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Synology®

# Synology NAS User's Guide

## Based on DSM 6.1

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Chapter 1

# Introduction

Congratulations on your purchase of Synology NAS. Synology NAS is a multi-functional Network-Attached Storage server, serving as a file-sharing center within your Intranet. Moreover, it is specially designed for a variety of purposes, allowing you to perform the following tasks with the web-based Synology DiskStation Manager (DSM):

## Store and Share Files over the Internet

Windows users, Mac users, and Linux users can easily share files within the Intranet or through the Internet. Unicode language support makes sharing files in different languages from Synology NAS simple.

## Scan Settings with Security Advisor

Security Advisor is a security application that scans your DSM settings and Synology NAS. It will check your settings and recommend changes that help keep your Synology NAS safe.

## Manage Files with Web-Based File Station

One of Synology DiskStation Manager's applications, File Station, can make it possible for users to manage their files on Synology NAS easily through a web interface. You can also access the files stored on Synology NAS with a mobile device.

## Transfer Files via FTP

Synology NAS provides FTP service with bandwidth restriction and anonymous login. To transfer data safely, FTP over SSL/TLS and uninvited IP auto-block are also available.

## Sync Files with Cloud Station

Cloud Station is a file sharing service that allows you to synchronize files between a centralized Synology NAS and multiple client computers, mobile and Synology NAS devices.

## Share Storage Capacity as iSCSI LUNs

You can designate portion of your Synology NAS volume space to be an iSCSI LUN, which will allow the iSCSI initiator to access the space like a local disk.

## Back Up Files on Computer and Server

Synology NAS provides various backup solutions to back up computer data to Synology NAS, back up Synology NAS data or iSCSI LUN to an external hard drive, another Synology NAS, an rsync-compatible server, Amazon S3 server, HiDrive backup server, etc.

## Enjoy Entertainment Content on the Server

Download Station allows you to download files from the Internet through BT, FTP, HTTP, eMule and NZB to Synology NAS. The Media Server and iTunes support allows computers or DMA devices within LAN to playback multimedia files on Synology NAS[1].

With the USBCopy or SDCopy function, you can press the Copy button on your Synology NAS to instantly copy files from a camera or SD card to Synology NAS.[2]

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[1] For recommended peripheral models, including hard drive, USB printer, DMA, and UPS, please visit **www.synology.com**.

[2] USBCopy or SDCopy is supported on specific models only. Visit **www.synology.com** for more information.

## Organize Videos with Video Station

Video Station allows you to organize your collection of movies, TV shows, and home videos into a media platform on which you can watch and play video clips, live stream and record digital TV programs with a USB DTV dongle plugged into your Synology NAS, view and edit video metadata whose information is retrieved automatically from the Internet. You can also stream videos to your iPhone or iPad for playback.

## Share Photos, Videos, and Blogs with Photo Station

Photo Station gives you the freedom to share photos and videos over the Internet without complicated upload steps. Furthermore, a blogging system is integrated for you to easily share your life and thoughts over the Internet.

## Enjoy Music Anytime and Anywhere

Audio Station allows you to listen to music stored on the Synology NAS, from a connected iPod, or even stream Internet Radio stations. In addition, you can stream music from the Synology NAS with a web browser over the Internet.

## Host Websites

The Virtual Host feature allows you to host up to 30 websites using Web Station, with PHP and MySQL supported.

## Record Videos with IP Cameras

Surveillance Station allows you to manage, view, and record videos from multiple IP cameras over the network. By accessing the web-based management interface of Surveillance Station, you can watch the real-time image the camera is monitoring, and record videos continuously in motion-detection mode or in alarm-recording mode.

## Manage Multiple Synology NAS Devices

Synology CMS (Central Management System) allows you to quickly and conveniently manage multiple Synology NAS servers. Once CMS is installed, you can designate your Synology NAS server as the CMS Host and designate other servers as managed servers. The CMS Host provides a single interface to monitor and maintain the managed servers.

## Discover More Apps with Package Center

Package Center brings intuitiveness and convenience for users to easily install and update a variety of applications (which are packed into packages). Just browse all available applications and select the ones that best suit your needs. All can be done with just a few clicks.

## Set up Print Server

USB or network printers connected to your Synology NAS can be shared by client computers over the local area network. AirPrint support allows you to print to the printer from an iOS device, while Google Cloud Print support allows you to print to the printer when you are using Google products and services.[1]

**Online Resources**

If you cannot find what you need here, please see **DSM Help** or take a look at Synology's online resources below.

- **Knowledge Base:** https://www.synology.com/knowledgebase
- **Forum:** https://forum.synology.com/
- **Download Center:** https://www.synology.com/support/download
- **Technical Support:** https://account.synology.com/support/support_form.php

[1] For recommended peripheral models, including hard drive, USB printer, DMA, and UPS, please visit **www.synology.com**.

Chapter

2

# Get Started with Synology DiskStation Manager

This chapter explains how to sign into **Synology DiskStation Manager (DSM)**, customize your desktop, use the taskbar and widgets, and open applications and packages with the **Main Menu**.

## Install Synology NAS and DSM

For more information about setting up Synology NAS and installing DSM, see the *Quick Installation Guide* for your Synology NAS model available at Synology's **Download Center**.

## Sign into DSM

After setting up and installing DSM on your Synology NAS, you can sign into DSM using a web browser on your computer.

### To log in with Web Assistant:

1. Make sure your computer is connected to the same network as the Synology NAS and can access the Internet.
2. Open a web browser on your computer and go to **find.synology.com**.
3. Web Assistant will find your Synology NAS within the local network. Click **Connect** to go to the login screen.

### To log in with the server name or IP address:

1. Make sure your computer is connected to the same network as your Synology NAS.
2. Open a web browser on your computer, enter any of the following in the address field, and then press Enter on your keyboard:
   - **http://Synology_Server_IP:5000**
   - **http://Synology_Server_Name:5000/** (or **http://Synology_Server_Name.local:5000/** on a Mac)

   **Synology_Server_Name** should be replaced with the name you set up for Synology NAS during the initial installation process.




3. Set up your user name and password, and click **Sign in**.

***Note:*** To ensure your connection to DSM runs smoothly, please use the following browsers.

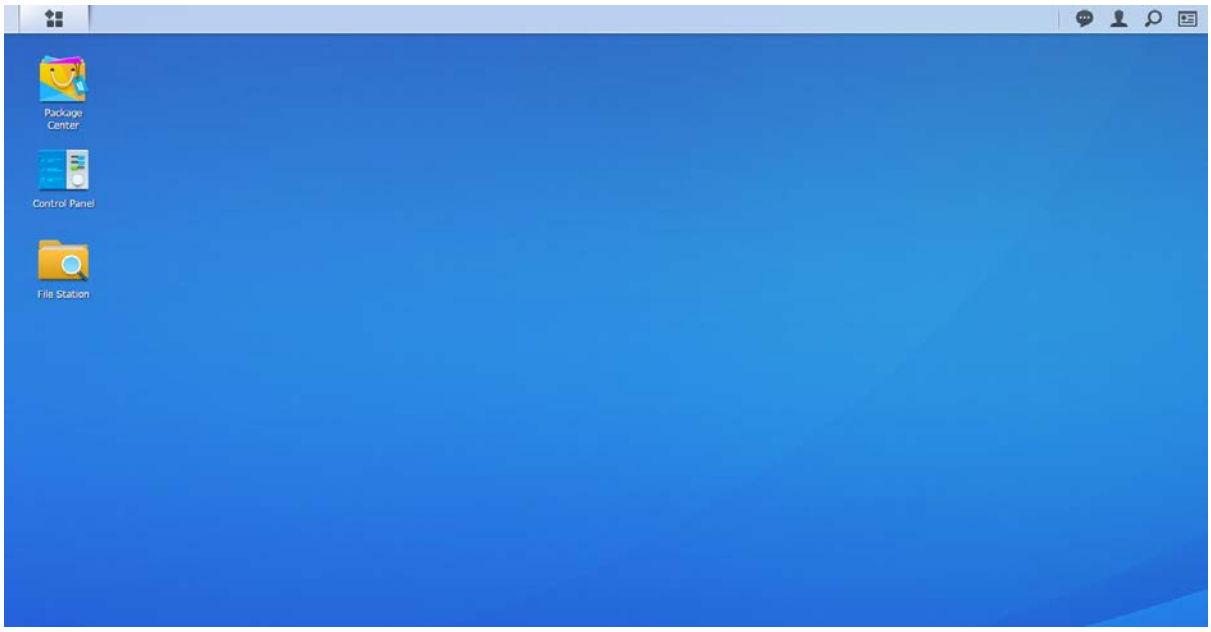
- **Chrome**
- **Firefox**
- **Safari:** 8 or later
- **Internet Explorer:** 9 or later

# DiskStation Manager Desktop

When you sign into DSM, you will see the desktop. From here, you can start getting things done, like manage settings, use packages, or view notifications.

## Desktop

The desktop is where your application and package windows are displayed. You can also create desktop shortcuts to frequently used applications.




## Taskbar

The taskbar at the top of the desktop includes the following items:




1 **Show Desktop:** Minimize all open application and package windows.

2 **Main Menu**: View and open applications and packages installed on your Synology NAS. You can also click and drag to create desktop shortcuts.

3 **Open applications**:

- Click the icon of an application to show or hide its window on the desktop.
- Right-click the icon and choose from the shortcut menu to manage the application window (**Maximize**, **Minimize**, **Restore**, **Close**) or its task bar icon (**Pin to Taskbar**, **Unpin from Taskbar**).

4 **Upload Queue**: Appears when you start uploading files to the Synology NAS. Click to see more details, like progress and upload speed.

5 **Notifications**: Displays notifications, like errors, status updates, and package installation notifications.

6 **Options**: Shutdown, restart, logout, or modify personal account settings.

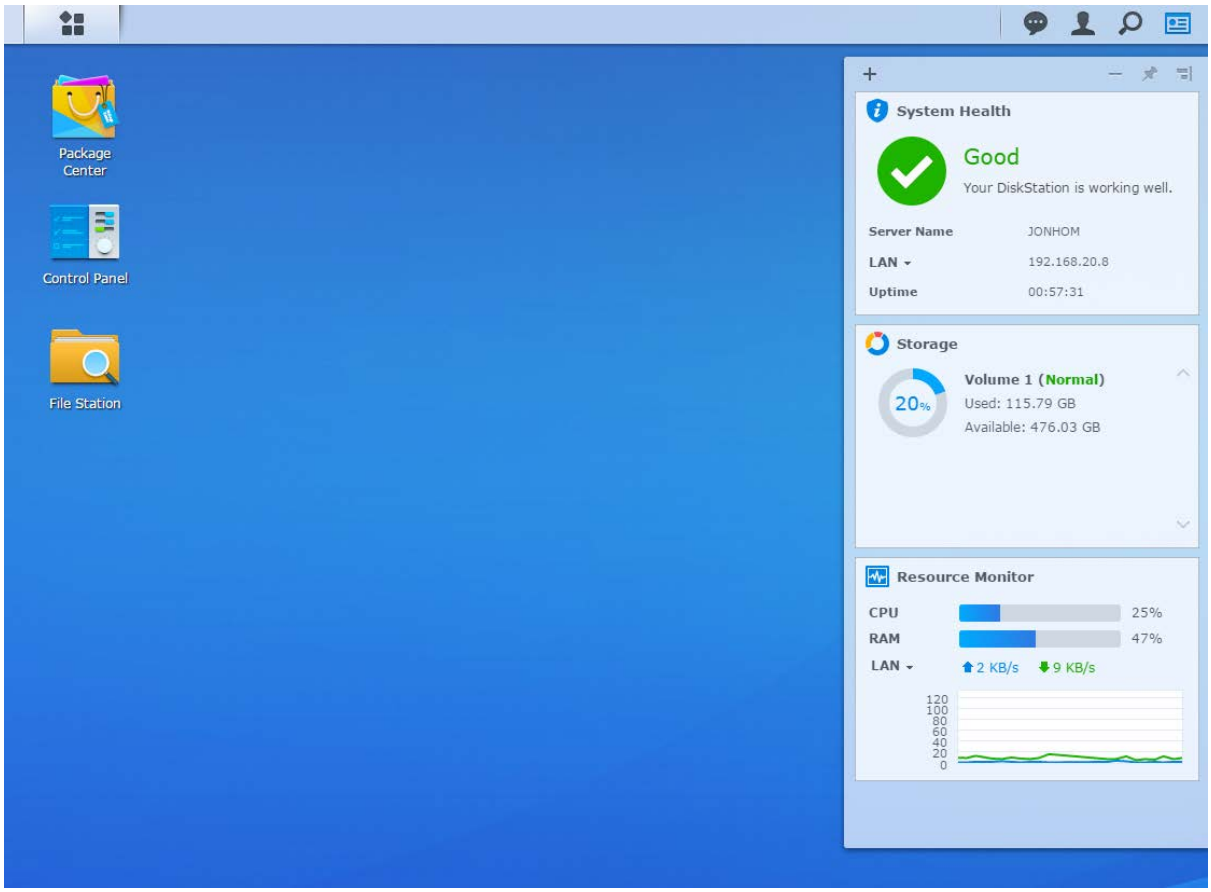
7 **Search**: Quickly find specific applications, packages, or DSM Help articles here.

8 **Widgets**: Show or hide widgets.

9 **Pilot View:** See a preview of all open application and package windows.

## Widgets

Widgets display various types of system information related to your Synology NAS.




### To open/close the widget panel:

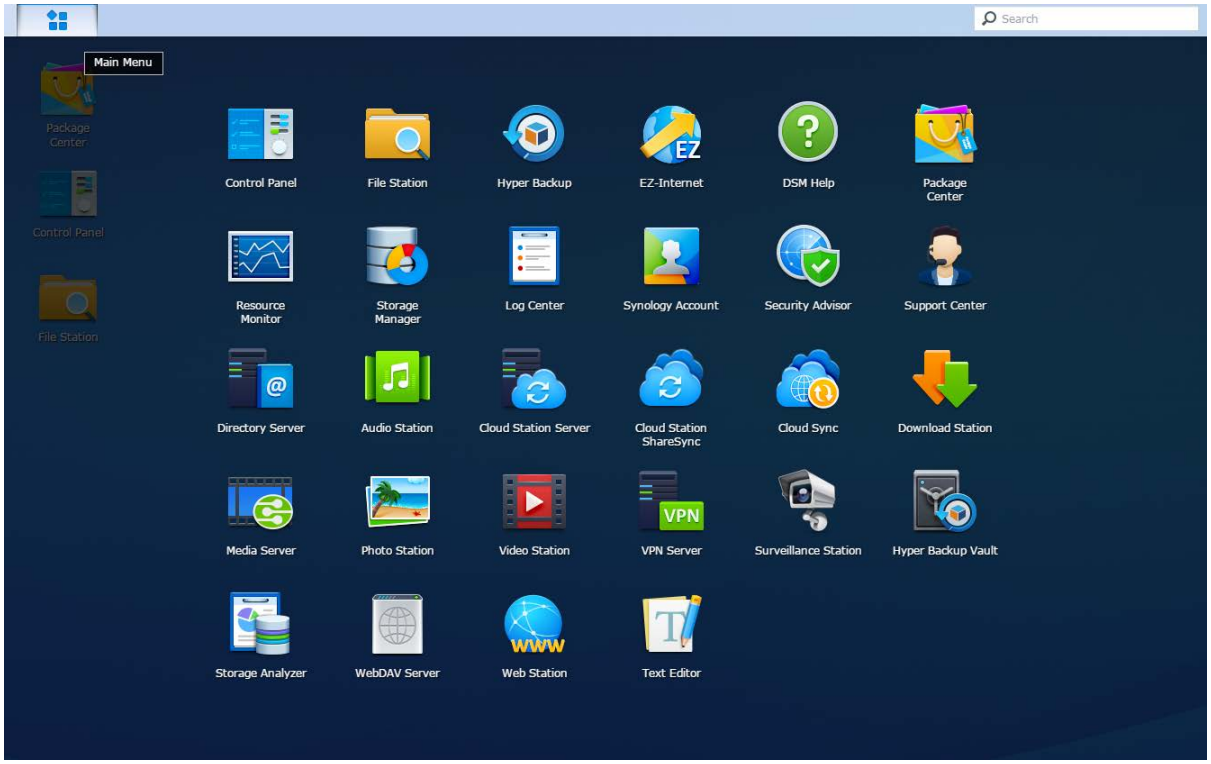
Click **Widgets** to show or hide the widgets panel.

Click the + to select which widgets to display. You can choose from the following:

- **Connected Users**: See a list of users who are currently accessing Synology NAS resources.
- **File Change Log**: View the file change log records of Synology NAS services.
  - **No active logs**: Appears when none of the logs (Samba, WebDAV, FTP, File Station) is enabled.
  - **No logs available**: Appears when any one of the logs (Samba, WebDAV, FTP, File Station) is enabled.
- **Recent Logs**: View the log records of Synology NAS services.
- **Resource Monitor**: Monitor the CPU usage, memory usage, and network flow.
- **Scheduled Backup**: View the status of your backup tasks.
- **Scheduled Tasks**: View a list of upcoming tasks.
- **Storage**: View the volume usage and disk status of your Synology NAS.
- **System Health**: Obtain an overall status of your Synology NAS and all connected devices (if any). You will be advised to take corrective action when system error occurs.

# Open Applications and Packages with Main Menu

The **Main Menu** (the button at the top-left of the desktop) is where you can find all the applications and packages you have installed from **Package Center** on your Synology NAS.




### To open applications or packages:

Open **Main Menu** and click the icon of the application or package that you want to open.

### To reorder icons:

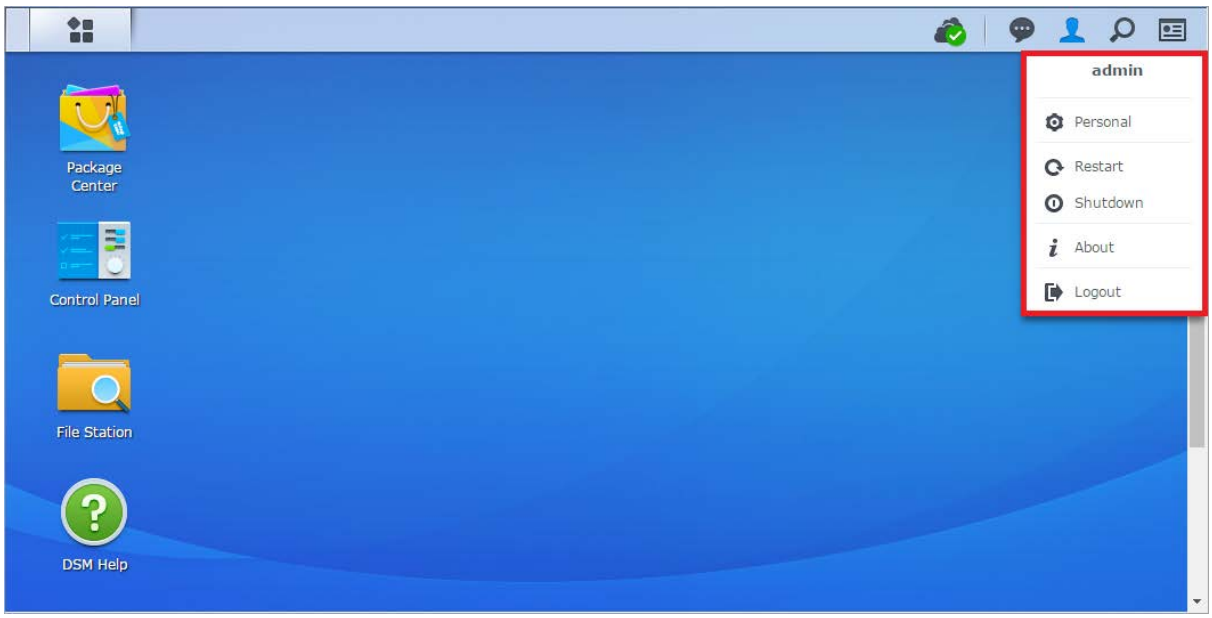
Open **Main Menu** and drag an icon to any position you want.

### To create a desktop shortcut:

Open **Main Menu** and drag an icon to the side.

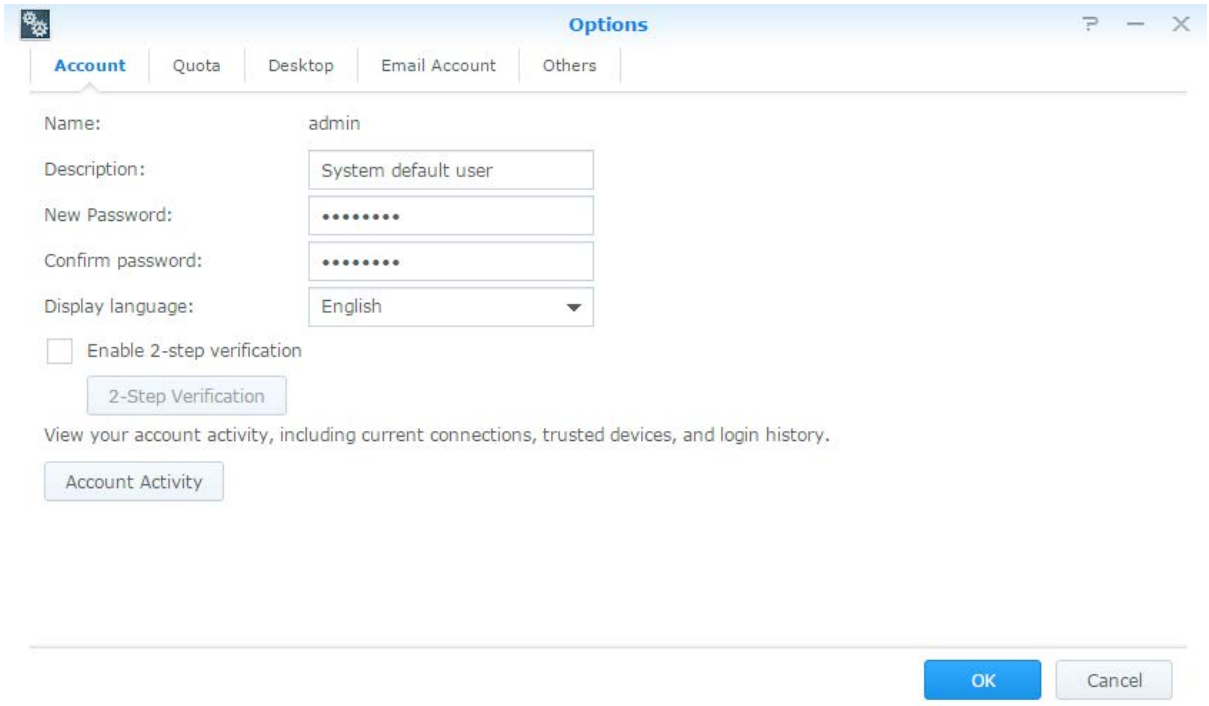
# Shutdown, Restart, Logout, or Manage Personal Settings

Click the **Options** menu (the person-shaped icon at the top right) to shutdown, restart, logout, or manage your personal account settings.




### To manage personal settings:

Select **Personal** from the drop-down menu to manage personal account settings, like password, 2-step verification, desktop, etc.



## Account

Under **Account**, you can edit your account settings, enable 2-step verification, and view recent login activity of your DSM account.

***Limitations:***

- The user description is case sensitive and can be 0 to 64 displayable Unicode characters.
- The password is case sensitive and should be 0 to 127 displayable characters, including letters, numbers, signs, and space.

## 2-Step Verification

2-step verification provides improved security for your DSM account. If 2-step verification is enabled, you will need to enter your password in addition to a one-time verification code when logging into DSM. Verification codes are obtained from authenticator apps installed on your mobile device. Therefore, if someone wants to access your account, he will not only need your username and password, but also your mobile device.

***Requirements:***

2-step verification requires a mobile device and an authenticator app which supports the Time-based One-Time Password (TOTP) protocol. Authenticator apps include Google Authenticator (Android/iPhone/BlackBerry) or Authenticator (Windows Phone).

## Account Activity

Account activity displays recent login activity of your DSM account, such as the time your account was accessed or from what IP address.

## Quota

Under **Quota**, you can view your quota on all Synology NAS volumes set by DSM **administrators**, as well as the amount of capacity you have used on each volume.

## Desktop

Under **Desktop**, you can customize the appearance of your desktop by changing the main menu style, icon size, background and text color of the desktop, or uploading images to be used as the desktop wallpaper.

## Photo Station

This tab is viewable only when users belonging to the **administrators** group enable Personal Photo Station service in Photo Station. Synology NAS provides the **home/photo** folder for you to store photos and videos that you want to share. The system will create index thumbnails of the photos and videos automatically, and then people can view photo albums via a web browser.

## Email Account

You can add or edit email accounts to send files stored in File Station as attachments using the email addresses added here.

## Others

Under **Others**, you can customize other personal settings. For more information about personal settings, please see **DSM Help**.

Chapter

3

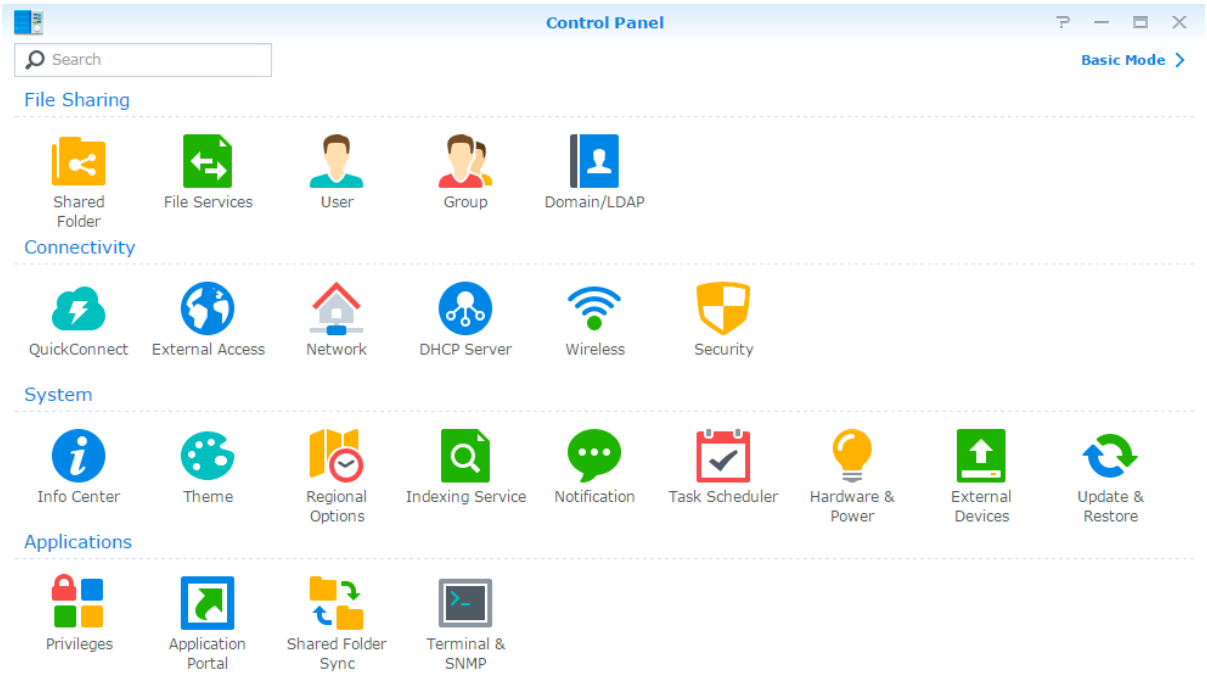
# Modify System Settings

After you have connected to Synology DiskStation Manager (DSM) and learned how to access its functions and customize its appearance, users belonging to the **administrators** group can begin to modify basic settings.

This chapter explains the basics of modifying network settings, display languages, time, and energy saving features. For more detailed instructions, please see **DSM Help**.

## Use Control Panel

Choose **Control Panel** from the **Main Menu** to configure DSM settings.



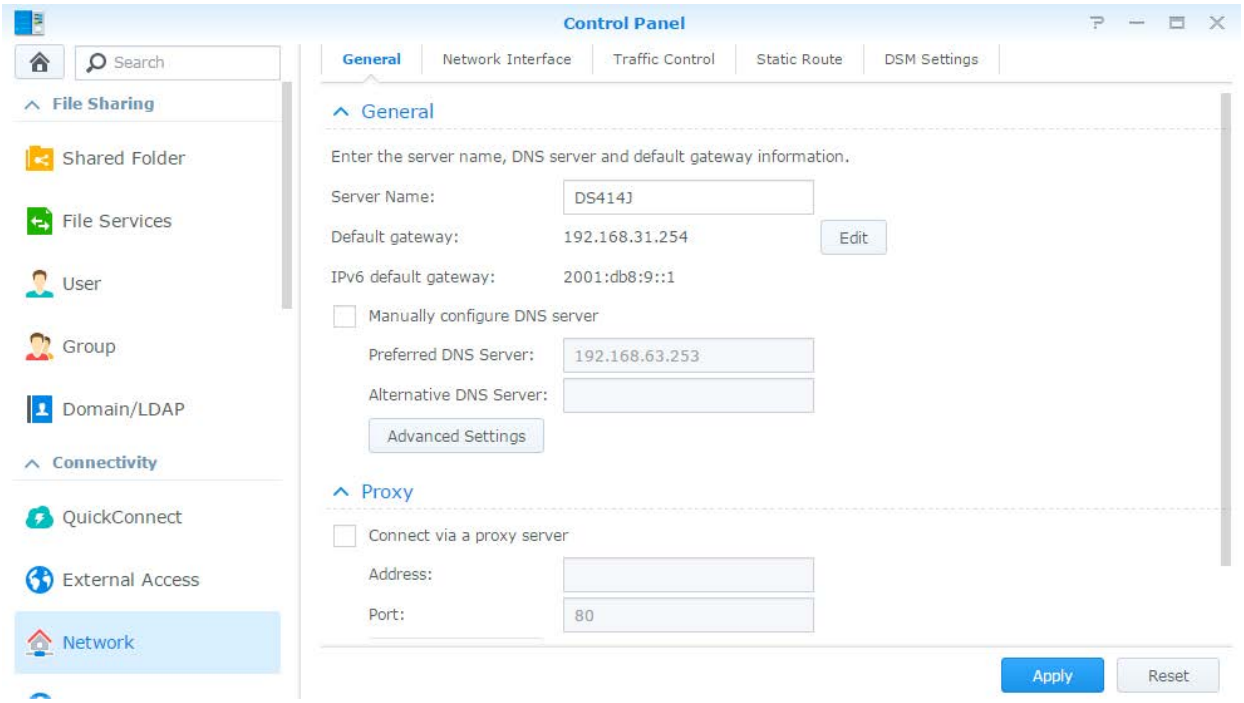

**The DSM settings on the Control Panel are grouped into the following categories:**

- **File Sharing**: Manage file sharing options to host your files and share with other people easily.
- **Connectivity**: Make your Synology NAS accessible over the Internet, and protect it with security mechanisms such as firewall and auto block.
- **System**: Manage system settings for your Synology NAS device.
- **Applications**: Manage general settings related to Synology-designed applications.

> ***Note:*** Control Panel is accessible only to users belonging to the **administrators** group. See "Create Groups" for more information.

# Change Network Settings

Go to **Control Panel** > **Network** to configure network settings and connect your Synology NAS device to the Internet. You can also manage traffic control rules to adjust the outgoing traffic allowed when clients access services on your Synology NAS. For more detailed instructions, please see **DSM Help**.




## General

The **General** tab provides options to edit the name and default gateway of the Synology NAS, as well as configure domain name server, proxy server settings and IPv6 tunneling.

## Network Interface

The **Network Interface** tab provides options to manage the network interfaces with which your Synology NAS connects to the network.

## Traffic Control

Traffic control aims to control the outgoing traffic of services running on Synology NAS. Click **Create** to create traffic control rules.

## Static Route

Static route controls the path that network information must follow to reach a specific host or network on Synology NAS. Click **Create** to create a static route. .

## DSM Settings

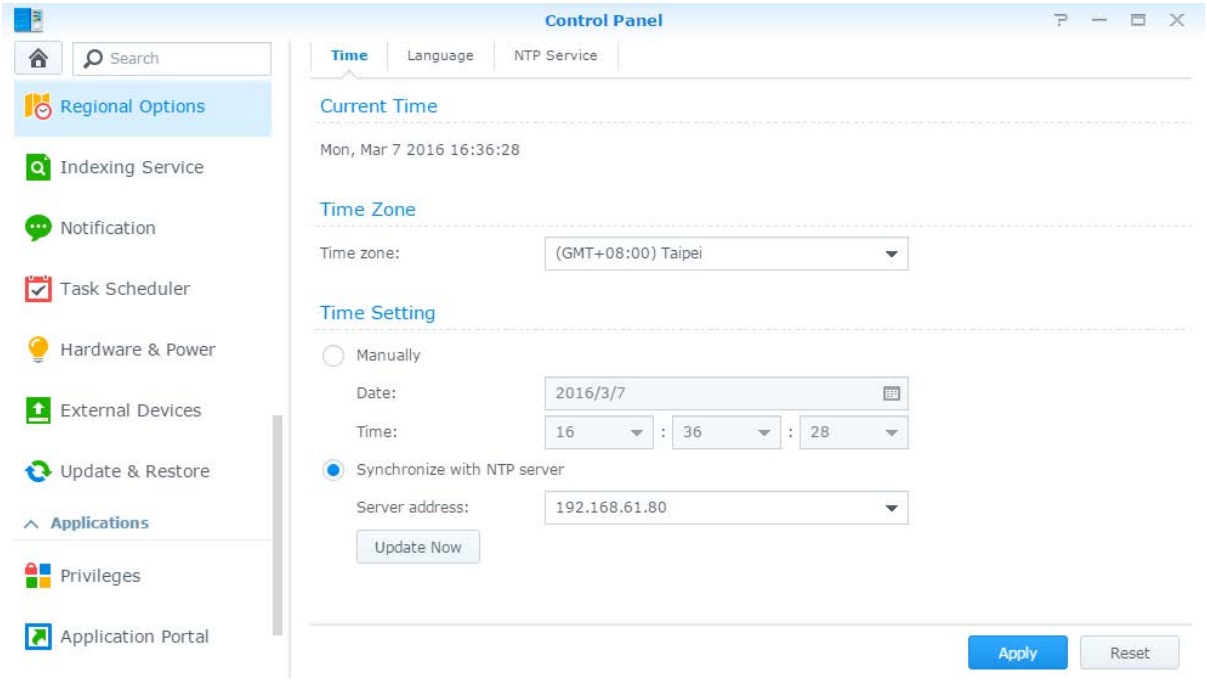
Change the port number for accessing DSM or configure HTTPS settings. When the HTTPS connection function is enabled, any connection to Synology NAS via the HTTPS protocol will be encrypted with the SSL/TLS encrypting mechanism.

# Join Wireless Network[1]

At **Control Panel** > **Wireless**, you can connect your Synology NAS device to a wireless network, or create a wireless hotspot to share its Internet connection with other devices wirelessly. Also, you can manage Bluetooth adapters and connect Bluetooth devices to your Synology NAS. For more detailed instructions, please see **DSM Help**.

# Modify Regional Options

Go to **Control Panel** > **Regional Options** to configure the following regional options. For more detailed instructions, please see **DSM Help**.




## Time

Click the **Time** tab to set up the system time settings of the Synology NAS. You can check the current time, manually set the server's date and time, or automatically set the time using a network time server.

## Language

Click the **Language** tab to set the language for Synology DiskStation Manager, notifications, and specify the codepage for Unicode filename conversion.

- **Display Language**: Choose your preferred display language, or have it the same as your default browser setting.
- **Notification Language**: Set your preferred language for email and instant messaging notifications from Synology NAS.
- **Codepage**: Synology NAS uses Unicode to avoid file inaccessibility from computers using different languages. But for the following devices or applications to use Synology NAS services without problem, you need to choose the appropriate codepage for them:
  - Computers without Unicode support
  - Applications that convert non-Unicode strings to Unicode, such as FTP service, UPnP support, music metadata indexing

[1]Supported on specific models only.

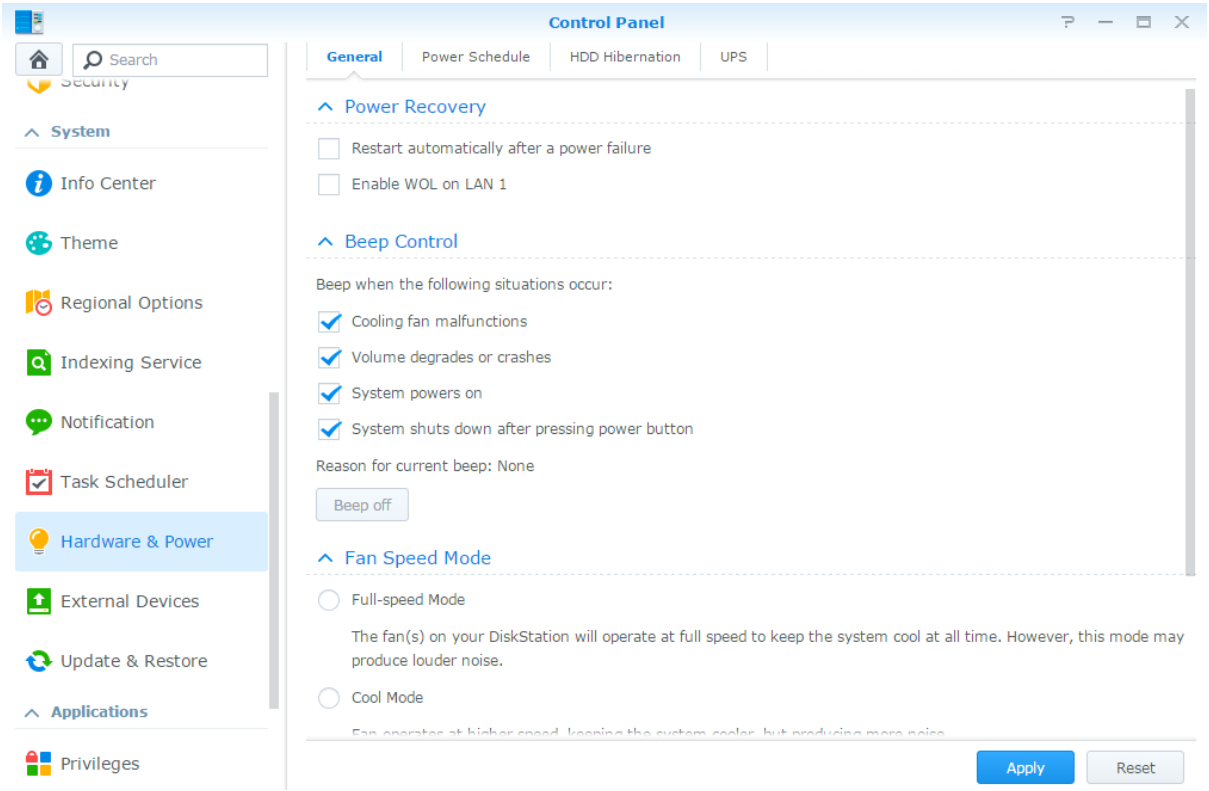
## NTP Service

Click the **NTP Service** tab to have your Synology NAS serve as a network time server to synchronize time between different network devices and the Synology NAS over network.

> ***Note:*** The NTP service is required for Surveillance Station and Synology High Availability. Therefore, if you have Surveillance Station installed and run on your Synology NAS, the service cannot be disabled while the package is running.

# Use Energy Saving Features

Go to **Control Panel** > **Hardware & Power** to manage the following energy saving features provided by DSM. For more detailed instructions, please see **DSM Help**.




## General

Click the **General** tab to enable power recovery, Wake on LAN (WOL)[1] and Memory Compression. You can also modify beep control and fan speed mode here.

## Power Schedule[1]

Click the **Power Schedule** tab to start up or shut down automatically at a specified time.

## HDD Hibernation

Click the **HDD Hibernation** tab to manage disk hibernation for all internal or external disks on your Synology NAS.

When a disk enters HDD hibernation mode, it will stop spinning and become inactive, which not only saves energy but also extends the disk's lifespan.

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[1] Supported on specific models only.

## UPS

Under the **UPS** tab, you can modify UPS-related settings. UPS (Uninterruptible Power Supply) is a backup power device that allows the Synology NAS to continue operating for a short time if power failure occurs. This function helps prevent data loss by giving the Synology NAS enough time to save data and unmount volumes before losing power and shutting off. Synology NAS supports connecting to local or SNMP UPS devices.

Chapter

4

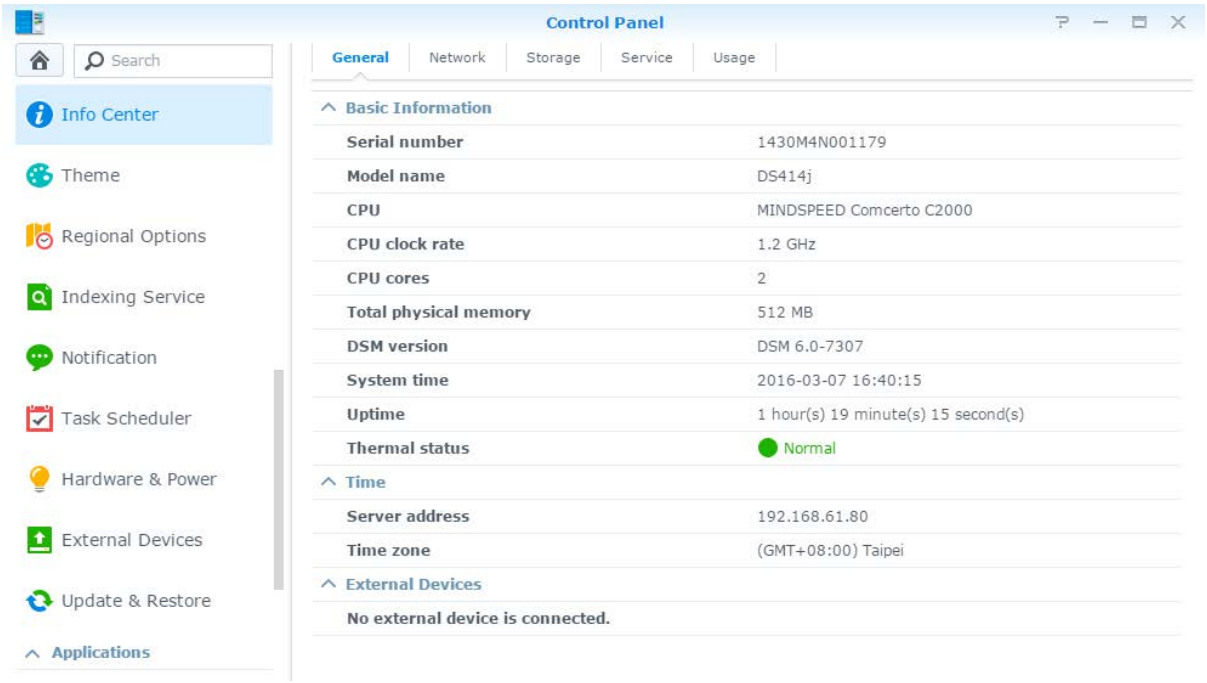
# Perform Advanced Management Tasks

Synology DiskStation Manager comes with a variety of management functions, allowing you to check system information, monitor system resources, manage notification services, restore or upgrade DSM, access applications with independent login, index multimedia files for applications and more.

This chapter explains how to comprehend advanced management functions to make sure your Synology NAS is providing the best performance. For detailed instructions, please see **DSM Help**.

## Check System Information

Info Center provides an overview of the status of the Synology NAS and other connected devices. Go to **Control Panel** > **Info Center** to check the below information. For more detailed instructions, please see **DSM Help**.



### General

Under the **General** tab, you can see the basic information about your Synology NAS, including serial number, model name, amount of physical memory, DSM version, time information, thermal status, and external devices.

### Network

Under the **Network** tab, you can view the status of network configuration and network interfaces.

### Storage

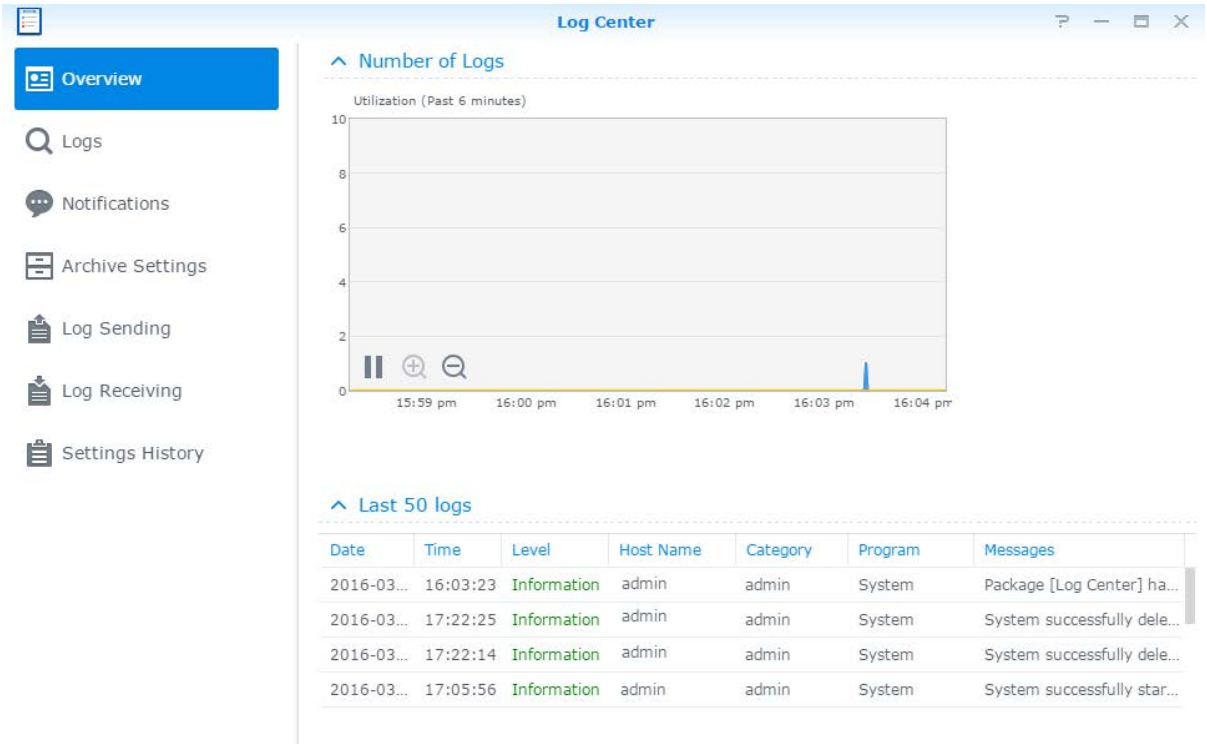
Under the **Storage** tab, you can check the free or used space of your Synology NAS volumes and check the status of the hard disks.

### Service

Under the **Service** tab, you can see the list of DSM services, which can be enabled or disabled by clicking **Enable** or **Disable** under the **Action** column. The checkmarks under the **Status** column indicate whether the services are enabled.

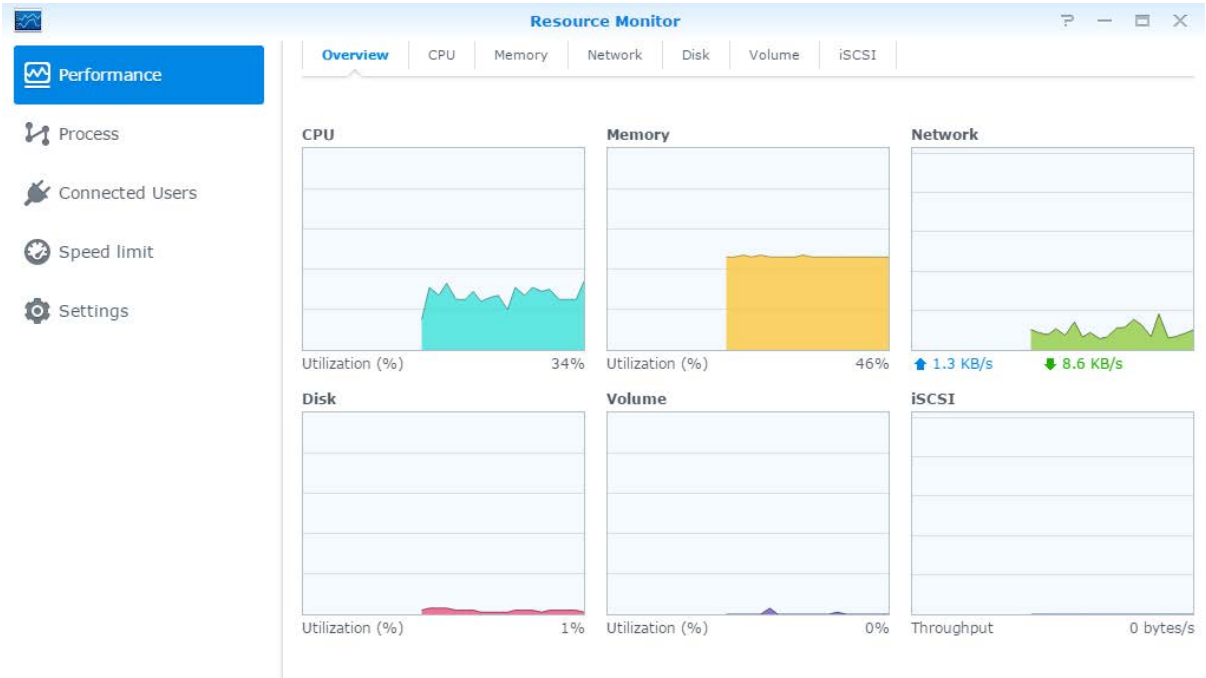
## View System Logs

**Log Center** is a centralized log management application that allows you to view and manage log records of Synology NAS services easily and efficiently. To access the advanced functions, you have to go to **Package Center** and install the **Log Center** package. For detailed instructions, please see **DSM Help**.



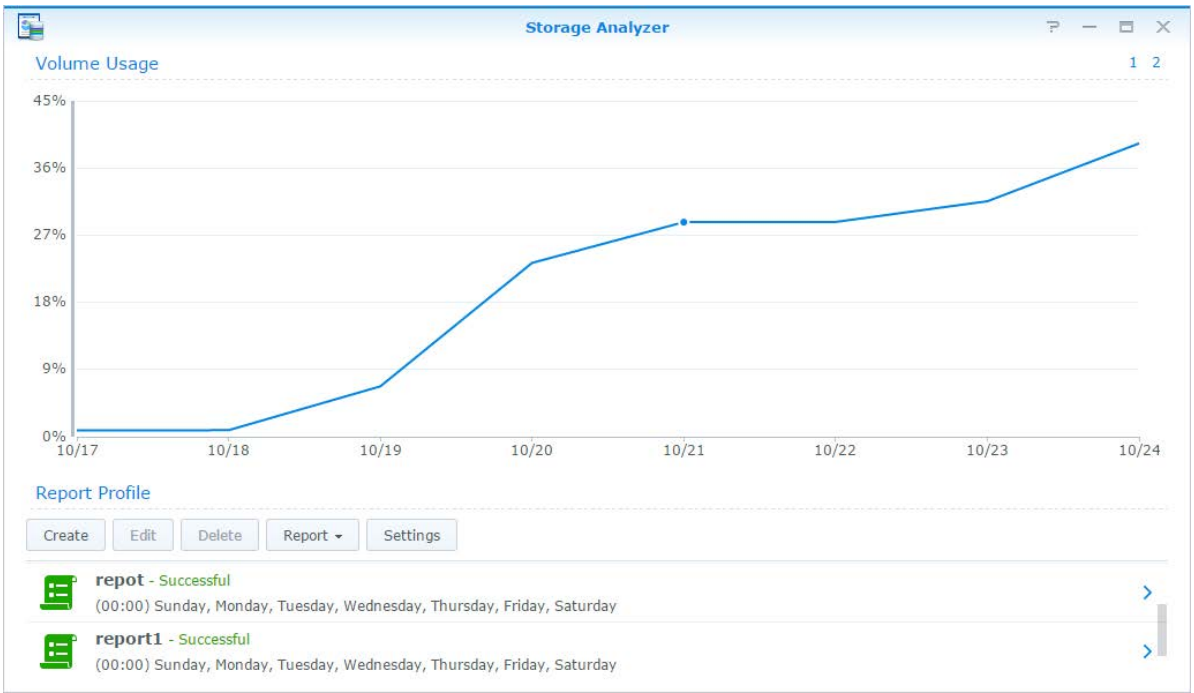
# Monitor System Resources

**Resource Monitor** allows you to monitor the CPU usage, memory usage, disk utilization and network flow. You can choose to monitor in real time or view previous data. For more detailed instructions, please see **DSM Help**.



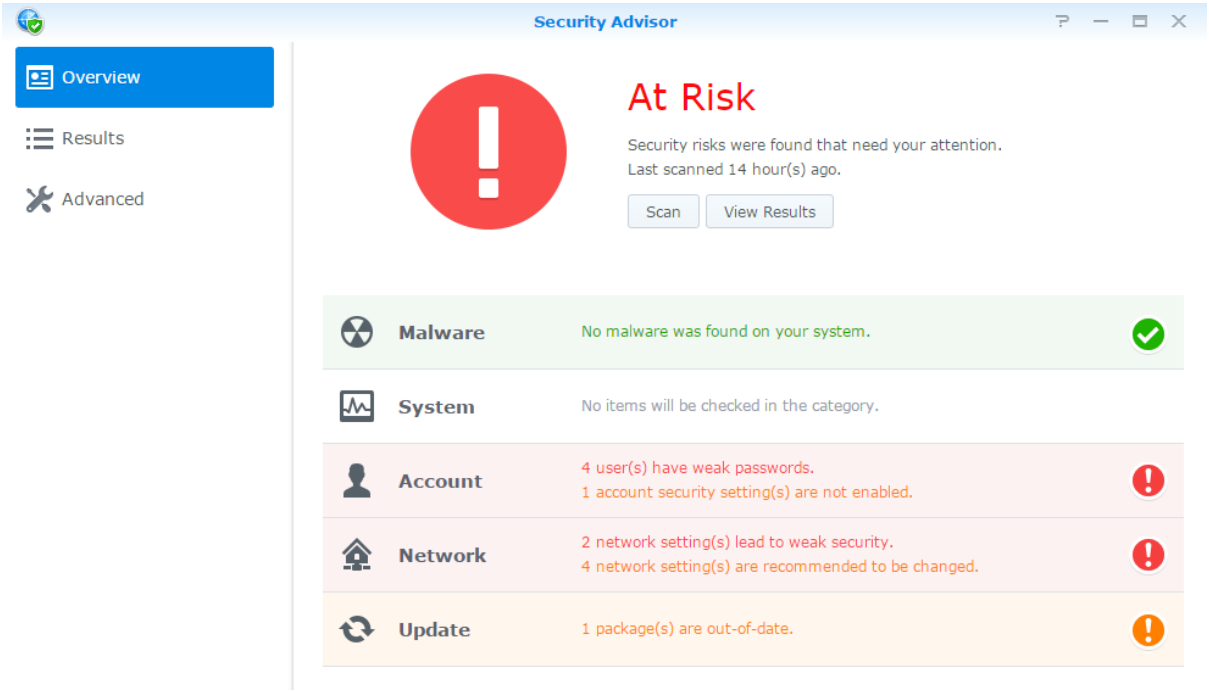

# Analyze System Usage

**Storage Analyzer** allows you to quickly view overall usage trends of your Synology NAS, create tasks to analyze storage spaces, and generate detailed reports on volume usage. For detailed instructions, please see **DSM Help**.



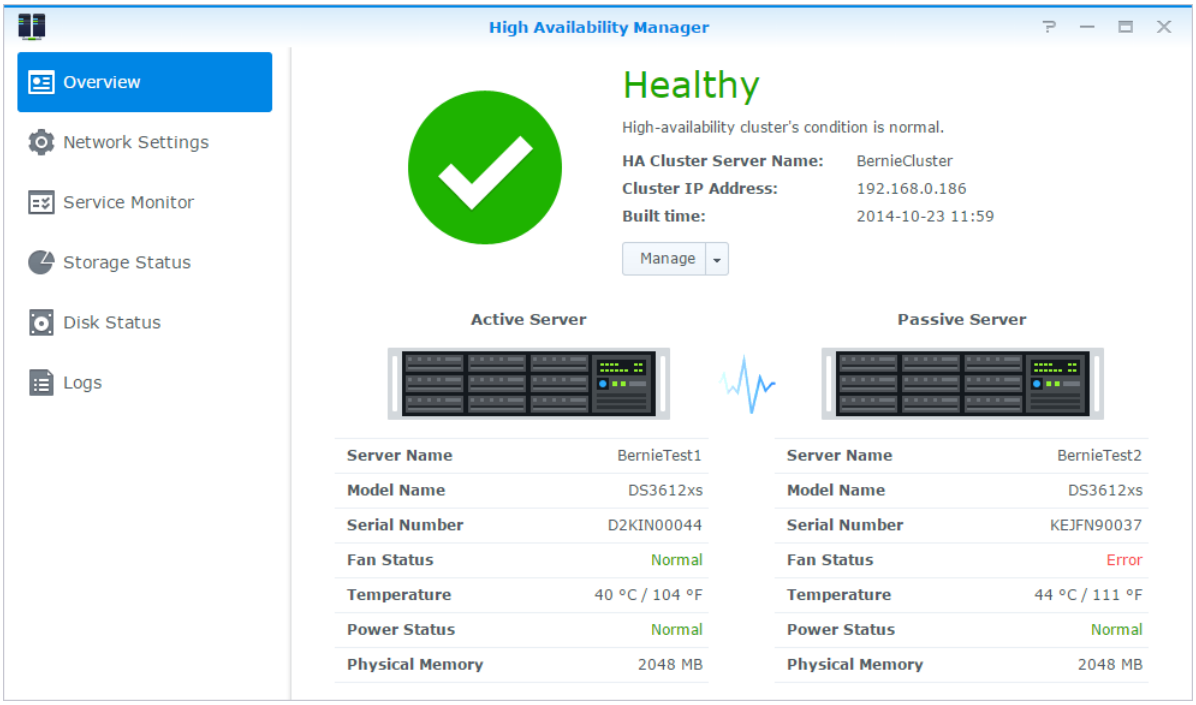
# Scan System Settings

**Security Advisor** allows you to check and scan your DSM settings for any suspicious activities that may present security risks. For detailed instructions, please see **DSM Help**.




# Deploy High-Availability Solution

**High Availability Manager** allows you to form two servers into a “high-availability cluster”, in which one assumes the role of the active server while the other acts as the stand-by server. If the server malfunctions, the stand-by server takes over all services, thus minimizing server downtime. For more detailed instructions, please see **DSM Help** and **High Availability White Paper**.



# Automate Tasks

Go to **Control Panel** > **Task Scheduler** to schedule and run services or scripts at pre-defined times. You can create and manage tasks to automatically run user-defined scripts, empty shared folder recycle bins, or start and stop certain services. For more detailed instructions, please see **DSM Help**.

# Update DSM or Restore Defaults

At **Control Panel** > **Update & Restore**, you can update DSM to a newer version, back-up and restore system configurations or restore Synology NAS device to its original manufacturer settings. You can also set a schedule to install DSM updates automatically to keep your Synology NAS always up-to-date.

> ***Important:*** The data saved on the Synology NAS will not be erased during the updating process. However, for security reason, we recommend that you back up the data first.

# Receive Event Notifications

At **Control Panel** > **Notification**, you can set your Synology NAS to send notifications when specific events or errors occur, notifying you via email, SMS, web browsers (Safari/Chrome), or mobile devices. For more detailed instructions, please see **DSM Help**.

# Access Applications with Independent Login

With Application Portal, you can configure the connection settings of various applications, allowing you to access and run these applications in independent browser tabs or windows. To enable Application Portal, go to **Control Panel** > **Application Portal**.

## Customized Alias

Applications can be opened in an independent browser window at **[http(s)://DSM server address:DSM server port number [HTTP(S)]/alias name/]** once the portal alias is set up.

## Customized HTTP(S) Ports

Applications can be opened in an independent browser window at **[http(s)://DSM server address:customized port number]** once the HTTP(S) port is set up.

# Index Multimedia Files for Applications

Go to **Control Panel** > **Indexing Service** to automatically scan multimedia files, such as photos, music, and videos stored on your Synology NAS, and compile them into a multimedia library to be used by multimedia applications. For more detailed instructions, please see **DSM Help**.

# Reset Admin Password

If you forgot the password for **admin** and are therefore unable to log in to DSM, you can reset the password to blank and set a new password.

### To reset admin's password:

Press and hold the **RESET** button on the back panel of your Synology NAS for 4 seconds until you heard a beep sound.

> ***Note:*** Other than resetting administrator's password, using the **RESET** button will also restore the IP and DNS of Synology NAS to the default value.

# Reinstall Synology NAS

If you want to reinstall your Synology NAS without losing its data, you can use the **RESET** button on the back panel.

**To reinstall Synology NAS:**

1. Press and hold the **RESET** button for about 4 seconds until the Synology NAS emits a beep sound.
2. Within the next 10 seconds, press and hold **RESET** button for about 4 seconds until the Synology NAS emits a beep sound.
3. Follow the installation instructions in the *Quick Installation Guide* for your model available at Synology's **Download Center** to set up the Synology NAS.

> ***Important:*** The data saved on the Synology NAS will not be erased during the reinstallation. However, for security reason, we strongly recommend that you back up the data first.

# Enable SNMP Service

Go to **Control Panel** > **Terminal & SNMP** to enable SNMP service, which allows users to monitor Synology NAS network flow with the network management software.

# Enable Terminal Services

Go to **Control Panel** > **Terminal & SNMP** to enable Terminal service, which allows you to use Telnet or SSH to log in to Synology NAS and modify its settings.

> ***Important:*** Use the Terminal service with caution. Improper manipulation or modification to Synology NAS may result in system malfunction or data loss.

Chapter

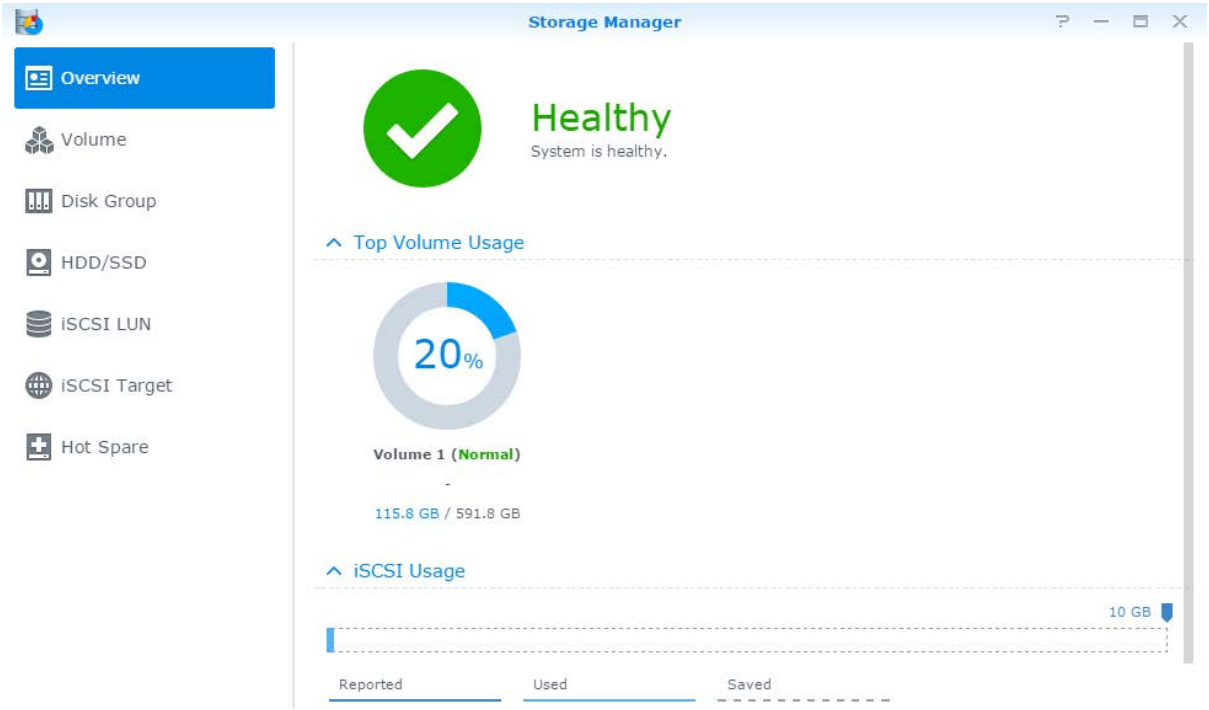
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# Manage Storage Space

Before taking advantage of the various features of your Synology NAS, you need to set up at least one storage space. This chapter explains how Storage Manager can help you manage storage spaces, such as volumes, Disk Groups, iSCSI Targets, or iSCSI LUNs, as well as view the status of hard drives. For more detailed instructions, please see **DSM Help**.

## Volumes and Disk Groups

Volumes are the basic storage spaces on your Synology NAS. Before you start storing or serving any data, you will need to create at least one volume. With DSM's Storage Manager, volumes can be created with various options, such as different RAID types or customized capacity allocation. For detailed instructions, please see **DSM Help**.




### Create Volumes

To create a volume, go to **Storage Manager** > **Volume** and click **Create**. This action launches a setup wizard which helps create a volume based on your individual needs.

## Quick or Custom Volumes

When creating a new volume, the following options are available:

| Method | Features |
|---|---|
| Quick | Creates an SHR (Synology Hybrid RAID) volume.<br>Automatically optimizes volume capacity and performance based on member hard disks.<br>Recommended for saving time and simplifying storage management. |
| Custom | Supports different RAID types.<br>Supports creating single or multiple volumes on Disk Groups.<br>Provides options to allocate specific amounts of capacity for each volume (only when creating multiple volumes on RAID).<br>Recommended for users who want to precisely control storage management on your Synology NAS. |

## Single or Multiple Volumes on RAID

When creating a custom volume, the following options are available:

| Option | Feature |
|---|---|
| Single Volume on RAID | Uses all of the available capacity of the selected disks to create a single volume.<br>Provides better speed and performance.<br>Supports different RAID types. |
| Multiple Volumes on RAID | Allows you to create multiple volumes on a Disk Group.<br>Supports allocating specific amounts of capacity to each volume.<br>Provides greater storage management flexibility.<br>Supports different RAID types. |

## RAID Types

Depending on your model and number of installed hard disks, the below RAID types can be implemented when creating custom volumes or Disk Groups.

| RAID Type | HDD # | Allowed Failed HDD # | Description | Capacity |
|---|---|---|---|---|
| SHR[1] | 1 | 0 | A **Synology Hybrid RAID** volume optimizes storage capacity and performance when combining hard drives of different sizes. SHR volumes consisting of two or three hard disks provide 1-disk fault tolerance, while SHR volumes consisting of four or more hard disks can provide 1- or 2-disk fault tolerance. | 1 x (HDD size) |
| | 2-3 | 1 | | Optimized by the system |
| | ≧ 4 | 1-2 | | |
| Basic | 1 | 0 | A **Basic** volume is created with one hard drive as an independent unit. When creating a Basic volume, you can select only one hard drive at a time. | 1 x (HDD size) |
| JBOD | ≧ 1 | 0 | **JBOD** is a collection of hard drives. | Sum of all HDD sizes |
| RAID 0 | ≧ 2 | 0 | Combining multiple disks to build a storage space, **RAID 0** offers **Striping**, a process of dividing data into blocks and spreading the data blocks across several hard drives, but without safety measures. | Sum of all HDD sizes |

[1] RAID types except for Basic are supported on specific models only. Visit **www.synology.com** for more information.

| RAID Type | HDD # | Allowed Failed HDD # | Description | Capacity |
|---|---|---|---|---|
| RAID 1 | 2-4 | (HDD #) - 1 | The system will write identical data to each hard drive at the same time, so data integrity is protected when at least one disk is normal. | Smallest HDD size |
| RAID 5 | ≧ 3 | 1 | This configuration includes a backup option. It uses parity mode to store redundant data on space equal to the size of one disk for later data recovery. | (HDD # – 1) x (Smallest HDD size) |
| RAID 5+Spare | ≧ 4 | 2 | A **RAID 5+Spare** storage space requires at least four drives, one of which will act as a **hot spare drive** to rebuild the failed drive of the volume automatically. | (HDD # – 2) x (Smallest HDD size) |
| RAID 6 | ≧ 4 | 2 | **RAID 6** provides extra data protection. It uses parity mode to store redundant data on space equal to the size of two disks for later data recovery. | (HDD # – 2) x (Smallest HDD size) |
| RAID 10 | ≧ 4 (even number) | 1 HDD within each RAID 1 group / Half of the total HDD | **RAID 10** has the performance of **RAID 0** and data protection level of **RAID 1**. **RAID 10** combines two hard drives into a RAID 1 group, and combines all the groups with RAID 0. | (HDD # / 2) x (Smallest HDD size) |

### Create Disk Groups

As stated above, creating Disk Groups provides more flexibility when managing storage spaces. Disk Groups can be created within the volume creation setup wizard, or you can go to **Storage Manager** > **Disk Group** and click **Create**.

## Repair Volumes or Disk Groups

The repair function is available for RAID 1, RAID 10, RAID 5, RAID 5+Spare, RAID 6, and SHR volumes or Disk Groups. Depending on your RAID types, when one of the hard drives in the volume or Disk Group fails, it will be in the **degraded** mode. You can repair the volume or Disk Group by replacing the crashed disk(s) to keep the data on the volume or Disk Group protected. For more detailed instructions, please see **DSM Help**.

## Change RAID Type

The RAID types of existing volumes and Disk Groups can be changed without losing existing data, allowing you to easily and economically manage storage capacity. For example, you can create a RAID 1 volume on your Synology NAS, and later change to RAID 5 if you install more hard disks.

The sections below provide basic information regarding changing RAID types. For more detailed instructions, please see **DSM Help**.

### Supported RAID Types

RAID types can be changed as follows.

| RAID Type | Can be changed to... |
|---|---|
| Basic | RAID 1, RAID 5, RAID 5+Spare |
| RAID 1 | RAID 5, RAID 5+Spare |
| RAID 5 | RAID 5+Spare, RAID 6 |
| Add mirror disk to RAID 1 | RAID 1 |
| SHR-1 | SHR-2 |

## Hard Disk Requirements

In order to change the RAID type of a volume or Disk Group, there must be a sufficient number of available hard disks installed in your Synology NAS. Please see below for the minimum number of hard disks required for each RAID type.

| RAID Type | Minimum Hard Disks |
|---|---|
| RAID 1 | 2 or 4 |
| RAID 5 | 3 |
| RAID 5+Spare | 4 |
| RAID 6 | 4 |

# Expand Volumes or Disk Groups

The storage capacity of volumes or Disk Groups can be gradually expanded by installing more or larger hard disks. This feature allows you to expand the capacity of your volume or Disk Group according to your budget and with no need to worry about losing any existing data.

The sections below provide basic information regarding expanding volumes and Disk Groups. For more detailed instructions, please see **DSM Help**.

## Expand a Volume by Changing Volume Size

When creating multiple volumes on RAID, specified amounts of Disk Group storage capacity can be allocated to each volume. If you want to change the amount of allocated storage capacity for a volume, please select the volume and click **Edit**.

## Expand a Volume or Disk Group by Replacing Hard Disks

For SHR, RAID 1, RAID 5, RAID 5+Spare, or RAID 6, the storage capacity of volumes and Disk Groups can be expanded by replacing smaller hard disks with larger ones. When expanding storage capacity with this method, please be careful to replace each hard disk one-by-one. After replacing one hard disk, the volume or Disk Group must be repaired before the next hard disk is replaced. For more detailed instructions, please see **DSM Help**.

Please see the following table to see which hard disk should be replaced first.

| RAID Type | Minimum Hard Disk Size |
|---|---|
| RAID 5 and RAID 6 | When replacing hard disks of RAID 5 or RAID 6 volumes or Disk Groups, the smallest hard disk should always be replaced first. The storage capacity of RAID 5 volumes is (number of hard disks – 1) x (smallest hard disk size), and RAID 6 is (number of hard disks – 2) x (smallest hard disk size). Therefore, the smallest hard disk should always be replaced first in order to maximize hard disk usage. |
| SHR (Synology Hybrid RAID) | If the capacity of all member hard disks is equal, then you should replace at least two hard disks. Otherwise, the capacity of your volume will not expand. |
| | If the capacity of member hard disks is different, then the new, replacement hard disks should be equal to or larger than the largest existing hard disk. In addition, you should replace smaller member hard disks first in order to optimize capacity usage. |

## Expand a Volume or Disk Group by Adding Disks

For SHR, JBOD, RAID 5, RAID 5+Spare, and RAID 6, the storage capacity of volumes and Disk Groups can be expanded by adding more hard disks if there are empty hard drive bays in your Synology NAS. For more detailed instructions, please see **DSM Help**.

Please see the following table regarding the minimum size of new hard disks.

| RAID Type | Minimum Hard Disk Size |
|---|---|
| SHR | The capacity of the hard disk you wish to add must be equal to or larger than the largest hard disk in the volume or Disk Group. For example, if your volume is composed of three hard disks – 2 TB, 1.5 TB, and 1 TB respectively – then the capacity of the new hard disk must be at least 2 TB. |
| RAID 5, RAID 5+Spare, or RAID 6 | The capacity of the hard disk you wish to add must be equal to or larger than the smallest hard disk in the volume or Disk Group. For example, if your volume is composed of three hard disks – 2 TB, 1.5 TB, and 1 TB respectively – then the capacity of the new hard disk must be at least 1 TB. |

# RAID/File System Scrubbing

RAID/file system scrubbing is a data maintenance function that inspects volumes or Disk Groups and repairs any detected data inconsistencies. RAID scrubbing can be used with volumes or Disk Groups that implement SHR (comprised of three or more disks), RAID 5, or RAID 6. File system scrubbing can be used with volumes in Btrfs file system.

We recommend regularly performing RAID/file system scrubbing in order to maintain data consistency and avoid losing any critical data in the event of disk failure. For detailed instructions, please see **DSM Help**.

# SSD TRIM

If a volume consists entirely of SSDs (Solid State Drives), we recommend enabling SSD TRIM. This feature optimizes the read and write performance of volumes created on SSDs, increasing efficiency as well as extending the lifetime of your SSDs.

Before trying to set up SSD TRIM, please see **DSM Help** for detailed instructions and more limitations.

***Note:***

- SSD TRIM is only available on certain Synology NAS models and RAID types.
- Some SSD models are not able to perform SSD TRIM on RAID 5 and RAID 6 volumes. Please refer to the compatibility list at **www.synology.com**.

# iSCSI Targets and LUNs

iSCSI (Internet Small Computer System Interface) is a type of storage area networking (SAN) service that provides access to consolidated, block level data storage. The main use of iSCSI is to facilitate data transfers over intranets, allowing users to manage storage over long distances.

The sections below provide basic information regarding iSCSI Targets and LUNs. For more detailed instructions, please see **DSM Help**.

## Manage iSCSI Targets

Go to **Storage Manager** and click the **iSCSI Target** tab to manage iSCSI Targets on your Synology NAS. The maximum number of iSCSI Targets varies depending on the model. For more information, please refer to “Manage iSCSI LUNs”.

## Manage iSCSI LUNs

An iSCSI LUN (logical unit number) represents an individually addressable portion of an iSCSI Target. An iSCSI LUN can be mapped to multiple iSCSI Targets to perform storage operations such as read or write.

Go to **Storage Manager** and click the **iSCSI LUN** tab to manage iSCSI LUNs on your Synology NAS. The maximum number of iSCSI LUNs varies depending on the model. Detailed product specifications can be found on our website: **www.synology.com**.

## Clone iSCSI LUNs

LUN Clone[1] allows you to create near-instantaneous virtual copies of a LUN. It means much higher productivity and less complex deployment during system-wide operations. LUN Clone also consumes only a fraction of storage at the time of creation.

Go to **Storage Manager** and click the **Clone** button to make a writable copy of an iSCSI LUN or an iSCSI LUN snapshot

## Take iSCSI LUN Snapshots

LUN Snapshot[1] allows you to create up to 256 snapshots per LUN using point-in-time technology without having any impact to system performance. It is efficient for your valuable storage space and also increases the level of protection, letting you easily recover valuable data.

Go to **Storage Manager** and click the **Snapshot** button to take iSCSI LUN snapshots.

# Manage Hard Disks

The **HDD/SSD** tab allows you to monitor the status of the hard disks installed in your Synology NAS, providing options to manage and analyze hard disk performance and health. To see this tab, go to **Storage Manager** and click **HDD/SSD**. For more detailed instructions, please see **DSM Help**.

## Enabling Write Cache Support

Enabling write cache support enhances the performance of your Synology NAS. Only certain hard disk models support this feature. To ensure data protection while using write cache support, usage of a UPS device is strongly recommended. We also suggest the system be shut down properly every time after use. Disabling write cache will reduce the chances of data loss caused by abnormal power outages, but system performance will decline.

## Running S.M.A.R.T. Tests

Disk S.M.A.R.T. tests examine and report the status of your hard disk, alerting you to possible disk failures. We recommended promptly changing your disk if any errors are detected. S.M.A.R.T. tests can also be scheduled to run automatically by creating tasks.

## Checking Disk Info

The **Disk Info** section displays a hard disk's model name, serial number, firmware version, and total size.

[1] LUN Clone and Snapshot are only available on specific models.

# SSD Cache

SSD cache[1] drives can be installed and mounted in a RAID 0 (read-only) or RAID 1 (read-write) configuration to boost the read/write speed of a volume, including iSCSI LUN (Regular Files) on a volume, or iSCSI LUN (Block-Level) on your Synology server. You can now create a read-only cache with one SSD, as well as mount, check SSD compatibility, and view related information by going to **Storage Manager** > **SSD Cache**.

Please refer to your Synology server *Quick Installation Guide* for information regarding SSD installation. For more detailed information regarding SSD management, please see **DSM Help** or **Synology SSD Cache White Paper**.

# Hot Spare

Hot spare[2] disks are standby hard disks that can repair a degraded volume/Disk Group/iSCSI LUN by automatically replacing a failed disk. Hot spare disks can be globally assigned to protect any volume/Disk Group/iSCSI LUN within your Synology NAS, as long as the volume/Disk Group/iSCSI LUN matches the following criteria:

- The RAID type of the volume/Disk Group/iSCSI LUN must be one with data protection (i.e. RAID 1, RAID 5, RAID 6, RAID 10).
- The hot spare disk size must be equal to or larger than the size of the smallest disk in the volume/Disk Group/iSCSI LUN.

## Managing Hot Spares

Go to **Storage Manager** > **Hot Spare** > **Manage** to assign and manage hot spare disks. For more detailed information, please see **DSM Help**.

# Manage External Disks

External USB or eSATA disks can be attached to the USB or eSATA port of your Synology NAS for backup or file sharing purposes.[3]

Go to **Control Panel** > **External Devices** to manage attached external disks or setup printers. The **External Devices** tab provides options to view device information, change formats, or eject the device. The **Printer** tab provides options to setup USB or network printers. For more detailed instructions, please see **DSM Help**.

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[1] SSD cache is supported on specific models only. Visit **www.synology.com** for more information
[2] The hot spare feature is available on specific models only.
[3] eSATA is supported on specific models only. Visit **www.synology.com** for more information.

Chapter

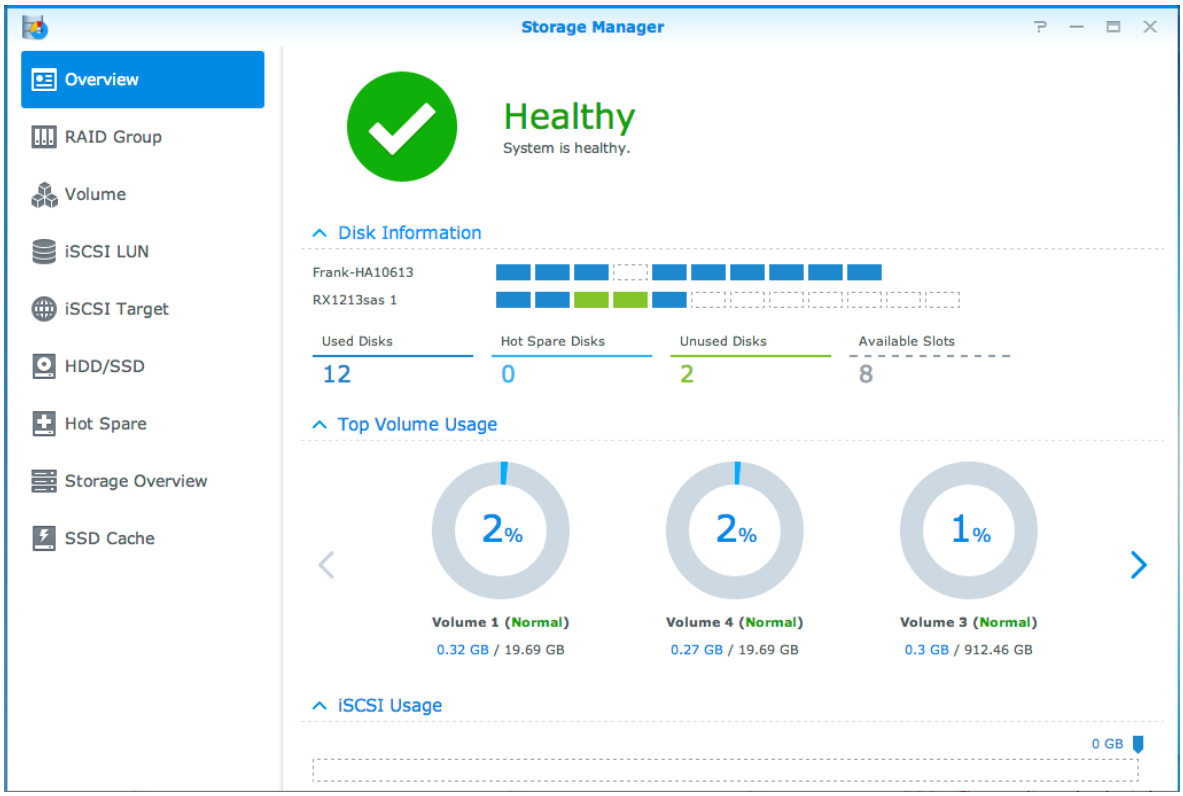
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# Manage Storage Space with RAID Groups[1]

Before using features or services on your Synology NAS, you need to create RAID Groups and manage storage spaces. This chapter explains how to create and manage RAID Groups, volumes, and iSCSI LUNs and iSCSI Targets, as well as access external disks and manage hard disks or cache. For more detailed information or instructions, please refer to **DSM Help**.

## Manage RAID Groups

With your Synology NAS, you may combine multiple hard disks into a single storage unit called a RAID Group. Volumes (up to 200 TB) or iSCSI LUNs (Block-Level) can be created on top of RAID Groups. Before creating a RAID Group, please confirm sufficient hard disks are installed in your Synology NAS (refer to your Synology NAS *Quick Installation Guide* for instructions regarding hard disk installation).




### Create RAID Groups

RAID Groups can be created by going to **Storage Manager** > **RAID Group**, and clicking **Create**. For detailed instructions regarding RAID Group creation, please see **DSM Help**.

[1] Supported on specific models only. Visit **www.synology.com** for more information.

## RAID Group Types

Your Synology NAS supports the following RAID Groups types:

- **RAID Group for Single Volume or iSCSI LUN (Block-Level)**
  - Allocates all available capacity to a single volume or iSCSI LUN (Block-Level).
  - Provides better performance but less storage management flexibility.
  - Allows creation of multiple iSCSI LUNs (Regular File) on volumes.
  - Supports a maximum of one RAID Array.
- **RAID Group for Multiple Volumes or iSCSI LUNs (Block-Level)**
  - Supports creating multiple volumes or iSCSI LUNs (Block-Level) on a RAID Group.
  - Provides better storage management flexibility.
  - Allows creation of multiple iSCSI LUNs (Regular File) on volumes.
  - Supports combining multiple RAID Arrays under a RAID Group (when configured as RAID 5 or RAID 6).
  - The maximum volume size that can be allocated is 200TB (when configured as RAID 5 or RAID 6, with at least 32GB RAM installed).

## RAID Types

Depending on the number of available hard disks, you can create RAID Groups using several different RAID types. Different RAID types provide different levels of performance, data protection, and storage features. Synology NAS supports the following RAID types[1]:

| RAID Type | HDD # | Allowed Failed HDD # | Description | Capacity |
|---|---|---|---|---|
| Basic | 1 | 0 | Creates a storage space with one hard disk. | 1 x (HDD size) |
| JBOD | ≧ 1 | 0 | Combines multiple hard disks into a single, large storage space. | Sum of all HDD sizes |
| RAID 0 | 2-12 | 0 | **RAID 0** offers **Striping**, a process of dividing data into blocks and spreading the data blocks across several hard drives, but without safety measures. | Sum of all HDD sizes |
| RAID 1 | 2-4 | (HDD #) - 1 | Writes a mirrored copy of data to each hard drive, providing data redundancy and protection as long as one hard disk is operating normally. | Smallest HDD size |
| RAID 5 | 3-12 per RAID Array | 1 HDD within each RAID Array | Stripes both data and parity information across all member disks, providing data redundancy. If one hard disk fails, the system may be rebuilt using parity data from other member hard disks<br>Supports combining multiple RAID Arrays when created on a RAID Group for Multiple Volumes or iSCSI LUNs (Block-Level) | Total capacity of combined RAID Arrays.<br>RAID Array capacity = (HDD # - 1) x (Capacity of smallest HDD). |
| RAID 6 | 4-12 per RAID Array | 2 HDD within each RAID Array | **RAID 6** provides extra data protection. It uses parity mode to store redundant data on space equal to the size of two disks for later data recovery.<br>Supports combining multiple RAID Arrays when created on a RAID Group for Multiple Volumes or iSCSI LUNs (Block-Level) | Total capacity of combined RAID Arrays.<br>RAID Array capacity = (HDD# - 2) x (Capacity of smallest HDD) |
| RAID 10 | 4-12 per RAID Array<br>(even number) | 1 HDD within each RAID 1 group / Half of the total HDD | Provides the performance of **RAID 0** and data protection level of **RAID 1**. **RAID 10** combines two hard drives into a RAID 1 group, and combines all the groups with RAID 0. | (HDD # / 2) x (Smallest HDD size) |

[1] Synology Hybrid RAID (SHR) is not supported on models with RAID Groups.

# Change RAID Types

The RAID types of existing RAID Groups can be changed without losing existing data, allowing you to easily and economically manage storage capacity. To change the RAID type of a RAID Group, there must be available hard disks installed in the Synology NAS. The table below displays supported types of RAID change. For more detailed instructions regarding how to change RAID types, please refer to **DSM Help**.

| RAID Type | Can be changed to… |
|---|---|
| Basic | RAID 1 or RAID 5 |
| RAID 1 | RAID 5 |
| RAID 5 | RAID 6 |
| RAID 1 | Add mirror disk |

# Repair RAID Groups

When one of the hard disks belonging to a RAID Group fails, the RAID Group status will change to **Degraded**. You can replace failed hard disks and repair the RAID Group, as long as the RAID Group is one of the following RAID types: RAID 1, RAID 5, RAID 6, and RAID10.

For detailed instructions regarding how to repair RAID Groups, please refer to **DSM Help**.

# Expand RAID Groups

The storage capacity of RAID Groups can be gradually expanded by installing more or larger hard disks. This feature allows you to expand the capacity of your RAID Group according to your budget and with no need to worry about losing any existing data.

The sections below provide basic information regarding expanding RAID Groups. For more detailed instructions, please see **DSM Help**.

## Expand RAID Groups by Installing Larger Hard Disks

You can expand the storage capacity of RAID Groups by replacing existing hard disks with larger ones. This feature is available for following RAID 1, RAID 5, and RAID 6. Associated volumes or iSCSI LUN on RAID Group for single volume or iSCSI LUN will be expanded automatically.

## Expand RAID Groups by Installing Additional Hard Disks

You can expand the storage capacity of RAID Groups by installing and adding additional hard disks. This feature is available for JBOD, RAID 5, and RAID 6.

For RAID Groups with total capacity less than 64TB, the system expands capacity automatically. For RAID Groups with total capacity higher than 64TB, please click **Manage** > **Expand** to expand the capacity of your RAID Group.

# RAID/File System Scrubbing

RAID/file system scrubbing is a data maintenance function that inspects volumes or Disk Groups and repairs any detected data inconsistencies. RAID scrubbing can be used with volumes or disk groups that implement SHR (comprised of three or more disks), RAID 5, or RAID 6. File system scrubbing can be used with volumes in Btrfs file system. We recommend regularly performing RAID/file system scrubbing in order to maintain data consistency and avoid losing any critical data in the event of disk failure.

For detailed instructions regarding how to perform RAID/file system scrubbing, please refer to **DSM Help**.

# Manage Volumes

Volumes are basic storage spaces on which you can create shared folders, iSCSI LUNs (regular file), save data, or install packages. Before creating a volume on your Synology NAS, please create at least one RAID Group.

## Create Volumes

To create a volume, please go to **Storage Manager** > **Volume**, and click **Create**. For more detailed instructions, please see **DSM Help**.

## Volume Types

Depending on the underlying RAID Group type, you may create the following types of volumes:

- **Volume on RAID Group for Single Volume or iSCSI LUN (Block-Level)**
  - Allocates all storage capacity on a RAID Group to a single volume. Provides better performance but less management flexibility.
  - Allows creation of multiple iSCSI LUNs (Regular File) on volumes.
- **Volume on RAID Group for Multiple Volumes or iSCSI LUNs (Block-Level)**
  - Allocates a designated portion of the storage capacity on a RAID Group to create a volume. Provides better management flexibility, allowing you to expand volume size or create additional volumes as needed.
  - Allows creation of multiple iSCSI LUNs (Regular File) on volumes.

## Edit Volumes

If you want to change the description of a volume or edit the amount of allocated storage capacity, please go to **Storage Manager** > **Volume**, select the desired volume, and click **Edit**.

# Repair Degraded Volumes

If a volume status reads **Degraded**, please go to **Storage Manager** > **RAID Group**, and follow the instructions displayed under the RAID Group status. Please refer to **DSM Help** for more information.

# SSD TRIM

If a volume consists entirely of SSDs (Solid State Drives), we recommend enabling SSD TRIM. This feature optimizes the read and write performance of volumes created on SSDs, increasing efficiency as well as extending the lifetime of your SSDs.

Before trying to set up SSD TRIM, please see **DSM Help** for detailed instructions and more limitations.

***Note:***

- SSD TRIM is only available on certain Synology NAS models and RAID types.
- Some SSD models are not able to perform SSD TRIM on RAID 5 and RAID 6 volumes. Please refer to the compatibility list at **www.synology.com**.

# Manage iSCSI LUNs

iSCSI is an Internet Protocol based storage networking standard for linking data storage facilities. iSCSI facilitates data transfer over local area networks (LANs), wide area networks (WANs), or the Internet. By mapping iSCSI Targets and iSCSI LUNs, client servers can access space on a storage server as if it were a local disk.

## iSCSI LUN Types

Synology NAS currently supports the following types of iSCSI LUNs:

- **iSCSI LUN (Regular Files)**:This type of iSCSI LUN is created by designating a portion of a volume. It may be later expanded as needed. This type of iSCSI LUN provides flexibility of dynamic capacity management with Thin Provisioning.
- **iSCSI LUN (Block-Level)**: This type of iSCSI LUN is created on a RAID Group and provides flexibility of dynamic capacity management in addition to optimized access performance. You can expand this type of iSCSI LUN later using unallocated space on the RAID Group.

## Create, Edit, or Remove iSCSI LUNs

You can manage iSCSI LUNs by going to **Storage Manager** > **iSCSI LUN**. For detailed instructions regarding how to create, modify, or remove iSCSI LUNs, please refer to **DSM Help**.

# Manage iSCSI Targets

By mapping iSCSI Targets and iSCSI LUNs, client servers can access space on a storage server as if it were a local disk. In reality, all data transferred to the disk are actually transferred over the network to the storage server.

## Create, Edit, or Remove iSCSI Targets

You can manage iSCSI Targets by going to **Storage Manager** > **iSCSI Target**. For detailed instructions regarding how to create, modify, remove, or register iSNS server information, please refer to **DSM Help**.

# Manage Hard Disks

HDD/SSD section of Storage Manager allows you to monitor the status of hard disks installed on your Synology NAS, providing options to manage and analyze hard disk performance and health. To see this section, please go to **Storage Manager** > **HDD/SSD**.

## Enable Write Cache Support

Depending on the model, write cache support can be enabled in order to enhance the performance of your Synology NAS. Disabling write cache will reduce the chances of data loss caused by abnormal power outages, but system performance will decline. To modify write cache support settings, please go to **Storage Manager** > **HDD/SSD**.

We recommend using a UPS to ensure data protection when write cache support is enabled. In addition, the system should be shut down properly every time after use.

## S.M.A.R.T. Test

S.M.A.R.T. test examines and reports the status of your hard disks, alerting you to possible disk failures. If you want to a run S.M.A.R.T. test, go to **Storage Manager** > **HDD/SSD**. For more information regarding S.M.A.R.T. tests, please refer to **DSM Help**.

# Hot Spare

Hot Spare disks are standby hard disks that can repair a degraded RAID Group by automatically replacing a failed disk. Hot spare disks need not be assigned to a specific RAID Group, but may be globally assigned to repair any RAID Group within your Synology NAS. Before assigning hot spare disks, please see the following requirements:

- The RAID type of the volume/Disk Group/iSCSI LUN must be one with data protection (i.e. RAID 1, RAID 5, RAID 6, RAID 10).
- The hot spare disk size must be equal to or larger than the size of the smallest disk in the volume/Disk Group/iSCSI LUN.

## Manage Hot Spares

You can assign, remove, or manage Hot Spare disks by going to **Storage Manager** > **Hot Spare**. Please refer to **DSM Help** for information regarding Hot Spare management.

# Storage Overview

Storage Overview shows the status of installed hard disks, cable connections, and hardware status lights. You can view Storage Overview by going to **Storage Manager** > **Storage Overview**. Please refer to **DSM Help** for a detailed explanation of this section.

# SSD Cache

SSD cache drives can be installed and mounted in a RAID 0 (read-only) or RAID 1 (read-write) configuration to boost the read/write speed of a volume, including iSCSI LUN (Regular Files) on a volume, or iSCSI LUN (Block-Level) on your Synology server. You can now create a read-only cache with one SSD, as well as mount, check SSD compatibility, and view related information by going to **Storage Manager** > **SSD Cache**.

Please refer to your Synology server Quick Installation Guide for information regarding SSD installation. Additionally, refer to **DSM Help** for information regarding SSD management.

# Manage External Disks

External USB or eSATA disks can be attached to the USB or eSATA port of your Synology RackStation for backup or file sharing purposes.[1]

Go to **Control Panel** > **External Devices** to manage attached external disks or setup printers. The **External Devices** tab provides options to view device information, change formats, or eject the device. The **Printer** tab provides options to setup USB or network printers. For more detailed instructions, please see **DSM Help**.

[1] eSATA is supported on specific models only. Visit **www.synology.com** for more information.

Chapter

7

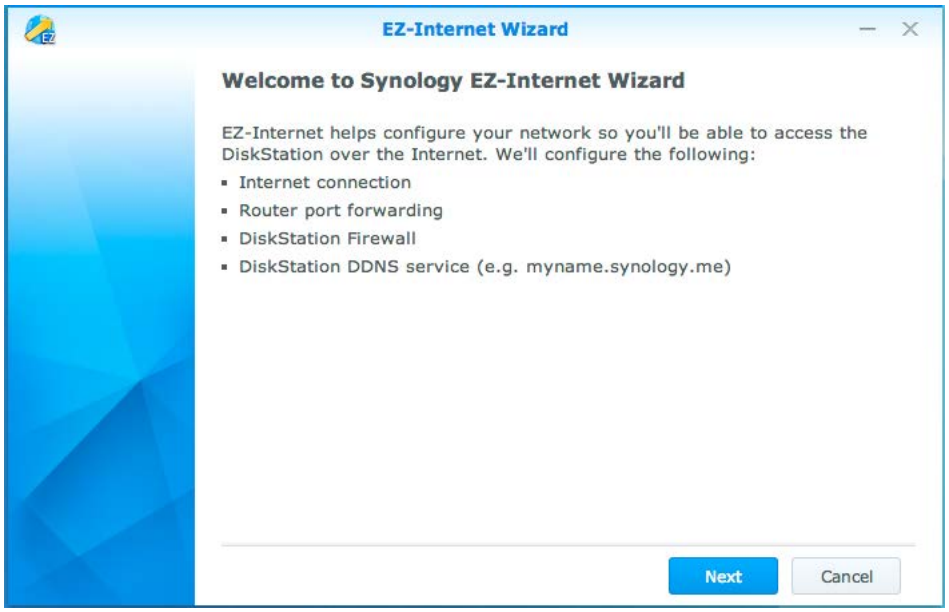
# Access your Synology NAS from the Internet

You can connect to your Synology NAS over the Internet, allowing its services to be accessible from anywhere and anytime.

This chapter explains the basics regarding using the Synology EZ-Internet wizard, advanced port forwarding functions, and DDNS hostname registration to connect your Synology NAS to the Internet. For more detailed instructions, please see **DSM Help**.

## Use the EZ-Internet Wizard

The **EZ-Internet** Wizard can set up access via the Internet with an easy-to-use wizard, without going through the complicated firewall settings, PPPoE setup, DDNS registration, and router port forwarding configuration.



# Set Up Port Forwarding Rules for Router

If your Synology NAS is within the local network, you can set up port forwarding rules for the router to allow your Synology NAS to be accessible over the Internet.

> ***Note:*** Before you start, make sure you have manually assigned a static IP address for your Synology NAS. See "Network Interface" for more information.

Go to **Control Panel** > **External Access** > **Router Configuration** to set up your router and port forwarding rules. For more detailed instructions, please see **DSM Help**.

> ***Note:*** To configure port forwarding rules and assign static IP address, you must have the administrative permission to the router.

## Set up Router

Before adding port forwarding rules with DSM, you need to set up Synology NAS device's connection to the router. To begin, please click the **Set up router** button.

## Add Port Forwarding Rules

Add port forwarding rules to specify the destination ports of your Synology NAS that will receive packages from specific router ports. Click **Create** to start creating port forwarding rules.

# Register DDNS for the Synology NAS

DDNS (Dynamic Domain Name Service) simplifies connecting to your Synology NAS over the Internet by mapping a hostname to its IP address. For example, DDNS allows you to access your Synology NAS using a domain name (e.g. www.john.synology.me), with no need to remember an IP address (e.g. 172.16.254.1).

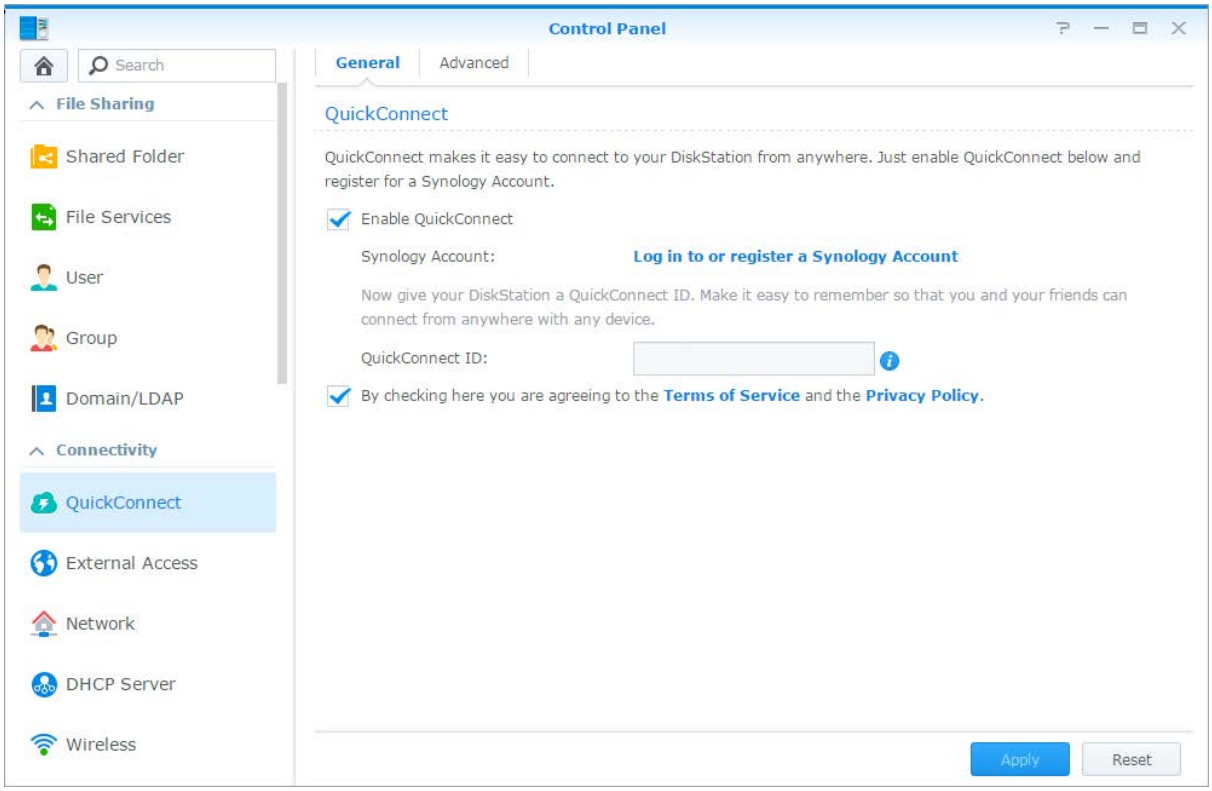
| Service Requirement |
| --- |
| ▪ The servers of the DDNS service provider are working normally.<br>▪ The Synology NAS is able to connect to the Internet.<br>▪ DDNS will only run in a network environment where there is no proxy server required.<br>▪ You can only enter one hostname for each DDNS provider. |

## Register a DDNS hostname for Synology NAS

Go to **Control Panel** > **External Access** > **DDNS**. You can point an existing hostname at the IP address of your Synology NAS, or register for a new one provided by Synology or several other DDNS providers. Please consult each provider for more details regarding hostname registration.

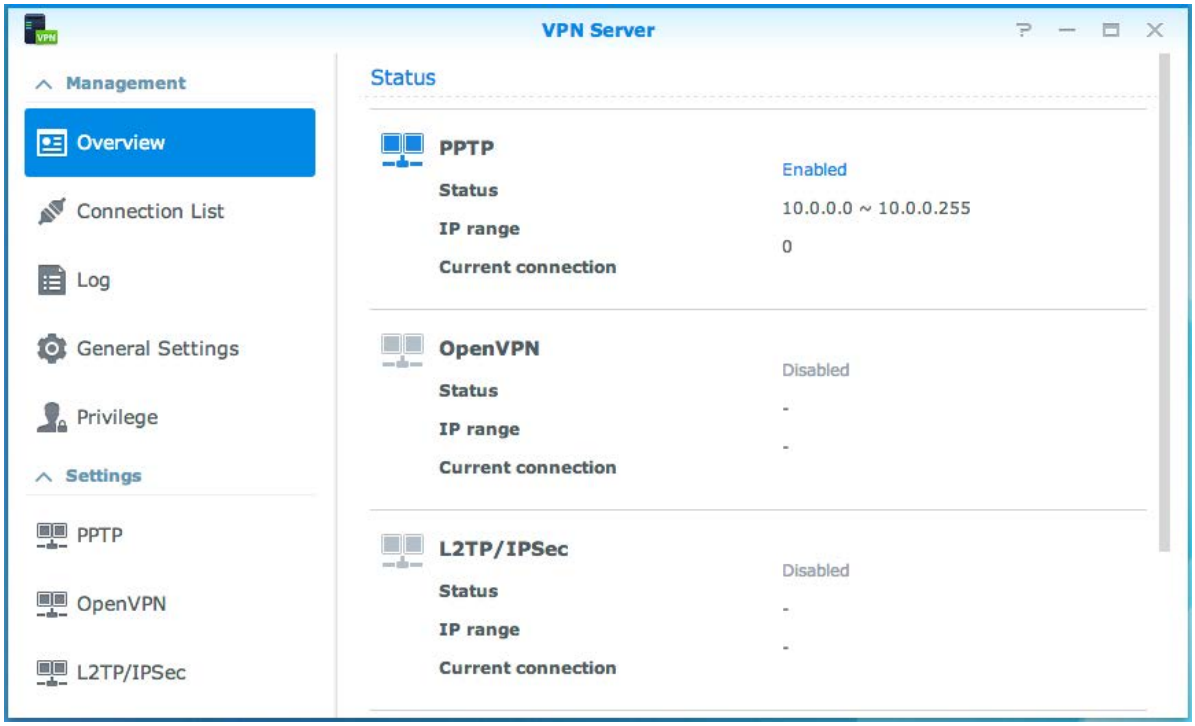
# Access DSM Services via QuickConnect

QuickConnect is a solution that helps client applications (such as DS file, Cloud Station utilities, DS audio, etc.) connect to your Synology NAS via the Internet without setting up port forwarding rules. Go to **Control Panel** > **QuickConnect** to manage the QuickConnect service. For more details regarding QuickConnect, please see **DSM Help**.



# Set Up VPN Connection

**VPN Server** is an add-on package that enables your Synology NAS to become a PPTP, OpenVPN, or L2TP/IPSec VPN (virtual private network) server, allowing DSM local users over the Internet to access resources shared within local area network of the Synology NAS.




## Set up your Synology NAS as a VPN Server

To install VPN Server on your Synology NAS, go to **Package Center**. For more information about VPN Server, run and launch the package, and then click on the **DSM Help** button (with a question mark) at the top-right corner.

## Connect your Synology NAS to a VPN Server

Go to **Control Panel** > **Network** > **Network Interface** to set your Synology NAS as a VPN client to connect to a VPN server, and then gain access to the virtual private network. For each VPN server, you can create or modify its connection profile, and then use the profile to connect to the server with a simple click.

> ***Note:*** Your Synology NAS cannot be set as a VPN server and client at the same time.

Chapter

8

# Enhance Internet Security

After your Synology NAS is available on the Internet, you will need to safeguard it against any attacks from Internet hackers.

This chapter explains how to set up firewall, enable DoS protection and enable auto block. For more detailed instructions, please see **DSM Help**.

## Prevent Unauthorized Connection with Firewall

The built-in firewall can prevent unauthorized logins, and control which services can be accessed. In addition, you can choose to allow or deny access to certain network ports from specific IP addresses.

Go to **Control Panel** > **Security** > **Firewall** > **Edit Rules**, and click **Create** to create firewall rules.

### Apply Firewall Rules to Ports

In the **Ports** section, apply firewall rules to all ports or selected ports using one of the following options:

- **All**: Choose this option to apply the rule to all ports on Synology NAS.
- **Select from a list of built-in applications**: Tick the system services that will be included in the rule.
- **Custom**: Specify the type and protocol of the port, and enter the custom port number.

  You can enter up to 15 ports separated with comma, or by specifying a port range.

### Apply Firewall Rules to Source IP Addresses

In the **Source IP** section, choose to allow or deny access from a source IP addresses using one of the following options:

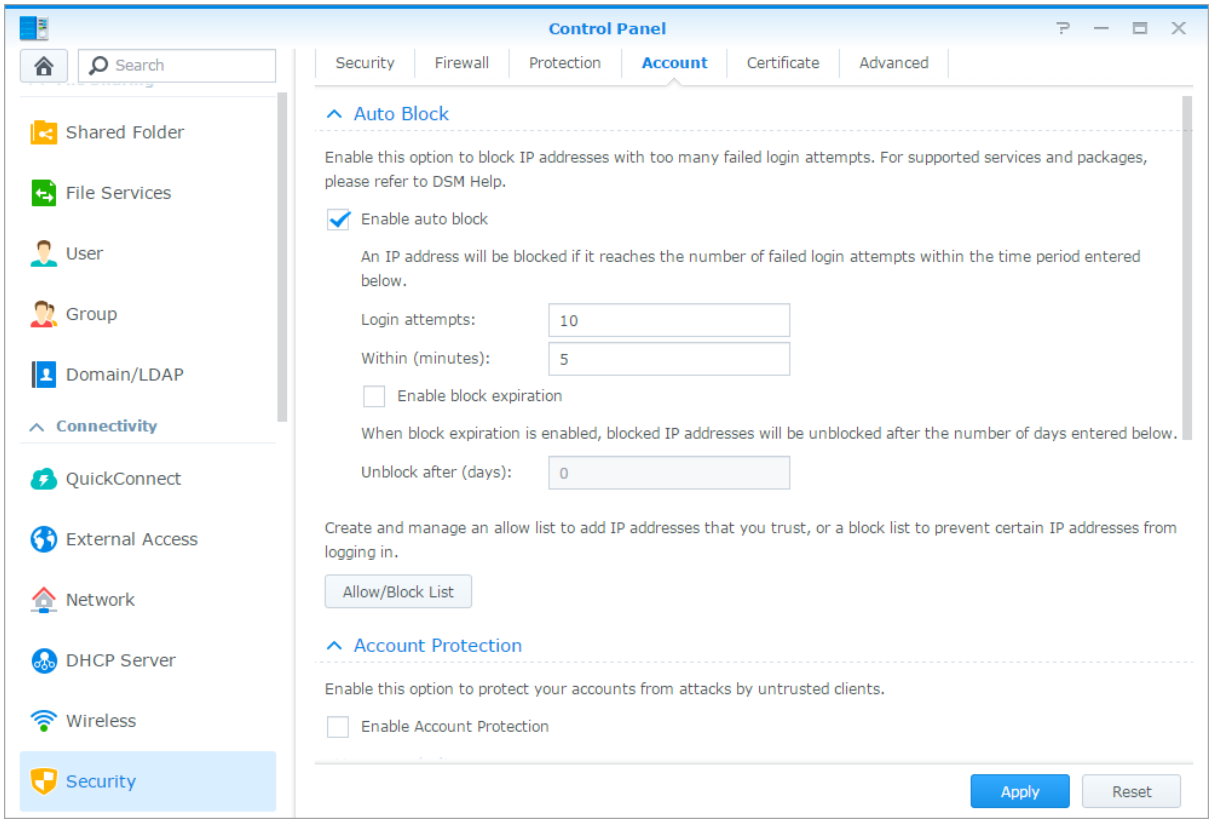
- **All**: Choose this option to apply the rule to all source IP addresses.
- **Specific IP**: Choose this option to apply the rule to an IP address.
- **Region**: Choose this option to apply the rule to a region.

## Prevent Attacks over the Internet

Denial-of-service (DoS) protection helps to prevent malicious attacks over the Internet. Go to **Control Panel** > **Security** > **Protection** to enable DoS protection and improve network security.

# Automatically Block Suspicious Login Attempts

Auto block allows you to prevent unauthorized login. After enabling the service, an IP address will be blocked if it has too many failed login attempts. Go to **Control Panel** > **Security** > **Account** to create and manage your block list and allow list.



Chapter

9

# Set Up File Sharing

Synology NAS can become the file sharing center within the local network or over the Internet, allowing users to access its files anytime and anywhere. For more detailed instructions, please see **DSM Help**.

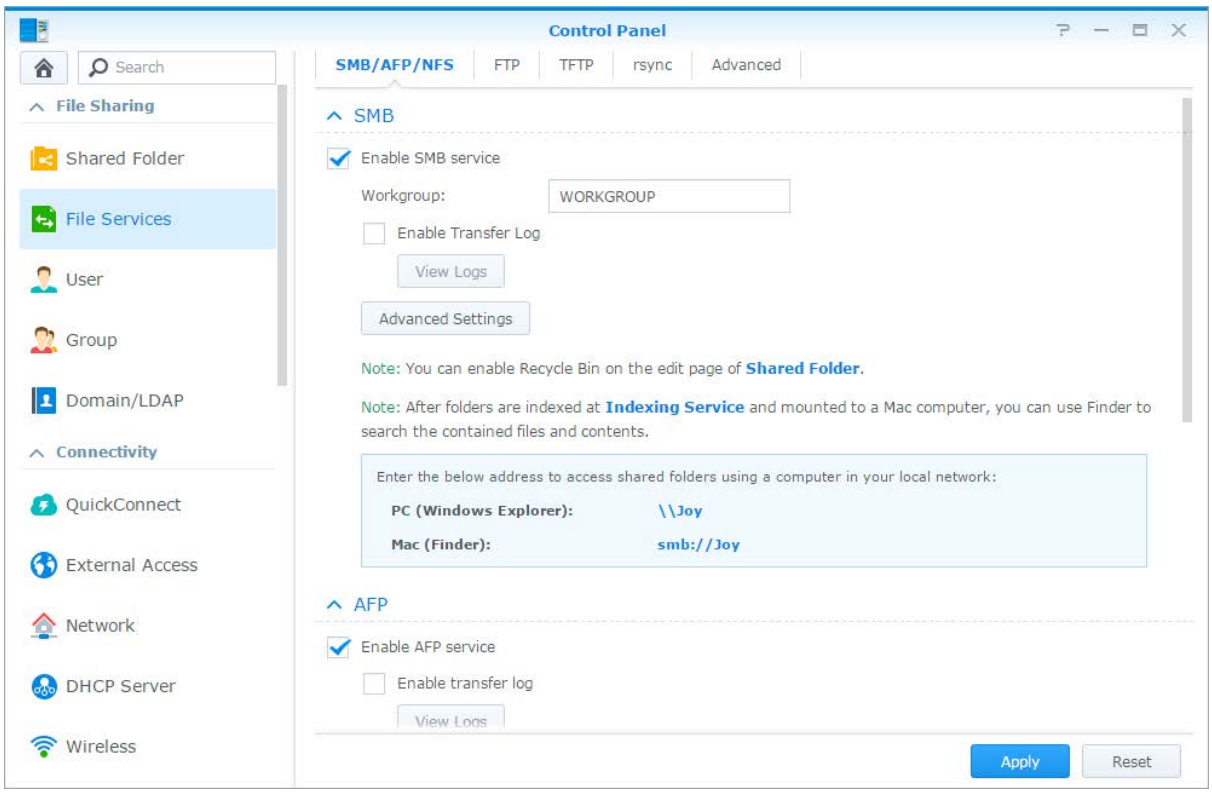
This chapter explains how to enable the support for file sharing protocols for all platforms, create and manage users and groups, set up shared folders, and allow or deny access to the shared folders, applications or subfolders from specific users or groups.

## Enable File Sharing Protocols for All Platforms

This section tells you how to allow the Synology NAS to support file sharing protocols for all platforms.

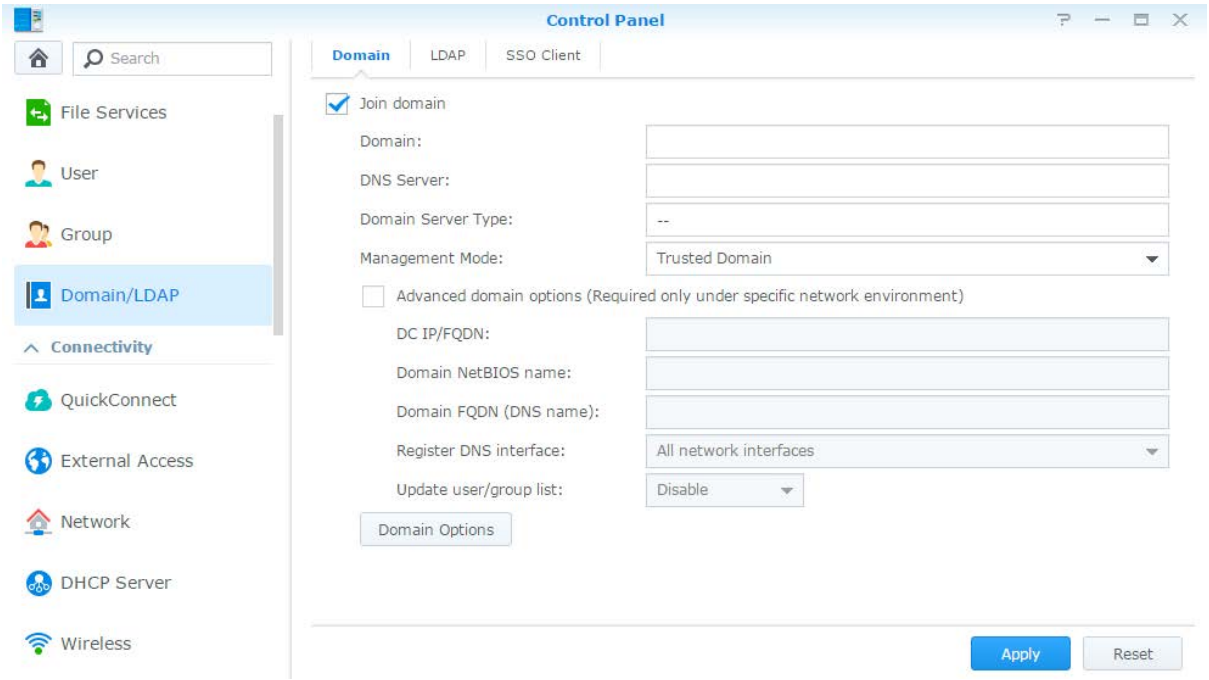
### Synology NAS supports the following file sharing protocols:

- **For Windows:** SMB/CIFS (My Network Places), FTP, WebDAV
- **For Mac:** SMB, FTP, AFP, WebDAV
- **For Linux:** SMB, FTP, NFS, WebDAV



# Join Synology NAS to Domain/LDAP

Go to **Control Panel** > **Domain/LDAP** to join your Synology NAS to a directory service as a Windows domain or LDAP client. When the Synology NAS is joined to a directory service, you can manage domain/LDAP users' access privileges to shared folders and DSM applications and enable their home service.




## Joining a Windows Domain

Click the **Domain** tab, and enter domain name and DNS server (optional) to join the Synology NAS to a Windows ADS domain. In the window that appears, enter the user name and password for the administrator of the domain server.

After Synology NAS joins the domain, domain users can log in to Synology NAS with their domain account and password.

***Note:***

- If your domain user name includes “%” and “$”, you might not be able to access your home folder. Please ask your domain administrator to give you a new user name.
- Domain groups **Domain Admins** and **Enterprise Admins** will be added to the local group **administrators** automatically. In other words, domain users in these groups have administrative right on the Synology NAS, including performing DSM/CIFS/FTP/AFP/WebDAV applications.
- You can also configure domain users’ access privileges to the shared folders on Synology NAS. See "Allow Domain Users or Groups to Access Shared Folders" for more information.

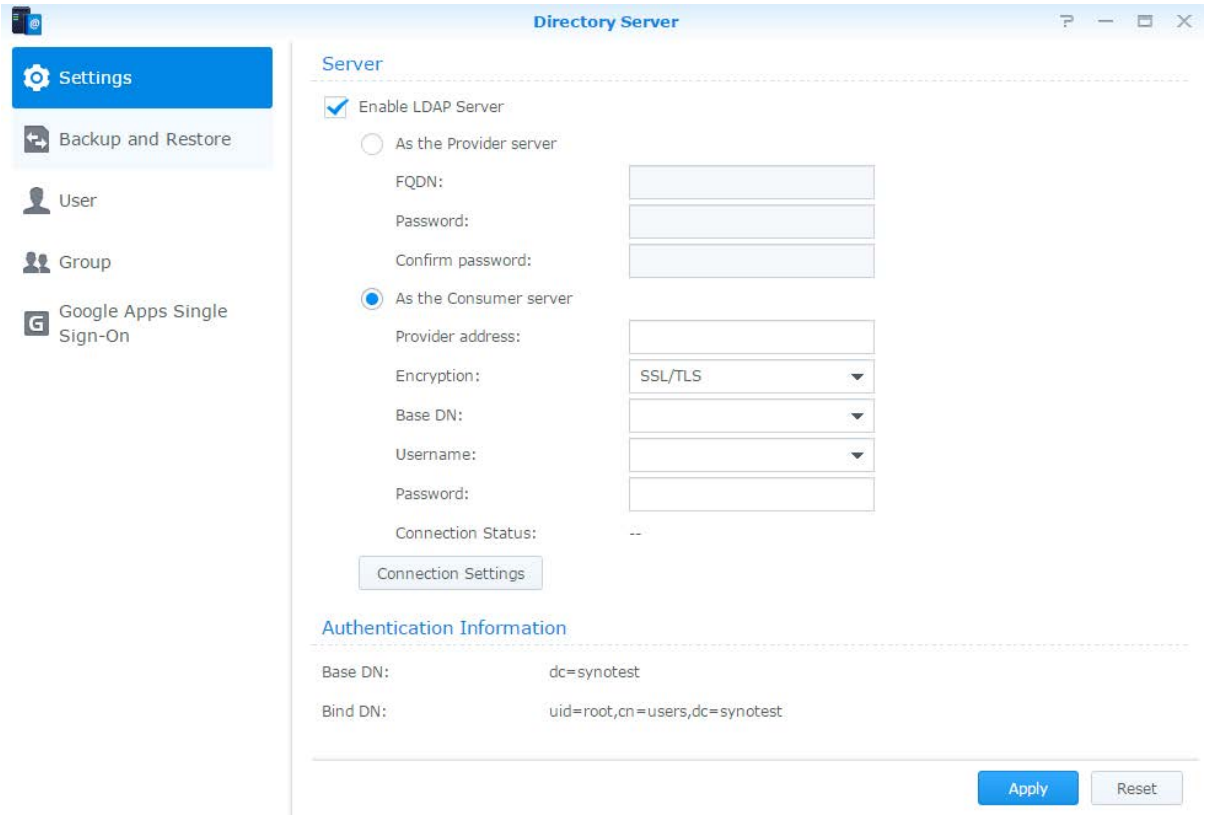
## Binding to an LDAP Server

LDAP allows your Synology NAS to join an existing directory service as an LDAP client, and then retrieve user or group information from an LDAP server (or "directory server"). The profiles option allows you to smoothly connect to different types of LDAP servers, such as standard (Synology Directory Servers or Mac Open Directory), IBM Lotus Domino servers, or customize your own profile settings.  You can manage LDAP users' or groups' access privileges to DSM applications and shared folders, just as you would with DSM local users or groups.

# Host LDAP Service with Directory Server

Directory Server is an add-on package based on LDAP version 3 (RFC2251) that allows your Synology NAS to become an account administration center to centralize the account management of all connecting clients, and provides authentication service for them.

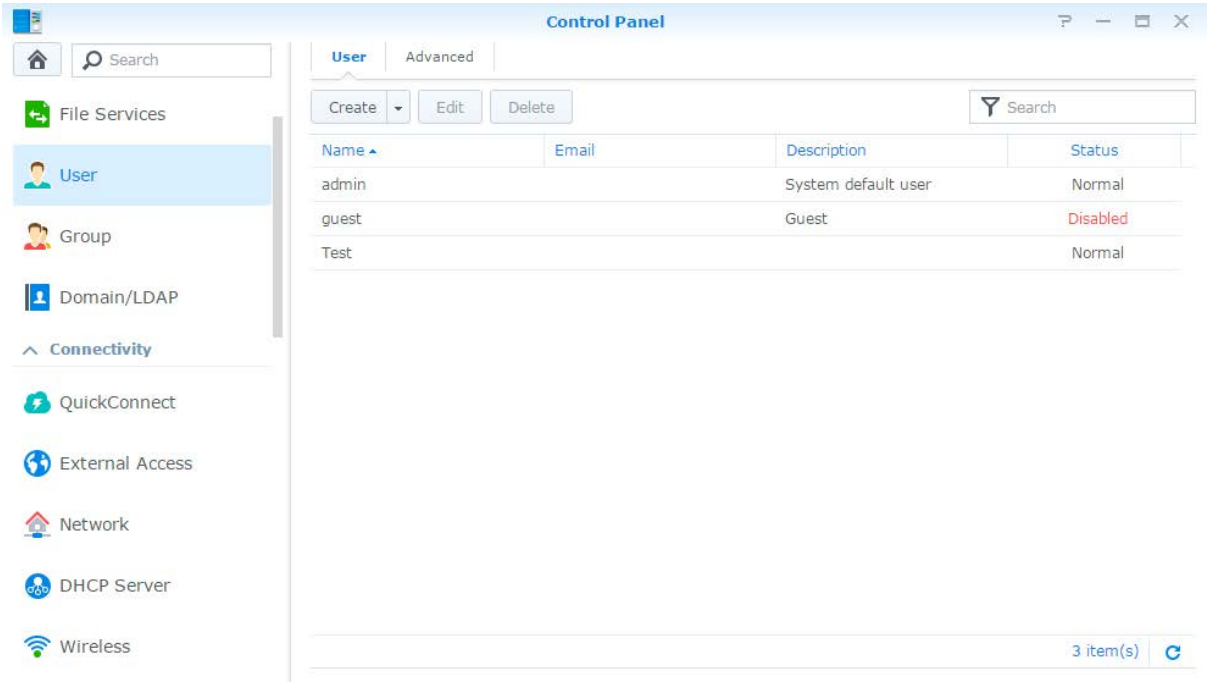
In addition, with **Google Apps Single Sign-On** support, Directory Server can become an identity provider for your Google Apps domain. This allows users to log into Google Apps services (such as Gmail or Google Calendar) using their accounts and passwords stored on Directory Server, eliminating the need for users to remember another set of accounts and passwords.




To install Directory Server on your Synology NAS, go to **Package Center**. For more information about Directory Server, please refer to **DSM Help**. To learn more about how to access Directory Server with a LDAP client, please read this **tutorial**.

# Manage Users and Groups

Go to **Control Panel** > **User** or **Group** to create users or groups, and allow or deny their access to different shared folders.




## Create Users

Click **Create** to create a user account. The user can log in to edit his/her account info after the user account has been established. You can also choose to set an account expiration date or disallow the user to change account password.

## Allow Self-service Password Reset

If you would not like to allow users to reset forgotten passwords via email, you can click Password Settings and tick the box marked **Disallow the user to change account password**. When this option is enabled, a link marked **Forgot your password?** will appear on the DSM login page. If a user forgets his password, he can click this link and enter his username. In this case, the system will send a message to the user containing a link to reset his forgotten password.

For detailed instructions and notes, please see **DSM Help**.

## Apply Password Strength Rules

You can enable password strength service to make sure DSM users' passwords are secure enough to withstand malicious login attempts. Click **Password Settings** to configure this measure of the effectiveness of a password.

***Note:***

- Password Strength rules only work for passwords created or modified after the Password Strength service is enabled. Existing passwords won't be affected by the rules.
- The rules won't apply to the passwords of users created by importing user list.

## Create User's Home Folder

Each DSM user (except for guest) can have his/her own folder called the **home** folder, which is accessible only by the user and the system administrator. Click **User Home** to enable user home service.

For users belonging to the **administrators** group, DSM users' home folders are here: **homes/[Username]**

***Note:***

- When the user home service is disabled, the **homes** folder will be kept but accessible by users belonging to the **administrators** group only. Users can access their home folders again if the user home service is enabled again.
- To delete the **homes** folder, the user home service must be disabled first.

## Create Domain/LDAP User's Home Folder

If you have joined your Synology NAS to a directory service as a Windows domain or LDAP client, you can go to **Control Panel** > **Domain/LDAP** > **Domain** or **LDAP** to create domain/LDAP users' home folder. Click **User Home** and tick **Enable home service for domain users** or **Enable home service for LDAP users**.

Like local users, all domain/LDAP users can access their own home folder via CIFS, AFP, FTP, WebDAV, or File Station. Users belonging to the **administrators** group can access all personal folders located in the **homes** default shared folder. For users belonging to the **administrators** group, domain/LDAP users' home folders are in the folder named **@DH-domain name** (for domain users) or **@LH-FQDN name** (for LDAP users). The name of the user's home folder is the user account plus a unique number.

***Note:***

- To delete the **homes** shared folder, user home service must be disabled first.
- Enabling domain/LDAP user home service will also enable the local user home service if it's not enabled yet.
- The domain user home service would be disabled if the local user home service is disabled.

## Create Groups

Go to **Control Panel** > **Group** to create and edit a group, add users to the group, and then edit the group's properties, saving you the trouble of editing users one by one.

### Groups created by default include the following:

- **administrators**: Users belonging to the **administrators** group have the same administrative privilege as **admin**.
- **users**: All users belong to the **users** group.

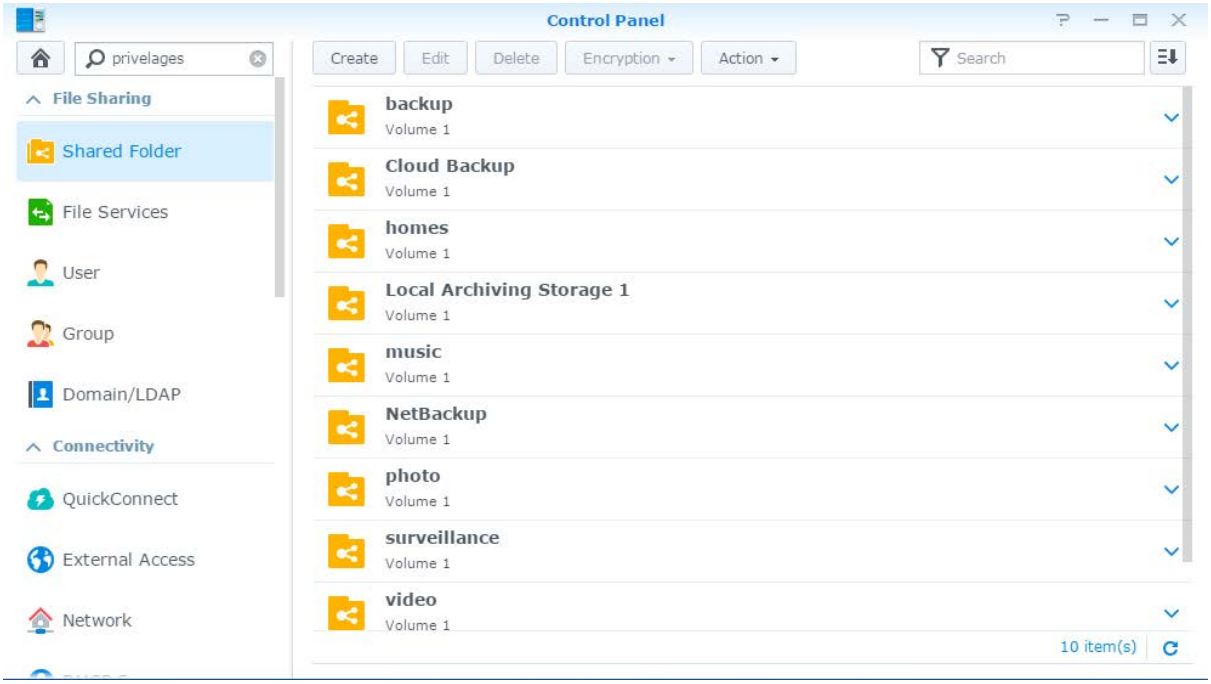
***Note:*** For more information about editing a group's access privileges to shared folders or applications, see "Allow Users or Groups to Access Shared Folders" and "Allow Users to Access Applications" for more information.

## Allow Users to Access Applications

Go to **Control Panel** > **Group** > **Edit** > **Applications** to decide which applications could be accessed by a user.

# Set Up Shared Folders

Go to **Control Panel** > **Shared Folder** to manage the shared folders, which are the root folders of Synology NAS. You can store data in the shared folders and share them with users or groups with access privileges.



## Built-in Shared Folders Created by the System

System built-in shared folders are created when the services or applications requiring the folders are enabled.

| Name | Description |
|---|---|
| public | The **public** folder will be created automatically after the first time you set up Synology NAS.[1] |
| web | The **web** folder contains contents of your website. It will be created automatically when Web Station is enabled. |
| photo | The **photo** folder contains photos and videos you want to share on Photo Station. It will be created automatically when Photo Station or DLNA/UPnP Media Server is enabled. |
| music | The **music** folder contains music you want to share on Audio Station. It will be created automatically when Audio Station is enabled. |
| video | The **video** folder contains videos you want to browse through DLNA/UPnP DMA. It will be created automatically when Media Server is enabled. |
| surveillance | The **surveillance** folder contains Surveillance Station recordings. It will be created automatically when Surveillance Station is enabled. It is read-only and can only be accessed by the system administrator. |
| home | The **home** folder provides a private space for each user to store data where only the user can access. It will be created automatically when User Home is enabled. |
| homes | The **homes** folder contains the home folders of all users. It will be created automatically when User Home is enabled. Only system administrator can access and manage all users' home folders. |
| NetBackup | The **NetBackup** folder is created automatically when Network Backup Service is enabled. |
| usbshare | The **usbshare[number]** folder is created automatically when you connect an USB disk to Synology NAS device's USB port. |
| esatashare | The **esatashare** folder is created automatically when you connect an eSATA disk to Synology NAS device's eSATA port. |

## Create a Shared Folder

If you are a user belonging to the **administrators** group, you can click **Create** to create shared folders and assign access privileges to the folders.

## Remove a Shared Folder

If you are a user belonging to the **administrators** group, you can click **Delete** to remove any shared folder created by yourself.

> ***Important:*** Removing any shared folder also removes all data within it. If you still need the data, back them up first.

## Encrypt a Shared Folder

When creating a shared folder, you can choose to encrypt it.[2] After a folder is encrypted, you can use the **Encryption** drop-down menu to edit the folder.[3]

The AES 256-bit encryption can block off all unauthorized access attempts. Without the encryption key, other people will not be able to use the encrypted data even if they remove the hard drives from your Synology NAS and mount it on their device.

> ***Note:*** Tick **Mount automatically on startup** to mount the encrypted folder automatically after Synology NAS starts up next time. By default, encrypted shared folder will be unmounted automatically on startup for security reasons. If you reset default passwords with the reset button located on the Synology NAS, encrypted shares will be unmounted, and the option to automatically mount will be disabled.

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[1] This is applied to 1-bay models only.
[2] Shared folder encryption is supported on specific models only.
[3] A shared folder can still be encrypted after its creation.

### Allow Users or Groups to Access Shared Folders

Go to **Control Panel** > **Shared Folder**, click **Edit** and go to **Permissions** to allow or deny users' or groups' access to a shared folder.

### Allow Linux Clients to Access Shared Folders

Go to **Control Panel** > **Shared Folder**, click **Edit** and go to **NFS Permissions** to assign NFS permissions to any shared folder, allowing Linux clients to access it.

### Allow Domain Users or Groups to Access Shared Folders

If you have joined your Synology NAS to a directory service as a Windows domain or LDAP client, you can go to **Control Panel** > **Directory Service** > **LDAP User**, **LDAP Group**, **Domain users**, or **Domain Group** to set up and modify the shared folder privileges of a domain/LDAP user or group.

> ***Note:*** In the event of privilege conflicts, the privilege priority will be: No access (NA) > Read/Write (RW) > Read only (RO).

## Define Windows ACL Privileges for Shared Folder

Windows Access Control List (ACL) is a list of privileges or permissions that determine specific access rights under the Windows environment. This can help administrator define access control rules for an individual file or a directory, and give different access rights for individual user or group. Go to **Control Panel** > **Shared Folder** and click **Edit**. On the **Permissions** tab, click **Customize**.

Through Windows ACL, you can assign different privileges to local and domain users in the system. The privileges apply to all file-related applications, such as FTP, File Station, NFS, AFP, WebDAV, etc.

## Index Shared Folder Contents

Go to **Control Panel** > **Shared Folder**, click **Edit** and go to the **File Indexing** tab to enable file indexing. This option indexes the contents of a shared folder so you can find files or folders more quickly during file search.

> ***Note:*** See "Search for Files or Folders" for more information about searching files with File Station.

Chapter 10

# Access Files from Anywhere

When you have set up users or groups with proper access privileges to the shared folders, they can share their files with your Synology NAS from anywhere.

This chapter explains the ways to access the Synology NAS shared folders within the local network or over the Internet. For more detailed instructions, please see **DSM Help**.

## Access Files within the Local Network

This section explains how to allow users to use Windows, Mac, or Linux computer to access shared folders on Synology NAS within the local network.

> ***Note:*** Before accessing, make sure the relative file sharing protocols have been enabled for your Synology NAS. See "Enable File Sharing Protocols for All Platforms" for more information.

### Access Shared Folders from Windows

To access shared folders from Windows, you can use any of the following methods.

#### Method 1: Use Synology Assistant to map the shared folders as network drives.

Run Synology Assistant (available at Synology's **Download Center**) and select the server from the server list. Click **Map Drive** and follow the onscreen steps to finish the setup.

Upon completion, you can access the mapped shared folder directly in Windows Explorer.

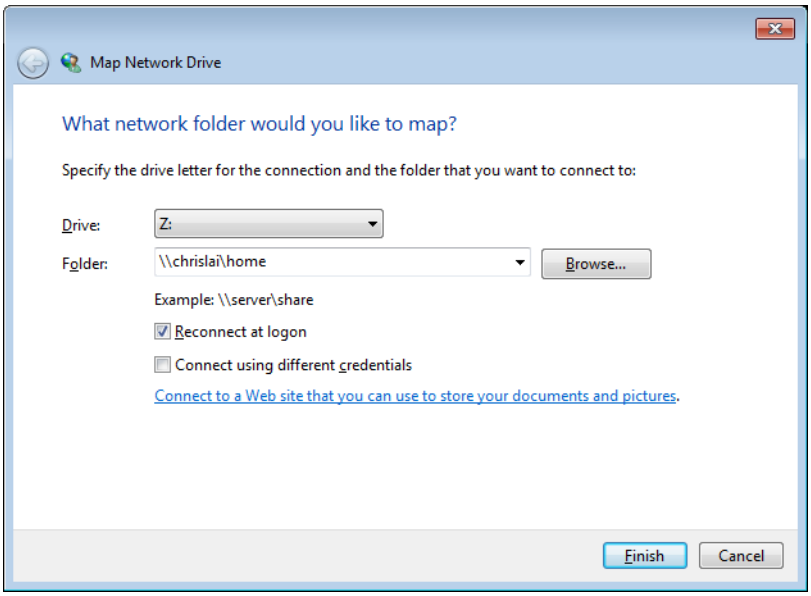
#### Method 2: Use Windows Explorer.

Open a Windows Explorer window and choose **Tools** > **Map network drive** to show the **Map Network Drive** window. Choose a drive number from the **Drive** drop-down menu.

Locate the shared folder by doing one of the following:

- Enter **\\Synology_Server_Name\Shared_Folder_Name** in the **Folder** field.
- Click **Browse** to locate the shared folder, and then click **OK**.

Enter your user name and password for Synology DiskStation Manager and click **OK**. Upon completion, you can access the mapped shared folder directly in Windows Explorer.

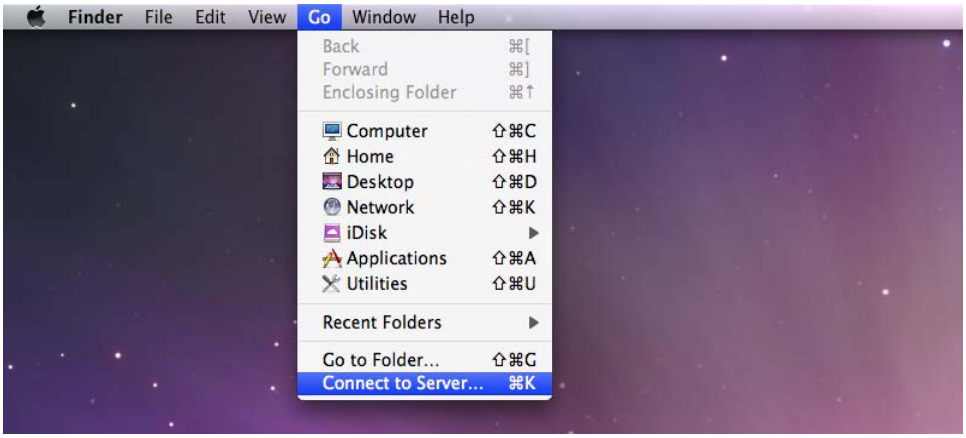


## Access Shared Folders from Mac

Choose **Go** > **Connect to Server** from the menu bar. Type the IP address or name (appended with **.local**) of the Synology NAS preceded by **smb://** or **afp://** in the **Server Address** field and click **Connect**. (e.g. **smb://EricaWang.local** or **afp://192.168.0.2**)

> ***Note:*** For better performance, it is recommended that you connect to the shared folders via SMB.

Select the shared folder you want to access. Upon completion, you can access the shared folder in the Finder window.




## Access Shared Folders from Linux

In Synology DiskStation Manager, Go to **Main Menu** > **Control Panel** > **Shared Folder**. Select the shared folder you want to access, click **NFS Privileges**, and find the mount path at the bottom of the window that appears.

On a Linux computer, enter the mount path to mount the shared folders.

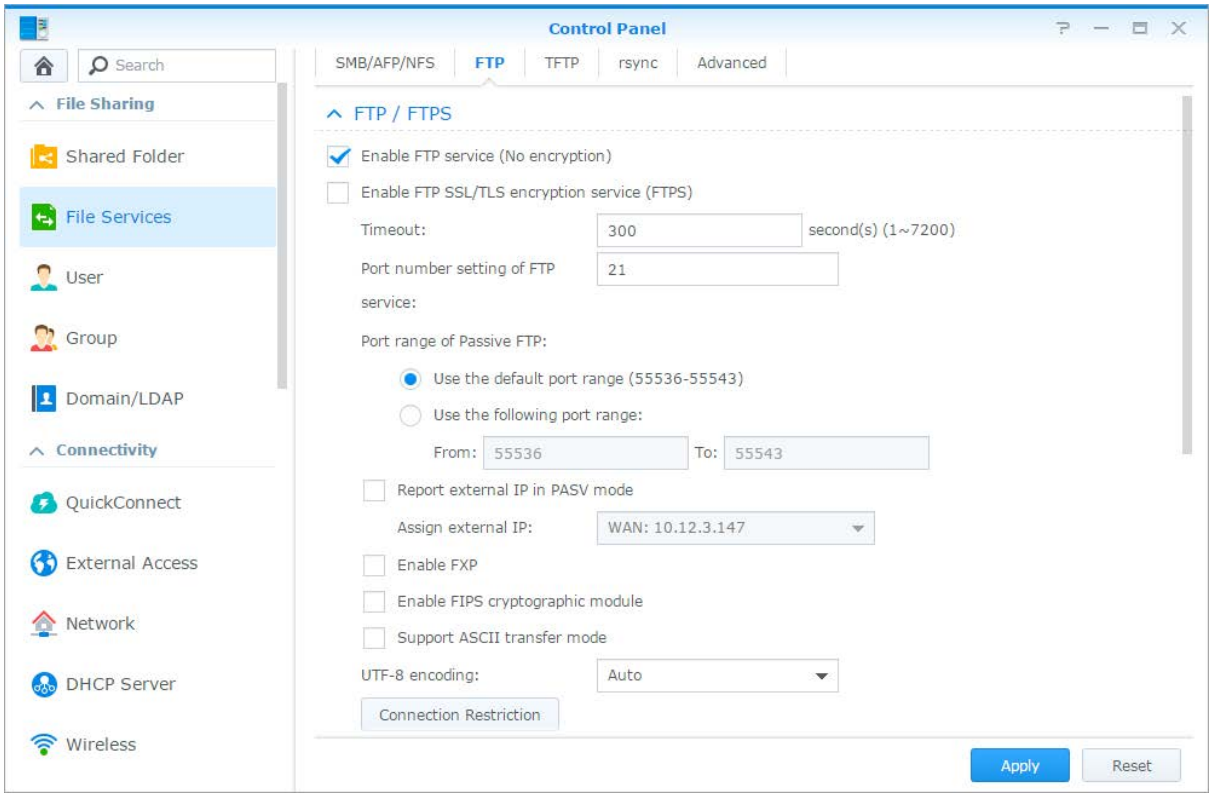
> ***Note:*** For more information about NFS Privileges, see "Allow Users or Groups to Access Shared Folders".

# Access Files via FTP

If your Synology NAS is accessible over the Internet, you can use a FTP application to access the shared folders.

> ***Note:*** For more information about making Synology NAS accessible over the Internet, see "Chapter 7: Access your Synology NAS from the Internet".

Go to **Control Panel** > **File Services** > **FTP** to enable FTP service, allowing users to upload or download Synology NAS data via FTP.



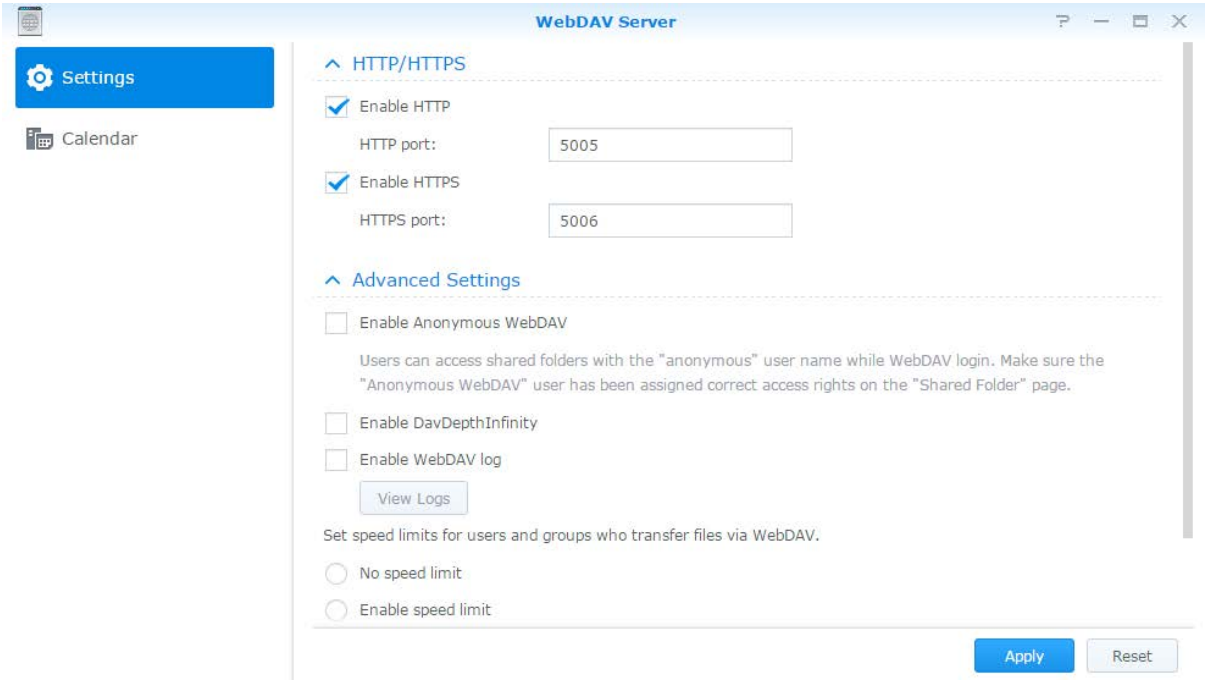

## Connect to Synology NAS Using a FTP Application

Open any FTP application on your computer and enter the following information to connect to Synology NAS:

- IP address or domain name of the Synology NAS
- Your user account and password
- The port number (The default number is 21)

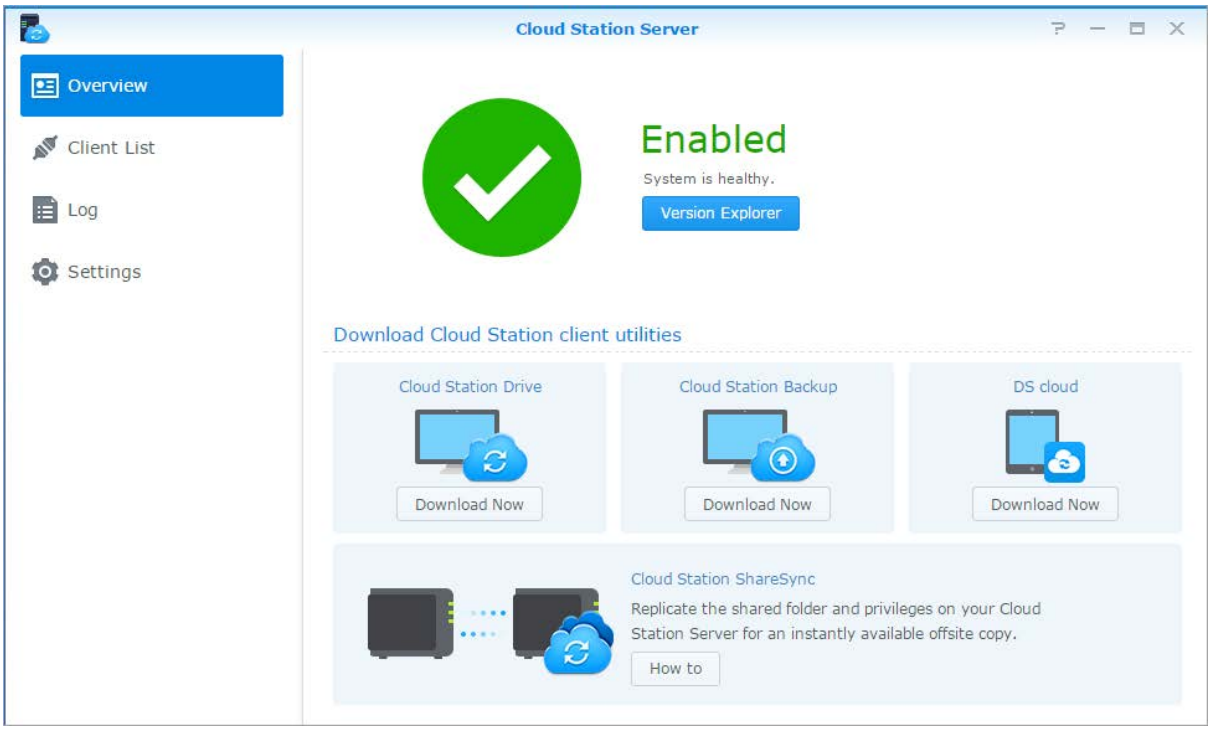
# Access Files via WebDAV

By enabling WebDAV or CalDAV, you can remotely manage and edit files or calendars stored on the Synology NAS. Go to **Package Center** to install the **WebDAV** package and to enable its services.



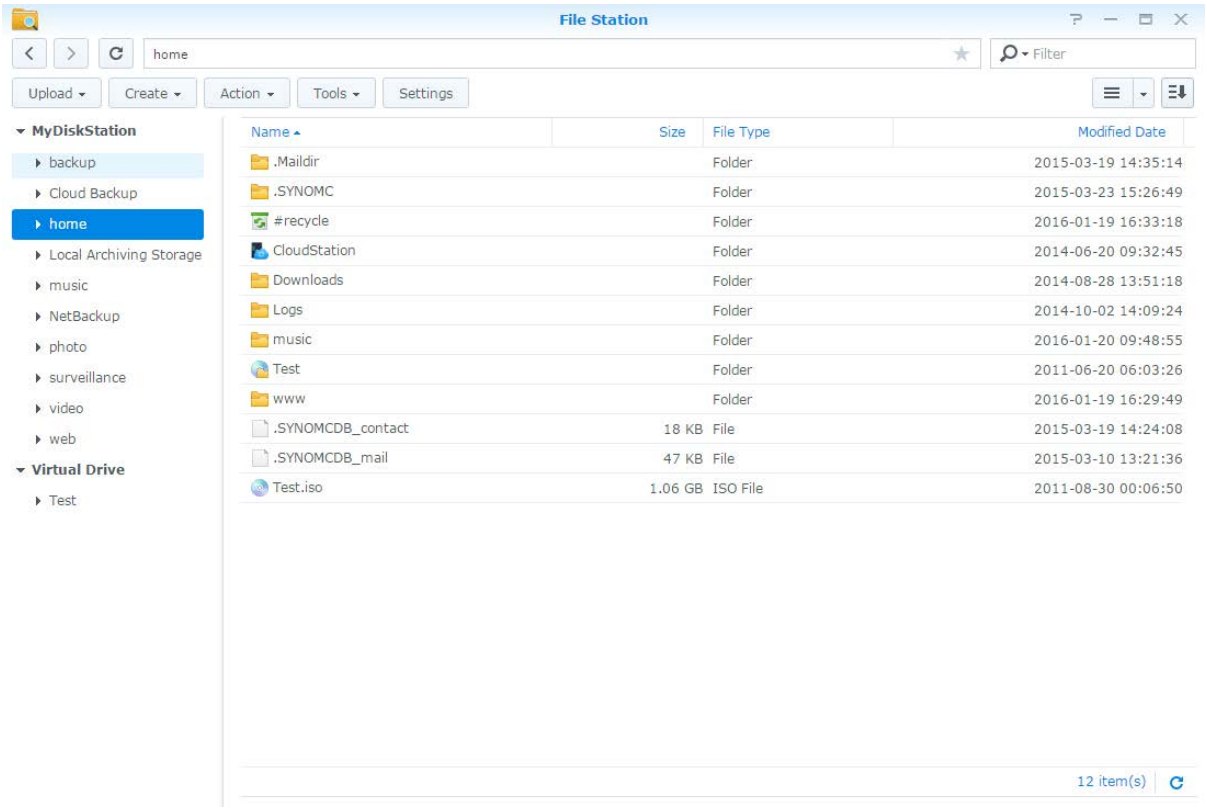

# Sync Files via Cloud Station Server

Cloud Station Server is a file sharing service that allows you to synchronize files between a centralized Synology NAS and multiple client computers, mobile and Synology NAS devices. Go to **Package Center** to install and run the **Cloud Station Server** package.



# Access Files via File Station

File Station is DSM's file management tool, allowing DSM users over the Internet to access the Synology NAS folders with their web browsers, or transfer files to another WebDAV/FTP server.[1] By launching two or more File Stations, you can manage all your Synology NAS data by dragging and dropping them between different File Stations.




## File Station Appearance

- **Left panel:** Displays shared folders and their subfolders in the upper part, and the folders on your local computer in the lower part.
- **Main section:** Displays contents of the currently selected folder.
- **Help button (top-right corner):** Click the **Help** button (with a question mark) to reveal the DSM Help, where you can get useful help about how to use File Station.
- **Search field:** Enter a keyword to filter through files or folders in the current folder.
- **Advanced Search (magnifying glass button):** Search for refined search results.

## Manage File Station Options

Click **Settings** to configure general settings, enable File Station log, mount remote folders or virtual drives, determine who can share file links, and set speed limit to control the bandwidth usage for DSM file transfer services.

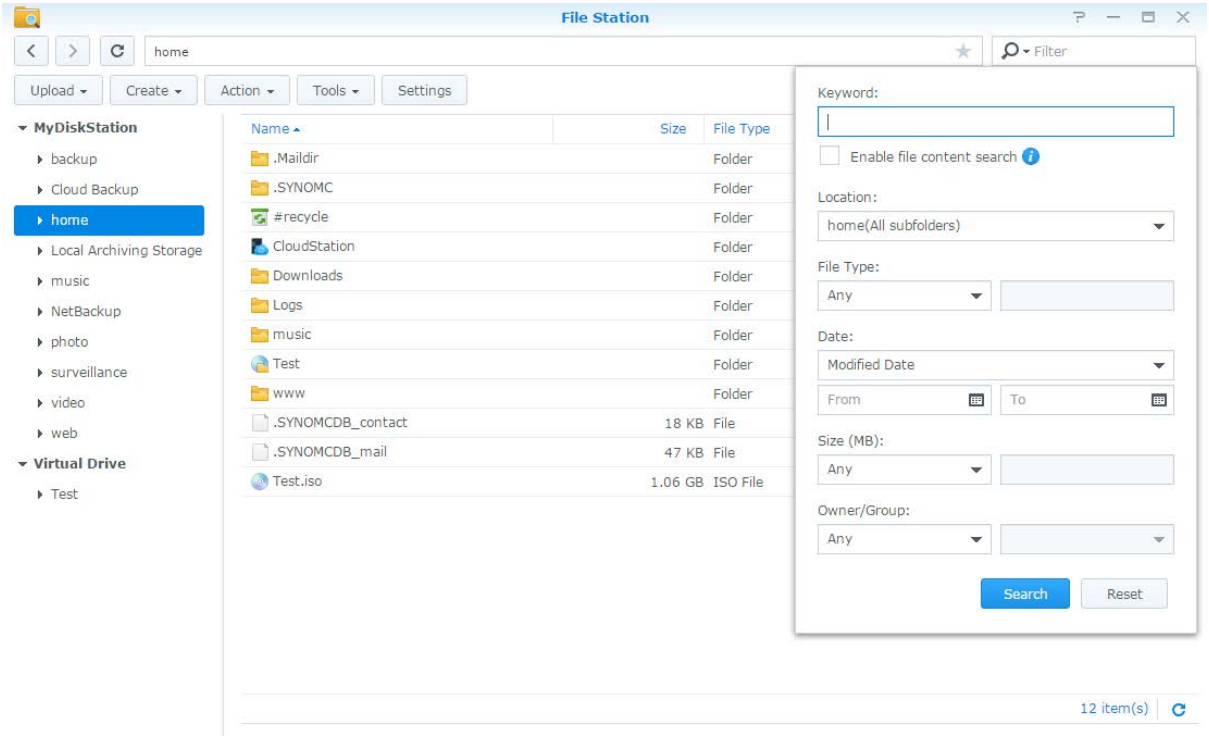
***Note:***

- For more information about remote folders or virtual drives, see "Mount Remote Folders or Virtual Drives".
- For more information about shared links, see "Share File Links".

[1] FTP, SFTP, WebDAV, and WebDAV over HTTPS are supported.

## Search for Files or Folders

You can type keywords in the **Filter** field at the top-right corner of File Station to filter through files or folders in the current folder. Additionally, you can also perform advanced search in the **Advanced Search** panel for more refined search results.




> ***Note:*** For quicker search result, it is recommended that you index shared folder contents. See "Index Shared Folder Contents" for more information.

## Set File Station in Action

With the **Action** menu, right-clicking, and dragging-and-dropping, you can easily download, upload, copy, move, rename, delete, extract, and compress files or folders, and more.

## Edit the Properties of Files and Subfolders

You can edit the access privileges to files and subfolders (meaning folders and their subfolders in a shared folder), copy download links and open file in a new browser window in the **Properties** window. Select the files and folders for which you want to set access privileges. Right-click one of the files or folders, or choose the **Action** menu, and then choose **Properties**.

> ***Note:***
>
> - To set access privileges to shared folders, please see "Allow Users or Groups to Access Shared Folders" for more information.
> - You are not allowed to edit the access privileges to files and subfolders in the **photo** shared folder here. To set access privileges to photo albums for Photo Station users, open Photo Station, go to the **Settings** page, and click the **Help** tab for more information.
> - With File Station, you can only perform the upload action for files and folders on your computer. All the other File Station actions and properties setting are available for files and folders on Synology NAS only.

## Share File Links

Files or folders stored on your Synology NAS can be shared quickly and easily. Simply right-click a file or folder and select **Share file links**. This generates a link and QR code, which can be sent to friends or other users. DSM users will also receive notifications. Whether or not they possess a DSM account, they can follow the link to download the selected file or folder.

## Send Files as Email Attachments

You can directly send and share files as email attachments. Simply right-click selected files and then select **Send as email attachments**.

## Mount Remote Folders or Virtual Drives

File Station allows you to mount remote folders to access contents shared by network computers or other Synology NAS, or virtual drives to access contents within disc images. That way, you can easily navigate all available network resources or disc images with File Station. For more information about remote folders or virtual drives, click the **Help** button (with a question mark) at the top-right corner.

## Edit Music Information

With File Station's Music Information Editor, you can view or edit the information of music files. Simply right-click the music files and choose **Edit music information**.

## View Documents, Photos, or Videos

With File Station, you can view documents, videos or photos easily. For more information, click the **Help** button (with a question mark) at the top-right corner.

## Edit Photos

With File Station, you can edit photos with web-based editors, such as Pixlr Editor or Pixlr Express. For more information, click the **Help** button (with a question mark) at the top-right corner.

Chapter 11

# Back Up Data

Synology offers comprehensive backup solutions for your computer and Synology NAS, allowing you to back up data on your computer to Synology NAS. If you are a user belonging to the **administrators** group, you can also back up the Synology NAS data with local or network backup, or sync shared folder contents between Synology NAS. The creative Copy button simplifies external storage devices backup with One-touch design. The support for the Amazon S3 backup service and the innovative Time Backup package give you other choices for server backup.

This chapter explains how the various backup solutions of DSM can help protect your data. For more detailed instructions, please see **DSM Help**.

## Back Up Computer Data

Synology-designed Cloud Station Backup allows you to back up data from a Windows computer to your Synology NAS. If you are using a Mac or Linux, Synology NAS can also serve as their backup destination.

### Use Cloud Station Backup for Windows

The Synology Cloud Station Backup package can be installed from **Package Center**. For more detailed instructions, please see this **tutorial**.

### Use Time Machine for Mac

Synology NAS provides compatibility for backup with Apple Time Machine. Mac users can back up their data to the shared folder of the Synology NAS without problem. Go to **Control Panel** > **File Services** > **Advanced**, tick **Enable Mac file service**, and choose a shared folder from the **Time Machine** drop-down menu. The chosen shared folder will become Time Machine's backup destination

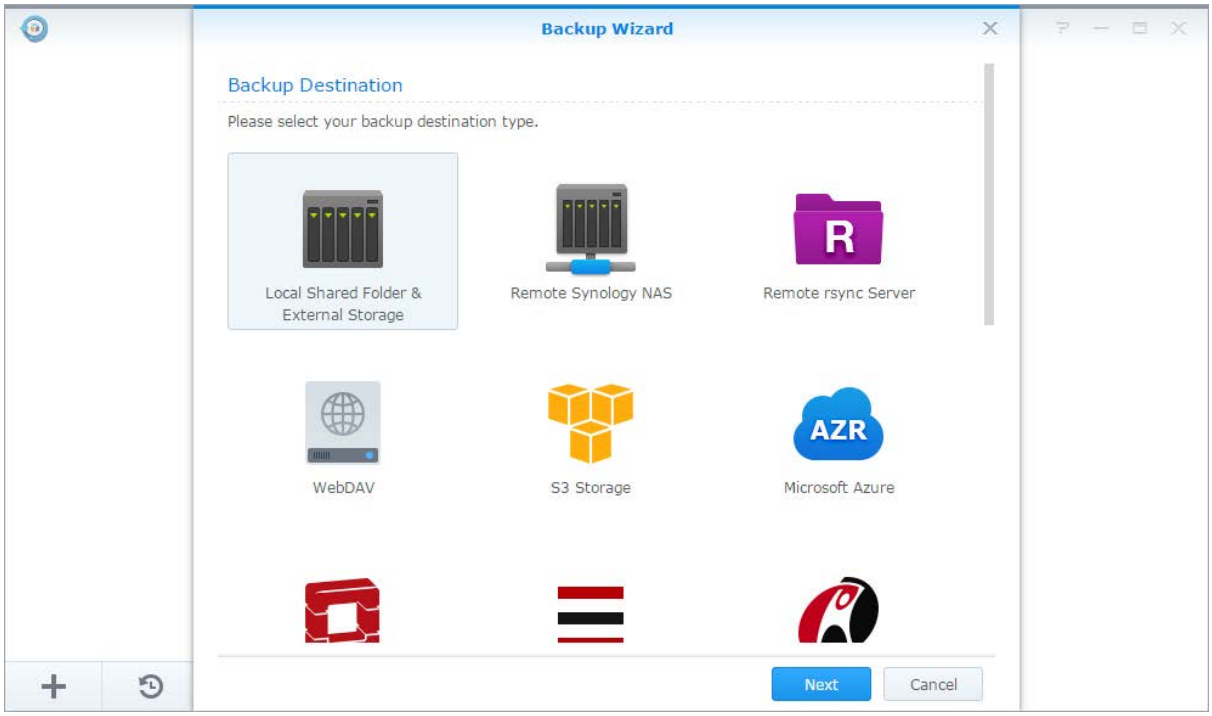
> ***Note:*** For more information about using Time Machine, see the help on your Mac computer.

### Use rsync for Linux

You can use rsync to back up Linux data to the Synology NAS.

# Back Up Data or iSCSI LUN on Synology NAS

Other than backing up computer data to Synology NAS, users belonging to the **administrators** group can perform backup tasks, restore files, and sync shared folders from one Synology NAS device to another with **Hyper Backup**. For more detailed instructions, please see **DSM Help**.




# Back Up and Restore System Configurations

Go to **Control Panel** > **Update & Restore** > **Configuration Backup** to back up and restore the system configurations of your Synology NAS. You can back up system configurations to a configuration file (.dss) and then restore the configurations at a later time.

# Sync Shared Folder Contents between Synology NAS

Shared Folder Sync allows you to sync shared folder contents from a source Synology NAS (or "client") to a destination Synology NAS (or "server") over the network. Shared Folder Sync backup tasks can be viewed and managed by going to **Control Panel** > **Shared Folder Sync**. For detailed instructions regarding how to enable Shared Folder Sync, please see **DSM Help**.

# Back Up Data on USB Device or SD Card

You can go to **Control Panel** > **External Devices** to specify a shared folder for use with USBCopy or SDCopy, and then use the **Copy** button on the front panel of your Synology NAS to copy data from a USB device or SD card to the shared folder.[1]

[1] USBCopy and SDCopy are supported on specific models only. Visit **www.synology.com** for more information.

Chapter

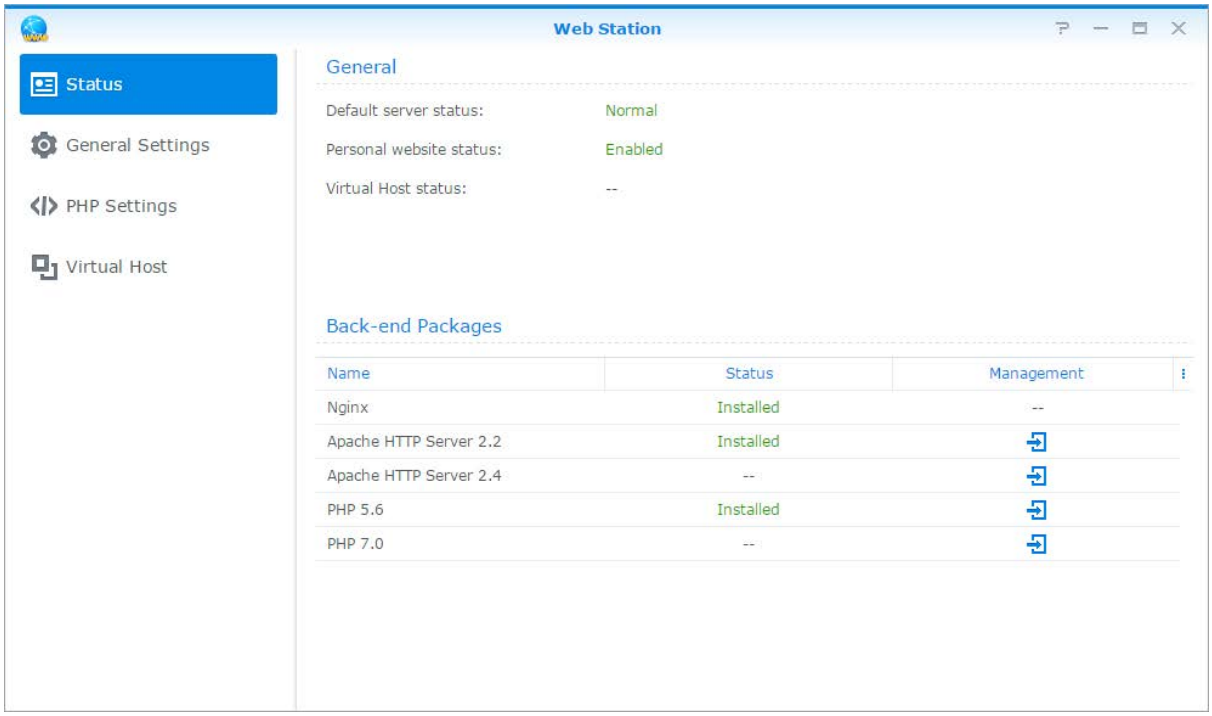
12

# Host Websites and Print Server

Synology NAS is designed for small and medium businesses (SMB), providing the ability to set up web and print servers on a single Synology NAS without spending extra money. This chapter provides basic information regarding these features. For more detailed instructions, please see **DSM Help**.

## Use Web Station to Host Websites

Go to **Package Center** to install the **Web Station** package to set up your website, which is integrated with support for PHP and MySQL. For detailed instructions, please see **DSM Help**.




### Enable Web Station

With the Web Station, you can create a website with web pages on the Synology NAS.  With built-in PHP and MySQL support, you can create dynamic, database-driven website for your business. There is also a variety of 3rd party packages such as Content Management, Customer Relationship Management & e-Commerce system in Package Center, so that you can install them with a few clicks. The default shared folder, "web" will store the web page files for your website.

#### Enable Virtual Host to Host Websites

You can host multiple websites on a single server with virtual host feature. Each website can have different port numbers or even different hostnames.

#### Enable Personal Website

The personal website function is a convenient way to allow Synology NAS users to host their own personal websites. Each local user, domain user and LDAP user will have a unique website address.

## Modify HTTP Service Options

In addition to the default port number 80, you can add another port for the use of Photo Station and Web Station. For more detailed instructions, please see **DSM Help**.

## Manage PHP Settings

After you have enabled Web Station, you can click the **PHP Settings** tab to configure PHP related settings. For more detailed instructions, please see **DSM Help**.

**More Information**

**Install Featured Applications**

- After you have finished setting up your web environment, you can install applications to enhance the features of your website using many of the free Open Source applications.
- For a list of featured applications tested to be compatible with Synology NAS, visit **http://www.synology.com/support/faq_show.php?q_id=404**. For the download links and installation instructions of those applications, visit their official websites.

# Set Synology NAS as Print Server

Go to **Control Panel** > **External Devices** > **Printer** to set the Synology NAS as a print server over your local area network, allowing client computers or mobile devices to access printers connected to the Synology NAS. The Synology NAS can connect to USB printers or network printers. In addition, AirPrint support allows you to print from an iOS device, and Google Cloud Print support allows you to print using Google products and services.[1] For more detailed instructions, please see **DSM Help**.

## Set up Computer to Access Print Server

After the print server is set up on your Synology NAS, Windows, Mac, and Linux clients within the local area network can connect to the print server and access its print/fax/scan service.

## Access Print Server with iOS Devices

If you have enabled DSM's AirPrint support, any iOS devices running on iOS 4.2 or later can print to the printer connected to your Synology NAS.[1]

[1] For recommended peripheral models, including hard drive, USB printer, DMA, and UPS, please visit **www.synology.com**.

Chapter 13

# Discover Various Applications with Package Center

Synology has integrated third party or Synology-designed applications into packages that can be installed on Synology NAS and managed with Package Center.

Coming with full-featured applications, Synology NAS provides you with a variety of privileges to enjoy multimedia contents, share photos, videos, and blogs, access files anytime and anywhere, monitor live actions from cameras, live stream and record digital TV programs, search and download files from the Internet, back up precious data, and build your own cloud. You can also set your own desired Trust Level to protect yourself from installing packages published by unknown sources on your Synology NAS.

This chapter introduces packages available at Package Center and how to install packages. For more detailed instructions, please see **DSM Help**.

## What Package Center Offers

Go to **Package Center** to find out what Package Center has to offer.




### Audio Station

Audio Station is a web-based audio application, allowing you to access the music library on your Synology NAS, choose available audio sources on the local area network, and add your favorite music to playlists for playback.

### Central Management System

Synology CMS (Central Management System) allows you to efficiently and conveniently manage multiple Synology NAS servers. It provides a single interface to monitor the status of multiple servers, create policies for batch editing the settings of server groups, and keep each server in your fleet up-to-date and running smoothly.

## Chat

Chat is a web-based application that allows you to create a safe and secure place where conversations can be held in real-time.

## Cloud Station Server

Cloud Station Server is a file sharing service that allows you to synchronize files between a centralized Synology NAS and multiple client computers, mobile and Synology NAS devices.

## Cloud Station ShareSync

Cloud Station ShareSync is a file sharing service that allows you to synchronize files between a centralized Synology NAS device and multiple client Synology NAS devices, computer and mobiles. Before syncing files with client devices, Cloud Station Server package is required to be installed on the host server, while Cloud Station ShareSync package has to be installed on each client Synology NAS device you want to sync with.

## Cloud Sync

Cloud Sync allows you to seamlessly synchronize and share files among your Synology NAS and multiple public cloud services, such as Dropbox, Baidu Cloud, Google Drive, Box, OneDrive and hubiC. Its Selective Sync feature also allows you to filter the files or select the folders you want to sync to the public cloud service to ensure you have only the files you need on the public cloud service or vice versa.

## DNS Server

DNS (Domain Name System) is a naming system that facilitates the exchange of data between computers over the Internet and other networks. Its main function is to translate user-friendly domain names (e.g. www.synology.com) into corresponding fixed, public IP addresses (e.g. 120.89.71.100). This function allows users to easily find web pages, computers, or other devices over the Internet or local network.

## Download Station

Download Station is a web-based download application which allows you to download files from the Internet through BT, FTP, HTTP, NZB, Thunder, FlashGet, QQDL, eMule, and Xunlei-Lixian, and subscribe to RSS feeds to keep you updated on the hottest or latest BT.

## Note Station

Note Station helps you fully enjoy writing, viewing, managing, and sharing content-rich notes. It is very easy to create content with rich text editing, media embedding, attachments, and much more. In addition, with Synology Web Clipper, you can quickly and easily clip web content and access it via Note Station.

## Photo Station

Photo Station is an online photo album integrated with a blog for you to easily share photos, videos, and blog posts over the Internet. With Photo Station, you can upload, organize, edit, and share your photos in quick, easy steps.

## Office (SpreadSheet)

Office (SpreadSheet) is a web-based application that allows you to easily create and manage documents and spreadsheets, organize your data using various built-in features and formats, as well as share and collaborate with others over the Internet.

## Surveillance Station

Surveillance Station is a professional Network Video Recording (NVR) software bundled with DiskStation Manager (DSM), allowing you to remotely record and monitor video footages from IP cameras which are paired with your Synology NAS.

### Video Station

Video Station is an ideal video organizer of your collection of movies, TV shows, home videos, and TV recordings, allowing you to watch videos on your computer, DLNA/UPnP-compliant DMAs, and mobile devices.

## Install or Buy Packages

Click **Install**, **Try** or **Buy**, and follow the onscreen instructions to install packages. You can also click **Manual Install** and follow the wizard to install packages by uploading **.spk** files (available at Synology's **Download Center** or third party websites).

Chapter 14

# Communicate with Mobile Devices

As Internet access grows popular on mobile devices, Synology provides you with several creative alternatives to communicate with your Synology NAS using iOS/Android, Windows Phone, or other mobile devices.

## Manage DSM Settings with DSM mobile

DSM mobile allows DSM users belonging to the **administrators** group to manage DSM settings and check DSM information with the web browser of an iOS (iPhone, iPad or iPod touch), Android device, or Windows Phone.

**To log in to DSM mobile:**

1 Use the web browser of your iOS/Android device or Windows Phone to connect to **http://Synology_Server_IP:5000**.

2 Enter your DSM user credentials and tap **Login**.

***Note:*** For more information about DSM mobile, please see this **tutorial**.

## Use iOS, Android, and Windows Apps

The Synology mobile apps are now available on Apple's App Store, Android Market, and Windows Marketplace, allowing you to communicate with Synology NAS wherever Wi-Fi access is available. You can manage files, music, photos, videos, even the surveillance videos on your NAS, sync folders between your mobile devices and NAS, download files, and watch videos on the go.

### Chat

Messaging on the go! Synology Chat facilitates collaboration through the messaging service on mobile devices. You can utilize Synology Chat to respond any urgent messages wherever you go, or organize and share information with your team members to improve communication efficiency. Enjoy the entertaining features on Synology Chat while texting on this platform. What's more, communicating in Synology Chat is always safe because all the messages will only be stored on your own Synology NAS server.

### DS audio

DS audio allows you to access Audio Station with an iOS/Android device or Windows Phone and listen to your favorite music on the go. Besides, the remote controller feature allows you to control Audio Station's music playback when there is an audio output device connected to the USB port of your Synology NAS, such as a USB speaker, or an external speakers or home stereo equipment connected to the audio dock of Synology Remote (sold separately).

### DS cam

DS cam allows users who own an iOS/Android device to live view their IP cameras, take snapshots, and view recorded events from your Surveillance Station whenever a network connection is available.

### DS cloud

DS cloud is the mobile counterpart to Synology's Cloud Station Server and allows you to easily sync folders between an iOS/Android device and Synology NAS.

## DS download

DS download allows you to access Download Station and download files directly with an iOS/Android device or Windows Phone. You can create download tasks by adding a URL, via a built-in mini browser of the application, or the integrated Safari browser for user convenience. Managing basic settings such as transfer speed limits or activating the advanced schedule is also possible.

## DS file

DS file allows you to access and manage files on your Synology NAS with an iOS/Android device or Windows Phone.

## DS finder

DS finder allows you to monitor or email the status of your Synology NAS, and request it to perform wake on LAN (WOL), restart, shut down, or play beep sounds (to help you quickly find the its location) with an iOS/Android device or Windows Phone.

## DS note

DS note is the mobile counterpart to Synology's Note Station web application, which allows you to easily sync your notes between your iOS/Android device and Synology NAS.

## DS photo

DS photo allows you to access Photo Station with an iOS/Android device or Windows Phone and share your precious moments on the go. Download and save photos from Photo Station to your mobile device so you can enjoy the flashbacks anytime anywhere. You can also use DS photo to upload snapshots or videos from your camera phone straight to Photo Station. Besides, you and your friends can interact by leaving comments on any photos, adding more fun to your photo sharing experiences.

## DS video

DS video allows you to access Video Station and watch videos both at home and on the move with an iOS/Android device or Windows Phone. You can browse and organize your collections of videos, record digital TV programs available at the place you are located with a USB DTV dongle (sold separately) plugged into your Synology NAS, and manage your recording tasks and schedules.

> ***Note:*** For more information about these mobile apps, please refer to their built-in Help.

# Use Other Mobile Devices

If you have a mobile device running on Windows Mobile 6.0 (with Internet Explorer Mobile or Opera 9.0 or later), Symbian OS 9.1 (with S60 3rd Edition or later), or iPhone OS 2.3.1 or later, you can use the device to log in to Synology NAS to view photos with Mobile Photo Station and read supported file formats with Mobile File Station around the world where Internet access is available.

# Troubleshooting

For any questions about managing your DSM, go to **DSM Help** or click the **Help** button (with a question mark) at the top-right corner of every window. For any questions other than that, please visit the Synology Knowledge Base website at **help.synology.com** for further assistance.

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**Section 19. Attorneys' Fees.** In any arbitration, mediation, or other legal action or proceeding to enforce rights or remedies under this EULA, the prevailing party will be entitled to recover, in addition to any other relief to which it may be entitled, costs and reasonable attorneys' fees.

**Section 20. Severability.** If any provision of this EULA is held by a court of competent jurisdiction to be invalid, illegal, or unenforceable, the remainder of this EULA will remain in full force and effect.

**Section 21. Entire Agreement.** This EULA sets forth the entire agreement of Synology and you with respect to the Software and the subject matter hereof and supersedes all prior and contemporaneous understandings and agreements whether written or oral. No amendment, modification or waiver of any of the provisions of this EULA will be valid unless set forth in a written instrument signed by the party to be bound thereby.

**SYNOLOGY, INC.**
**LIMITED PRODUCT WARRANTY**

THIS LIMITED WARRANTY ("WARRANTY") APPLIES TO THE PRODUCTS (AS DEFINED BELOW) OF SYNOLOGY, INC. AND ITS AFFILIATES, INCLUDING SYNOLOGY AMERICA CORP, (COLLECTIVELY, "SYNOLOGY"). YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS WARRANTY BY OPENING THE PACKAGE CONTAINING AND/OR USING THE PRODUCT. IF YOU DO NOT AGREE TO THE TERMS OF THIS WARRANTY, DO NOT USE THE PRODUCT. INSTEAD, YOU MAY RETURN THE PRODUCT TO THE RESELLER WHERE YOU PURCHASED IT FOR A REFUND IN ACCORDANCE WITH THE RESELLER'S APPLICABLE RETURN POLICY.

**Section 1. Definitions.** (a) "New Product", including: (1) "Category I Product" means Synology product models RS810+, RS810RP+, RX410, all FS-series models, all DS/RS NAS models with the XS+/XS suffix (except RS3413xs+) in or after 13-series, all DX/RX/RXD expansion units with 12 or more drive bays in or after 13-series, 10GbE NIC, DDR4-2133 and DDR3-1600 memory modules. (2) "Category II Product" means Synology product models RS3413xs+, RS3412xs, RS3412RPxs, RS3411xs, RS3411RPxs, RS2211+, RS2211RP+, RS411, RS409RP+, RS409+, RS409, RS408-RP, RS408, RS407, DS3612xs, DS3611xs, DS2411+, DS1511+, DS1010+, DS509+, DS508, EDS14, RX1211, RX1211RP, RX4, DX1211, DX510, DX5, NVR216, VS360HD, VS240HD, and all other memory modules not included in Category I. (3) "Category III Product" means Synology product models that apply with the following requirements: all DS NAS models without the XS+/XS suffix and with 5 and more drive bays in or after 12-series, all RS NAS models without the XS+/XS suffix in or after 12-series, and all DX/RX expansion units with 4 or 5 drive bays in or after 12-series. (4) "Category IV Product" means all other Synology product models purchased by Customer after March 1, 2008. (5) "Category V Product" means all other Synology product models purchased by Customer before February 29, 2008. (b) "Refurbished Product" means all Synology products which have been refurbished and sold directly by Synology through Online Store, not including those sold by an authorized Synology distributor or reseller. (c) "Customer" means the original person or entity purchasing the Product from Synology or an authorized Synology distributor or reseller. (d) "Online Store" means an online shop operated by Synology or Synology's affiliate. (e) "Product" means a New Product or a Refurbished Product and any hardware incorporated into the Product by Synology and any accompanying documentation. (f) "Software" means the Synology proprietary software that accompanies the Product when purchased by Customer, is downloaded by Customer at the Web Site, or is pre-installed on the Product by Synology, and includes any firmware, associated media, images, animations, video, audio, text and applets incorporated into the software or Product and any updates or upgrades to such software. (g) "Warranty Period" means the period commencing on the date the Product is purchased by Customer and ending (1) five years after such date for Category I Products; (2) three years after such date for Category II & lll Products; or (3) two years after such date for Category IV Products; or (4) one year after such date for Category V Products; or (5) 90 days after such date for Refurbished Products, except for those sold as "as is" or with "no warranty" on Online Store. (h) "Web Site" means the Synology web site located at **www.synology.com**.

**Section 2. Limited Warranty and Remedies**

**2.1 Limited Warranty.** Subject to Section 2.6, Synology warrants to Customer that each Product (a) will be free of material defects in workmanship and (b) under normal use will perform substantially in accordance with Synology's published specifications for the Product during the Warranty Period. Synology warrants the Software as set forth in the accompanying end user license agreement provided with the Product, if any. Synology provides no warranty to Refurbished Product sold as "as is" or with "no warranty" on Online Store.

**2.2 Exclusive Remedy.** If Customer gives notice of noncompliance with any of the warranties set forth in Section 2.1 within the applicable Warranty Period in the manner set forth below, then, upon verification of the noncompliance by Synology, Synology will, at Synology's option: (a) use commercially reasonable efforts to repair the Product, or (b) replace the noncomplying Product or part thereof upon return of the complete Product in accordance with Section 2.3 The foregoing sets forth Synology's entire liability and Customer's sole and exclusive remedy for any breach of warranty under Section 2.1 or any other defect or deficiency in the Product. Customer will reasonably assist Synology to diagnose and validate any nonconformity with the Product. The warranty set forth in Section 2.1 does not include: (1) any warranty relating to the Software; (2) physical installation or removal of the Product from Customer's site; (3) visits to Customer's site; (4) labor necessary to effect repairs or replace defective parts other than during Synology's or its contracted service providers' normal local business hours, exclusive of weekends and service providers' holidays; (5) any work with any third party equipment or software; (6) any warranty of the hard disk if installed by Customer or any other third party; or (7) any warranty of compatibility with the hard disk.

**2.3 Return.** Any Product returned by Customer under Section 2.2 must be assigned a Return Merchandise Authorization ("RMA") number by Synology before shipment and must be returned in accordance with Synology's then current RMA procedures. Customer may contact any authorized Synology distributor or reseller or Synology Support to obtain assistance in obtaining an RMA, and must provide proof of purchase and product serial number when asking for such assistance. For warranty claims, Customer must return the complete Product to Synology in accordance with this Section 2.3 to be eligible for coverage under this Warranty. Any Product returned without an RMA number, or any Product that has been disassembled (except under the direction of Synology) will be refused and returned to Customer at Customer's expense. Any Product that has been assigned a RMA number must be returned in the same condition as it was received from Synology to the address designated by Synology, freight pre-paid, in packaging sufficient to protect the contents thereof and with the RMA number prominently displayed on the outside of the box. Customer is responsible for insurance and risk of loss with respect to returned items until they are properly received by Synology. A Product issued a RMA number must be returned within fifteen (15) days after issuance of the applicable RMA number.

**2.4 Replacement by Synology.** If Synology elects to replace any Product under this Warranty set forth in Section 2.1, then Synology will ship a replacement Product at Synology's expense via the shipping method selected by Synology after receipt of the nonconforming Product returned in accordance with Section 2.3 and validation by Synology that the Product does not conform to the warranty. In some countries, Synology may at its own discretion apply the Synology Replacement Service to certain Products, through which Synology will ship a replacement Product to Customer before its receipt of the nonconforming Product returned by Customer ("Synology Replacement Service").

**2.5 Support.** During the Warranty Period, Synology will make available to Customer the support services. Following

the expiration of the applicable Warranty Period, support for Products may be available from Synology upon written request.

**2.6 Exclusions.** The foregoing warranties and warranty obligations do not apply to any Product that (a) has been installed or used in a manner not specified or described in the Product specifications; (b) has been repaired, modified or altered by anyone other than Synology or its agent or designee; (c) has been in any way misused, abused, or damaged; (d) has been used with items not provided by Synology other than the hardware or software for which the Product is designed; or (e) otherwise fails to conform to the Product specifications and such failure is attributable to causes not within or under Synology's control. Further, the foregoing warranties will be void if (1) Customer disassembles the Product except as authorized by Synology; (2) Customer fails to implement any correction, modification, enhancement, improvement or other update made available to Customer by Synology; or (3) Customer implements, installs or uses any correction, modification, enhancement, improvement or other update made available by any third party. The warranty set forth in Section 2.1 will terminate upon Customer's sale or transfer of the Product to a third party.

**2.7 Disclaimer of Warranties.** THE WARRANTIES, OBLIGATIONS, AND LIABILITIES OF SYNOLOGY AND THE REMEDIES OF CUSTOMER SET FORTH IN THIS WARRANTY ARE EXCLUSIVE AND IN SUBSTITUTION FOR, AND CUSTOMER HEREBY WAIVES, RELEASES AND DISCLAIMS, ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES OF SYNOLOGY AND ALL OTHER RIGHTS, CLAIMS AND REMEDIES OF CUSTOMER AGAINST SYNOLOGY, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, WITH RESPECT TO THE PRODUCT, ACCOMPANYING DOCUMENTATION OR SOFTWARE AND ANY OTHER GOODS OR SERVICES DELIVERED UNDER THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO ANY: (A) IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE; (B) IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING, OR USAGE OF TRADE; (C) CLAIM OF INFRINGEMENT OR MISAPPROPRIATION; OR (D) CLAIM IN TORT (WHETHER BASED ON NEGLIGENCE, STRICT LIABILITY, PRODUCT LIABILITY OR OTHER THEORY). SYNOLOGY MAKES NO GUARANTEE AND SPECIFICALLY DISCLAIMS ANY WARRANTY THAT THE DATA OR INFORMATION STORED ON ANY SYNOLOGY PRODUCT WILL BE SECURE AND WITHOUT RISK OF DATA LOSS. SYNOLOGY RECOMMENDS THAT CUSTOMER TAKES APPROPRIATE MEASURES TO BACK UP THE DATA STORED ON THE PRODUCT. SOME STATES/JURISDICTIONS DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, SO THE ABOVE LIMITATION MAY NOT APPLY TO CUSTOMER.

**Section 3. Limitations of Liability**

**3.1 Force Majeure.** Synology will not be liable for, or be considered to be in breach of or default under this Warranty on account of, any delay or failure to perform as required by this Warranty as a result of any cause or condition beyond its reasonable control (including, without limitation, any act or failure to act by Customer).

**3.2 Disclaimer of Certain Damages.** IN NO EVENT WILL SYNOLOGY OR ITS SUPPLIERS BE LIABLE FOR THE COST OF COVER OR FOR ANY INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL OR SIMILAR DAMAGES OR LIABILITIES WHATSOEVER (INCLUDING, BUT NOT LIMITED TO LOSS OF DATA, INFORMATION, REVENUE, PROFIT OR BUSINESS) ARISING OUT OF OR RELATING TO THE USE OR INABILITY TO USE THE PRODUCT, ANY ACCOMPANYING DOCUMENTATION OR SOFTWARE AND ANY OTHER GOODS OR SERVICES PROVIDED UNDER THIS WARRANTY, WHETHER BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHER THEORY EVEN IF SYNOLOGY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**3.3 Limitation of Liability.** SYNOLOGY'S AND ITS SUPPLIERS' LIABILITY ARISING OUT OF OR RELATING TO THE USE OR INABILITY TO USE THE PRODUCT, ANY ACCOMPANYING DOCUMENTATION OR SOFTWARE AND ANY OTHER GOODS OR SERVICES PROVIDED UNDER THIS WARRANTY IS LIMITED TO THE AMOUNT ACTUALLY PAID BY CUSTOMER FOR THE PRODUCT REGARDLESS OF THE AMOUNT OF DAMAGES CUSTOMER MAY INCUR AND WHETHER BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHER THEORY. The foregoing disclaimer of certain damages and limitation of liability will apply to the maximum extent permitted by applicable law. The laws of some states/jurisdictions do not allow exclusion or limitation of certain damages. To the extent that those laws apply to the Product, the exclusions and limitations set forth above may not apply to Customer.

**Section 4. Miscellaneous**

**4.1 Proprietary Rights.** The Product and any accompanying Software and documentation provided with the Product include proprietary and intellectual property rights of Synology and its third party suppliers and licensors. Synology retains and reserves all right, title, and interest in the intellectual property rights of the Product, and no title to or ownership of any intellectual property rights in or to the Product, any accompanying Software or documentation and any other goods provided under this Warranty is transferred to Customer under this Warranty. Customer will (a) comply with the terms and conditions of the Synology end user license agreement accompanying any Software furnished by Synology or an authorized Synology distributor or reseller; and (b) not attempt to reverse engineer any Product or component thereof or accompanying Software or otherwise misappropriate, circumvent or violate any of Synology's intellectual property rights.

**4.2 Assignment.** Customer will not assign any of its rights under this Warranty directly, by operation of law or otherwise, without the prior written consent of Synology.

**4.3 No Additional Terms.** Except as expressly permitted by this Warranty, neither party will be bound by, and each party specifically objects to, any term, condition or other provision that conflicts with the provisions of this Warranty that is made by the other party in any purchase order, receipt, acceptance, confirmation, correspondence or otherwise, unless each party specifically agrees to such provision in writing. Further, if this Warranty conflicts with any terms or conditions of any other agreement entered into by the parties with respect to the Product, this Warranty will prevail unless the other agreement specifically references the sections of this Warranty that it supersedes.

**4.4 Applicable Law.** Unless expressly prohibited by local law, this Warranty is governed by the laws of the State of Washington, U.S.A. without regard to any conflict of law principles to the contrary. The 1980 U.N. Convention on Contracts for the International Sale of Goods or any successor thereto does not apply.

**4.5 Dispute Resolution.** Any dispute, controversy or claim arising out of or relating to this Warranty, the Product or services provided by Synology with respect to the Product or the relationship between Customers residing within the United States and Synology will be resolved exclusively and finally by arbitration under the current commercial rules of the American Arbitration Association, except as otherwise provided below. The arbitration will be conducted before a

single arbitrator, and will be limited solely to the dispute between Customer and Synology. The arbitration, or any portion of it, will not be consolidated with any other arbitration and will not be conducted on a class-wide or class action basis. The arbitration shall be held in King County, Washington, U.S.A. by submission of documents, by telephone, online or in person as determined by the arbitrator at the request of the parties. The prevailing party in any arbitration or legal action occurring within the United States or otherwise shall receive all costs and reasonable attorneys' fees, including any arbitration fee paid by the prevailing party. Any decision rendered in such arbitration proceedings will be final and binding on the parties, and judgment may be entered thereon in any court of competent jurisdiction. Customer understands that, in the absence of this provision, Customer would have had a right to litigate any such dispute, controversy or claim in a court, including the right to litigate claims on a class-wide or class-action basis, and Customer expressly and knowingly waives those rights and agrees to resolve any disputes through binding arbitration in accordance with the provisions of this Section 4.5. For Customers not residing within the United States, any dispute, controversy or claim described in this section shall be finally resolved by arbitration conducted by three neutral arbitrators in accordance with the procedures of the R.O.C. Arbitration Law and related enforcement rules. The arbitration shall take place in Taipei, Taiwan, R.O.C., and the arbitration proceedings shall be conducted in English or, if both parties so agree, in Mandarin Chinese. The arbitration award shall be final and binding on the parties and may be enforced in any court having jurisdiction. Nothing in this Section shall be deemed to prohibit or restrict Synology from seeking injunctive relief or seeking such other rights and remedies as it may have at law or equity for any actual or threatened breach of any provision of this Warranty relating to Synology's intellectual property rights.

**4.6 Attorneys' Fees.** In any arbitration, mediation, or other legal action or proceeding to enforce rights or remedies under this Warranty, the prevailing party will be entitled to recover, in addition to any other relief to which it may be entitled, costs and reasonable attorneys' fees.

**4.7 Export Restrictions.** You acknowledge that the Product may be subject to U.S. export restrictions. You will comply with all applicable laws and regulations that apply to the Product, including without limitation the U.S. Export Administration Regulations.

**4.8 Severability.** If any provision of this Warranty is held by a court of competent jurisdiction to be invalid, illegal, or unenforceable, the remainder of this Warranty will remain in full force and effect.

**4.9 Entire Agreement.** This Warranty constitutes the entire agreement, and supersedes any and all prior agreements, between Synology and Customer related to the subject matter hereof. No amendment, modification or waiver of any of the provisions of this Warranty will be valid unless set forth in a written instrument signed by the party to be bound thereby.