

# Introduction to Synology

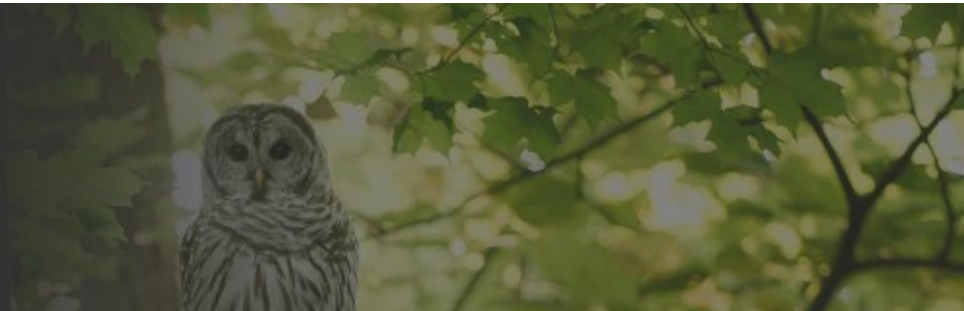


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ICCM US  
June 2019

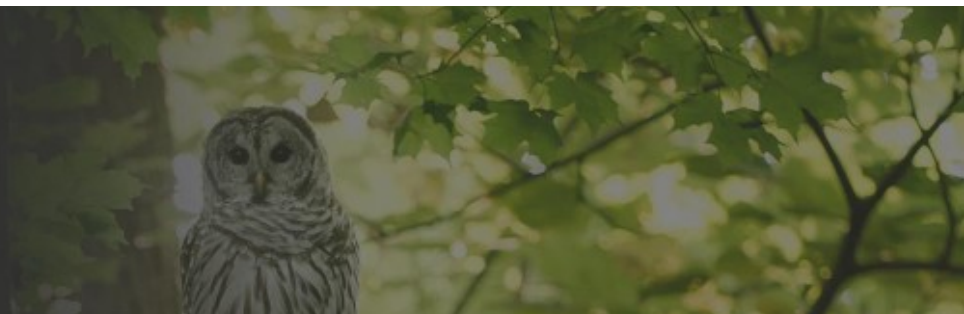
# Introduction to Synology

- DiskStation Manager (DSM): The same exact software on different models
- Founded in 2000 and Headquartered in Taiwan
- Affordable NAS devices based on Open Source Software with tons of modular functionality (mail server, web server, VPN server, Media Wiki, etc...)



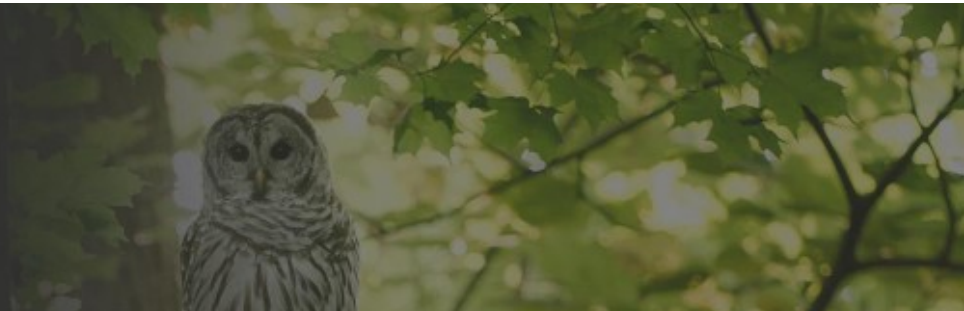
# Model Number Overview

- **The Prefix: “DS” vs “RS”** – Disk Stations (DS) sit on a desk or table, while Rack Stations (RS) are installed into server racks
- **The Next Number** – The next number indicates the maximum number of hard drives a model can use. Some models are compatible with Expansion Units.



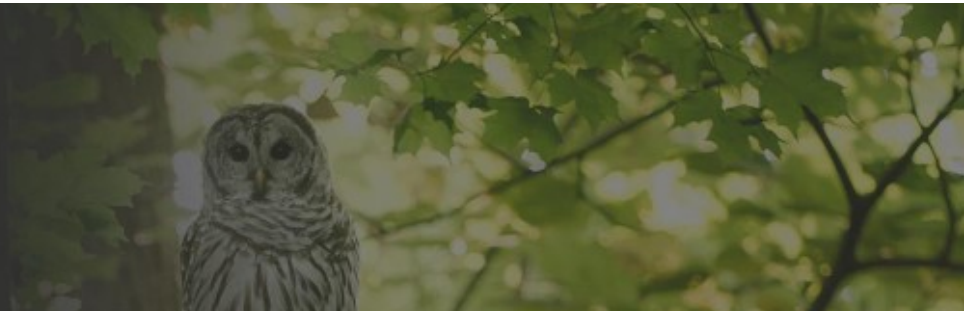
# Model Numbers (Continued)

- **The Last Two Numbers** – The last two numbers stand for the year the model was first available.
- **The Suffix:** Nothing, 'j', '+', and 'xs'
  - The j is an entry-level system.
  - The plus sign (+) indicates that the unit is part of Synology's Plus Series.
  - The XS / XS+ suffix is for large scale business and enterprises.



# Model Numbers: 2 Examples

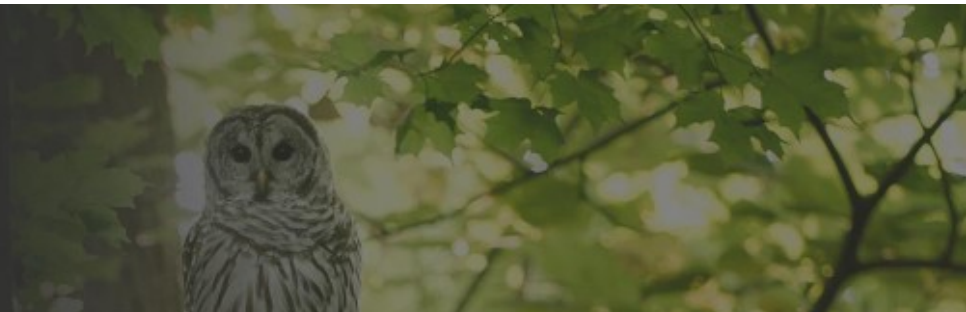
- The **DS218+** can use up to 2 hard drives. It is a DiskStation, was released in 2018, and has a + for the suffix, so it is in the Performance Series.





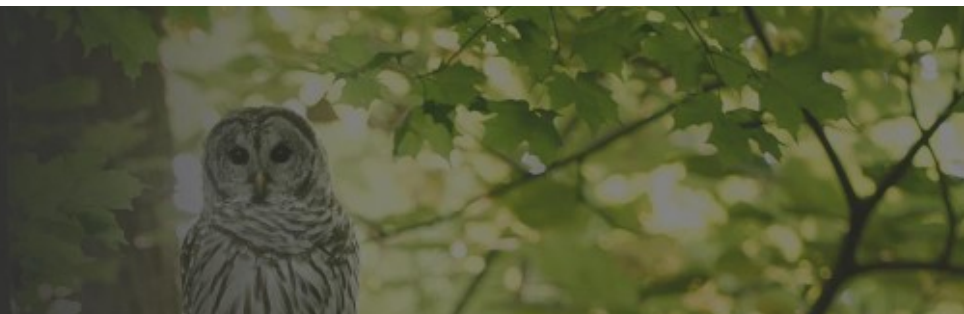
# Model Numbers: 2 Examples

- The **RS3614xs** has 12 drive bays internally, and can handle up to 36 drives with an expansion unit. It is a RackStation, was released in 2016, and is designed for large scale business needs.

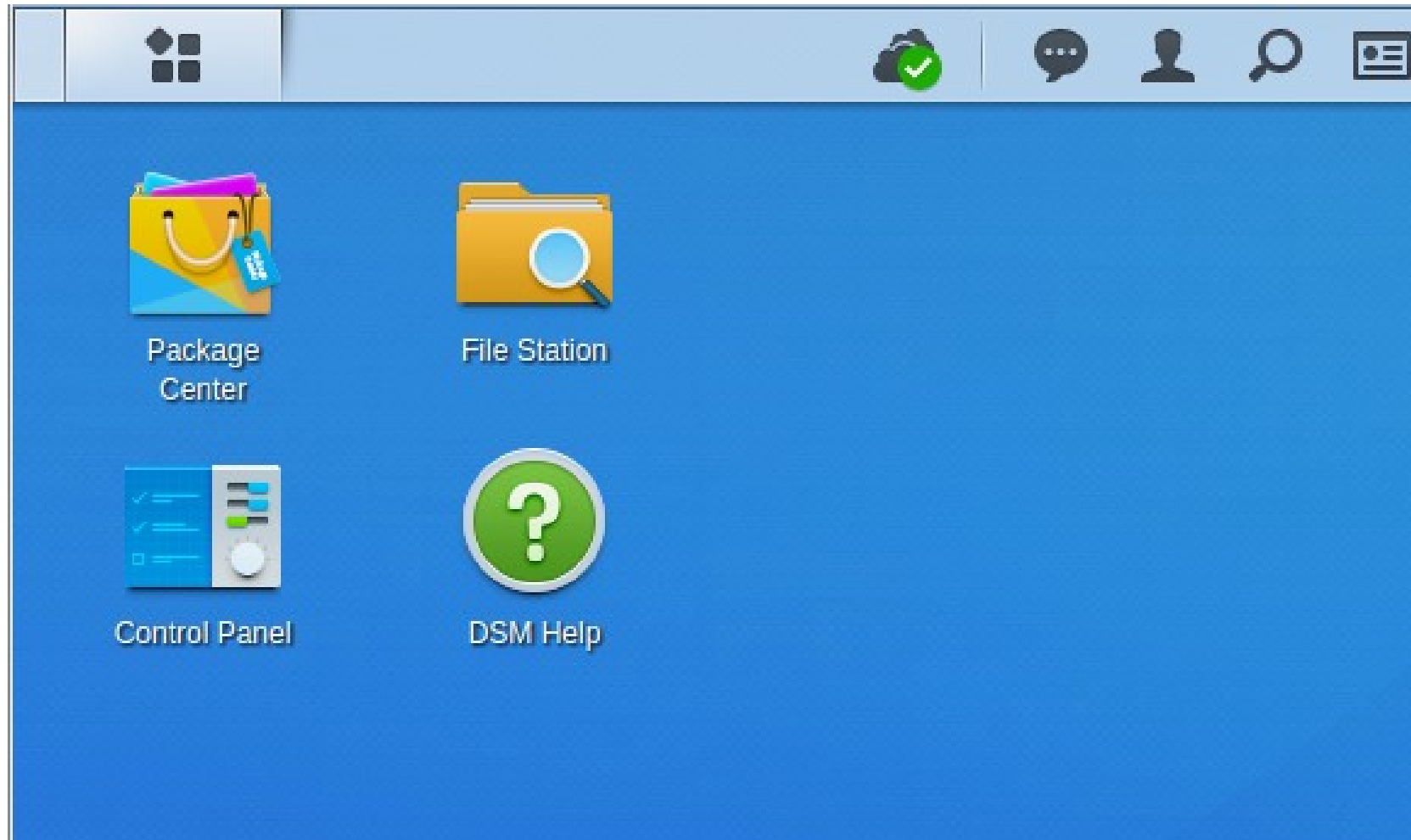


# DSM Overview

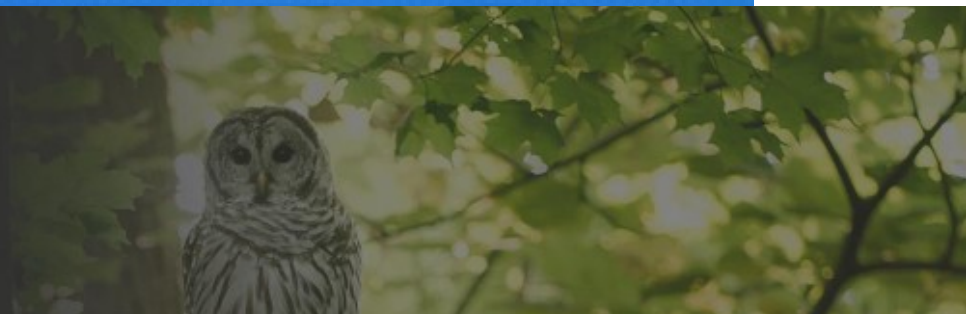
- DSM (DiskStation Manager) is the operating system
- Configured and administered through a web GUI, but Command Line Interface is accessible over SSH
- Main / Default Features in GUI:
  - Package Center, Control Panel & File Station



# DSM Overview



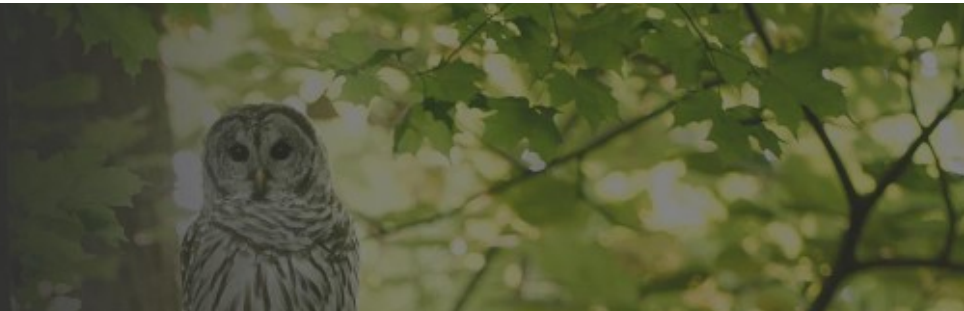
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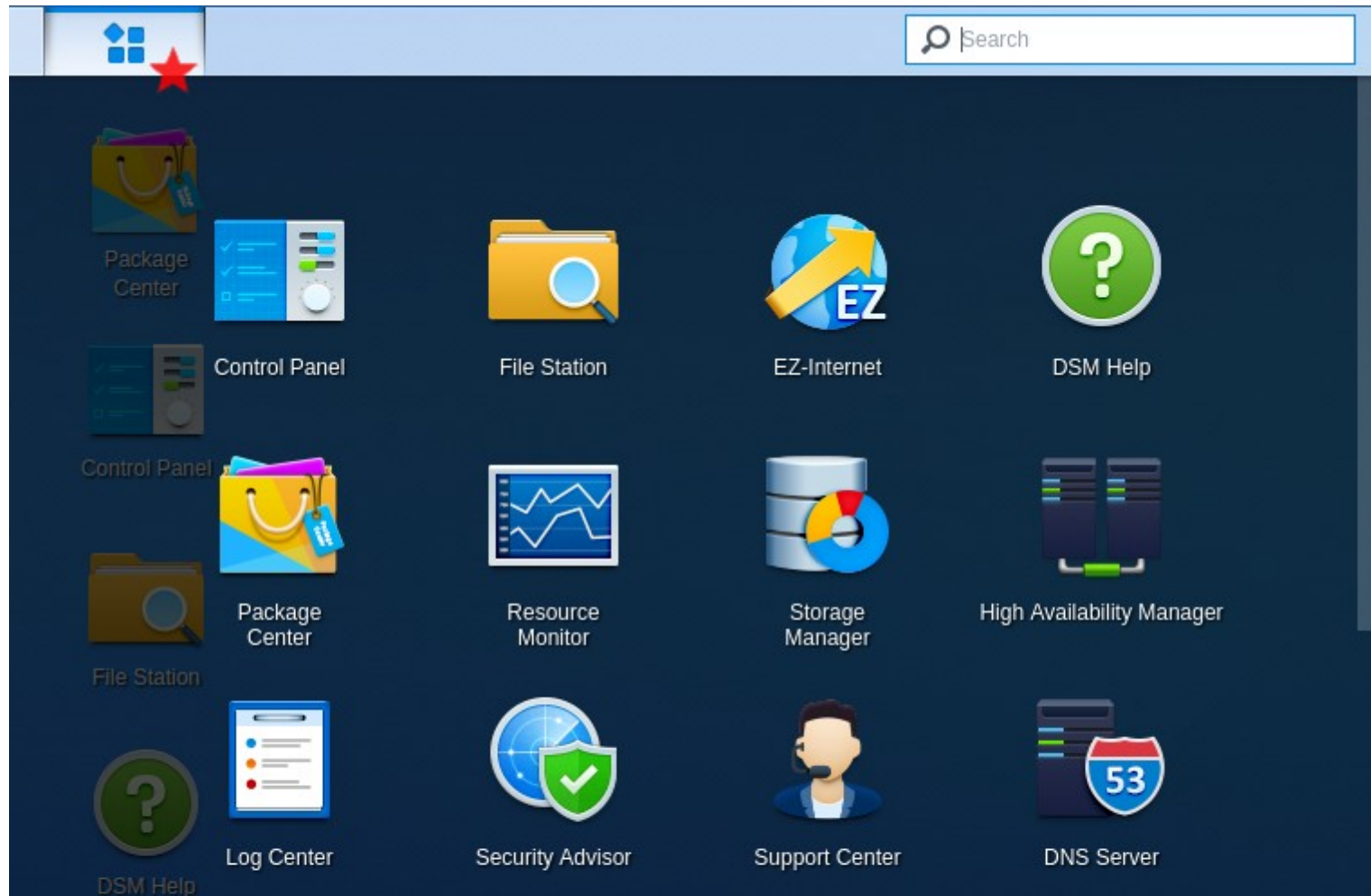


# DSM – Main Menu

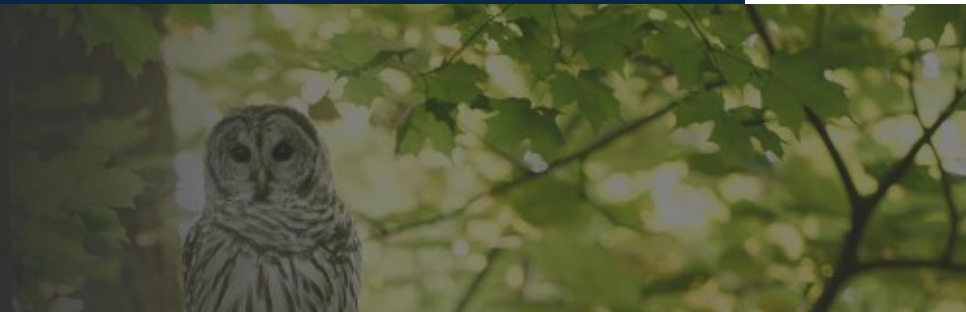
- Access all default features & all additional packages (which you can install through the Package Manager)



# DSM – Main Menu

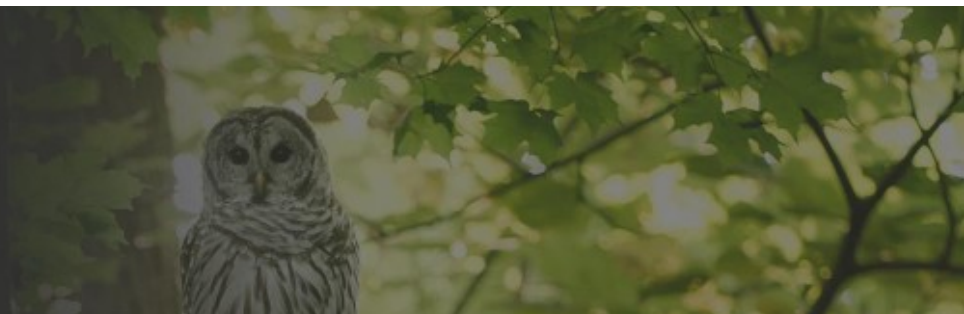


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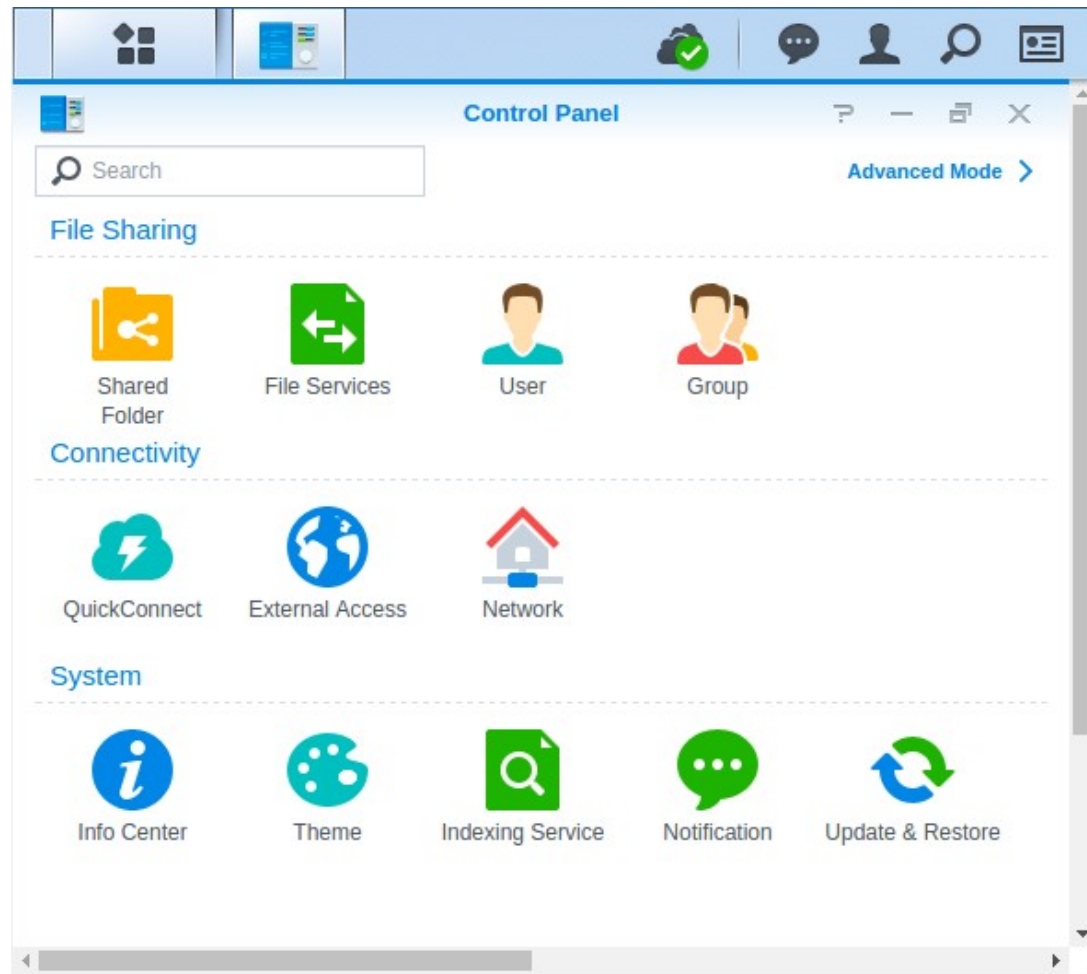


# Control Panel

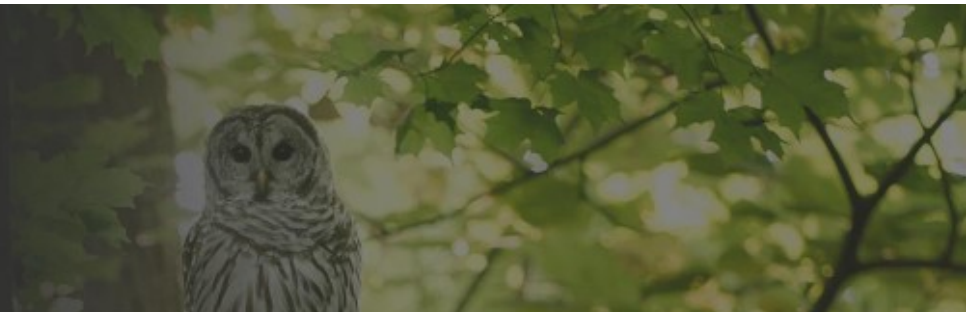
- Basic Mode & Advanced Mode
- Setup all Shared Folders (root directory structure) here
- Manage users, groups and permissions
- Enable / Disable Types of File Services (FTP, NFS, TFTP, etc...)



# Control Panel

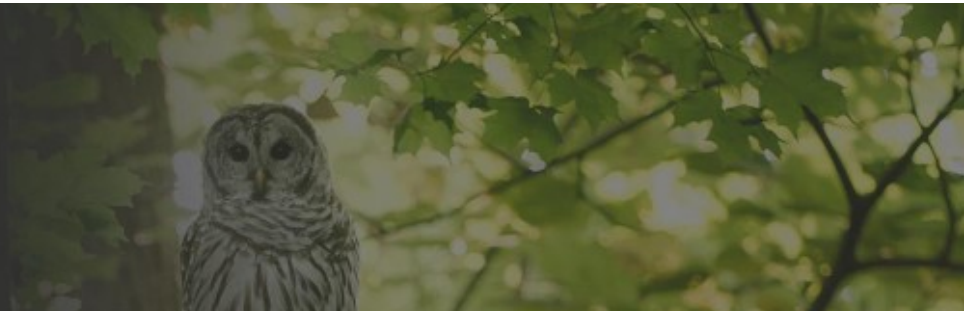


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# Control Panel: Shared Folder

- Create & Manage your top level directory structure
- Manage user & group permissions





# Control Panel: Shared Folder

### Create New Shared Folder

**General**Advanced

Name:

Description:

Location:

☐ Hide this shared folder in "My Network Places"

☐ Hide sub-folders and files from users without permissions

☐ Enable Recycle Bin

☐ Restrict access to administrators only

Note: [How to set up a Recycle Bin emptying schedule](#)

☐ Encrypt this shared folder

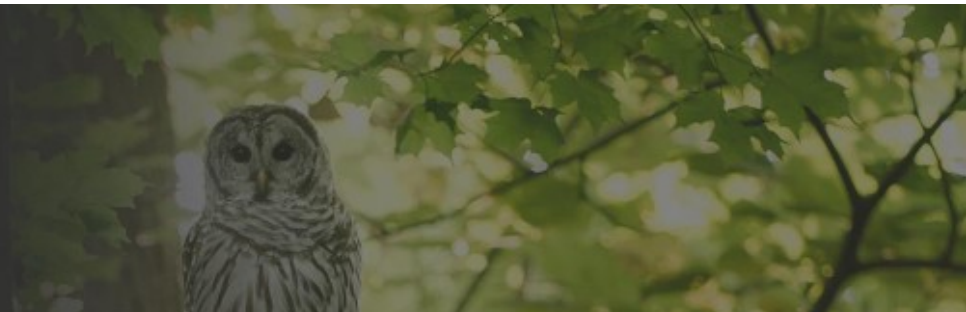
Encryption key:

Confirm key:

☐ Mount automatically on startup

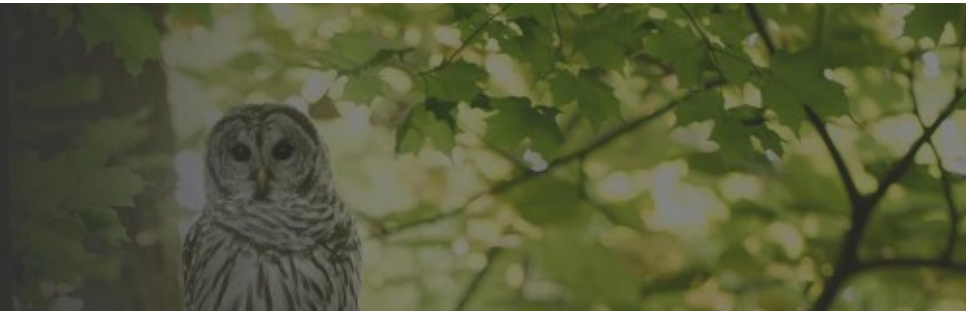
OK

Cancel



# Control Panel: Domain/LDAP

- Easily integrate NAS into existing Active Directory or LDAP Domain



# Control Panel: Domain/LDAP

The screenshot shows the 'Control Panel' window with the 'Domain/LDAP' tab selected. The left sidebar contains navigation links: File Sharing, Shared Folder, File Services, User, Group, Domain/LDAP (highlighted), Connectivity, QuickConnect, and External Access. The main content area has three tabs: Domain, LDAP, and SSO Client. The 'Domain' tab is active, showing a 'Join domain' checkbox and several input fields for domain configuration. The 'Advanced domain options' section is collapsed. At the bottom right are 'Apply' and 'Reset' buttons.

**Control Panel**

Domain | LDAP | SSO Client

☐ Join domain

Domain:

DNS Server:

Domain Server Type:

Management Mode:

☐ Advanced domain options (Required only under specific network environment)

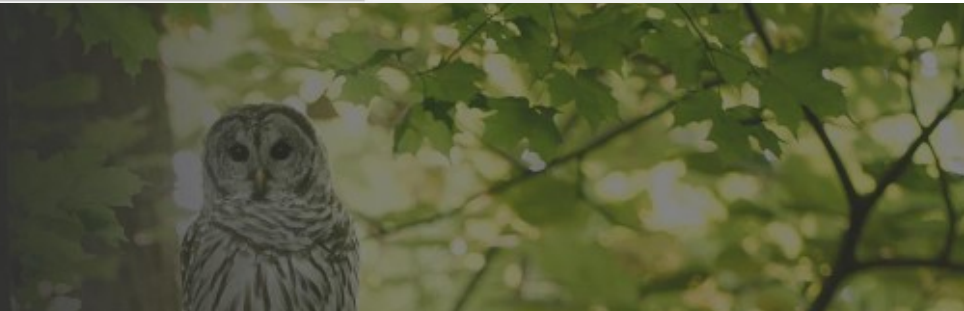
DC IP/FQDN:

Domain NetBIOS name:

Domain FQDN (DNS name):

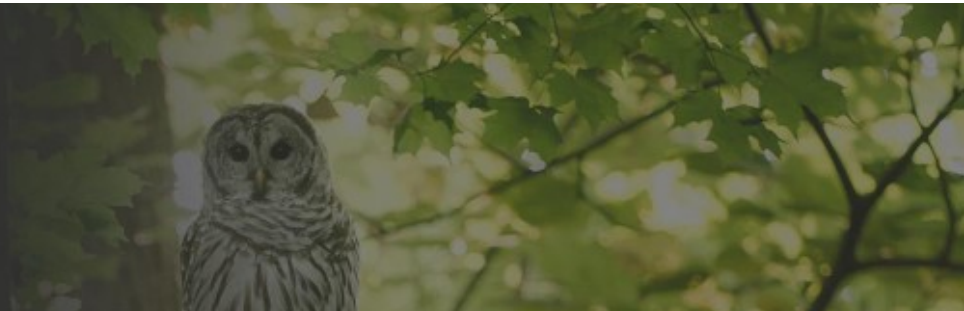
Register DNS interface:

Update user/group list:

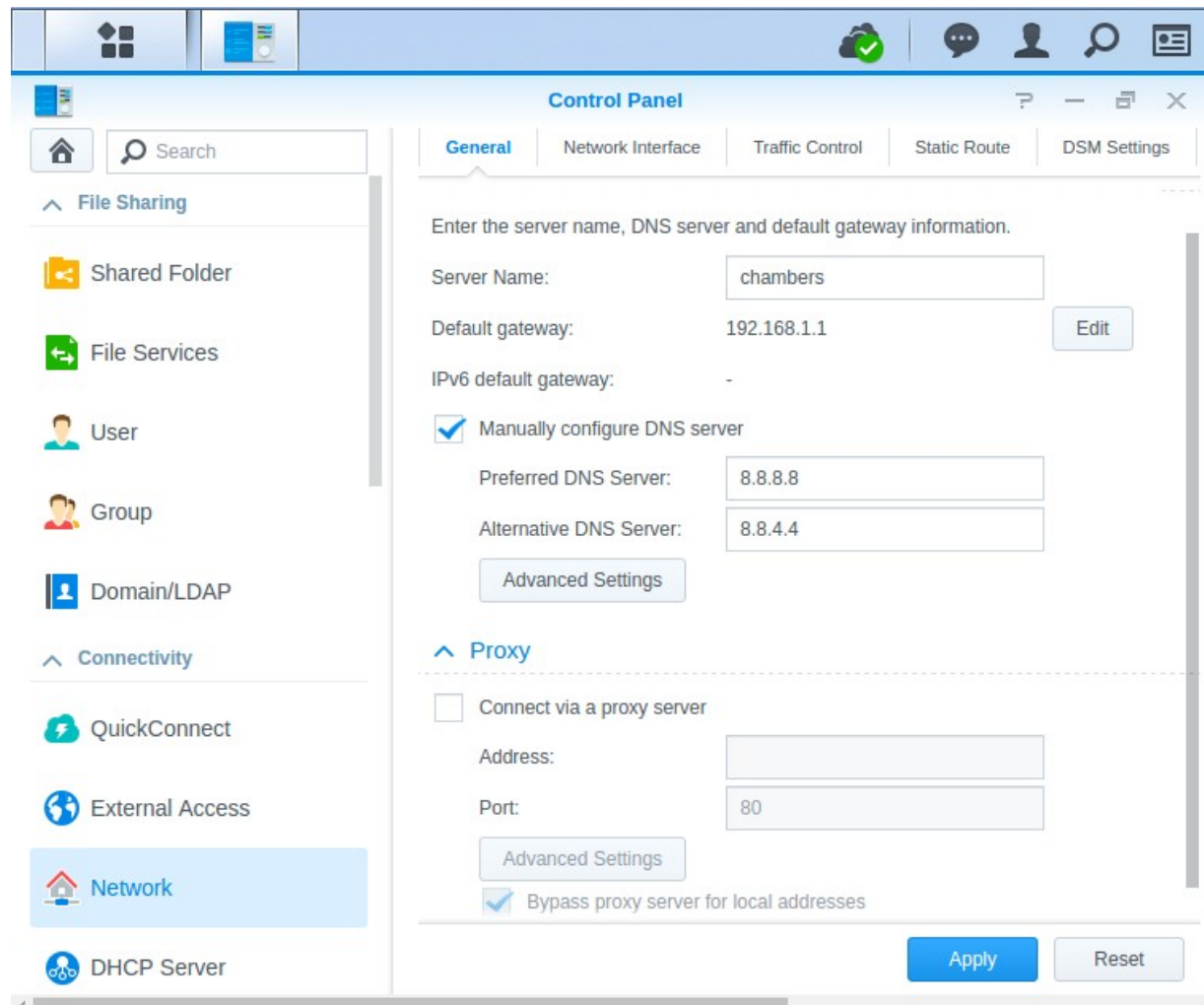


# Control Panel: Network

- Manage Hostname
- Assign Static IP
- Connect to external VPN server
- Natively supports IPv6



# Control Panel: Network



The screenshot shows the 'Control Panel' window with the 'Network' section selected in the left sidebar. The 'General' tab is active, displaying network configuration options. The 'File Sharing' section includes links for Shared Folder, File Services, User, Group, and Domain/LDAP. The 'Connectivity' section includes links for QuickConnect, External Access, Network (highlighted), and DHCP Server. The 'General' tab contains fields for Server Name (chambers), Default gateway (192.168.1.1), and IPv6 default gateway (-). There is an 'Edit' button next to the Default gateway field. The 'Manually configure DNS server' checkbox is checked, with Preferred DNS Server (8.8.8.8) and Alternative DNS Server (8.8.4.4) fields. An 'Advanced Settings' button is below these fields. The 'Proxy' section has an unchecked 'Connect via a proxy server' checkbox, with Address and Port (80) fields. Another 'Advanced Settings' button is below. The 'Bypass proxy server for local addresses' checkbox is checked. At the bottom right are 'Apply' and 'Reset' buttons.

Control Panel

General Network Interface Traffic Control Static Route DSM Settings

Enter the server name, DNS server and default gateway information.

Server Name: chambers

Default gateway: 192.168.1.1 Edit

IPv6 default gateway: -

☒ Manually configure DNS server

Preferred DNS Server: 8.8.8.8

Alternative DNS Server: 8.8.4.4

Advanced Settings

Proxy

☐ Connect via a proxy server

Address:

Port: 80

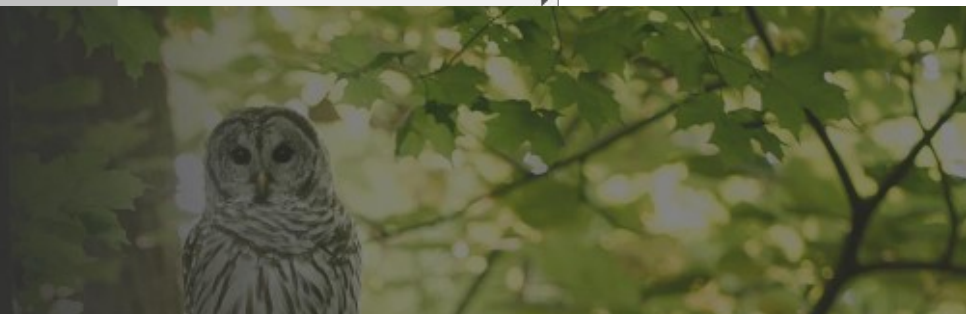
Advanced Settings

☒ Bypass proxy server for local addresses

Apply Reset



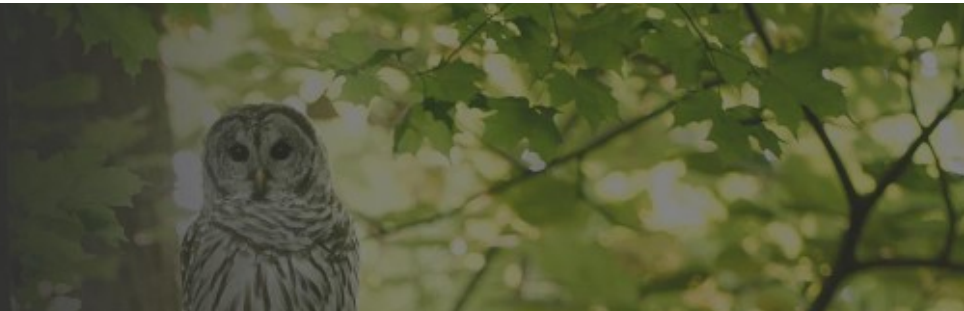
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# Package Center

- Free packages that you can install through the GUI to use certain tools
- Examples: VPN Server, DNS Server, Mail Server, Web Server, Drupal, Moodle, OrangeHRM, Antivirus Scanner, and tons more!



# Package Center

The screenshot displays the Synology Package Center web interface. On the left is a blue sidebar with navigation icons for Package Center, Control Panel, File Station, and DSM Help. The main content area is titled 'Package Center' and features a search bar, 'Manual Install', 'Refresh', and 'Settings' buttons. Below these are tabs for 'Installed' (selected), 'Update', and 'Explore'. The 'Installed' tab lists five packages, each with an icon, name, status, and description:

Package Name	Status	Description
<b>Antivirus Essential</b>	Running	Antivirus Essential is a free and easy-to-use package that protects your DiskStation and your files from viruses. Please note that installing this package might affect the performance of models with less than 512MB RAM.
<b>Audio Station</b>	Running	Audio Station is a web-based audio application, allowing you to access the music library on your Synology DiskStation and preloaded list of Internet radio stations provided by SHOUTCast, choose available audio sources on the local area network, and add
<b>Cloud Station Server</b>	Running	Cloud Station Server allows you to sync your data from multiple platforms, centralizing it on your Synology NAS keeping historic versions of all your important files. Install the client utilities on Windows, Mac, Linux, as well as Android and iOS devices to keep
<b>Cloud Sync</b>	Running	With Cloud Sync, you can seamlessly sync and share files among your DiskStation and multiple public clouds, such as Dropbox, Baidu Cloud and Google Drive.
<b>Directory Server</b>	Running	Directory Server provides LDAP service with centralized access control, authentication, and account management. You can manage LDAP users and groups with this package.

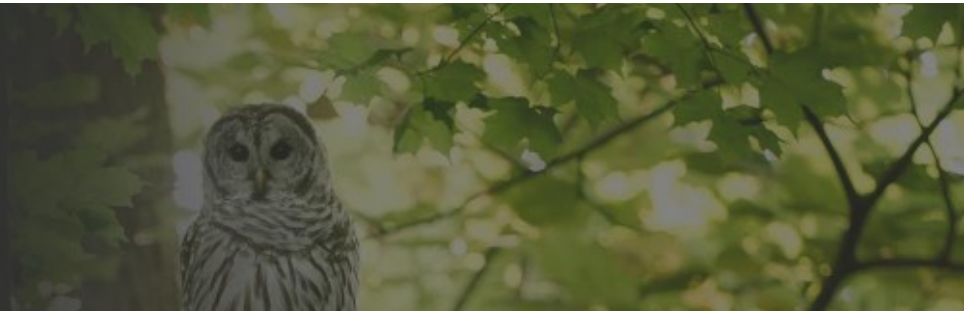


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# High Availability Manager

- Setup 2 devices on the same network in a HA cluster, so that if the master goes down, your users don't notice
- Ideally, they will be connected directly with a crossover cable, but they can also be clustered if on the same physical network
- The devices must be the same model



# High Availability Manager

The screenshot displays the 'High Availability Manager' window. The left sidebar contains navigation links: Overview (selected), Network Settings, Service Monitor, Storage Status, Disk Status, and Logs. The main content area is titled 'Standalone' and features a large blue checkmark icon. Text indicates that a high-availability cluster has not been created and provides instructions on how to create one. A 'Create HA cluster' button is present. Below this, a 'Standalone' section shows a server icon and two tables of server details.

**Standalone**

High-availability cluster has not been created.  
Combine two Synology servers (one active server and one passive server) to create a high-availability cluster. To begin this process, press **Create HA cluster**.

Create HA cluster

**Standalone**

Server Name	chambers
Model Name	DS713+
Serial Number	ECLPN01663
Fan Status	Normal
Temperature	50 °C / 122 °F
Power Status	Normal
Physical Memory	1024 MB

Server Name	N/A
Model Name	N/A
Serial Number	N/A
Fan Status	N/A
Temperature	N/A
Power Status	N/A
Physical Memory	N/A



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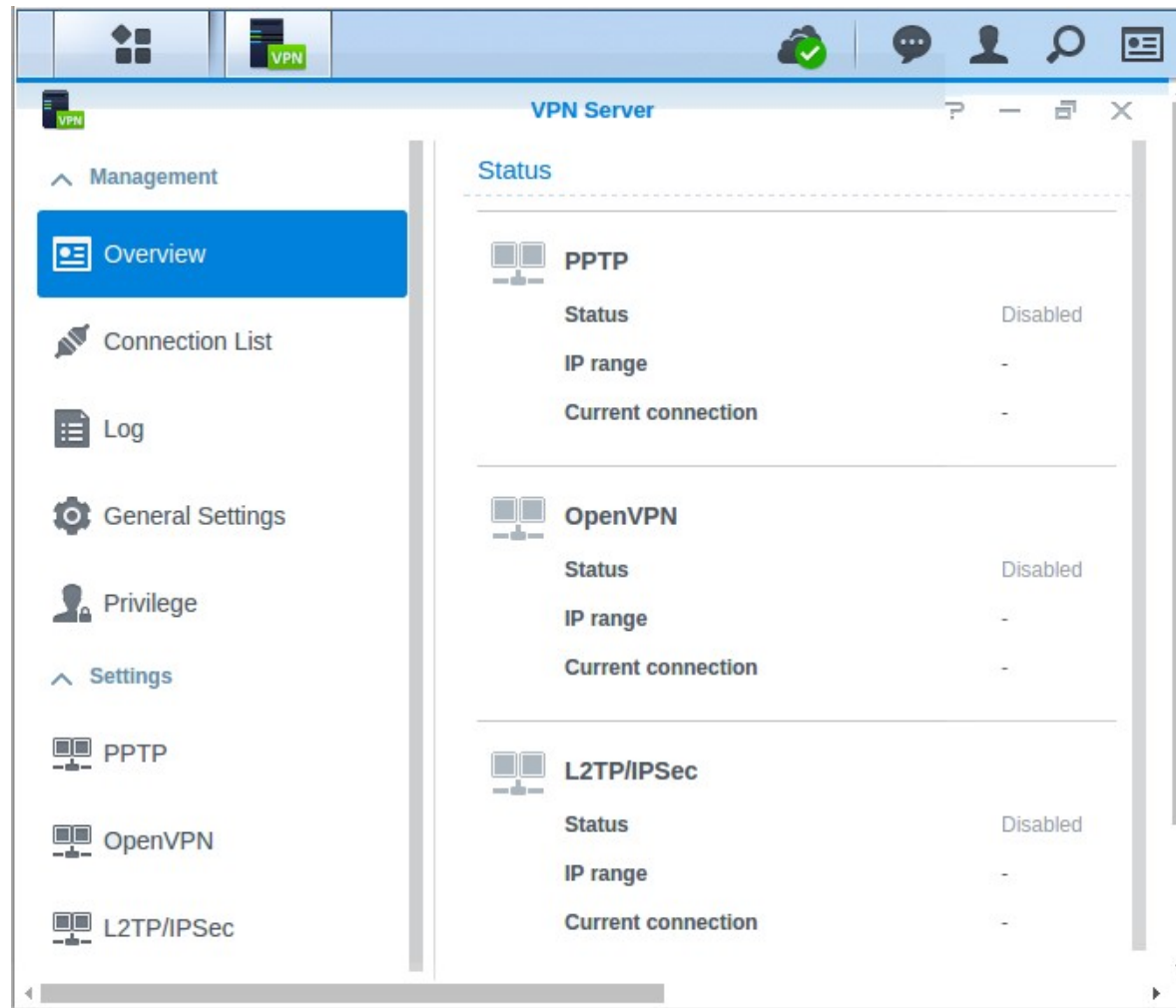


# Package: VPN Server

- Supports PP2P, OpenVPN, and L2TP/IPSec
- Review status & current connections
- Manage User's access to particular servers
  - i.e. Bob has access to PP2P, but Lilly only has access to OpenVPN



# Package: VPN Server

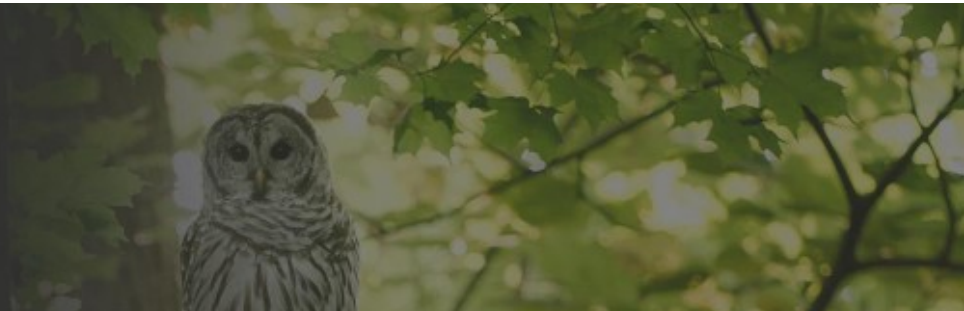


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# Package: Directory Server

- Setup your own Directory (LDAP) server
- Integrates with Google Apps as an identity provider for your Google Apps domain
- Caveat: Does not integrate with built-in Synology users (I wish!), so users are managed separately



# Package: Directory Server

Settings

Backup and Restore

User

Group

Google Apps Single Sign-On

Directory Server

Server

☒ Enable LDAP Server

☒ As the Provider server

FQDN: office.developcents.local

Password: .....

Confirm password: .....

☐ As the Consumer server (only Synology Directory Server can be used as provider)

Provider address:

Encryption: SSL/TLS

Base DN:

Username:

Password:

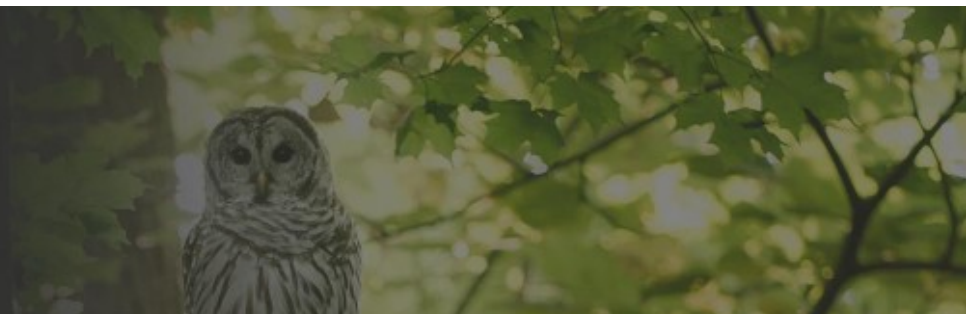
Connection Status: --

Connection Settings

Authentication Information

Base DN: dc=office,dc=developcents,dc=local

Bind DN: uid=root,cn=users,dc=office,dc=developcents,dc=local



# Package: Directory Server

Directory Server

User Advanced Auto Lock

Create Edit Delete Activate Search

Name	Description	Email	Status
admin	Directory/Diskstation default...		Normal
TestLDAP	Test LDAP User		Normal

TestLDAP

User information User groups More

Name \*: TestLDAP

Description: Test LDAP User

Email:

Password \*:

Confirm password \*:

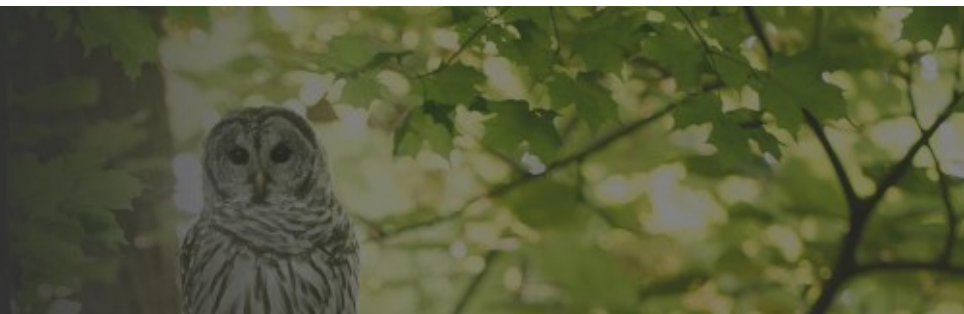
☐ Disallow the user to change account password

☐ Disable this account

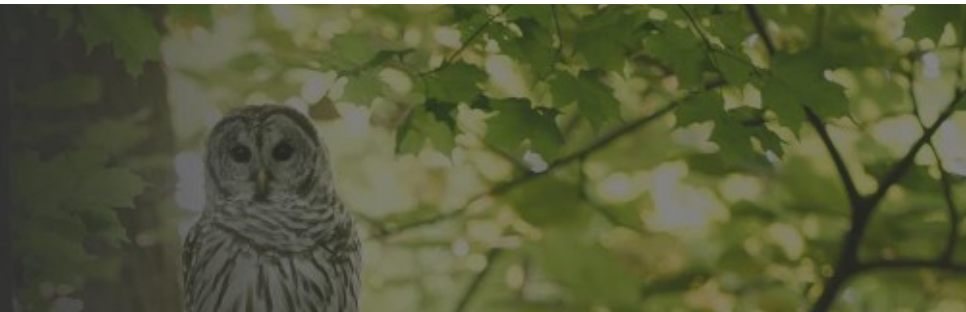
☒ Immediately

☐ After: 2016/6/13

\* This field is required.



# Live Demo with Q&A

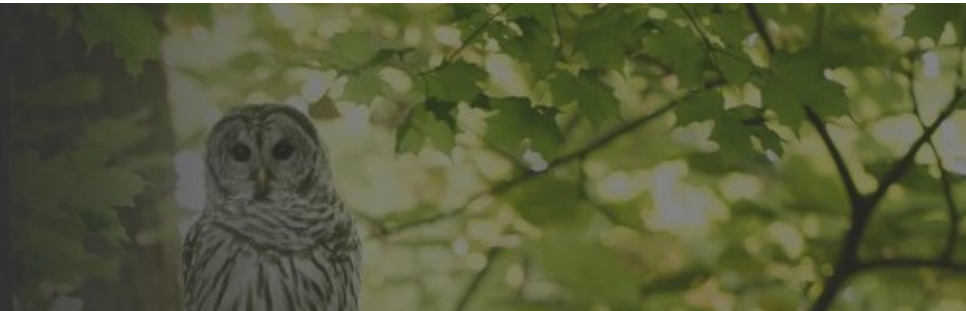




# Thanks

David White  
Founder of Barred Owl Web

<https://barredowlweb.com>



# Useful Resources

- **Synology DSM Knowledge Base:** <https://www.synology.com/en-us/knowledgebase>
- **Barred Owl Web Blog Post:**
  - Synology NAS Review: Setting Up & Comparing DS713+ and DS215j - <https://barredowlweb.com/2015/06/12/synology-nas-review-comparing-ds713-and-ds215j>

