner > Backup > Backup** to open the following screen.

Figure 206 Backup Planner > Backup > Backup



The following table describes the labels in this screen.

Table 147 Backup Planner > Backup > Backup

LABEL	DESCRIPTION
Add Job	Click this to create and customize a backup job.
Edit Job	Select a backup job in the list and click this to make some changes to it.
Activate Job	Click this to enable the selected backup job.
Inactivate Job	Click this to disable the selected backup job.
Delete Selected Job(s)	Select a backup job in the list and click this to delete it.
Backup Now	Select a backup job in the list and click this to run the backup job immediately.
Abort Job	Select a backup job in the list and click this to stop the process if the backup job is currently active.
Status	<p>This shows the current state of the backup job.</p> <ul style="list-style-type: none"> Waiting means the backup job is not active but is scheduled to run at some time. Running indicates that the NAS is currently doing the backup job. When the backup job is running, you can also see a progress bar. Inactivated means the backup job is disabled.
Job Name	This identifies the backup job.
Source/Destination	This shows the backup job's source and target.
Type/Schedule	This shows the backup type and frequency.
Backup Summary	This shows the time it was last run in (and whether or not it succeeded), and when it is scheduled to run again. The times use yyyy-mm-dd hh:mm:ss format.

16.3.1 Add a new backup job

Click **Add Job** in the **Backup Planner > Backup > Backup** screen to create a backup job.

Step 1 Properties

Use this screen to specify the job information, backup type and purge policy.

Figure 207 Backup Planner > Backup: Add Job Step 1 Properties

The following table describes the labels in this screen.

Table 148 Backup Planner > Backup: Add Job Step 1 Properties

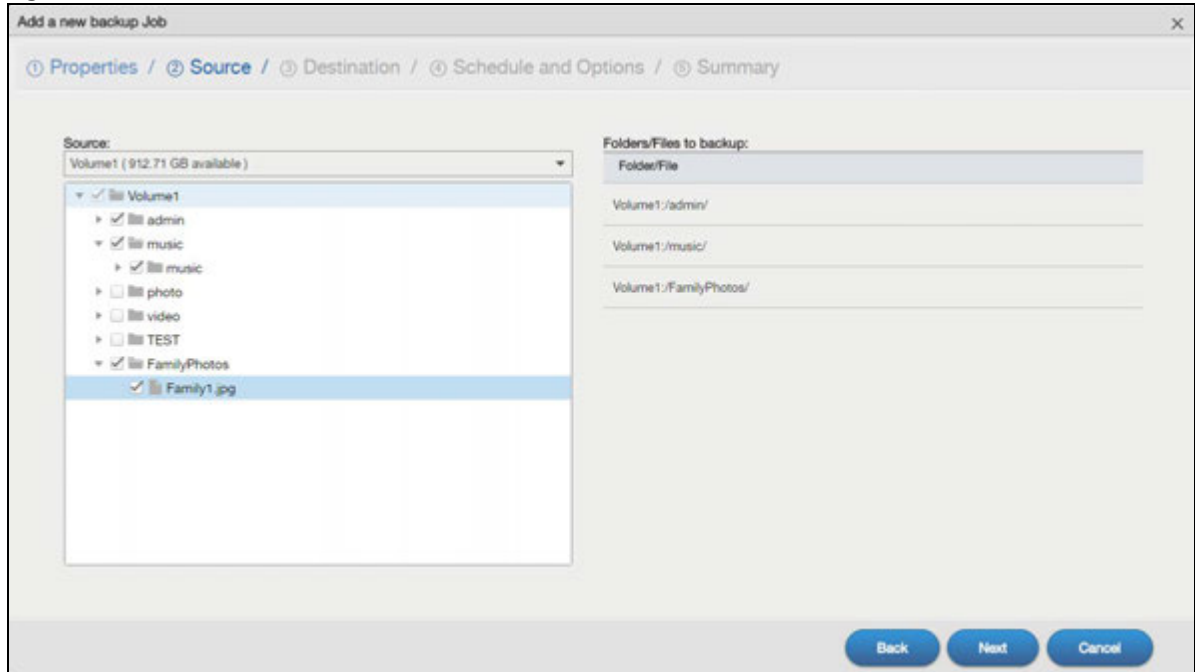
LABEL	DESCRIPTION
Job Name	Enter a name to identify the backup job.
Description	Enter a short description (up to 100 keyboard characters) for the backup job.

Table 148 Backup Planner > Backup: Add Job Step 1 Properties (continued)

LABEL	DESCRIPTION
Type	<p>Choose the backup type the NAS implements for the backup job.</p> <p>Archive - This is a backup of the source folder in an archive format. Once you backup your files in the target folder, you cannot access the files individually unless you have the extracting tool used by the NAS. If there are existing files in the target folder prior to the NAS's backup job, the files remain undisturbed. You can also choose between the following types of archive:</p> <ul style="list-style-type: none"> • Full - The NAS does a fresh backup each time. This provides the most protection but also requires the most storage space. • Incremental - The NAS backs up new or modified files from the source folder since the last backup. The first backup is a full backup. You can also do a full backup after several incremental backups. Enter how many incremental backups the NAS runs before it performs a full backup of the source folder in the Perform a full backup job after n backup(s) field. You must keep the latest full backup to be able to restore the files later. <p>Synchronization - This does a backup of individual files. If you use this type, you cannot use the Restore feature of the NAS. You can also choose between the following types of synchronization:</p> <ul style="list-style-type: none"> • Publish - The NAS does a backup of individual files to the target folder without overwriting existing files in that folder. It makes a copy of the source files. • Mirror - The NAS deletes all data in the target folder before running the backup. It makes the target folder identical to the source folder. <p>Rsync - This synchronizes individual files to another device that supports rsync. Rsync is open source and provides incremental file transfers. It only sends the differences in the files through the connection so it brings the remote files into sync very quickly.</p> <ul style="list-style-type: none"> • The NAS deletes all data in the target folder before running the backup. It makes the target folder identical to the source folder. • If you use this type, you cannot use the Restore feature of the NAS.
Purge Policy	<p>This field is not available when you set the backup type to Synchronization or Rsync.</p> <p>The NAS maintains the files that have been included in your backups. However to save hard disk space, you can choose to delete files that have been included in previous backups.</p> <ul style="list-style-type: none"> • Select Keep all old backups to store all files that have been included in previous backups. • If you want to store a certain number of backup files, select Keep the last n backups. Enter a value (n) from 1 to 30 to specify how many backups the NAS stores. All backup files older than the last one are deleted. You will not be able to recover files that existed (only) in those previous backups. Select this if backup space is limited and recovery of old files is not important. • If you want to store all backups for a certain time period, select Keep old backups for n day(s). Enter a value (n) from 1 to 3650 to specify how many days the NAS stores all backup files. After this day has expired, all backup files will be deleted.
Next	Click this to go to the next step.
Cancel	Click this to close the screen without saving.


Step 2 Source

Use this screen to specify where the files you want to backup are located.

Figure 208 Backup Planner > Backup: Add Job Step 2 Source

The following table describes the labels in this screen.

Table 149 Backup Planner > Backup: Add Job Step 2 Source

LABEL	DESCRIPTION
Source	<p>Select an (internal) volume and the folders and files to back up using this tree interface.</p> <p>Click ► to browse through folders, sub-folders and files.</p> <p>Click ▼ to close a folder in the tree. This is useful if there are many folders or files that you wish to hide from view.</p> <p>Click <input type="checkbox"/> to select a folder or file to back up. This also selects all sub-folders and files.</p> <p>Click <input checked="" type="checkbox"/> to deselect the folder or file. This also deselects all sub-folders and files.</p> <p><input checked="" type="checkbox"/> for a folder means all sub-folders and files and new folders/files added later will be backed up.</p> <p><input checked="" type="checkbox"/> for a file means the file will be backed up.</p> <p><input type="checkbox"/> (a grayed out check box) for a folder means that only some sub-folders and files under the folder will be backed up. Newly added folders/files will NOT be backed up.</p> <p> means the file structure is still loading. Please wait for the folders/files to display.</p> <p>Note: If you select to back up an entire folder <input checked="" type="checkbox"/> and then de-select a sub-folder or file within that folder, the main folder icon will turn <input checked="" type="checkbox"/> and any new sub-folders and files added to this main folder after the initial backup configuration will NOT be backed up.</p> <p>A list of your select folders and files displays below the selection fields.</p>
Folders/Files to backup	This shows the path of the backup source folder you selected.
Back	Click this to go back to the previous screen.
Next	Click this to go to the next screen.
Cancel	Click this to close the screen without saving.

Step 3 Destination

Use this screen to set where you want the backup to be stored.

Figure 209 Backup Planner > Backup: Add Job Step 3 Destination

The following table describes the labels in this screen.

Table 150 Backup Planner > Backup: Add Job Step 3 Destination

LABEL	DESCRIPTION
Destination	Select the target folder where you want to place your backup.
Internal	Select this if you want to place your backup in another volume in the NAS. Select an (internal) volume and the folder where you want to place the backup.
External	Select this if you have a USB hard disk connected to the NAS that you want to use for your backup. Select the folder where you want to place the backup.

Table 150 Backup Planner > Backup: Add Job Step 3 Destination (continued)

LABEL	DESCRIPTION
Remote	<p>Select this to back up to another device.</p> <p>For Archive:</p> <p>The remote device can be another NAS in the network. Fill in the following fields in order to be able to access it.</p> <ul style="list-style-type: none"> • Remote NAS Address • Username • Password • Share Name <p>Click Test Connection to see if your NAS can communicate with the remote device.</p> <p>For Synchronization:</p> <p>The remote device must be another NAS compatible with the NAS's synchronization feature. Fill in the following fields in order to be able to access it.</p> <ul style="list-style-type: none"> • Remote NAS Address • Username (always "admin") • Remote Admin's Password <p>Click Show target content to connect to the remote NAS so you can select the target share for the backup.</p> <p>For Rsync:</p> <p>The remote device must be a NAS that supports rsync or a computer running the rsync utility. Fill in the following fields in order to be able to access it.</p> <ul style="list-style-type: none"> • Remote NAS Address • Username (always "admin") • Remote Admin's Password <p>Click Show target content to connect to the remote NAS or computer so you can select the target folder for the backup.</p>
Backup destination folder	This shows the path of the backup destination folder you selected.
Back	Click this to go back to the previous screen.
Next	Click this to go to the next screen.
Cancel	Click this to close the screen without saving.

Step 4 Schedule and Options

Use this screen to specify the schedule for the backup job. The backup job automatically runs according to the schedule that you set in this screen. You can also use this screen to specify compression and encryption if you are doing an archive backup or a synchronization backup to a remote target.

Figure 210 Backup Planner > Backup: Add Job Step 4 Schedule and Options

The screenshot shows a window titled "Add a new backup Job" with a close button (X) in the top right corner. Below the title bar is a breadcrumb navigation bar: ① Properties / ② Source / ③ Destination / ④ Schedule and Options / ⑤ Summary. The main content area is divided into two columns. The left column has a "Schedule" label and two checkboxes: "Enable data compression" (unchecked) and "Enable data encryption" (checked). The right column has a "Frequency" section with a dropdown menu set to "Monthly", a text box showing "January, February, March, April, May, June", and radio buttons for "1" Day, "First", and "Sunday" (selected). Below this is an "Execute time" section with two dropdown menus set to "00" and "00". At the bottom right are three buttons: "Back", "Next", and "Cancel".

The following table describes the labels in this screen.

Table 151 Backup Planner > Backup: Add Job Step 4 Schedule and Options

LABEL	DESCRIPTION
Schedule	
Frequency	Select from Hourly , Daily , Weekly and Monthly backup intervals. The screen changes depending on the item you select.
Every n hours?	This is only available if you selected Hourly as your backup frequency. Specify every how many hours the NAS performs the backup job.
Execute time	This is available if you selected Daily , Weekly or Monthly as your backup frequency. Select the time in hour:minute format when you want the NAS to perform the backup job.
Every n day(s)	This is only available if you selected Daily as your backup frequency. Enter the interval between days when the NAS performs the backup job.
Every n week(s)	This is only available if you selected Weekly as your backup frequency. Enter the interval between weeks when NAS performs the backup job.
On	This is only available if you selected Weekly as your backup frequency. Enter the day of the week when you want the NAS to perform the backup job.
January ~ December	This is only available if you selected Monthly as your backup frequency. Select the month(s) when you want the NAS to perform the backup job.
Day	This is only available if you selected Monthly as your backup frequency. Specify or select the day in a month when you want the NAS to perform the backup job.

Table 151 Backup Planner > Backup: Add Job Step 4 Schedule and Options

LABEL	DESCRIPTION
Enable data compression	Select this option if you want the NAS to compress the files for your backup. Otherwise, clear it. In an Archive backup, compression is a method of packing computing files in a way that saves hard disk space. For a Synchronization backup (to a remote target), the source data will be compressed before the transmission to reduce the transmission time. It is used in slow networks only.
Enable data encryption	Select this option and enter a password if you want the NAS to encrypt the files for your backup. Otherwise, clear it. In an Archive backup, this means using a password to secure files. For a Synchronization backup (to a remote target), this means securing the file transfer session. However the final file stored on the remote NAS is unencrypted. This takes a long time. Make sure you really need this feature before enabling it.
Back	Click this to go back to the previous screen.
Next	Click this to go to the next screen.
Cancel	Click this to close the screen without saving.

Step 5 Summary

Use this screen to review the settings you configured. Click **Apply** to complete the setup. Otherwise, click **Back** to return to the previous screen, or click **Cancel** to close the screen without saving.

Figure 211 Backup Planner > Backup: Add Job Step 5 Summary

Item	Value
Properties	
Job Name	test
Description	
Type	Full backup
Purge Policy	Keep all old backups
Source	
	Volume1:/music/
Destination	
	Chipsbnk-UDisk-5-00:/Chipsbnk-UDisk-5-00/
Schedule and Options	
Schedule	Monthly

Back Apply Cancel

16.3.2 Edit Job Screens

Use this screen to edit an existing backup job. Some attributes of the backup job cannot be changed, such as the name, backup type, source folder and so on.

Select a backup job from the list in the **Backup Planner > Backup** screen and click **Edit Job** to open the **Edit Job** screen.

Edit Job: Properties

Click the **Properties** tab to open the following screen.

Figure 212 Backup Planner > Backup > Edit Job: Properties

The following table describes the labels in this screen.

Table 152 Backup Planner > Backup > Edit Job: Properties

LABEL	DESCRIPTION
Job Name	This field is read-only and shows the name of the backup job.
Description	Enter a short description for the backup job.
Type	This field is read-only and shows the backup type.
Purge Policy	<p>The NAS maintains the files that have been included in your backups. However to save hard disk space, you can choose to delete files that have been included in previous backups.</p> <ul style="list-style-type: none"> Select Keep all old backup files to store all files that have been included in previous backups. If you want to store a certain number of backup files, select Keep the last n backup(s). Enter a value (n) from 1 to 30 to specify how many backups the NAS stores. All backup files older than the last one are deleted. You will not be able to recover files that existed (only) in those previous backups. Select this if backup space is limited and recovery of old files is not important. If you want to store all backups for a certain time period, select Keep old backups for n day(s). Enter a value (n) from 1 to 3650 to specify how many days the NAS stores all backup files. After this day has expired, all backup files will be deleted.
Apply	Click this to save your changes.
Cancel	Click this to close the screen without saving.

Edit Job: Source and Destination

Click the **Source and Destination** tab to open the following screen. This screen is read-only. It shows the path of the source folder for backup and on which volume (whether internal or external) the backup files are stored. If the target location is a remote NAS, this shows the remote IP address. Click **Apply** to save your changes or click **Cancel** to close the screen without saving.

Figure 213 Backup Planner > Backup > Edit Job: Source and Destination

Item	Value
Source	Volume1:/TEST/
Destination	192.168.1.99:Backup

No editable item here

Apply Cancel

Edit Job: Schedule and Options

Use this screen to edit the schedule (and bandwidth) for the backup job.

Figure 214 Backup Planner > Backup > Edit Job: Schedule and Options

The following table describes the labels in this screen.

Table 153 Backup Planner > Backup > Edit Job: Schedule and Options

LABEL	DESCRIPTION
Schedule	
Frequency	Select from Hourly , Daily , Weekly and Monthly backup intervals. The screen changes depending on the item you select.
Every n hours?	This is only available if you selected Hourly as your backup frequency. Specify every how many hours the NAS performs the backup job.
Execute time	This is available if you selected Daily , Weekly or Monthly as your backup frequency. Select the time in hour:minute format when you want the NAS to perform the backup job.
Every n day(s)	This is only available if you selected Daily as your backup frequency. Enter the interval between days when the NAS performs the backup job.
Every n week(s)	This is only available if you selected Weekly as your backup frequency. Enter the interval between weeks when NAS performs the backup job.
On	This is only available if you selected Weekly as your backup frequency. Enter the day of the week when you want the NAS to perform the backup job.
January ~ December	This is only available if you selected Monthly as your backup frequency. Select the month(s) when you want the NAS to perform the backup job.
Day	This is only available if you selected Monthly as your backup frequency. Specify or select the day in a month when you want the NAS to perform the backup job.
Bandwidth	This field is available only when the backup type is Synchronization or Rsync and the backup target is a remote NAS. For backups to a remote NAS, you can restrict the bandwidth to help prevent the backups from using all of your network connection's available bandwidth. This is more important when backing up to a remote NAS or computer through the Internet.

Table 153 Backup Planner > Backup > Edit Job: Schedule and Options (continued)

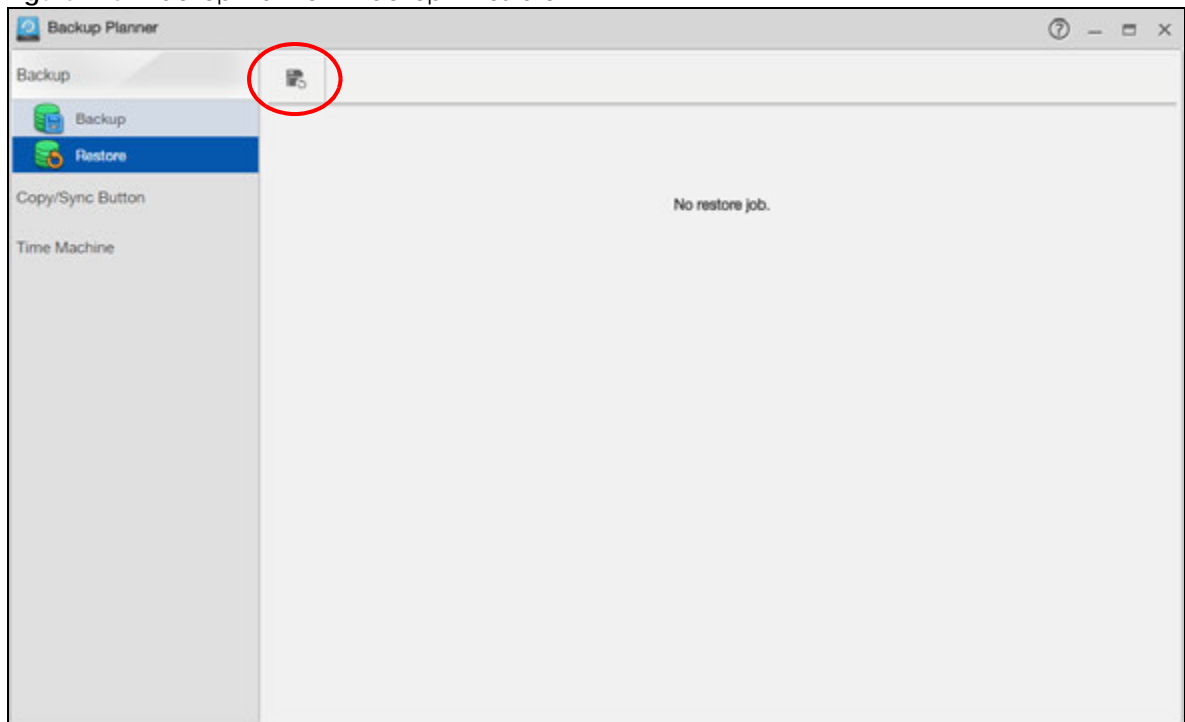
LABEL	DESCRIPTION
Data compression	This field is read-only and shows whether the backup employs compression. Compression reduces the size of the file that you want to back up. Backup is then faster, but restoring may be slower, so if backup space is not a concern and recovery speed is, then turn off compression.
Data encryption	This field is read-only and shows whether the backup employs encryption. You can have the NAS use a password to encrypt the backup files.
Apply	Click this to save your changes.
Cancel	Click this to close the screen without saving.

16.3.3 Restore Screens

Use these screens to restore previous backups made with the NAS. Click **Backup Planner > Backup > Restore** to open the following screen.

Click the **Restore** icon to create a restore job.

Figure 215 Backup Planner > Backup > Restore



Restore Job: Action

You can restore a previous backup by selecting a backup job configured on the NAS or the backup file(s). Click **Next** to continue.

Figure 216 Backup Planner > Backup > Restore

Restore

Choose an Action

☒ Restore by backup job
Select this option to restore data based on a backup job that has ever performed backups.

☐ Restore by backup files
If the backup job you need is deleted or gone for any reason, you can restore the data by backup files.

Next Cancel

Restore Job: Step 1 Source

If you set the NAS to restore a backup based on the pre-configured backup job in the previous screen, the following screen displays. Select a backup job's name from the list and the time point at which the backup job was done. Click **Next** to continue.

Figure 217 Backup Planner > Backup > Restore Job: Step 1 Source (Backup Job)

Restore

1 Source / 2 Folders/Files to Restore / 3 Destination / 4 Summary

Select a backup job:

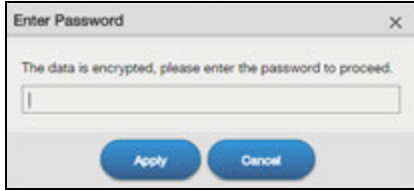
Status	Job Name
!	Full-1
!	test
⊙	USB

Select a backup time point of the job:

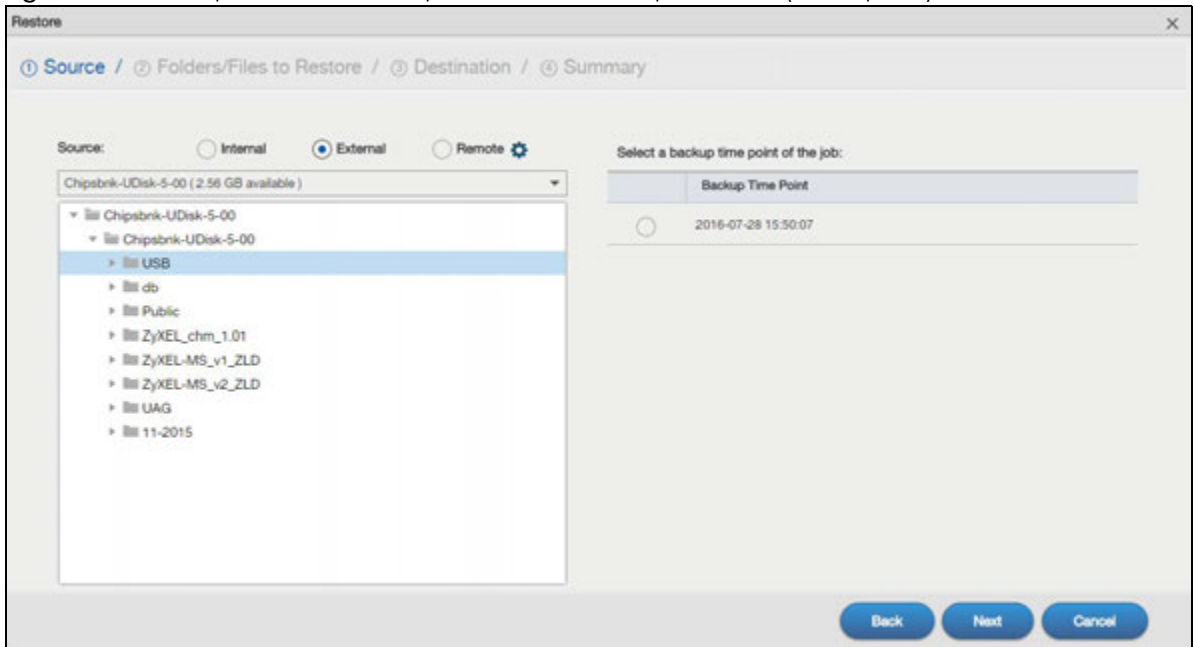
Backup Time Point
2016-07-28 15:50:07

Back Next Cancel

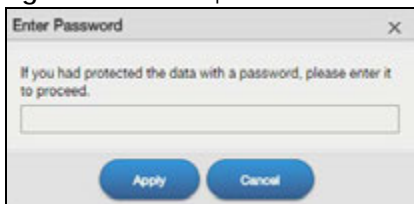
If the **Enter Password** screen displays, enter the password that you configured to encrypt the backup files and click **Apply**.

Figure 218 Backup Planner > Backup > Restore Job: Step 1 Source: Enter Password (Backup Job)

If you set the NAS to restore a backup based on the selected backup file(s) in the previous screen, the following screen displays. Select the folder where the backup you want to restore is located and the time point at which the backup job was done. Click **Next** to continue.

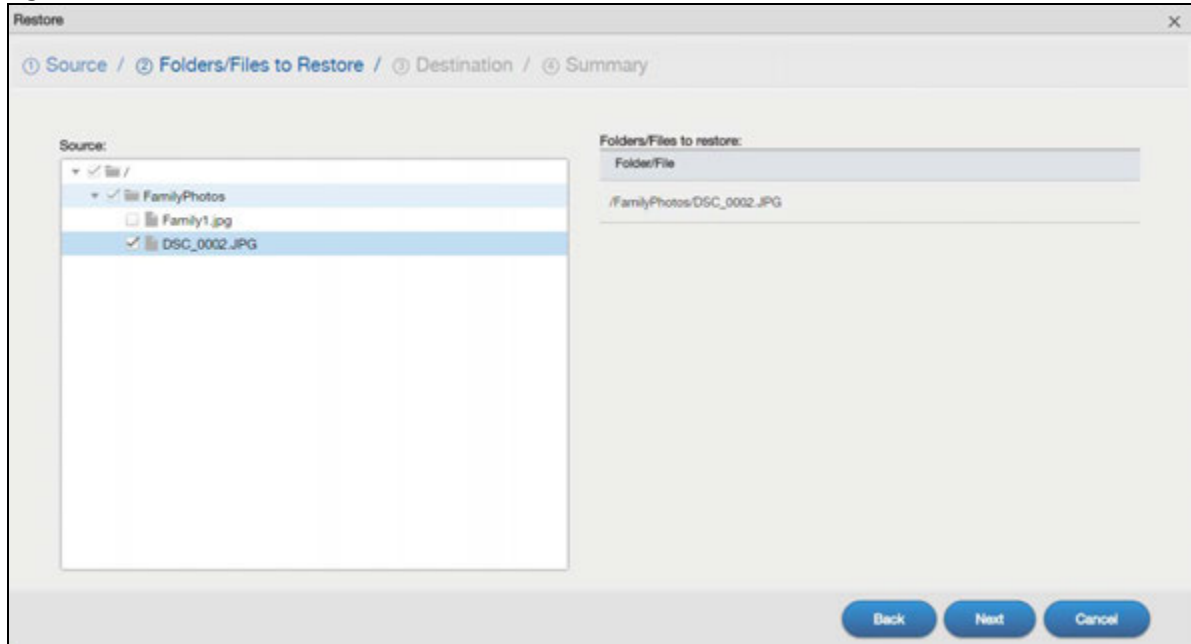
Figure 219 Backup Planner > Backup > Restore Job: Step 1 Source (Backup File)

A pop-up screen displays. Enter the password if you configured to encrypt the backup files and click **Apply**. Otherwise, click **Cancel** to proceed.

Figure 220 Backup Planner > Backup > Restore Job: Step 1 Source: Enter Password (Backup File)

Restore Job: Step 2 Folders/Files to Restore

Select the backup files or the folder you want to restore. The screen shows the path of the file(s) or folder(s) you selected. Click **Next** to continue.

Figure 221 Backup Planner > Backup > Restore Job: Step 2 Folders/Files to Restore

Restore Job: Step 3 Destination

Select the location in the NAS where you want to restore your backup.

If you set the NAS to restore a backup based on the pre-configured backup job, you can either select **Original** to restore the files to their original location in the NAS, or select **Other location** and choose a folder where you want to place the restored files.

If you set the NAS to restore a backup based on the selected backup file(s), you just choose a folder where you want to place the restored files.

The screen then shows the path of the folder you selected.

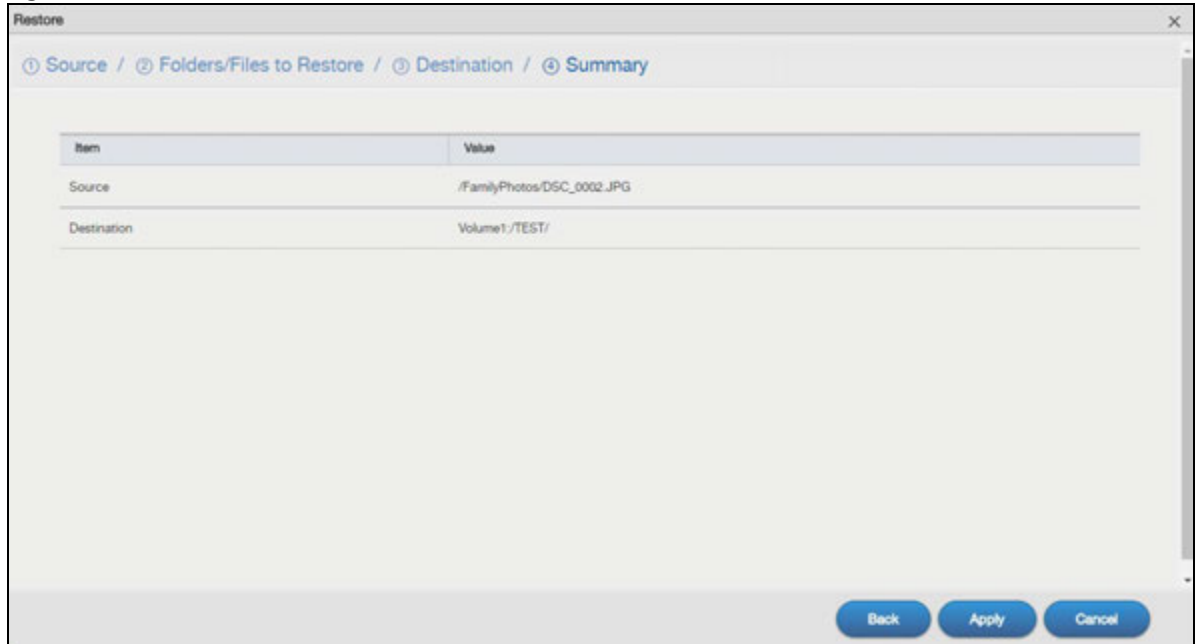
Click **Next** to continue.

Figure 222 Backup Planner > Backup > Restore Job: Step 3 Destination (Backup Job)

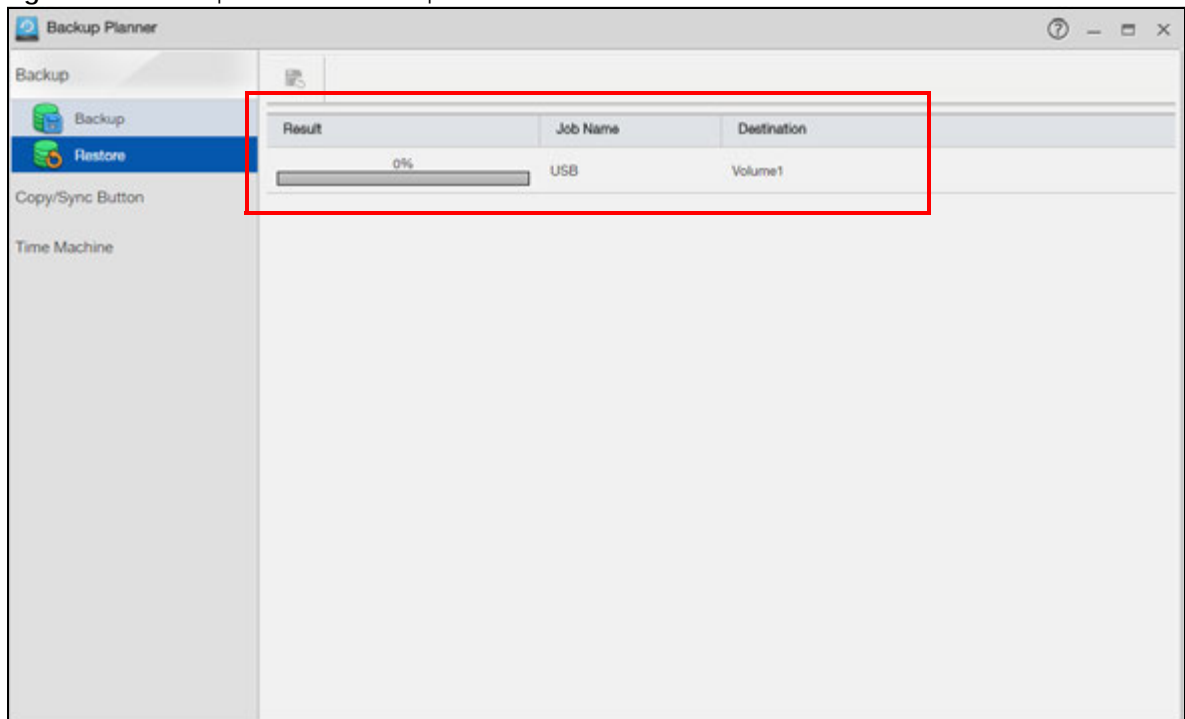
Figure 223 Backup Planner > Backup > Restore Job: Step 3 Destination (Backup File)

Restore Job: Step 4 Summary

Use this screen to review the settings you configured. Click **Apply** to save your settings. Otherwise, click **Back** to return to the previous screen, or click **Cancel** to close the screen without saving.

Figure 224 Backup Planner > Backup > Restore Job: Step 4 Summary

The restore progress and result display in the **Restore** screen. The related information will disappear right after the specified backup is restored successfully.

Figure 225 Backup Planner > Backup > Restore: Result

16.4 Copy/Sync Button Screens

The **Copy/Sync** button on the front panel allows you to copy or synchronize files between a connected USB or SD device and the NAS. Use the **Backup Planner > Copy/Sync Button** screen to configure the copy/sync settings.

16.4.1 Configure Copy Settings

Click **Backup Planner > Copy/Sync Button > Copy Settings** to open the following screen.

Figure 226 Backup Planner > Copy/Sync Button > Copy Settings

The following table describes the labels in this screen.

Table 154 Backup Planner > Copy/Sync Button > Copy Settings

LABEL	DESCRIPTION
NAS Copy Target	Select the NAS share to use with the copy function.
USB Volume	If your USB or SD device has multiple partitions, select which partition to use with the copy function.
Copy Direction	Select USB -> NAS to copy files from your USB or SD device to the NAS. Select NAS -> USB to copy files from the NAS to your USB or SD device.
Create a New Folder for Copied Files	Select this option to place the copied files in a new folder. The name of the folder created for the copied files consists of the date and time of the copy in year_month_day_hour_minute_second format.
Backup Files to be Replaced	This option is only available if you do not select Create a New Folder for Copied Files . Select this option to save the files that will be replaced by the source files.

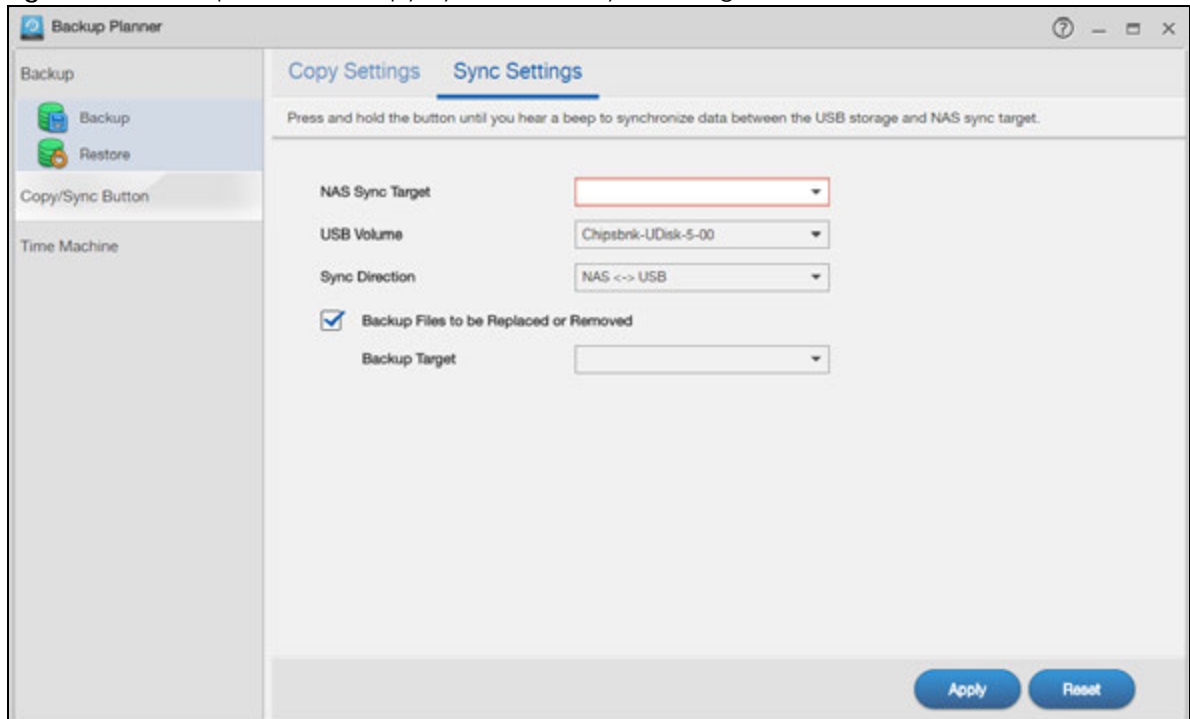
Table 154 Backup Planner > Copy/Sync Button > Copy Settings (continued)

LABEL	DESCRIPTION
Backup Target	Select a share in which to save the backup files. Note: The NAS will not create a new folder to store the backup files. It is recommended to create a specific share (such as "backup") for backup purposes.
Apply	Click this to save your changes. The configuration file is saved on the USB device.
Reset	Click this to restore your previously saved settings.

16.4.2 Sync Settings

Click **Backup Planner > Copy/Sync Button > Sync Settings** to open the following screen.

Figure 227 Backup Planner > Copy/Sync Button > Sync Settings



The following table describes the labels in this screen.

Table 155 Backup Planner > Copy/Sync Button > Sync Settings

LABEL	DESCRIPTION
NAS Sync Target	Select the NAS share to use with the synchronization function.
USB Volume	If your USB device has multiple partitions, select which partition to use with the synchronization function.
Sync Direction	Select USB -> NAS to synchronize files from your USB or SD device to the NAS. Select NAS -> USB to synchronize files from the NAS to your USB or SD device. Select NAS <-> USB to synchronize files in both directions simultaneously.

Table 155 Backup Planner > Copy/Sync Button > Sync Settings (continued)

LABEL	DESCRIPTION
Backup Files to be Replaced or Removed	Select this option to save the files that will be replaced by the source files.
Backup Target	Select a share in which to save the backup files. Note: The NAS will not create a new folder to store the backup files. It is recommended to create a specific share (such as "backup") for backup purposes.
Apply	Click this to save your changes. The configuration file is saved on the USB device.
Reset	Click this to restore your previously saved settings.

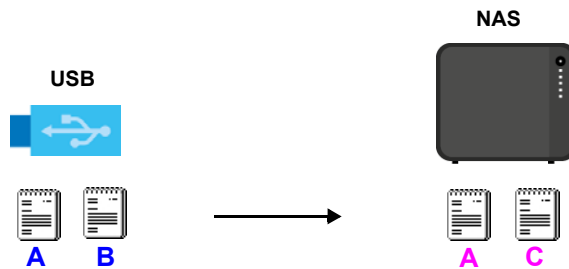
16.4.3 How to Copy Files

You can copy files from a USB device to the NAS or from the NAS to a USB device. Simply press and release the **COPY/SYNC** button to start copying files. See [Section 16.4 on page 279](#) for details about configuring the copy settings.

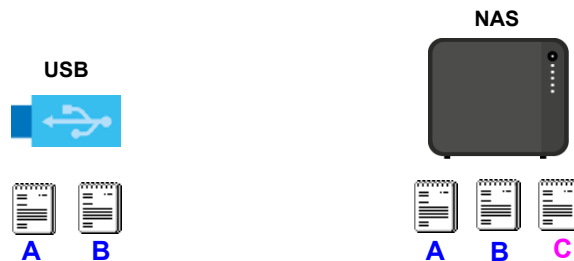
The following figure illustrates how copying files works when you copy files from a USB device to the NAS. The same concept applies when you copy files from the NAS to a USB device.

Figure 228 Copying Files Example

Before Copy



After Copy



Both storage devices contain file A.

- A copy of files A and B from the USB device is transferred to the NAS.
- File A from the USB device replaces file A on the NAS.

16.4.4 How to Synchronize Files

Synchronization makes the contents on the target device identical to the ones on the source device. You can synchronize files from a USB device to the NAS or from the NAS to a USB device. In addition, you may also synchronize files in both directions simultaneously.

Press and hold the **COPY/SYNC** button until you hear a beep to synchronize files. See [Section 16.4 on page 279](#) for details about configuring the synchronization settings.

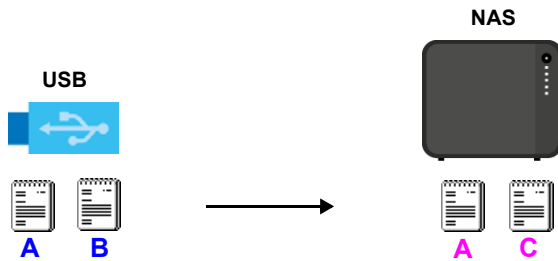
USB -> NAS or USB <- NAS

When you synchronize files in one direction, contents on the source device replace the files on the target device.

The following figure illustrates how synchronization works when you synchronize files from a USB device to the NAS. The same concept applies when you synchronize files from the NAS to a USB device.

Figure 229 Synchronizing Files Example 1

Before Sync



After Sync



Both storage devices contain A.

- A copy of files A and B from the USB device is transferred to the NAS.
- File A from the USB device replaces file A on the NAS.
- File C on the NAS is deleted.

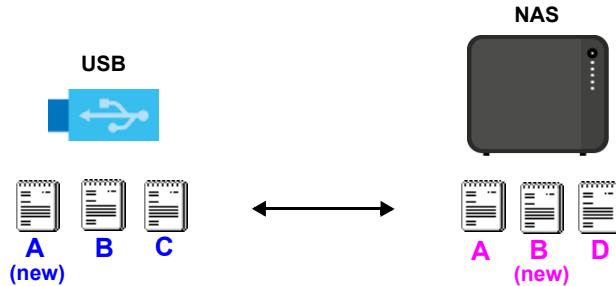
USB <-> NAS

When you synchronize files in both directions simultaneously, both storage devices transfer unique files to one another. Files with the same file name are synchronized according to their modification date/time. The difference in modification time between the two files has to be greater than five minutes. More recently modified files overwrite the older ones during synchronization.

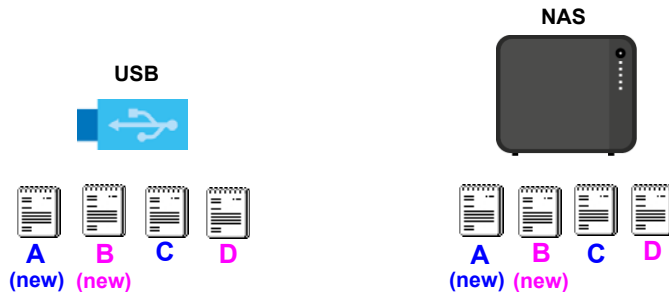
The following figure illustrates how synchronization works when you synchronize files in both directions simultaneously.

Figure 230 Synchronizing Files Example 2

Before Sync



After Sync



A on the USB device and B on the NAS are modified more recently.

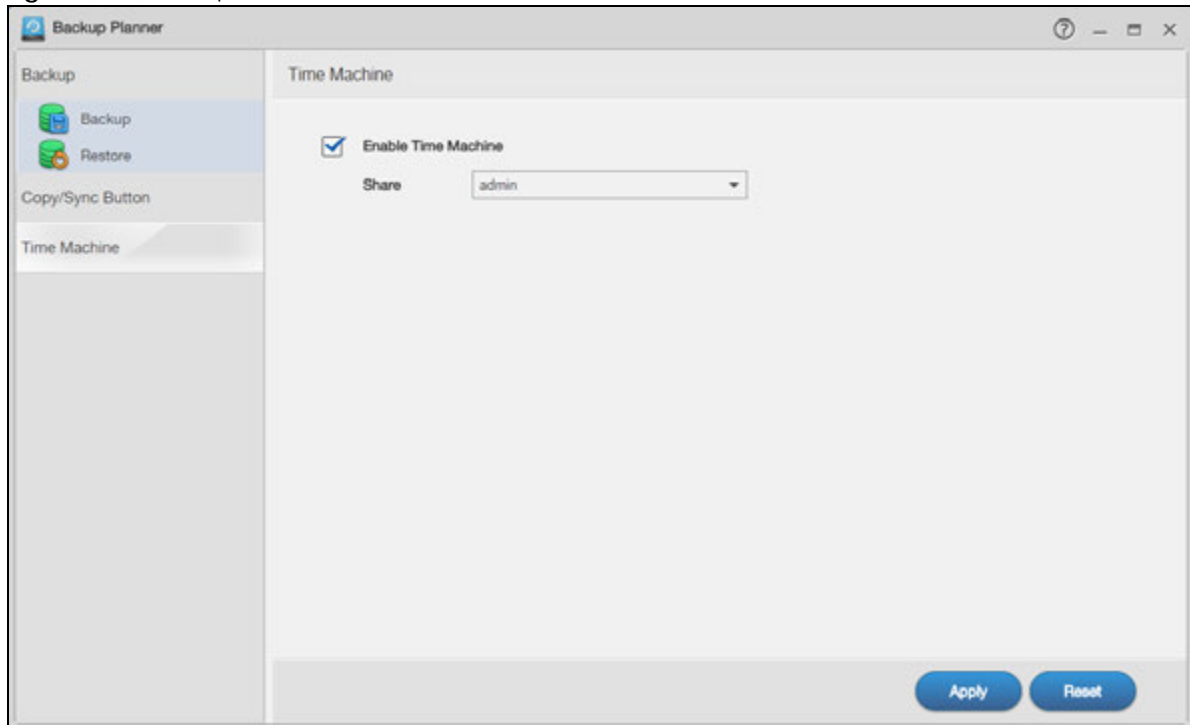
- File A from the USB device replaces file A on the NAS.
- File B from the NAS replaces file B on the USB device.
- A copy of file C from the USB device is transferred to the NAS.
- A copy of file D from the NAS is transferred to the USB device.

16.5 Time Machine Screen

Time Machine is a backup system provided by Mac OS X. It automatically backs up everything on your Mac, including pictures, music, videos, documents, applications, and settings. This chapter helps you to enable Time Machine in OS X to use your NAS as a backup volume.

Use the **Time Machine** screen to turn Time Machine support on or off, and designate the share for Time Machine backups. See [Section 4.3 on page 31](#) for an example about how to enable Time Machine on the NAS and your Mac computer.

Click **Backup Planner > Time Machine** to open the following screen.

Figure 231 Backup Planner > Time Machine

The following table describes the labels in this screen.

Table 156 Backup Planner > Time Machine

LABEL	DESCRIPTION
Enable Time Machine	Select this to allow Macs to use Time Machine to back up to the NAS. Clear it to turn off Time Machine support.
Share	Select the share the NAS uses to store Time Machine backups.
Apply	Click this to save your changes.
Reset	Click this to restore the screen's last-saved settings.

CHAPTER 17

File Browser, Photo, Music & Video

17.1 Overview

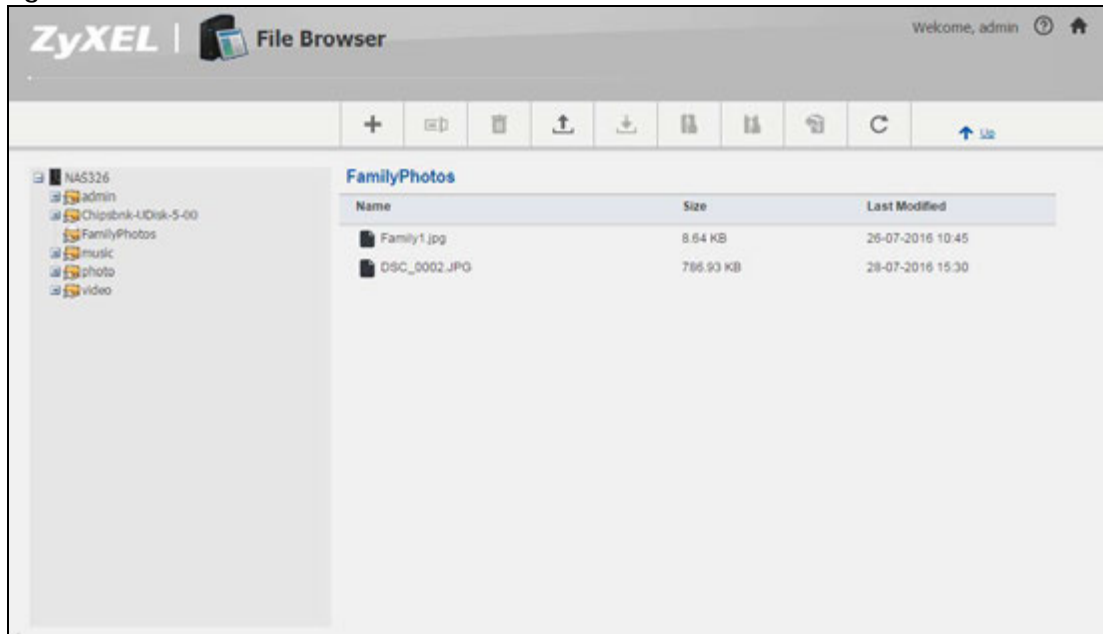
This chapter introduces the **File Browser**, **Photo**, **Music**, and **Video** screens for sharing media files. It also describes the **Playzone Settings** and **Application Zone** screens which are only available with user accounts.

17.2 File Browser

Click **File Browser** on the Desktop to open the following screen in a new tab. Use the file browsing screens to play, open, upload, and download files. A share is a set of user access permissions for a specific folder on a volume (gives someone access to a folder). It is equivalent to the Windows concept of a shared folder, but the access rights are independent of the folder (you configure the share and the folder separately). You can map a share to a network drive for easy and familiar file transfer for Windows users.

- A folder icon with a hand indicates a share.
- The administrator owns and manages the public shares.
- Double-click a media file to open it. Double-click other types of files to be able to save them.
- Click to the right of a file or folder name to select it.
- Use the [SHIFT] key to select a range of entries. Hold down the [CTRL] key to select multiple individual entries.
- Drag and drop files to open a screen that lets you choose whether to copy or move them.
- You can upload files of up to 2 GB in size.
- You can download individual files of up to 4 GB in size with Mozilla Firefox and Internet Explorer 7 and later or up to 2 GB in size with Internet Explorer 6.

Figure 232 File Browser




The following table describes the labels in this screen.

Table 157 File Browser

LABEL	DESCRIPTION
Create New Folder	<p>Click this to open the following screen where you can create a new folder within the share.</p> <div data-bbox="777 1035 1159 1188"> </div> <p>Specify a name to identify the folder. See Section 7.5.1 on page 114 for more information on folder names. Click Apply to create a folder or click Cancel to exit this screen.</p>
Rename	Select a file or folder and click this to change its name.
Delete	Select a file or folder and click this to delete it from the NAS.

Table 157 File Browser (continued)

LABEL	DESCRIPTION
Upload	<p>Click this to open the following screen where you can add files to the share.</p>  <p>Use the Browse button to locate your file/s and click Apply to upload the file. Click Cancel to close this screen.</p> <p>Note: Do not refresh the screen while an upload is going on.</p>
Download	<p>Select a file and click this to save the file to your computer.</p> <p>Note: Do not refresh the screen while a download is going on.</p>
Compress	Select files or folders and click this to compress them into a zip file.
Decompress	Select a zipped file and click this to create a folder named after the zip file and save the decompressed files into the folder.
Restore	When you are in a recycle bin folder, select a folder or file and click this to restore it.
Refresh	<p>Click this to update the information displayed in the screen.</p> <p>Note: Do not refresh the screen while an upload or download is in progress.</p>
Up	Click this to go to the next higher layer in the share's folder tree.
Name	This column identifies the names of folders and files in the share. Click a file's file name to open the file or save it to your computer. Click a folder's name to display the folder's contents.
Size	This column displays a file's size in bytes.
Last Modified	This column displays the last time the file or folder was changed (in year-month-day hour:minute:second format).

17.3 Photo

Click the **Photo** icon on the **Desktop** to open the photo folder in a new tab. Double-click the photo folder to view photos in the shares that publish photos. The following figures show the files as thumbnail and list views of files.

Figure 233 Photo (Thumbnail)

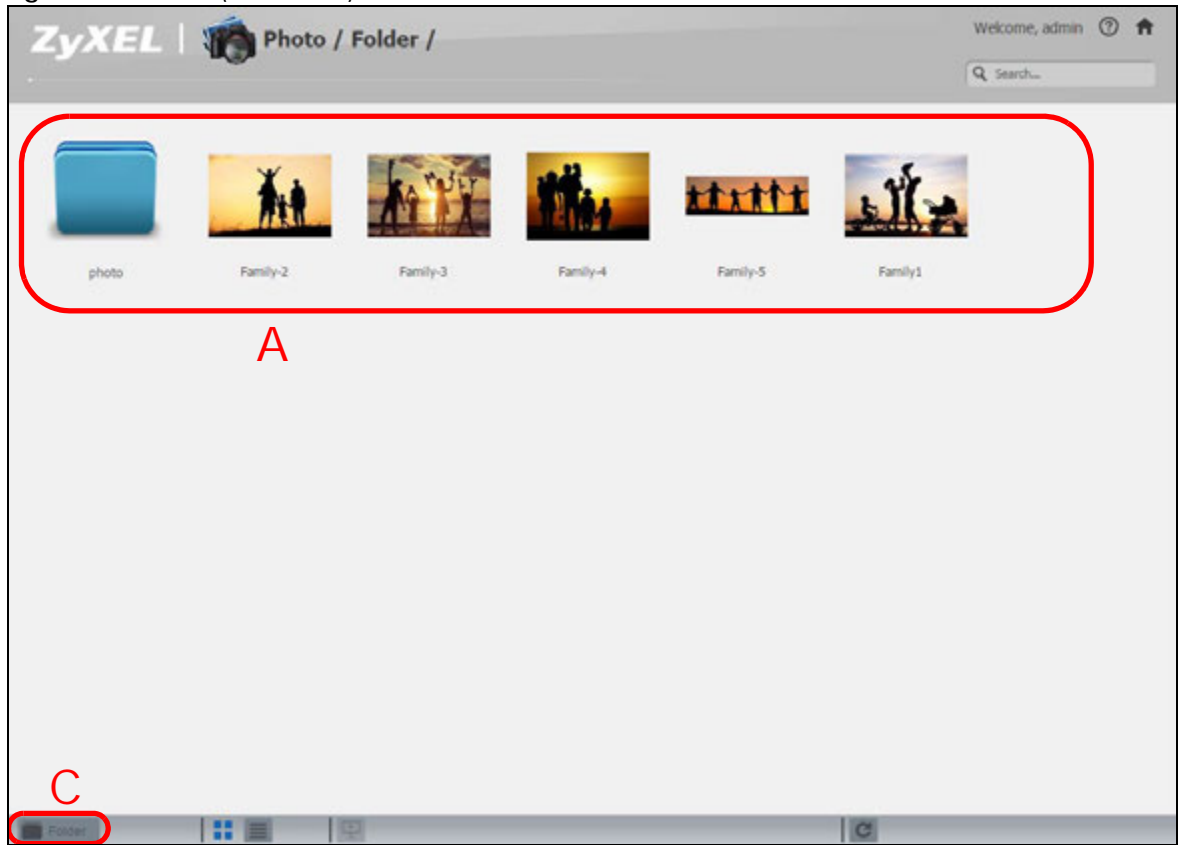
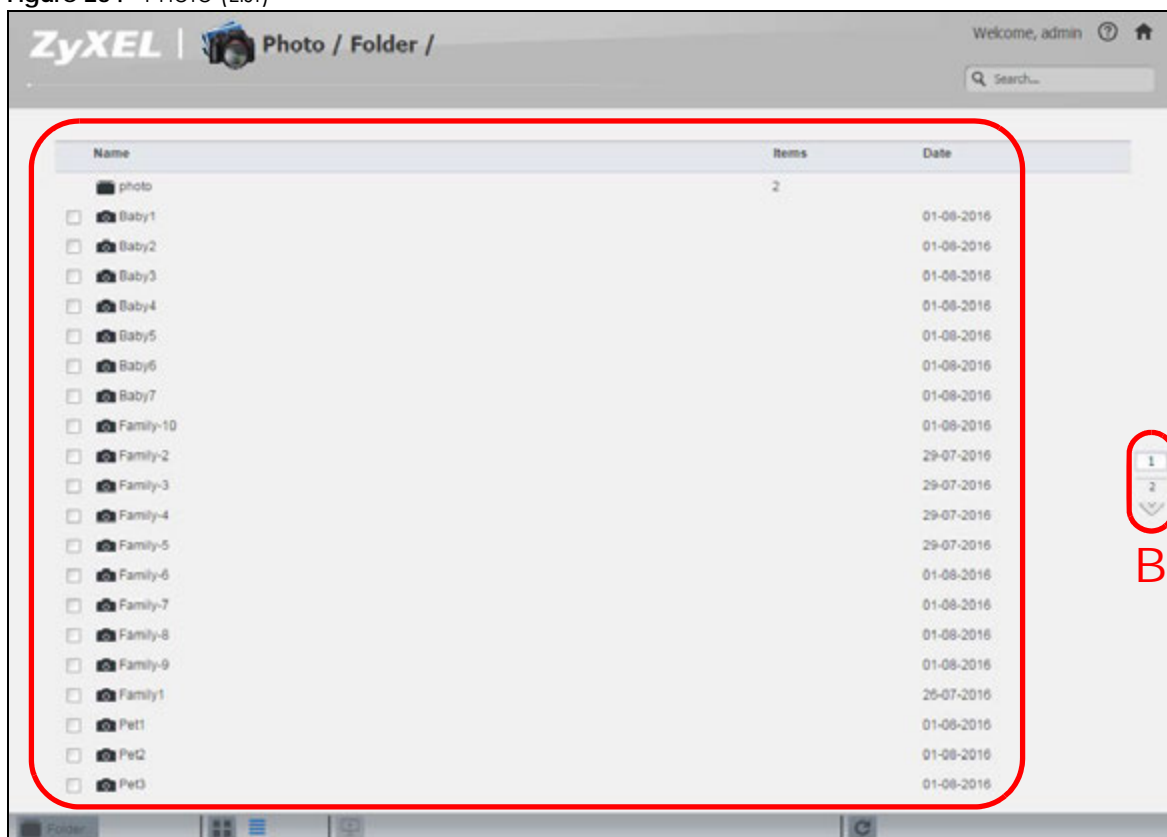


Figure 234 Photo (List)



The following table describes the labels in this screen.

Table 158 Photo Screen

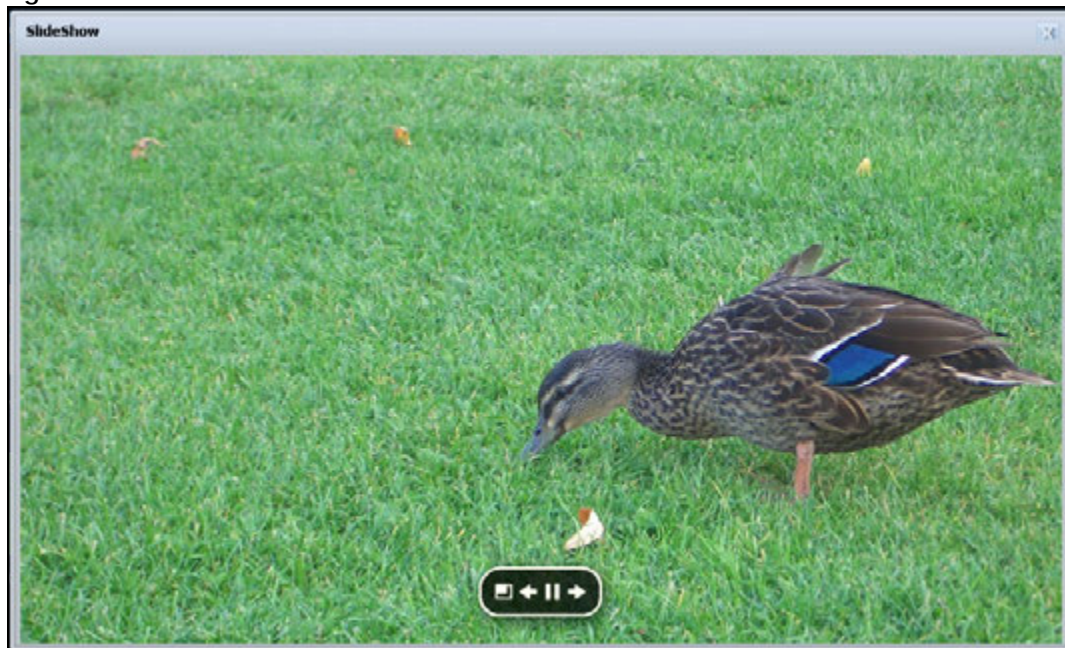
LABEL	DESCRIPTION
Zyxel	The path of the current view. Click an underlined link to go to that location in the path. Music , Photo , or Video indicates the category of files.
Search	Use this to look for a file by name.
A	View files. Double-click an item to play it. You can also select check boxes for multiple items when you display the files as a list.
B	The current page and total number of pages displays when a category has multiple pages of entries. Click an arrow or type a number to go to another page of entries.
C	Select a view type for displaying folders and files: Date - Sort photos by date. All - Display all of the category's files. Folder - List the folders containing files.
Thumbnail	Click this to view the files as thumbnails.
List	Click this to view the files as a list.
Slideshow	Click this to display files as a slideshow.
Refresh	Click this to update the display in the screen.

17.3.2 Slideshow (Photos)

In a **Photo** menu click the **SlideShow** button to display the menu's files as a slideshow. Move your cursor over the slideshow's screen to display full screen, previous, pause, and next buttons for controlling the slideshow.

Note: Your browser must have the Flash Player plug-in installed to view slideshows.

Figure 237 Slideshow



17.4 Music

Click the **Music** icon on the **Desktop** to open the music folder in a new tab. Double-click the music folder to view and play music files in the shares that publish photos. The following figures show thumbnail and list views of files.

Figure 238 Music (Thumbnail)

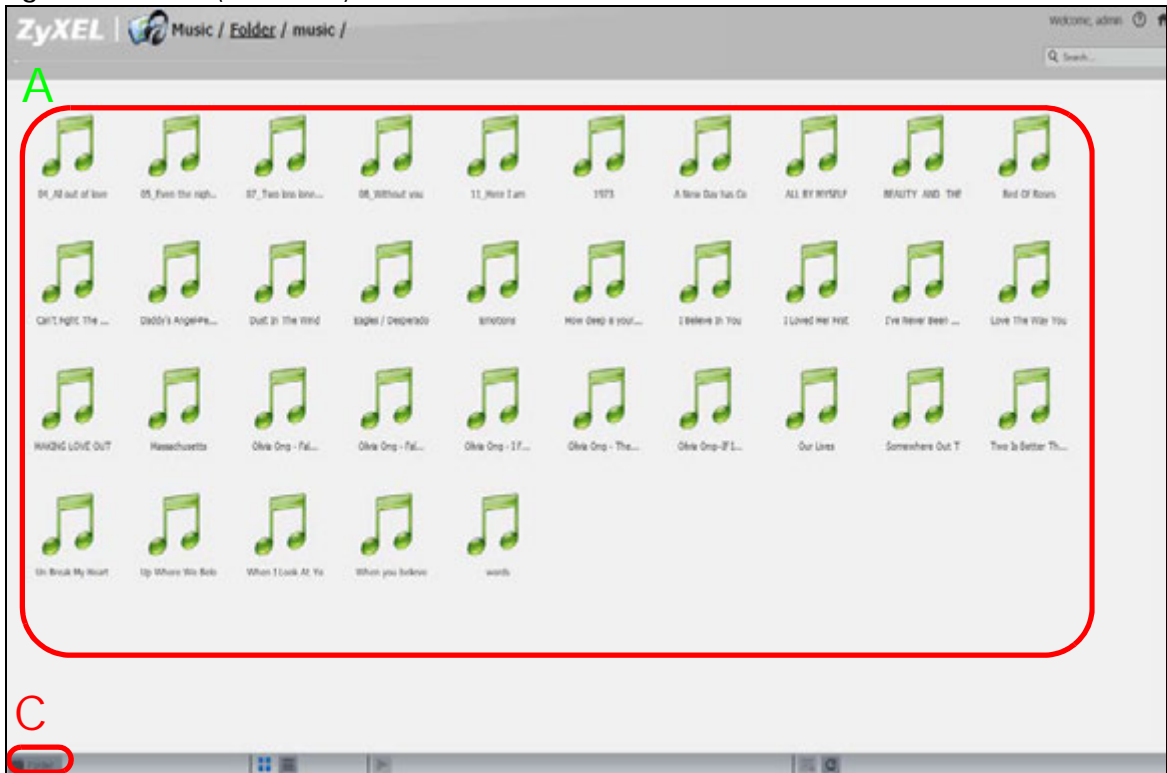


Figure 239 Music (List)



This table describes common labels in the Playzone media server screens. Not every item displays in every screen.

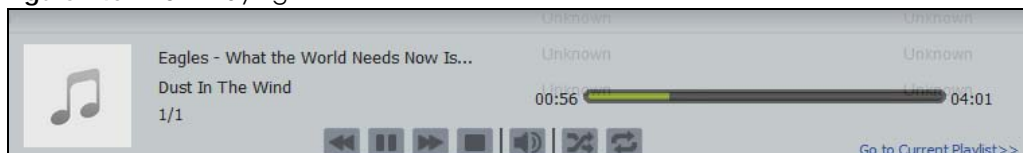
Table 159 Music Screen

LABEL	DESCRIPTION
Zyxel	The path of the current view. Click an underlined link to go to that location in the path. Music , Photo , or Video indicates the category of files.
Search	Use this to look for a file by name.
A	View files. Double-click an item to play it. You can also select check boxes for multiple items when you display the files as a list.
B	The current page and total number of pages displays when a category has multiple pages of entries. Click an arrow or type a number to go to another page of entries.
C	Select a view type for displaying folders and files: Artist - Sort music by artist. All - Display all of the category's files. Folder - List the folders containing music files. Current Playlist - Show the playing and queued songs.
Thumbnail	Click this to view the files as thumbnails.
List	Click this to view the files as a list.
Play	Click this to play the currently selected file. You can also double-click a file to play it.
Add to Current Playlist	Click this to add the selected music file to the currently playing playlist.
Refresh	Click this to update the display in the screen.
Now Playing	This link is available when a song is playing. Click it to see details about the song that is currently playing.

17.4.1 Now Playing (Music)

A **Now Playing** link displays when a song is playing. Click it to display a panel like the following. This screen displays the name of the current song and it's play progress and lets you control the playback.

Figure 240 Now Playing



17.5 Video

Click the **Video** icon on the **Desktop** to open the video folder in a new tab. Double-click the video folder to view and play video files in the shares that publish videos. The following figures show the thumbnail and list views of files.

Figure 241 Video (Thumbnail)

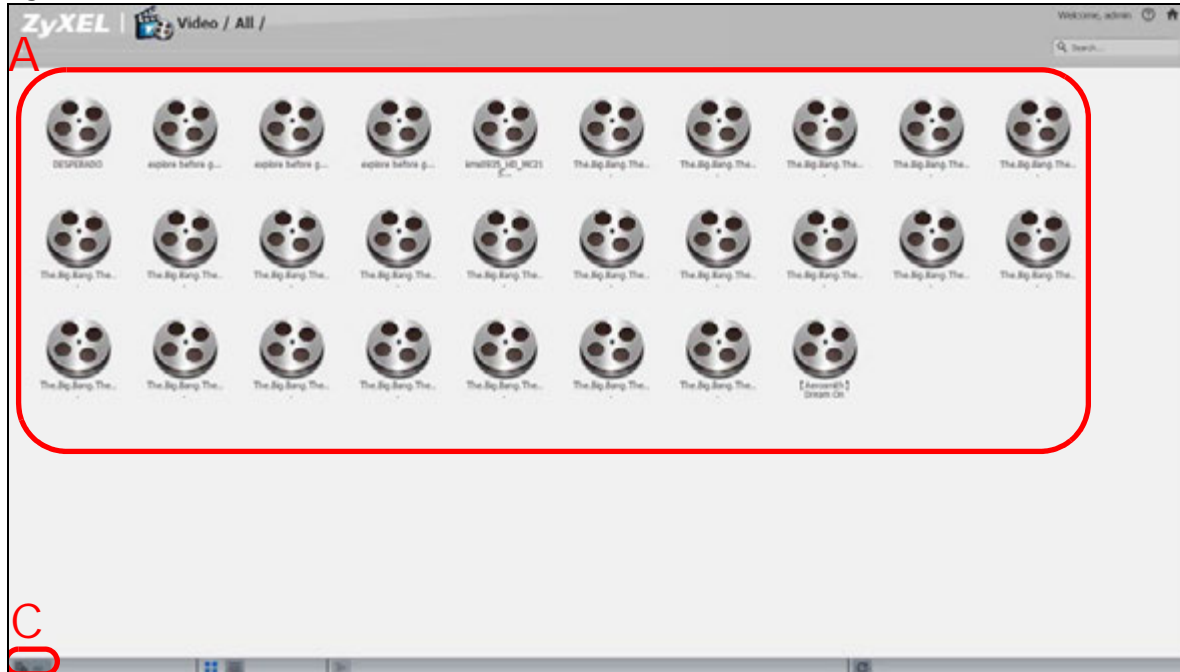
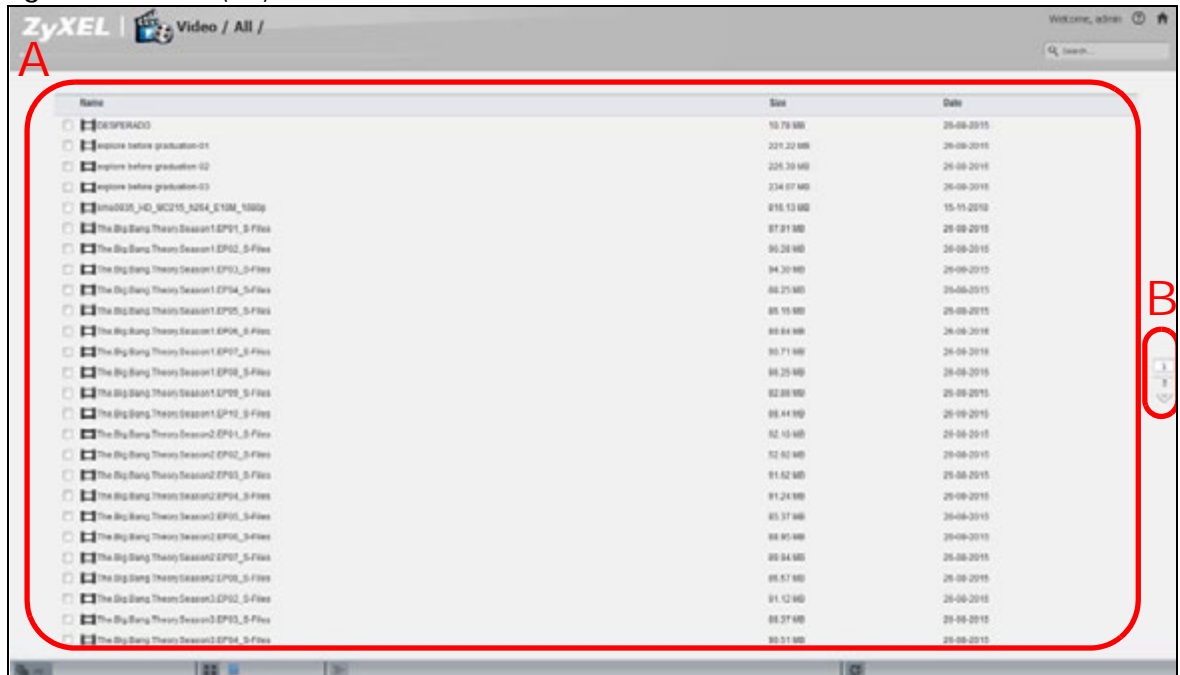


Figure 242 Video (List)



The following table describes the labels in this screen.

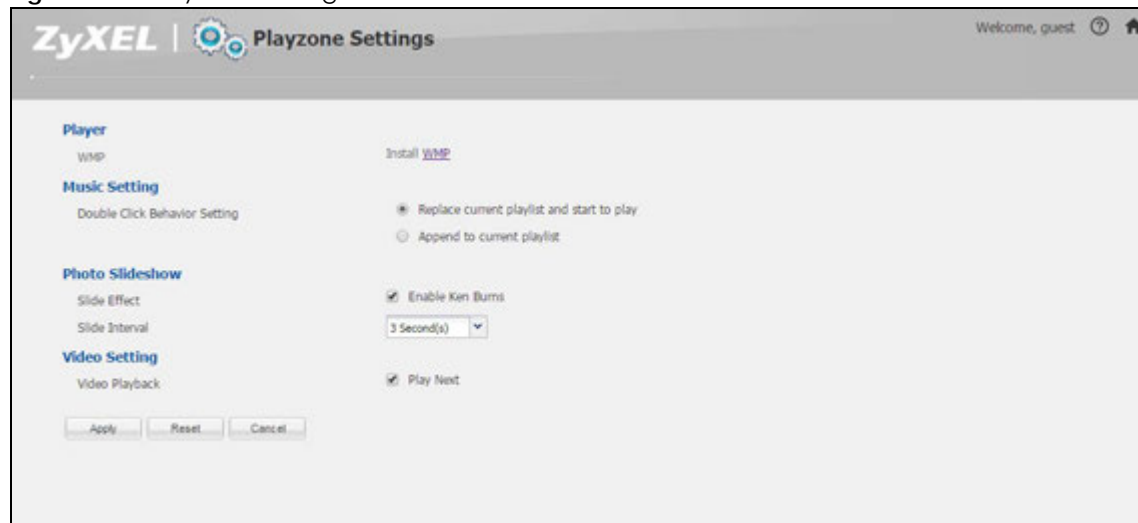
Table 160 Video Screen

LABEL	DESCRIPTION
Zyxel	The path of the current view. Click an underlined link to go to that location in the path. Music , Photo , or Video indicates the category of files.
Search	Use this to look for a file by name.
A	View files. Double-click an item to play it. You can also select check boxes for multiple items when you display the files as a list.
B	The current page and total number of pages displays when a category has multiple pages of entries. Click an arrow or type a number to go to another page of entries.
C	Select a view type for displaying folders and files: All - Display all of the category's files. Folder - List the folders containing music files.
Thumbnail	Click this to view the files as thumbnails.
List	Click this to view the files as a list.
Play	Click this to play the currently selected file. You can also double-click a file to play it.
Refresh	Click this to update the display in the screen.

17.6 Playzone Settings

The **Playzone Settings** screen is only available with user accounts. Click **Playzone Settings** to open the following screen. Use this screen to change general Playzone screen settings.

Figure 243 Playzone Settings



The following table describes the labels in this screen.

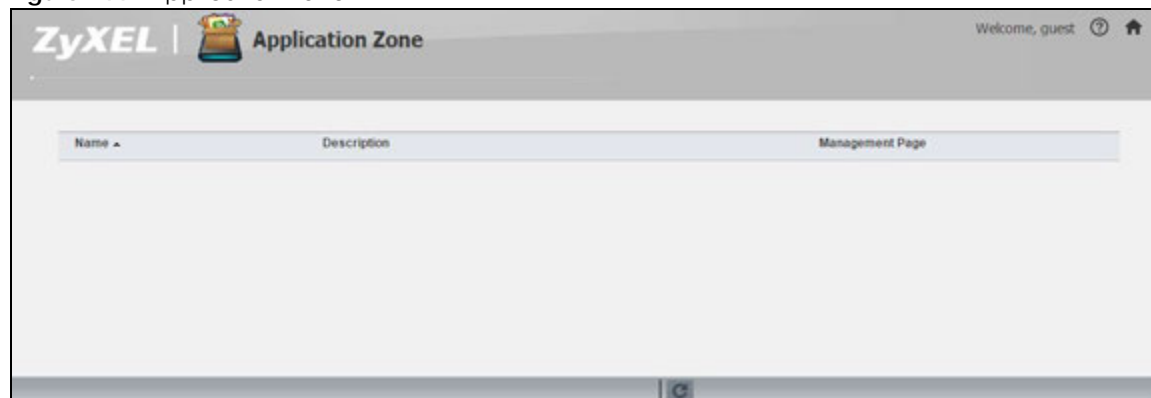
Table 161 Playzone Settings

LABEL	DESCRIPTION
WMP	This field displays "Installed" if you already have Windows Media Player installed or a link for installing it if you do not already have it installed.
Double Click Behavior Setting	Select Replace current playlist and start to play to have double clicking a song cause the NAS to immediately stop any currently playing song and start playing the double-clicked song. Select Append to current playlist to have double clicking a song add a song to the end of the current playlist.
Slide Effect	Enable the Ken Burns effect to have the NAS automatically pan and zoom photos in slideshows. Disable it to display photos in slideshows normally.
Slide Interval	Select how long to display each image in a slideshow before changing to the next.
Video Playback	Select Play Next to play the rest of the video files in a folder. So for example, a folder has video files 1~10 and you play video 3. When video 3 finishes the device continues playing the rest of the videos in the folder (4~10). It does not loop back and play videos 1 and 2.
Apply	Click this to save your changes.
Reset	Click this to refresh the screen.
Cancel	Click this to exit the screen without saving your changes.

17.7 Application Zone

Normal users can click **Application Zone** to go to the management page of installed, non-built-in packages.

Figure 244 Application Zone



The following table describes the labels in the this screen.

Table 162 Application Zone

LABEL	DESCRIPTION
Name	This is the name of the application.
Description	This is a brief description of the application.
Management Page	Click this link to go the application's management page where you can configure settings for it.
Refresh	Update the list of applications in the screen.

CHAPTER 18

Access Your Cloud Remotely via myZyxelCloud and Zyxel Drive App

Use the NAS to set up your own secure personal cloud. Keep your videos, photos, music, and files safely at home and under your control. Access, share, and stream files from anywhere using your PC, Mac computer, and mobile devices.

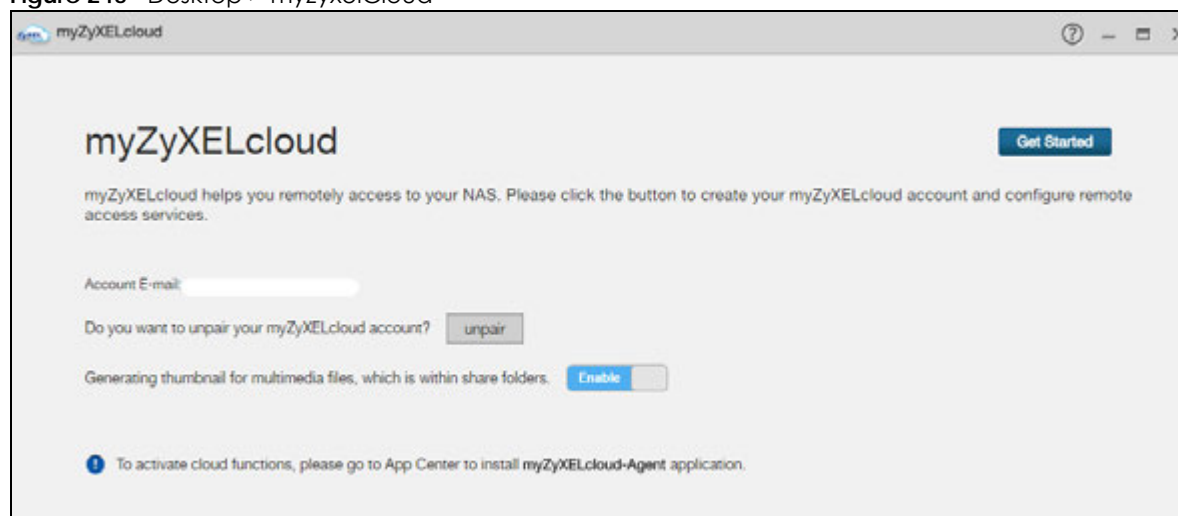
18.1 myZyxelCloud Service

Use the myZyxelCloud service at <https://mycloud.zyxel.com> to set up a free hostname like name.zyxel.me and set the NAS to use it. This lets you easily access the NAS through the Internet. The myZyxelcloud web portal also lets you monitor the NAS's health from anywhere.

18.1.1 myZyxelCloud Screen

Click **myZyxelCloud** on the **Desktop** to display the following screen.

Figure 245 Desktop > myZyxelCloud



The following table describes the labels in this screen.

Table 163 Desktop > myZyxeCloud

LABEL	DESCRIPTION
Get Started	Click this to go to mycloud.zyxe.com to create a myZyxecloud account and configure remote access services.
Account E-mail	This field displays the myZyxecloud account paired with the NAS.
Do you want to unpair your myZyxeCloud account?	Click unpair to remove the pairing between the NAS and the myZyxeCloud account if you want to pair the NAS with a different myZyxeCloud account. You have to pair the NAS and your myZyxeCloud account before performing the unpair.
Generating thumbnail for multimedia files, which is within share folders.	Click Enable to create media files as thumbnails in shared folders. Otherwise, click Disable .

18.1.2 Pair your NAS

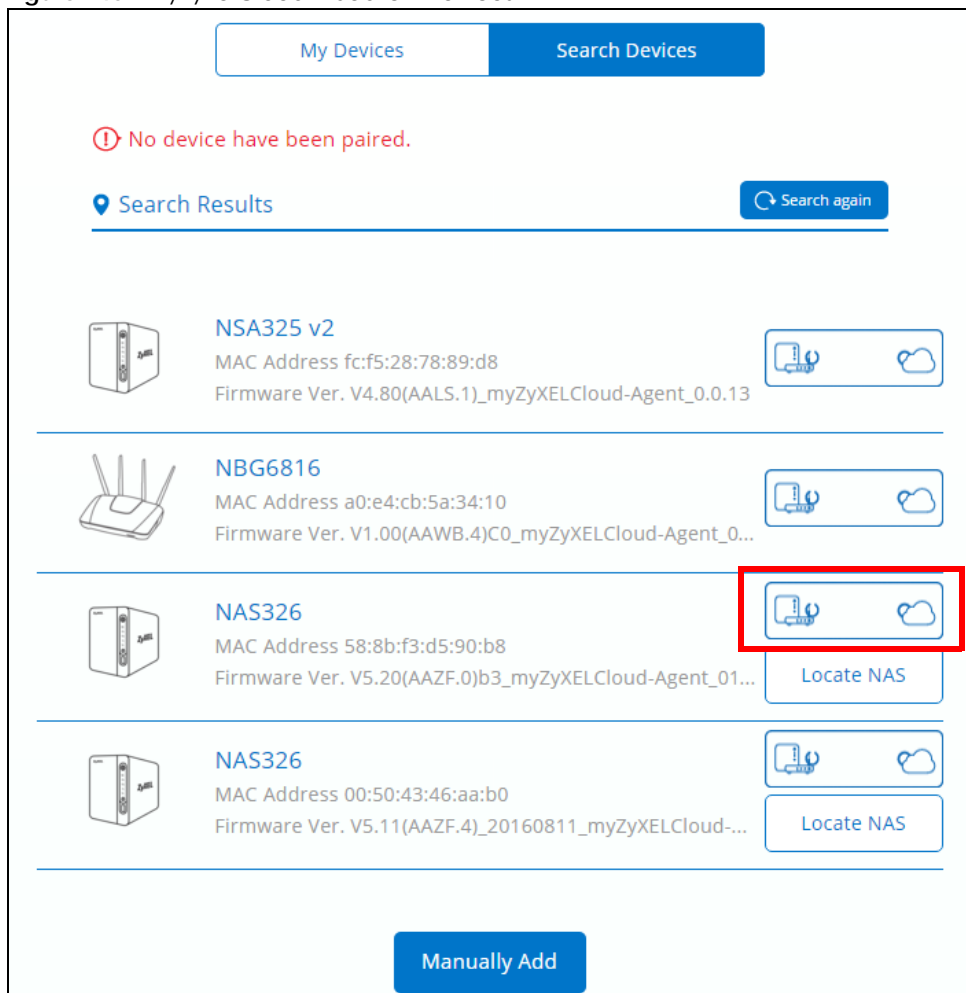
After you click **Get Started** in the **myZyxeCloud** screen to create an account and sign in, follow the steps below to pair the NAS and your myZyxeCloud account.

Step 1 Search Devices

Click the **Search Devices** tab to find your NAS from the search list, and click the **Pair NAS with account** button to pair the NAS.

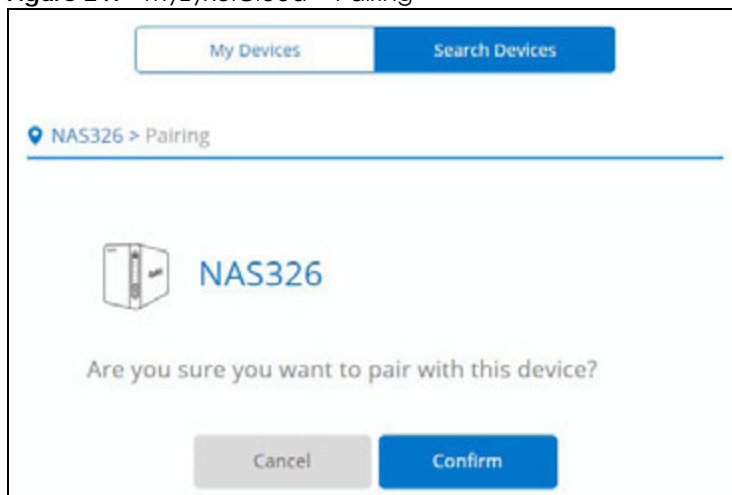
If there are more than one NAS in your network and you don't know the MAC address of the NAS with which you want to pair, click the **Locate NAS** button to locate it. The LED of the NAS for which you click the **Locate NAS** button will start to blink for 30 seconds.

If your NAS is not in the list, you can click **Manually Add** to go to a screen, where you can enter the NAS's MAC address and serial number to find and display it in the list.

Figure 246 myZyxeCloud > Search Devices

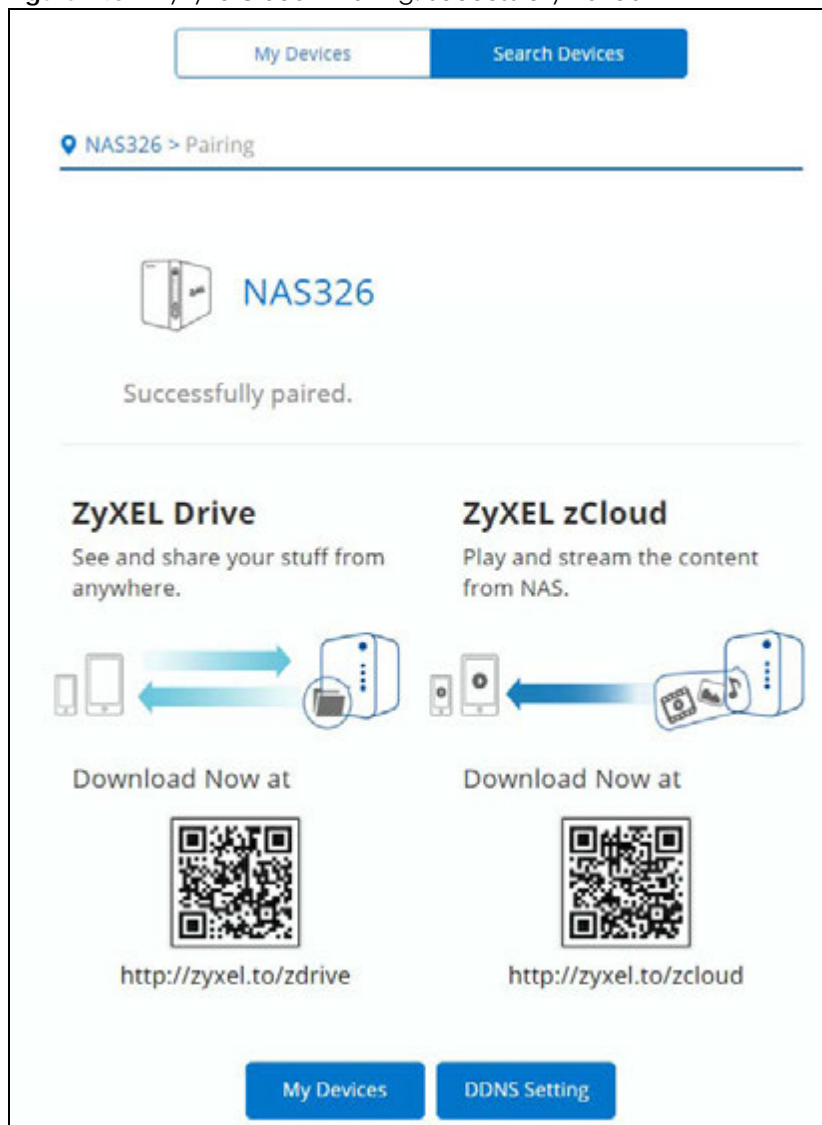
Step 2 Pairing

When the following **Pairing** screen displays, click **Confirm** to pair with your NAS.

Figure 247 myZyxeCloud > Pairing

When the NAS is successfully paired, the screen displays as shown next.

Figure 248 myZyxelCloud > Pairing: Successfully Paired



18.1.3 DDNS Setup

Use the free DDNS service to get a domain name mapped to the NAS's IP address. With DDNS, you can use the domain name to remotely access the NAS's Web Configurator through the Internet.

Click **DDNS Setting** in the **Successfully Paired** screen or the **DDNS Setup** button in the **My Devices** screen to set up a free hostname for the NAS. The **DDNS Setting** screen appears as shown next. Specify a host name and click **Submit** to save your settings.

Figure 249 myZyxeCloud > DDNS Setting

My Devices Search Devices

NAS326 > DDNS Setting

Host Name

MYNAS326 .zyxel.me

Please use: ✓ 3 to 63 characters ✓ First character should be a letter ✓ Numbers(0-9)
✓ Lowercase letters(a-z) ✓ Hyphen(-)

Cancel Submit

18.1.4 NAS Information



After setting up your NAS's host name, the **My Devices** screen appears. Use this screen to view the NAS's information. You can click the arrow icon () for more information.


Figure 250 myZyxeCloud > My Devices

My Devices Search Devices

Device List

Package Setup DDNS Setup UPnP Setup Unpairing

	mynas326.zyxel.me	
WAN IP		114.34.247.205
Model		NAS326
Last Update		2016/08/11
MAC Address		58:8b:f3:d5:90:b8
Firmware Ver.		V5.20(AAZF.0)b3_myZyXELCloud-Agent_0104



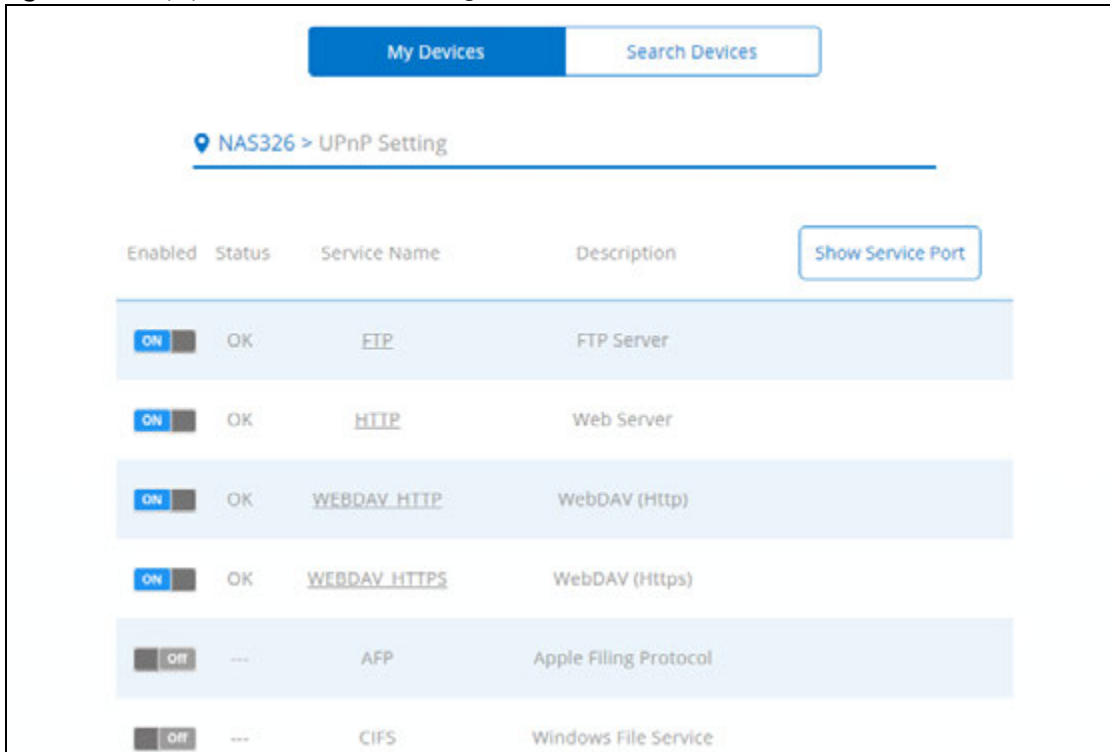
18.1.5 UPnP Setup

Use this screen configure the UPnP settings your Internet gateway uses to allow access from the WAN (Internet) to services on the NAS. You can also set which port Internet users need to use in order to access a specific service on the NAS.

Note: To use UPnP port mapping, your Internet gateway must have UPnP enabled.

Click **UPnP Setup** in the **My Devices** screen to configure the Internet gateway's firewall and Network Address Translation (NAT) to allow access to the NAS from the Internet.

Figure 251 myZyxelCloud > UPnP Setting



Note: You can click **Help** to open a page about the myZyxelCloud screens.

18.2 Zyxel Drive

Use the Zyxel Drive app to stream or download photos, videos, and music to your Android or iOS phone through the Internet. You can also upload files from your phone to the NAS.

After setting up the myZyxelCloud service, go to <http://zyxel.to/zdrive> to get the Zyxel Drive app for your Android or iOS phone.

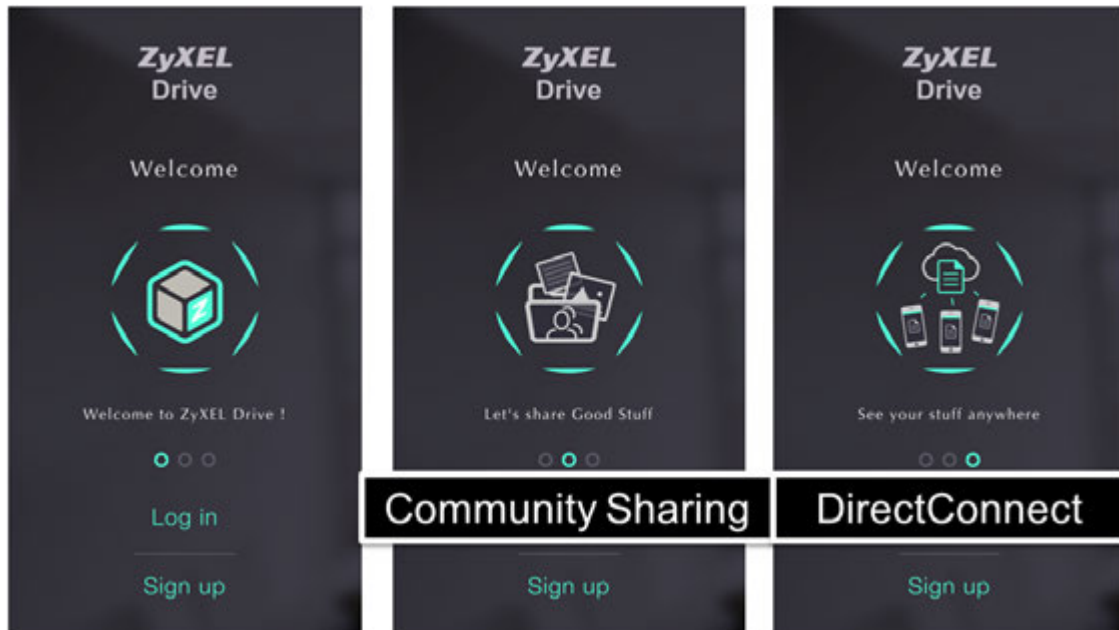
Log in, sign-up, and start playing.

18.2.1 Zyxel Drive Welcome

Community Sharing - Send invitation links to friends and family to conveniently share selected NAS folders.

DirectConnect - Privately and securely access your NAS content from anywhere.

Figure 252 Zyxel Drive Welcome

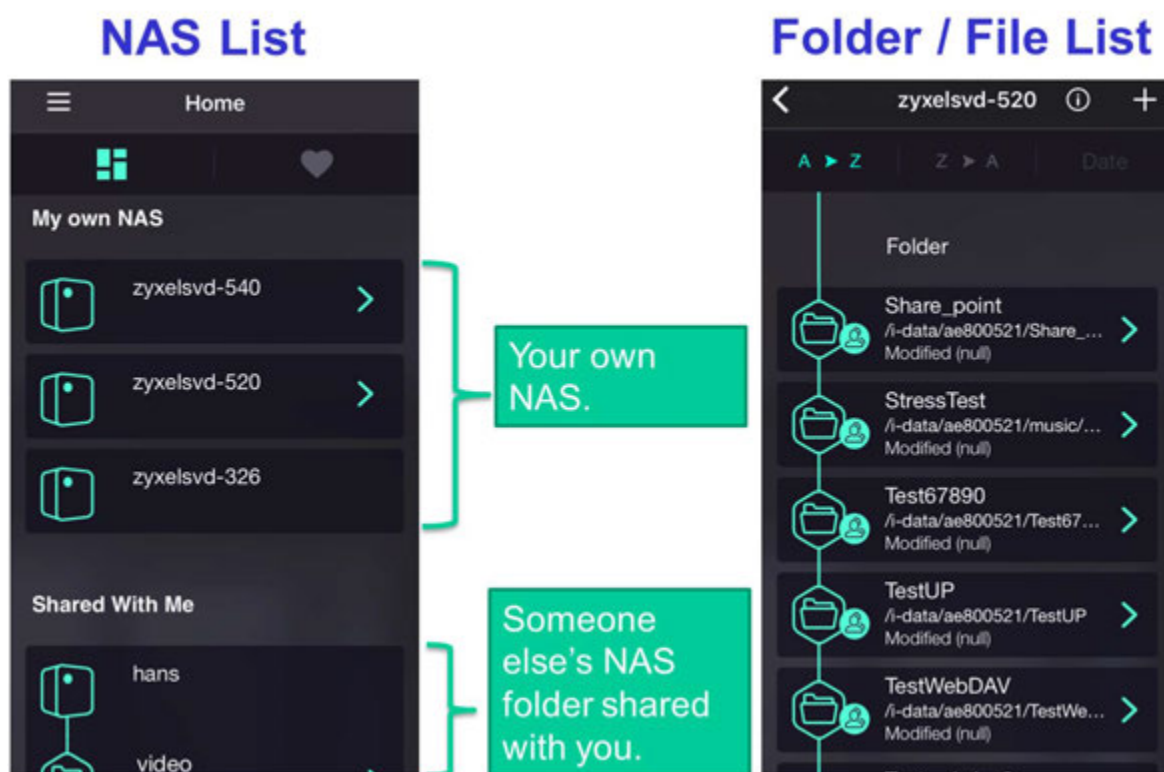


18.2.2 NAS and File List

My own NAS - Access and share files from your own NAS.

Shared With Me - Access files on someone else's NAS folder that they have shared with you.

Figure 253 NAS and File List

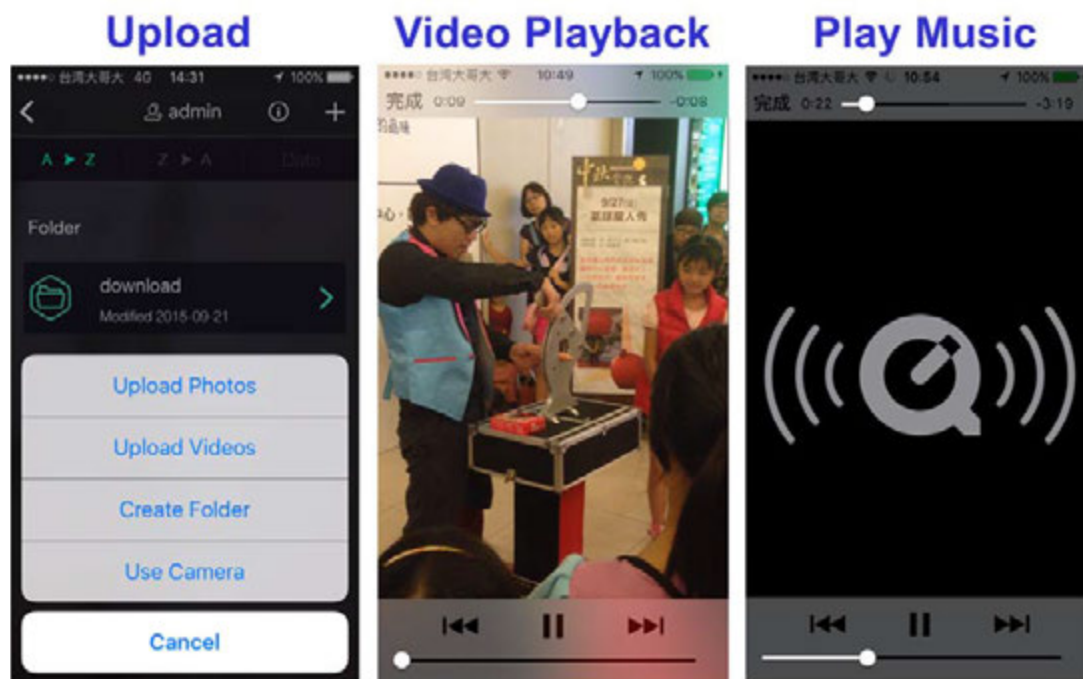


18.2.3 Uploading and Media Streaming

Use Zyxel Drive to upload photos and videos from your mobile device to the NAS. You can also stream videos and music stored on the NAS.

This section uses the Zyxel Drive App screens for Android as an example. The screens may vary slightly for iOS.

Figure 254 Uploading and Media Streaming



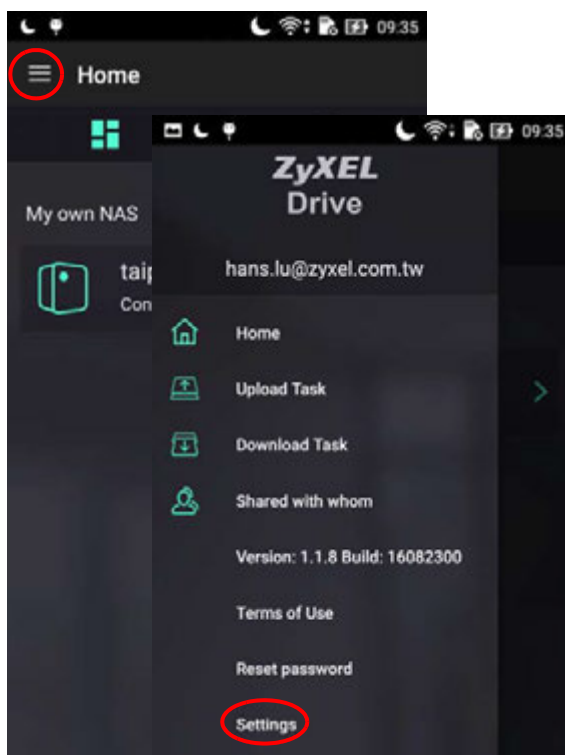
18.2.4 Instant Upload

Instant Upload allows you to back up all of the photos and videos on your mobile device to the NAS immediately.

Note: The Instant Upload function is available on the Zyxel Drive App 1.1 and later versions.

Figure 255 Zyxel Drive: Home > Settings

Android



iOS

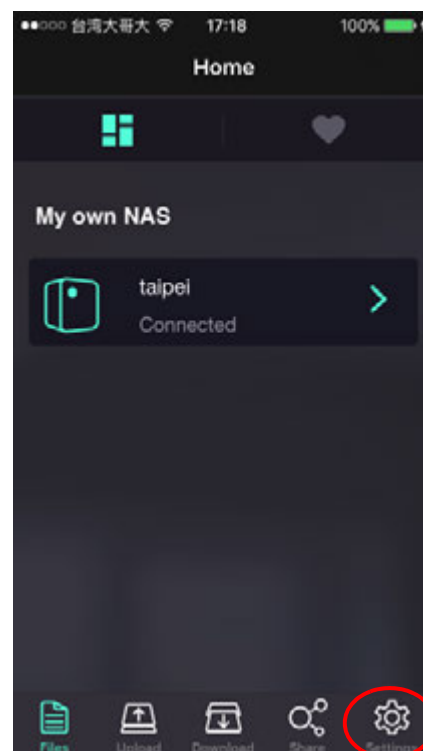
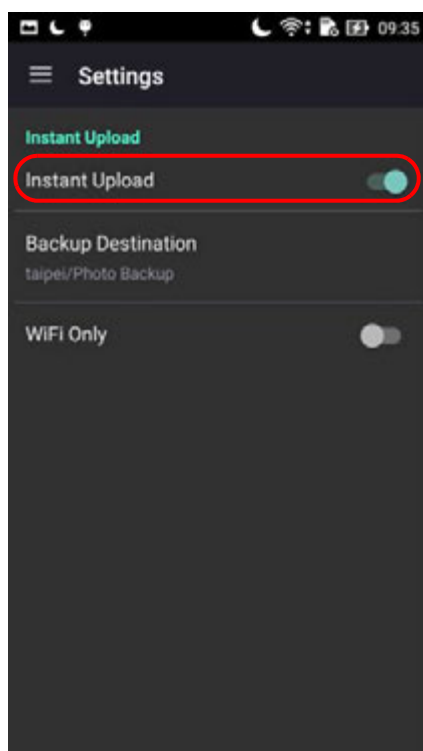


Figure 256 Zyxel Drive: Enable Instant Upload

Android



iOS

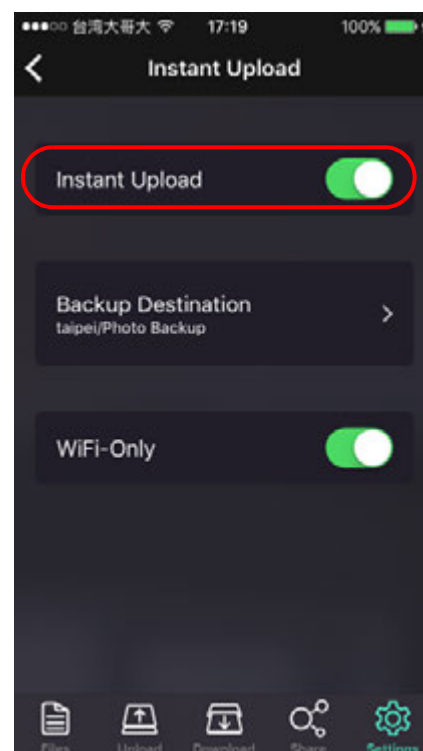
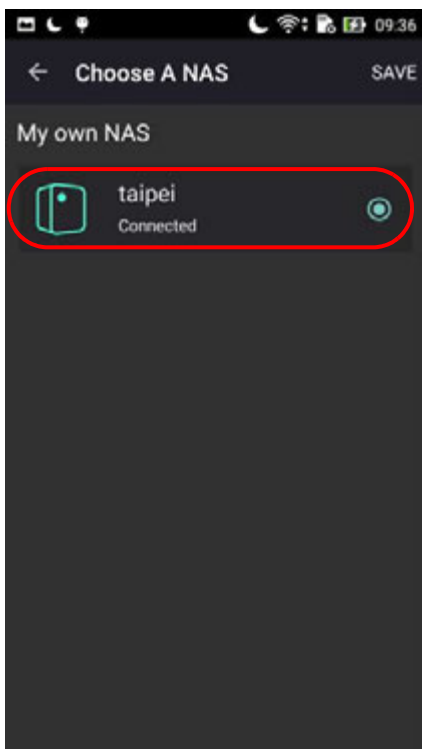


Figure 257 Zyxel Drive: Select the NAS to which you want to upload photos and videos

Android



iOS

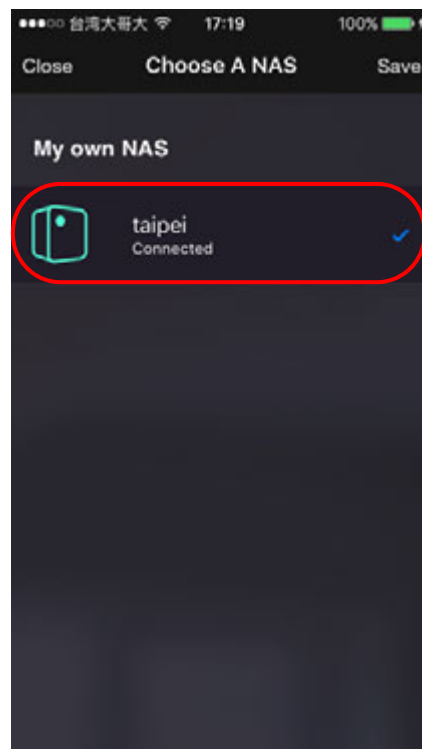
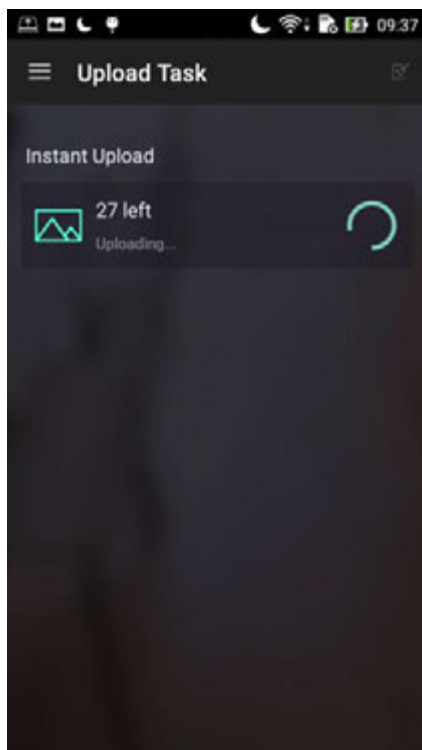


Figure 258 Zyxel Drive: All photos and videos on the phone are copied to the NAS

Android



iOS

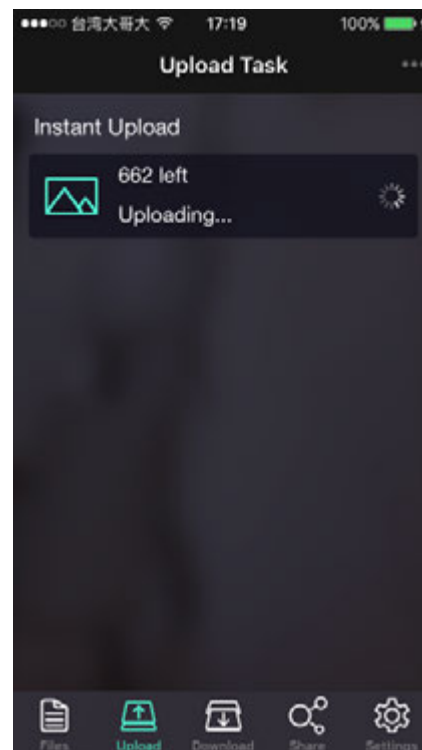
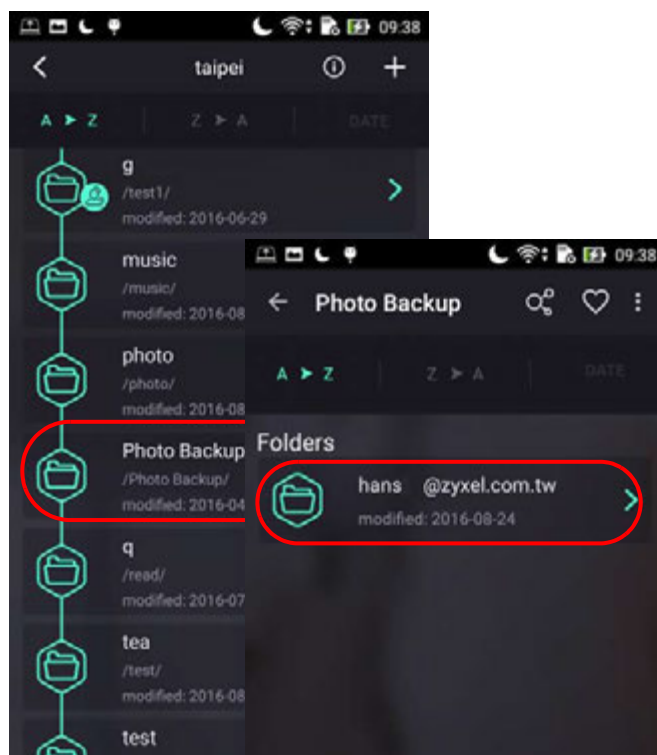
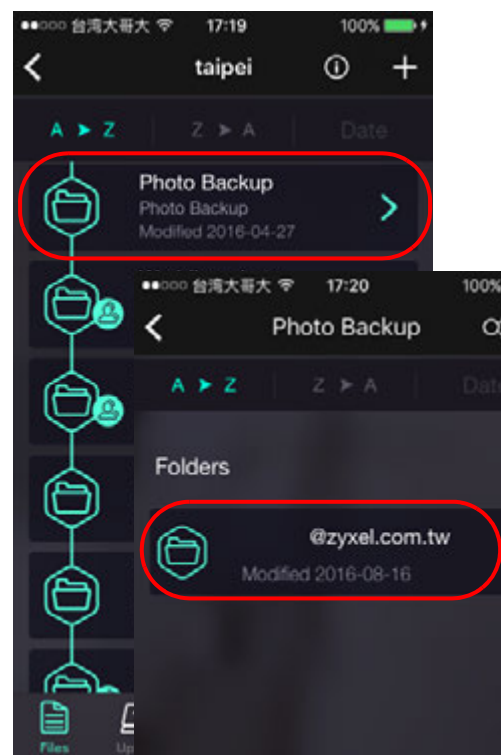


Figure 259 Zyxel Drive: Files are backed up to the “Photo Backup” folder in the NAS**Android****iOS**

CHAPTER 19

Troubleshooting

19.1 Troubleshooting Overview

This chapter offers some suggestions to solve problems you might encounter. The potential problems are divided into the following categories.

- [Power, Hardware, Connections, and LEDs](#)
- [NAS Login and Access](#)
- [I Cannot Access The NAS](#)
- [Users Cannot Access the NAS](#)
- [External USB Drives](#)
- [Storage](#)
- [Firmware](#)
- [File Transfer](#)
- [Networking](#)
- [Some Features' Screens Do Not Display](#)
- [Media Server Functions](#)
- [Download Service Functions](#)
- [Web Publishing](#)
- [Auto Upload](#)
- [App Center](#)
- [Backups](#)
- [Google Drive](#)

19.2 Power, Hardware, Connections, and LEDs

The NAS **PWR** LED does not turn on (no LEDs are on).

- Make sure the NAS is turned on.
- Make sure you are using the power adaptor or cord included with the NAS.
- Make sure the power adaptor or cord is connected to the NAS and plugged in to an appropriate power source. Make sure the power source is turned on.
- Turn the NAS off and on.
- If the problem continues, contact the vendor.

An HDD LED is off.

The **HDD** LED is off when the NAS cannot detect a hard drive in the drive bay. Replace or install a hard drive. See [Installing or replacing a hard disk](#).

An HDD LED is red.

Red means that the NAS detected an error on the hard drive (like a bad sector for example). The NAS automatically tries to recover a bad sector, but the LED stays red until the NAS restarts. Even if the hard drive still functions, it is recommended that you replace it since errors are a sign that the hard drive may fail soon. See [Installing or replacing a hard disk](#).

Installing or replacing a hard disk.

Do not remove or install a hard disk while the NAS is turned on. The NAS must be turned off before you remove or install the hard disk.

- 1 Turn the NAS off, remove the front panel and make sure:
 - there is a SATA I or SATA II (3.0 Gbit/s) compatible hard disk installed.
 - the hard disk is installed correctly in the disk bay. Push the disk back into the NAS disk bay until the hard disk is fitted snugly inside the NAS (see the NAS Quick Start Guide).
 - the hard disk could be faulty. Try a different hard drive or test the original hard disk in a different NAS or computer.
- 2 If you had to replace the drive, turn on the NAS and go to the **Storage Manager** screen.
 - If you have a RAID 1 volume click the **Repair** icon next to the new drive.
 - If you are using RAID 0 you will need to recreate the whole volume. All of your data is lost.
 - If you are using a single-disk JBOD volume, you need to create a new volume on the new drive.
 - If you are using a two-disk JBOD volume, you need to create a whole new volume on both drives.

The LAN LED (by the LAN port) is off.

- Make sure the Ethernet cable is connected properly to the NAS and connected to another (Ethernet) device. Make sure the other device is turned on. If it's connected directly to a computer, make sure that the computer network card is working (ping 127.0.0.1 on the computer).
- Use another Ethernet cable. If you're connecting to a Gigabit Ethernet, make sure you're using an 8-wire Ethernet cable.
- If the problem continues, contact the vendor.

See [Table 2 on page 14](#) for a description of NAS LEDs.

The NAS turns off or reboots by itself.

Check the **Control Panel > Maintenance > Power > Power Management** screen. This is where you configure power settings for the NAS, including power saving, UPS, power on/off during power failure and power on/off schedule. The NAS may be set to turn off under certain conditions.

A power failure occurred while the NAS was downloading files.

- If power failure occurs during the active download period, the NAS will verify whether the downloaded files were damaged.
- If a file is corrupted, the NAS will download the file again.
- If the file is intact but not completely downloaded, the NAS will resume the download task after it restarts.

19.3 NAS Login and Access

I forgot the server name of the NAS.

- The default server name is 'NAS' followed by the number of your model ('NAS540' for example).
- Use FindMe to discover your NAS.
- If the server name has changed, see [Section 2.2 on page 18](#) to use FindMe. Otherwise, see [Section 1.7 on page 16](#) to use the **RESET** button to return to the default setting.

I cannot get to the NAS login screen.

- Use FindMe to discover your NAS.
- If you used the **RESET** button, the NAS may have a new IP address..
- Make sure the NAS is turned on.
- If you are trying to log in directly by typing the server name into your web browser's address field, make sure you are using the correct server name as the web site address.
 - The default server name is 'NAS' followed by the number of your model ('NAS540' for example). If you have changed the server name, use the new one.
 - If the server name has been changed and you do not know the new server name, see the troubleshooting suggestions for [I forgot the server name of the NAS](#).

- Check the hardware connections, and make sure the LEDs are behaving as expected. See the Quick Start Guide and [Table 2 on page 14](#).
- By default, the NAS gets an IP address automatically. The NAS assigns itself an IP address if no device assigns one. If your computer is also set to get an IP address automatically, the computer and the NAS can both assign themselves IP addresses and communicate. See [Section 8.4 on page 124](#) if you need to configure the NAS with a static IP address.
- If you are connecting to the NAS by its IP address, make sure you use the correct one.
- Make sure your computer's IP address is in the same subnet as the NAS's IP address.
- Ping the NAS from your computer. Make sure your computer's Ethernet adapter is installed and functioning properly. In a (Windows) computer, click **Start**, **(All) Programs**, **Accessories** and then **Command Prompt**. In the **Command Prompt** window, type "ping" followed by the NAS's IP address and then press [ENTER].
- Make sure you are using Internet Explorer 6.0 (and later) or Firefox 1.07 (and later).
- Make sure your Internet browser does not block pop-up windows and has JavaScript and Java enabled. With Internet Explorer 6, you may also have to enable scripting of safe ActiveX controls. See [Section 19.3.1 on page 312](#).

I forgot the password.

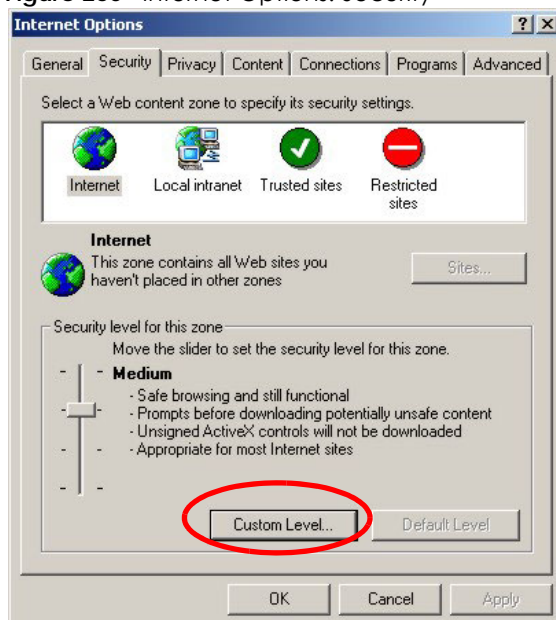
- The default password is **1234**.
- If you have changed the password and forgotten it, you will have to reset the NAS.

19.3.1 Enabling Scripting of Safe ActiveX Controls

If pages of the web configurator do not display properly in Internet Explorer, check that scripting of safe ActiveX controls is enabled.

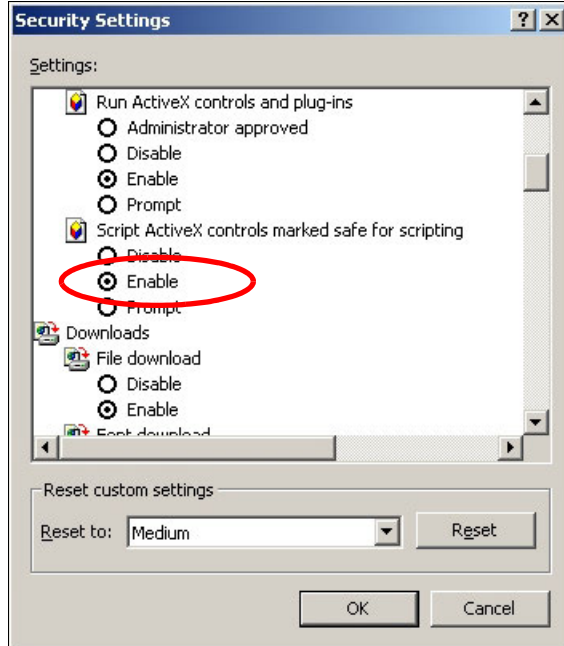
- 1 In Internet Explorer, click **Tools**, **Internet Options** and then the **Security** tab.

Figure 260 Internet Options: Security



- 2 Click the **Custom Level...** button.
- 3 Under **Script ActiveX controls marked safe for scripting**, make sure that **Enable** is selected (the default).
- 4 Click **OK** to close the window.

Figure 261 Security Settings - Script Safe ActiveX Controls



I can see the login screen, but I cannot log in to the NAS.

- Make sure you have entered the username and password correctly. The default username is **admin**, and the default password is **1234**. These fields are case-sensitive, so make sure [Caps Lock] is not on.
- Turn the NAS off and on.
- If this does not work, see [Section 1.7 on page 16](#) to reset the device.

I cannot see the multi-language web configurator screens while using Internet Explorer.

Use [Section 19.3.1 on page 312](#) to enable the scripting of safe ActiveX controls.

The Web Configurator logs out by itself.

The web configurator management session automatically times out if it is left idle for 15 minutes. Simply log back into the NAS if this happens to you.

19.4 I Cannot Access The NAS

I cannot access a share.

- Check that the NAS is turned on and connected to the network. Try to ping the NAS or use FindMeto discover it.
- Check that you entered your login name and password correctly.
- Check that the share exists and check its access settings.
- Check if the shared folder is a subfolder of another (parent) share. Check that the parent share's access rights do not conflict with the subfolder share. It is recommended that you do not create subfolder shares.
- Check if there are any existing mapped network drives to the NAS. You may need to disconnect existing mapped network drives as a new mapped network drive connection may use (different) previously-saved login information. To do this, open Windows Explorer and click **Tools > Disconnect Mapped Network Drives**.
- Check that the volume in which the share resides, exists and is not down or degraded. If it is down or degraded, see [Section 19.2 on page 309](#).
- Make sure you have the client for Microsoft networks installed and enabled in your network connection's properties.
 - In Windows XP or 2000, click **Start > Settings > Control Panel > Network Connections (Network and Dial-up Connections** in Windows 2000/NT) > **Local Area Connection > Properties**.
 - Check that **Client for Microsoft Networks** is in the list of components and has its check box selected.

19.5 Users Cannot Access the NAS

A local user cannot access a share.

- Check that the NAS is turned on and connected to the network. The local user should try to ping the NAS
- The local user should check that he entered his login name and password correctly.
- Check if the share exists and has the correct access settings for this user.
- Check the read/write permissions associated with specific files and/or folders. Account names added to the list are linked to the files and folders that they are allowed to access, along with what kinds of actions they are allowed to perform with those files and folders (delete, move, rename, and so on).
- The user's computer may already be connected to another of the NAS's shares using a different user name and/or password. This can happen without the user realizing it if the user's computer automatically connects to a share at logon. Right-click any other connected shares and click **Disconnect**. Then re-attempt to connect to the desired share.
- Check if the shared folder is a subfolder of another (parent) share. Check that the parent share's access rights do not conflict with the subfolder share. It is recommended that you do not create subfolder shares.

- Check if the user belongs to a group with conflicting access rights. **No Access** always takes precedence. If you allow a user **Read/Write** access to a share but set his group to **No Access**, then he will NOT be able to access the share.
- The local user should check if there are any existing mapped network drives to the NAS. He may need to disconnect existing CIFS connections as new CIFS connection may use previously-saved login information that may be different to NAS login.
- Check that the array in which the share resides, exists and is not down or degraded. If the array is down or degraded, see [Section 19.2 on page 309](#).
- If the user is using DFS links, then he can only access the NAS using CIFS and not FTP.
- Check that the share has not been disabled.

I cannot import domain user or user group information even though testing of the connection to the domain controller is OK.

- Check the NAS's DNS setting. The DNS server the NAS is using must be able to resolve the domain controller's address. If the domain controller uses a private IP address, the NAS needs to use a private DNS server. If the domain controller uses a public IP address, the NAS needs to use a public DNS server.
- Leave the domain and re-join it.

A domain user can't access a share.

In addition to the checks listed previously for local users, check that the domain controller is turned on and connected to the network.

A user can access a share but cannot access individual folders or files within the share.

- Check the read/write permissions associated with the share's specific files and/or folders. Account names added to the list are linked to the files and folders that they are allowed to access, along with what kinds of actions they are allowed to perform with those files and folders (delete, move, rename, and so on).

19.6 External USB Drives

The **COPY** LED is red.

Copying files to or from a USB device or SD card failed. The USB device or SD card may not be compatible with the NAS. Try to save the files onto a computer and then from the computer to the NAS (through the network connection).

19.7 Storage

Migrating from RAID 1 to RAID 5 did not expand the storage capacity.

The NAS normally expands the storage capacity by itself after rebuilding the RAID but may not if the NAS rebooted during the RAID re-build.

After the re-build finishes, go to the **Storage Manager** screens and select the volume or disk group and click **Manage** and use **Expand the volume with unallocated disk space**.

Replacing smaller disks in a RAID 1, RAID 5, or RAID 6 with larger capacity hard disks did not expand the storage capacity.

The NAS normally expands the storage capacity by itself after rebuilding the RAID but may not if the NAS rebooted during the RAID re-build.

After the re-build finishes, go to the **Storage Manager** screens and select the volume or disk group and click **Manage** and use **Expand the volume with unallocated disk space**.

19.8 Firmware

I want to know the firmware version on the NAS.

Go to the **Status Center** screen. The **Firmware Version** field shows you the current firmware version running.

19.9 File Transfer

I want to transfer my file(s) from my local computer or storage device to the NAS.

- After you initialize your hard disk, you can directly access the folders in your NAS and transfer files in the same way you transfer files in your local computer:
- 1 On your Windows computer, open Windows Explorer or a web browser.
 - 2 Enter \\nas followed by the number of your model (**540** for example) or the **Server Name** you assigned the NAS. This shows you the folders in the NAS.

- 3 Use drag-and-drop or copy-and-paste to transfer files over to your NAS.
 - Use the **COPY/SYNC** button to transfer files from an external (USB) storage device to the NAS.

I want to transfer my file(s) from the NAS to my local computer or storage device.

- After you initialize your hard disk, you can directly access the folders in your NAS and transfer files in the same way you transfer files in your local computer:
- 1 On your Windows computer, open Windows Explorer or a web browser.
 - 2 Enter **\\nas** followed by the number of your model (**540** for example) or the **Server Name** you assigned the NAS. This shows you the folders in the NAS.
 - 3 Use drag-and-drop or copy-and-paste to transfer files from your NAS to your local computer's folder or your storage device.
 - You can download the files from your NAS. Just click on the file(s) in the **File Browser** screen ([Section 17.2 on page 285](#)). Your computer will prompt you for the location where you want to save the file.

19.10 Networking

I want to control who can access my folder(s)/file(s).

- If you are an administrator, you can configure a user's access rights. Use the **Shared Folders** screens ([Section 7.5 on page 114](#)) to do this.
- If you enabled **Web Publishing** for a folder, anyone on your network can play the media files in the published shares. No user name and password or other form of security is used. The media server is enabled by default with the video, photo, and music shares published.

One of the computers in my network cannot use the printer I connected to the NAS.

- You must install the printer driver on each computer that will use the printer.
- Check [Section 19.3 on page 311](#) and check for related connectivity issues.

19.11 Some Features' Screens Do Not Display

Many NAS features require a valid internal volume.

Features like the print server, download service, FTP and Windows/CIFS access will not work without a valid internal volume. Make sure you have a volume on an internal disk and that the volume is in the healthy state.

- Install an internal disk if one is not installed yet or has failed. See the Quick Start Guide for how to install an internal disk.
- Create a new volume if you do not have one on the internal disk yet.
- Make sure the volume on the installed internal disk is in a healthy state.

I cannot use some applications in the Web Configurator.

- You can use the **App Center** screen ([Chapter 13 on page 192](#)) to install more applications from a web location (specified in the firmware) to your NAS.
- If you have installed the application and can see the application's configuration screen but still cannot use it, check that you have **Enabled** the application.

19.12 Media Server Functions

I set the media server function to publish a folder, but some of the files in the folder do not display in the list on the media client.

Files with formats that are not supported on the media server may not display in the list. See [page 331](#) for the file formats that the media server supports.

I published a folder with the media server function, but the media client does not play some of the files (or does not play them properly).

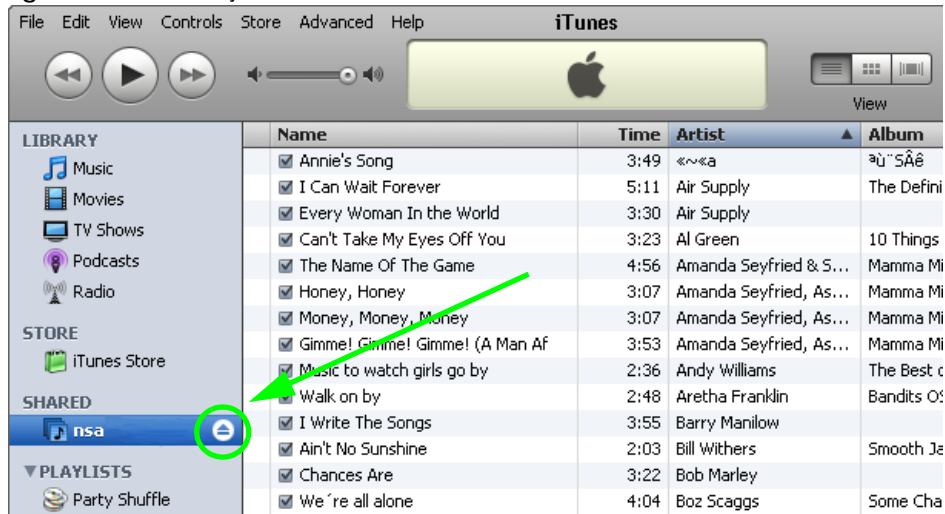
- 1 Files with formats that are not supported on the media server may not display in the list. See [page 331](#) for the file formats that the media server supports.
- 2 If you are using media client software, you may need to install codecs on your computer. Since the media client software uses your computer's installed codecs, files do not play if the required codec is not installed on your computer.
- 3 The media client may not support the file's format.

iTunes does not display the names of all the music files I just put on the NAS.

- 1 Make sure the files are a format supported by iTunes. See [page 331](#).

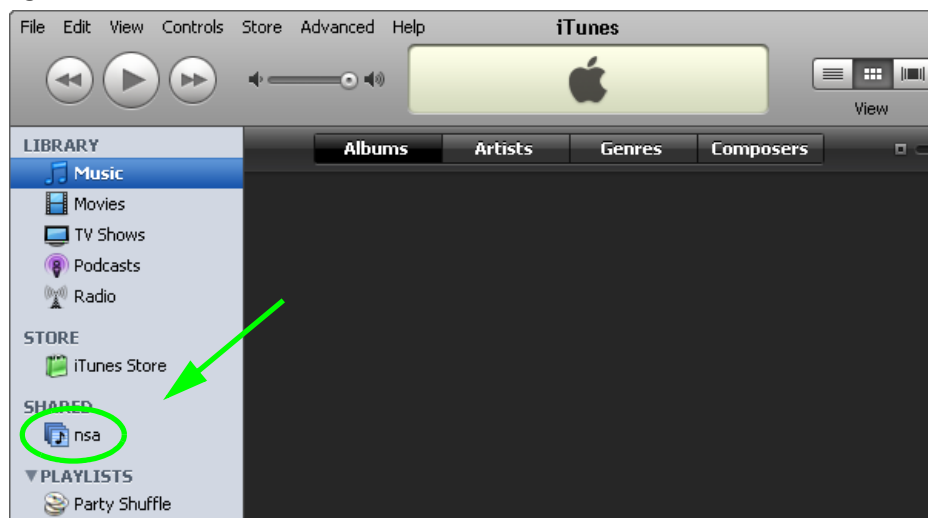
- 2 Go to **Control Panel > Service > iTunes Server**. Make sure the share containing the music files is published and the iTunes server option is enabled.
- 3 If an iTunes client is connected, the NAS's iTunes server function scans the published media server folders for files every three minutes. Leave iTunes connected to the NAS for three minutes. Then use the NAS's eject button (as shown next) to disconnect.

Figure 262 iTunes Eject Button



- 4 Then click the NAS's link to reconnect.

Figure 263 iTunes Reconnected



- 5 Another way to get the NAS's iTunes server function to scan the published media server folders for files is to go to **Control Panel > Service > iTunes Server** and disable and re-enable the iTunes server option. If you uploaded many files, it may take awhile for the NAS to find and list all of them. Then try reconnecting your iTunes client.

I cannot use iTunes to play files located on my NAS.

- 1 Make sure the files are a format supported by iTunes. See [page 331](#).
- 2 If you have files from the iTunes Store that use DRM, you need to use your Apple account ID and password to authorize other computers to play the files. Apple permits you to authorize up to five computers at a time. To authorize a computer, open iTunes and click **Store > Authorize Computer**.
- 3 If you are connecting through a NAT router, make sure that TCP port 3689 and UDP port 5353 are open for traffic on both the server and the client and all points in between (especially the NAT router). If your router includes a firewall, make sure it also allows TCP port 3689 and UDP port 5353 traffic.

19.13 Download Service Functions

The download list items are missing after I removed a hard drive.

The NAS's download list is stored on the system volume. If you have two JBOD volumes, it is possible to remove one and still use the other. However if you remove the system volume, you may lose the download list. With two JBOD volumes, the hard disk that was installed first is usually the system volume.

I cannot find the download files.

By default, the **Download Service** feature stores downloaded files as follows:

- P2P download jobs are stored in /*/incoming (where '*' is a folder that you have set.)
- HTTP/FTP jobs are stored in /* (where '*' is a folder that you have set.)
- All jobs triggered by RSS channels create the subfolder in /* using the channel name where it store all files downloaded from that channel (where '*' is a folder that you have set.)

Check your **Preferences** in the **Download Service** screen ([Section 14.3 on page 229](#)) to know or configure where downloaded files are stored.

19.14 Web Publishing

A web-published share cannot be accessed by web browser from the Internet.

- Make sure the person trying to access the share is using the correct web address (and port number if the NAS's web publishing feature is not using port 80). See [Web Publishing Port Number on page 169](#) for details.
- Make sure the publishing feature is turned on and the share is in the list of published shares.
- Make sure the person trying to access the share is using Internet Explorer 6.0 (and later) or Firefox 1.07 (and later).

- You need to use a public address to access the NAS's web-published shares from the Internet. If your NAS uses a private IP address, use the public IP address of your Internet gateway (firewall) and configure NAT or port forwarding on your Internet gateway and possibly firewall rules in order to let people access the NAS's web-published shares from the Internet.
- Make sure the firewall's public IP address is static or that the firewall uses a Dynamic Domain Name (DDNS).
- Web publishing uses TCP protocol and the port number you specify. Make sure there is not another service using TCP protocol with the same port number.
- If Firefox access to the share does not work, check that you did not set the Web publishing feature to use one of the following ports. (Firefox blocks these ports by default.)

Table 164 Ports Blocked By Default in Firefox

PORT	SERVICE
1	tcpmux
7	echo
9	discard
11	systat
13	daytime
15	netstat
17	qotd
19	chargen
20	ftp data
21	ftp control
22	ssh
23	telnet
25	smtp
37	time
42	name
43	nicname
53	domain
77	priv-rjs
79	finger
87	ttylink

PORT	SERVICE
95	supdup
101	hostrame
102	iso-tsap
103	gppitnp
104	acr-nema
109	POP2
110	POP3
111	sunrpc
113	auth
115	sftp
117	uucp-path
119	NNTP
123	NTP
135	loc-srv epmap
139	netbios
143	IMAP2
179	BGP
389	LDAP
465	SMTP+SSL
512	print exec

PORT	SERVICE
513	login
514	shell
515	printer
526	tempo
530	courier
531	chat
532	netnews
540	uucp
556	remotefs
563	NNTP+SSL
587	submission
601	syslog
636	LDAP+SSL
993	IMAP+SSL
995	POP3+SSL
2049	nfs
4045	lockd
6000	X11

- Make sure your ISP allows you to run a server and is not blocking the port number of the NAS's web publishing feature.

19.15 Auto Upload

The NAS does not automatically upload files to Flickr or YouTube.

- 1 Make sure the NAS is connected to the Internet. See [Section 8.4 on page 124](#) for details about testing network connections.

- 2 Click **Control Panel > Maintenance > Log** to check the NAS's log for a message about the file.
 - 2a If the log message displays "no such file or directory", the file may have been removed from the NAS. Make sure the file still exists in the watch folder.
 - 2b If the log message displays "filename is queued", the file may still be waiting for auto upload. Check the grace period setting in the service's **Configuration** screen. You can set a smaller grace period to shorten the queue time.
 - 2c If you cannot find any log messages about the file:
 - Make sure the **Folder Watch List** includes the folder containing the file. You can upload the file to the watch folder again.
 - Make sure the file's format is supported by Flickr or YouTube. You can find the supported file extensions in the **Folder Watch List**.
 - 2d If the log message displays "not authorized yet", check if you can enter the NAS's **Configuration** screen for the service. If you changed the password of your Flickr or YouTube account, you cannot access the service's **Configuration** screen, and the NAS cannot auto upload files. Make sure you also update the account information in the NAS.
- 3 Make sure the file size does not exceed the limit imposed by the service. At the time of writing, Flickr restricts the file size to 10 MB, and YouTube restricts the file size to 100 MB.
- 4 Make sure you did not exceed the service's upload quota. Flickr and YouTube have different policies about how much you can upload within a certain period, for example, 100 MB/week.
- 5 The NAS may have temporarily failed to connect to the service. You can upload the file to the watch folder again.

19.16 App Center

The NAS won't install the package(s) I selected in the **App Center** screen.

- The web location of the package may be undergoing maintenance. Try again at a later time. Upgrade the firmware of the NAS.
- If a new firmware is available, do an upgrade and try installing the package(s) again.

I want to know how my hard disk is performing.

Use S.M.A.R.T. (Self Monitoring, Analysis, and Reporting Technology) to monitor hard disks. It detects and reports the reliability of hard disks using standard indicators, enabling administrators to anticipate possible disk failures.

19.17 Backups

I cannot make a backup.

- Check that enough space is available on the external disk. If there isn't you may need to purge older backups or delete other files on the backup USB disk or NAS.
- If you are using the **Backup** screen ([Section 16.3 on page 261](#)):
 - You can look at the **Backup** screen's **Last Run Result** display.
 - If you're backing up to another NAS or a computer, check that it allows the NAS to write files to it. For a synchronization backup, the target must be another NAS or another compatible model.
 - Check that the NAS is not performing another backup job. The schedule set for the backup jobs queues backups when a different backup is already going on at the time a backup is scheduled.

The backup does not run at the time configured.

- Check that the correct time is configured on the NAS.
- Check that the NAS is able to access the time server from which it gets the time; see [Section 9.5 on page 142](#).

19.18 Google Drive

Google Drive stopped syncing.

- 1 Make sure the NAS is connected to the Internet. See [Section 8.4 on page 124](#) for details about testing network connections.
- 2 Check if you have exceeded the Google Drive account's storage quota. You may need to:
 - Delete unneeded files.
 - Empty the Google Drive trash bin. Note, this permanently deletes everything in the bin, even if Google moved it there without telling you (because you moved a file out of the local sync folder for example).
 - Upgrade the account's capacity
- 3 Click **Maintenance** > **Log** to check the NAS's log messages. If a log message says you have exceeded your storage quota on the NAS:
 - Delete unneeded files.
 - Clean out the recycle bin (see [Section 7.5.6.1 on page 122](#)).
 - Increase the user's quota on the volume containing the local sync folder (see [Section 7.3.2 on page 101](#) or [Section 7.3.3 on page 105](#)).

- 4 Check for any logs about removal of the user account. When you remove a user's NAS account, the NAS also removes the link to the user's Google account. However the NAS keeps the data in the local sync folder. Reconfigure a user account and link it to the Google account to let the user use Google Drive again.

APPENDIX A

Customer Support

In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a Zyxel office for the region in which you bought the device.

For Zyxel Communications offices, see <https://service-provider.zyxel.com/global/en/contact-us> for the latest information.

For Zyxel Networks offices, see <https://www.zyxel.com/index.shtml> for the latest information.

Please have the following information ready when you contact an office.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

Corporate Headquarters (Worldwide)

Taiwan

- Zyxel Communications Corporation
- <https://www.zyxel.com>

Asia

China

- Zyxel Communications (Shanghai) Corp.
- Zyxel Communications (Beijing) Corp.
- Zyxel Communications (Tianjin) Corp.
- <https://www.zyxel.com/cn/zh/>

India

- Zyxel Technology India Pvt Ltd
- <https://www.zyxel.com/in/en/>

Kazakhstan

- Zyxel Kazakhstan
- <https://www.zyxel.kz>

Korea

- Zyxel Korea Corp.
- <http://www.zyxel.kr>

Malaysia

- Zyxel Malaysia Sdn Bhd.
- <http://www.zyxel.com.my>

Pakistan

- Zyxel Pakistan (Pvt.) Ltd.
- <http://www.zyxel.com.pk>

Philippines

- Zyxel Philippines
- <http://www.zyxel.com.ph>

Singapore

- Zyxel Singapore Pte Ltd.
- <http://www.zyxel.com.sg>

Taiwan

- Zyxel Communications Corporation
- <https://www.zyxel.com/tw/zh/>

Thailand

- Zyxel Thailand Co., Ltd
- <https://www.zyxel.com/th/th/>

Vietnam

- Zyxel Communications Corporation-Vietnam Office
- <https://www.zyxel.com/vn/vi>

Europe

Belarus

- Zyxel BY
- <https://www.zyxel.by>

Bulgaria

- Zyxel България
- <https://www.zyxel.com/bg/bg/>

Czech Republic

- Zyxel Communications Czech s.r.o
- <https://www.zyxel.com/cz/cs/>

Denmark

- Zyxel Communications A/S
- <https://www.zyxel.com/dk/da/>

Finland

- Zyxel Communications
- <https://www.zyxel.com/fi/fi/>

France

- Zyxel France
- <https://www.zyxel.fr>

Germany

- Zyxel Deutschland GmbH
- <https://www.zyxel.com/de/de/>

Hungary

- Zyxel Hungary & SEE
- <https://www.zyxel.com/hu/hu/>

Italy

- Zyxel Communications Italy
- <https://www.zyxel.com/it/it/>

Netherlands

- Zyxel Benelux
- <https://www.zyxel.com/nl/nl/>

Norway

- Zyxel Communications
- <https://www.zyxel.com/no/no/>

Poland

- Zyxel Communications Poland
- <https://www.zyxel.com/pl/pl/>

Romania

- Zyxel Romania

- <https://www.zyxel.com/ro/ro>

Russia

- Zyxel Russia
- <https://www.zyxel.com/ru/ru/>

Slovakia

- Zyxel Communications Czech s.r.o. organizacna zlozka
- <https://www.zyxel.com/sk/sk/>

Spain

- Zyxel Communications ES Ltd
- <https://www.zyxel.com/es/es/>

Sweden

- Zyxel Communications
- <https://www.zyxel.com/se/sv/>

Switzerland

- Studerus AG
- <https://www.zyxel.ch/de>
- <https://www.zyxel.ch/fr>

Turkey

- Zyxel Turkey A.S.
- <https://www.zyxel.com/tr/tr/>

UK

- Zyxel Communications UK Ltd.
- <https://www.zyxel.com/uk/en/>

Ukraine

- Zyxel Ukraine
- <http://www.ua.zyxel.com>

South America

Argentina

- Zyxel Communications Corporation
- <https://www.zyxel.com/co/es/>

Brazil

- Zyxel Communications Brasil Ltda.
- <https://www.zyxel.com/br/pt/>

Colombia

- Zyxel Communications Corporation
- <https://www.zyxel.com/co/es/>

Ecuador

- Zyxel Communications Corporation
- <https://www.zyxel.com/co/es/>

South America

- Zyxel Communications Corporation
- <https://www.zyxel.com/co/es/>

Middle East

Israel

- Zyxel Communications Corporation
- <http://il.zyxel.com/>

North America

USA

- Zyxel Communications, Inc. - North America Headquarters
- <https://www.zyxel.com/us/en/>

APPENDIX B

Product Specifications

See also [Chapter 1 on page 13](#) for a general overview of the key features.

Supported Media Server Content Formats

The following describes the details about the files that the NAS media server can publish.

- Audio: LPCM (not supported as a file format), MP3, WMA, M4A, M4B, MP4, 3GP, WAV, OGG, FLAC, AAC, MP2, AC3, MPA, MP1, AIF, ASF, FLV, DSD
- Images: JPEG, PNG, TIF, TIFF, BMP, GIF
- Video: WMV, MPEG2, MP1, MPG, SPTS, MP4, AVI, VOB, DivX, 3GP, VDR, MPE, DVR-MS, Xvid, M1V, M4V, MOV, MPV, MKV, OGG, FLV, MTS

Note: Not all published file types can be viewed by all client applications.

Supported iTunes Server Content Formats

At the time of writing, the NAS supports iTunes publishing audio files of the following formats: mp3, m4a, m4p, wav, and mp4.

APPENDIX C

Legal Information

Copyright

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Regulatory Notice and Statement

UNITED STATES of AMERICA



The following information applies if you use the product within USA area.

FCC EMC Statement

- The device complies with Part 15 of 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.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.
- This product has been tested and complies with the specifications 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 device generates, uses, and can radiate radio frequency energy and, if not installed and used according to 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 device does cause harmful interference to radio or television reception, which is found by turning the device 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 devices
 - Connect the equipment to an outlet other than the receiver's
 - Consult a dealer or an experienced radio/TV technician for assistance

CANADA

The following information applies if you use the product within Canada area

Innovation, Science and Economic Development Canada ICES Statement

CAN ICES-3 (B)/NMB-3(B)

EUROPEAN UNION



The following information applies if you use the product within the European Union.

List of national codes

COUNTRY	ISO 3166 2 LETTER CODE	COUNTRY	ISO 3166 2 LETTER CODE
Austria	AT	Liechtenstein	LI
Belgium	BE	Lithuania	LT
Bulgaria	BG	Luxembourg	LU
Croatia	HR	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Serbia	RS
Germany	DE	Slovakia	SK
Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Switzerland	CH
Ireland	IE	Sweden	SE
Italy	IT	Turkey	TR
Latvia	LV	United Kingdom	GB

Safety Warnings

- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Do not expose your device to dampness, dust or corrosive liquids.
- Do not store things on the device.
- Do not obstruct the device ventilation slots as insufficient airflow may harm your device. For example, do not place the device in an enclosed space such as a box or on a very soft surface such as a bed or sofa.
- Do not install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do not open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks.
- Only qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Do not remove the plug and connect it to a power outlet by itself; always attach the plug to the power adaptor first before connecting it to a power outlet.
- Do not allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Please use the provided or designated connection cables/power cables/ adaptors. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe). If the power adaptor or cord is damaged, it might cause electrocution. Remove it from the device and the power source, repairing the power adapter or cord is prohibited. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- CAUTION: Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instruction. Dispose them at the applicable collection point for the recycling of electrical and electronic devices. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- The following warning statements apply, where the disconnect device is not incorporated in the device or where the plug on the power supply cord is intended to serve as the disconnect device,
 - For permanently connected devices, a readily accessible disconnect device shall be incorporated external to the device;
 - For pluggable devices, the socket-outlet shall be installed near the device and shall be easily accessible.
- CLASS 1 LASER PRODUCT
- APPAREIL À LASER DE CLASS 1
- PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11.
- PRODUIT CONFORME SELON 21 CFR 1040.10 ET 1040.11.

Environment Statement

ErP (Energy-related Products)

Zyxel products put on the EU market in compliance with the requirement of the European Parliament and the Council published Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products (recast), so called as "ErP Directive (Energy-related Products directive)" as well as ecodesign requirement laid down in applicable implementing measures, power consumption has satisfied regulation requirements which are:

- Network standby power consumption < 8W, and/or
- Off mode power consumption < 0.5W, and/or
- Standby mode power consumption < 0.5W.

(Wireless setting, please refer to "Wireless" chapter for more detail.)

European Union - Disposal and Recycling Information

The symbol below means that according to local regulations your product and/or its battery shall be disposed of separately from domestic waste. If this product is end of life, take it to a recycling station designated by local authorities. At the time of disposal, the separate collection of your product and/or its battery will help save natural resources and ensure that the environment is sustainable development.

Die folgende Symbol bedeutet, dass Ihr Produkt und/oder seine Batterie gemäß den örtlichen Bestimmungen getrennt vom Hausmüll entsorgt werden muss. Wenden Sie sich an eine Recyclingstation, wenn dieses Produkt das Ende seiner Lebensdauer erreicht hat. Zum Zeitpunkt der Entsorgung wird die getrennte Sammlung von Produkt und/oder seiner Batterie dazu beitragen, natürliche Ressourcen zu sparen und die Umwelt und die menschliche Gesundheit zu schützen.

El símbolo de abajo indica que según las regulaciones locales, su producto y/o su batería deberán depositarse como basura separada de la doméstica. Cuando este producto alcance el final de su vida útil, llévelo a un punto limpio. Cuando llegue el momento de desechar el producto, la recogida por separado éste y/o su batería ayudará a salvar los recursos naturales y a proteger la salud humana y medioambiental.

Le symbole ci-dessous signifie que selon les réglementations locales votre produit et/ou sa batterie doivent être éliminés séparément des ordures ménagères. Lorsque ce produit atteint sa fin de vie, amenez-le à un centre de recyclage. Au moment de la mise au rebut, la collecte séparée de votre produit et/ou de sa batterie aidera à économiser les ressources naturelles et protéger l'environnement et la santé humaine.

Il simbolo sotto significa che secondo i regolamenti locali il vostro prodotto e/o batteria deve essere smaltito separatamente dai rifiuti domestici. Quando questo prodotto raggiunge la fine della vita di servizio portarlo a una stazione di riciclaggio. Al momento dello smaltimento, la raccolta separata del vostro prodotto e/o della sua batteria aiuta a risparmiare risorse naturali e a proteggere l'ambiente e la salute umana.

Symbolen innebär att enligt lokal lagstiftning ska produkten och/eller dess batteri kastas separat från hushållsavfallet. När den här produkten når slutet av sin livslängd ska du ta den till en återvinningsstation. Vid tiden för kasseringen bidrar du till en bättre miljö och mänsklig hälsa genom att göra dig av med den på ett återvinningsställe.



台灣





安全警告 - 為了您的安全，請先閱讀以下警告及指示：

- 請勿將此產品接近水、火焰或放置在高溫的環境。
- 避免設備接觸
 - 任何液體 - 切勿讓設備接觸水、雨水、高濕度、污水腐蝕性的液體或其他水份。
 - 灰塵及污物 - 切勿接觸灰塵、污物、沙土、食物或其他不合適的材料。
- 雷雨天氣時，不要安裝、使用或維修此設備。有遭受電擊的風險。
- 切勿重摔或撞擊設備，並勿使用不正確的電源變壓器。
- 若接上不正確的電源變壓器會有爆炸的風險。
- 請勿隨意更換產品內的電池。
- 如果更換不正確之電池型式，會有爆炸的風險，請依製造商說明書處理使用過之電池。
- 請將廢電池丟棄在適當的電器或電子設備回收處。
- 請勿將設備解體。
- 請勿阻礙設備的散熱孔，空氣對流不足將會造成設備損害。
- 請插在正確的電壓供給插座（如：北美 / 台灣電壓 110V AC，歐洲是 230V AC）。
- 假若電源變壓器或電源變壓器的纜線損壞，請從插座拔除，若您還繼續插電使用，會有觸電死亡的風險。
- 請勿試圖修理電源變壓器或電源變壓器的纜線，若有毀損，請直接聯絡您購買的店家，購買一個新的電源變壓器。
- 請勿將此設備安裝於室外，此設備僅適合放置於室內。
- 請勿隨一般垃圾丟棄。
- 請參閱產品背貼上的設備額定功率。
- 請參考產品型錄或是彩盒上的作業溫度。
- 產品沒有斷電裝置或者採用電源線的插頭視為斷電裝置的一部分，以下警語將適用：
 - 對永久連接之設備，在設備外部須安裝可觸及之斷電裝置；
 - 對插接式之設備，插座必須接近安裝之地點而且是易於觸及的。

About the Symbols

Various symbols are used in this product to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meaning of these symbols are described below. It is important that you read these descriptions thoroughly and fully understand the contents.

Explanation of the Symbols

SYMBOL	EXPLANATION
	Alternating current (AC): AC is an electric current in which the flow of electric charge periodically reverses direction.
	Direct current (DC): DC is the unidirectional flow or movement of electric charge carriers.
	Earth; ground: A wiring terminal intended for connection of a Protective Earthing Conductor.
	Class II equipment: The method of protection against electric shock in the case of class II equipment is either double insulation or reinforced insulation.

Viewing Certifications

Go to <http://www.zyxel.com> to view this product's documentation and certifications.

Zyxel Limited Warranty

Zyxel warrants to the original end user (purchaser) that this product is free from any defects in material or workmanship for a specific period (the Warranty Period) from the date of purchase. The Warranty Period varies by region. Check with your vendor and/or the authorized Zyxel local distributor for details about the Warranty Period of this product. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, Zyxel will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of Zyxel. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. Zyxel shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Registration

Register your product online at www.zyxel.com to receive email notices of firmware upgrades and related information.

Trademarks

ZyNOS (Zyxel Network Operating System) and ZON (Zyxel One Network) are registered trademarks of Zyxel Communications, Inc. Other trademarks mentioned in this publication are used for identification purposes only and may be properties of their respective owners.

Open Source Licenses

This product may contain in part some free software distributed under GPL license terms and/or GPL-like licenses.

To request the source code covered under these licenses, please go to: https://www.zyxel.com/form/gpl_oss_software_notice.shtml.

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