

# USER MANUAL

DNS-321

VERSION 1.0



**D-Link**<sup>®</sup>

**STORAGE**

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# Product Overview

## Package Contents

- D-Link DNS-321 2-Bay Network Storage Enclosure
- CD-ROM with Manual and Software
- Quick Installation Guide
- Power Adapter
- CAT5 Ethernet Cable



**Note: Using a power supply with a different voltage than the one included with the DNS-321 will cause damage and void the warranty for this product.**

*If any of the above items are missing, please contact your reseller.*

## System Requirements

For best results, the following system requirements are recommended:

- Computer with: 1GHz processor / 512 MB RAM / 200 MB available space / CD-ROM drive
- Internet Explorer version 6.0 or Mozilla Firefox 1.0 and above
- 3.5" SATA Hard Drive(s)
- Windows® XP (with Service Pack 2) or Vista™

# Introduction

The D-Link DNS-321 2-Bay Network Storage Enclosure shares your documents, photos, music, and videos across the network and on the Internet (via FTP server) so family members, friends, or employees can access them. This enclosure, which can hold two 3.5" SATA hard drives of any capacity<sup>1</sup>, creates a central network point for backing up valuable files. The built-in RAID 1<sup>2</sup> mirroring technology protects these files from drive failure. Other options such as Standard, JBOD, and RAID 0 are also available.

The DNS-321 shares files over the Internet via the built-in FTP server<sup>3</sup>. Users and groups can be created and assigned to folders with either read or read/write permissions. Quotas can be set per user or group to restrict space usage. In addition, the DNS-321 can be used to stream photos, music, and videos to UPnP AV compatible network media players<sup>4</sup>.

The included CD contains D-Link's Easy Search Utility. This utility allows you to locate the DNS-321 on the network and map drives to your computer. Backup software is also included on the CD. This software allows you to backup your files from a computer to the DNS-321 manually, by a schedule, or in real-time. Real-time backups are a great way to safeguard against unfortunate accidents that may result in the loss of important files.

Combining ease of use with practical and high performance features, the DNS-321 is an organized solution for any network. Free up drive space on computers and centralize data on your network with the DNS-321 2-Bay Network Storage Enclosure!

1 Hard Drive(s) not included.

2 RAID 1 mirroring requires the use of 2 internal SATA drives.

3 Note that use of an FTP Server to access files over the Internet does not provide for secure or encrypted transmissions.

4 D-Link cannot guarantee full compatibility or proper playback with all codecs. Playback capability depends on the codec support of the UPnP™ AV media player.

## Features

The DNS-321 is designed for easy installation and allows remote access to important data via LAN or WAN:

- Two Hard Drive Bays for 3.5" SATA Hard Drives of Any Capacity<sup>1</sup>
- Simplified Hard Drive Installation Process – No Tools Required
- Four Hard Drive Configurations: Standard, JBOD (Linear), RAID 0, and RAID 1<sup>2</sup>
- High Performance Gigabit Ethernet Connectivity
- Built-in FTP Server for File Access Over the Internet<sup>3</sup>
- Scheduled Downloads from Web or FTP Sites
- Full or Incremental Backups
- Real Time Backups With the Included Backup Software
- Users and Groups Can Be Assigned to Folders with Read or Read/Write Permissions
- Quotas For Users and Groups
- Automatic E-Mail Notifications
- Power Management for Conserving Energy and Extending Hard Drive Life
- UPnP AV Server for Streaming Music, Photos, and Video to Compatible Media Players<sup>4</sup>
- iTunes® Software will be able to automatically find and play music directly from the DNS-321
- D-Link Easy Search Utility
- Configurable by Web Browser

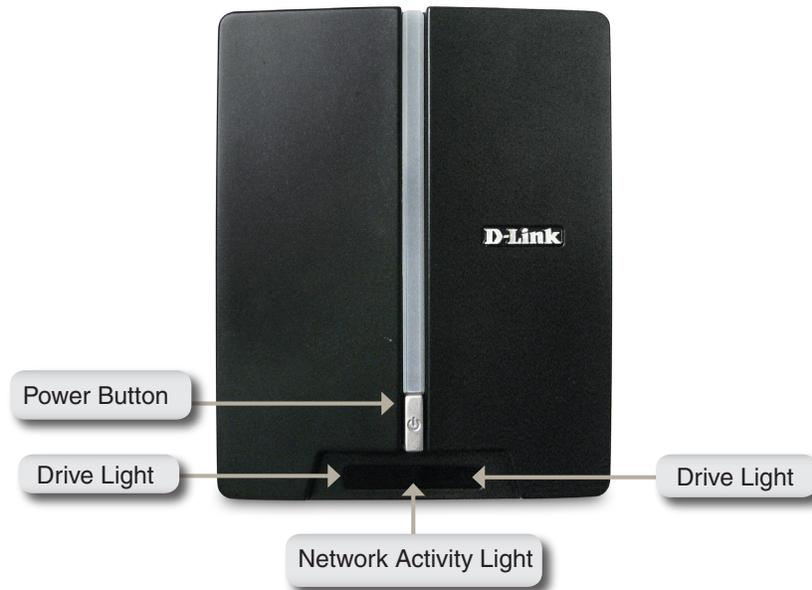
<sup>1</sup> Hard Drive(s) not included.

<sup>2</sup> RAID 1 mirroring requires the use of 2 internal SATA drives.

<sup>3</sup> Note that use of an FTP Server to access files over the Internet does not provide for secure or encrypted transmissions.

<sup>4</sup> D-Link cannot guarantee full compatibility or proper playback with all codecs. Playback capability depends on the codec support of the UPnP™ AV media player.

## Hardware Overview Front View



**Power Button:**

Press once to power on the DNS-321. Press and hold the button until it begins to blink to power down the DNS-321.

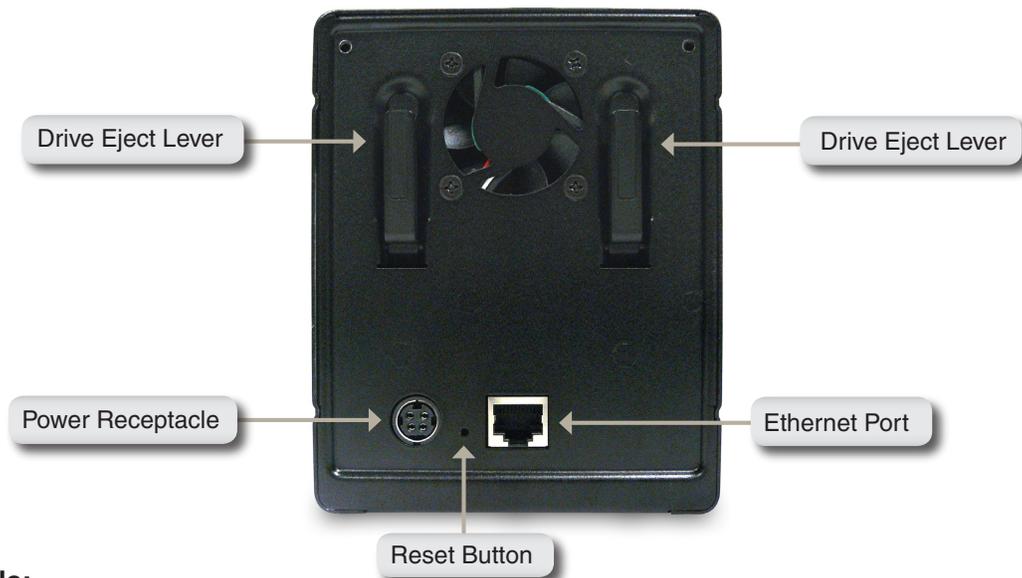
**Drive Light:**

These lights will be solid BLUE when drives are connected but inactive. The lights will blink when the drives are being accessed, formatted or synchronized. They will illuminate AMBER if a drive has failed.

**Network Activity Light:**

The light will be solid BLUE when there is an Ethernet connection. It will blink to indicate LAN traffic.

## Rear Panel (Connections)



**Power Receptacle:**

The supplied power adapter connects here.

**Ethernet Port:**

A Gigabit Ethernet port that connects the DNS-321 to a network.

**Drive Eject Lever:**

Use the provided levers to eject the hard drives. The front panel must be removed before ejecting the drives.

**Reset Button:**

A pinhole button located beside the Ethernet socket is used to reset the system or restore the factory default settings.

**Note:** After resetting the unit you will still be able to access the data on your hard drives.

# Installation Hardware Setup

This section provides installation information for the DNS-321. To install the DNS-321 on your local network, refer to the steps below:

1. Slide the faceplate up until it unlatches from the device.



2. Once the faceplate is unlatched, pull it off the device, exposing the drive bays.



3. Insert a 3.5" SATA hard drive into an available drive bay. Make sure to align the drive connector to the SATA connector on the bottom edge inside the drive bay of the DNS-321. Gently push the drive in until it connects. When a drive is inserted properly, you will feel it "seat" into the connector. Some hard drives that are thin or oddly shaped may need to be guided carefully into position. If a drive is not properly seated, the light will not illuminate after powering on the device.



4. Attach the faceplate to the front of the device.



5. Connect an Ethernet cable to the available Ethernet port. This cable should connect the DNS-321 to your local network via a router or switch, or directly to a computer for configuration.



6. Connect the power adapter to the power receptacle.



# Configuration

## Easy Search Utility

When first powered on, during the initial boot sequence, the DNS-321 will wait to be assigned an IP address via DHCP. If it does not receive a DHCP assigned IP address, by default it will have a self-assigned IP address of 192.168.0.32. It is recommended to use the included D-Link Easy Search Utility when accessing and configuring the DNS-321 for the first time. If you want to change the IP address before logging in or if you are unable to connect to the DNS-321 IP address, you can use the Easy Search Utility provided on the product CD to locate the device on your network and make any needed changes.

**Network Storage Device** The Easy Search Utility displays the available DNS-321 devices on the network.

**Refresh** Refreshes the device list.

**Configuration** Click **Configuration** to access the Web-based configuration utility of the DNS-321.

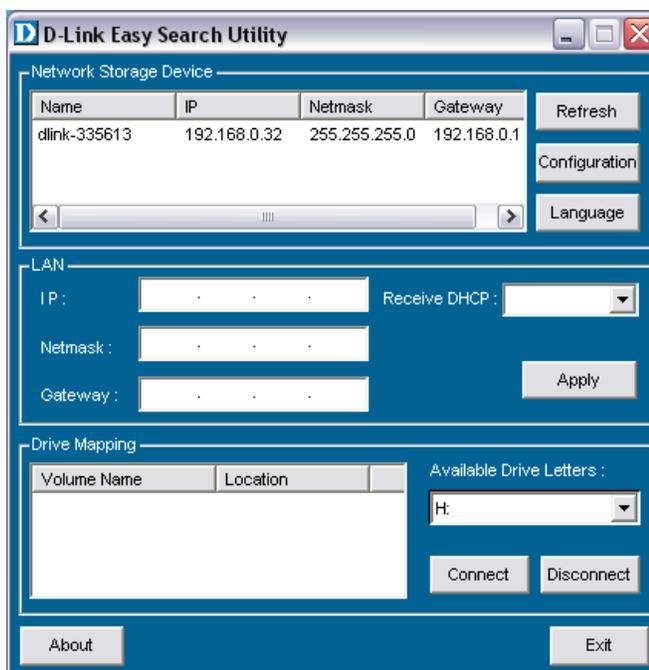
**LAN** Configure the LAN Settings for the DNS-321 here.

**Apply** Click **Apply** to save changes to the LAN Settings.

**Drive Mapping** Volumes available for mapping are displayed here.

**Available Drive Letters** Choose an available drive letter. Click **Connect** to map the selected volume. Click **Disconnect** to disconnect the selected mapped volume.

**Exit** Click **Exit** to close the utility.



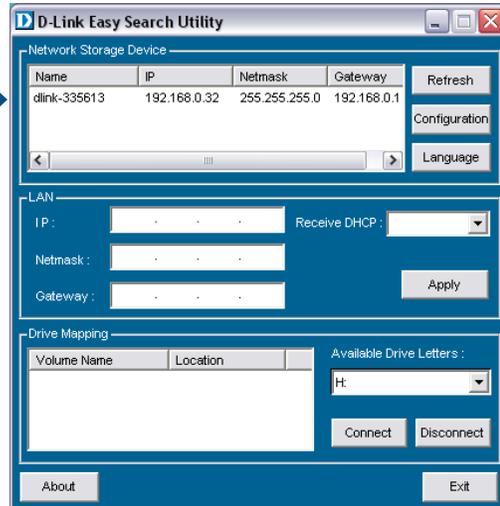
# Getting Started

To run the Easy Search Utility, insert the DNS-321 CD into your CD-ROM drive:

Click **Easy Search Utility**.



Highlight an available DNS-321 and click **Configuration** to access the web-based utility.



The Login screen will appear:

Type **admin** for the username and leave the password field blank.

Click **Configuration**

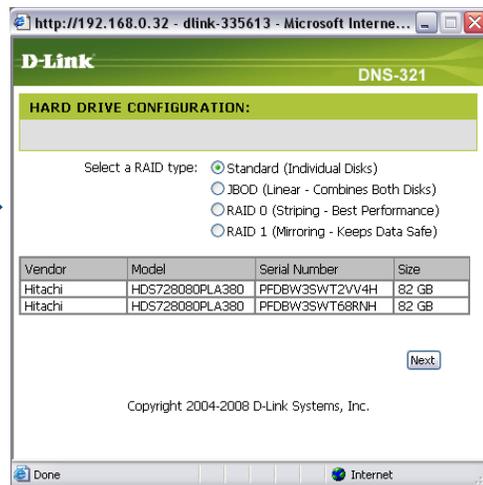


When logging into the DNS-321 for the first time, you will be asked to choose a drive configuration type and format the drives. There are four options: **Standard**, **JBOD**, **RAID 0** and **RAID 1**. Standard configures each disk as a separate volume, while JBOD combines both disks into a single volume. See page 47 for more details on using the RAID configurations.

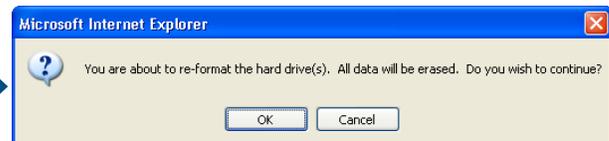
**Note:** All data will be erased during the format process.

When prompted to configure the Hard Drive Settings:

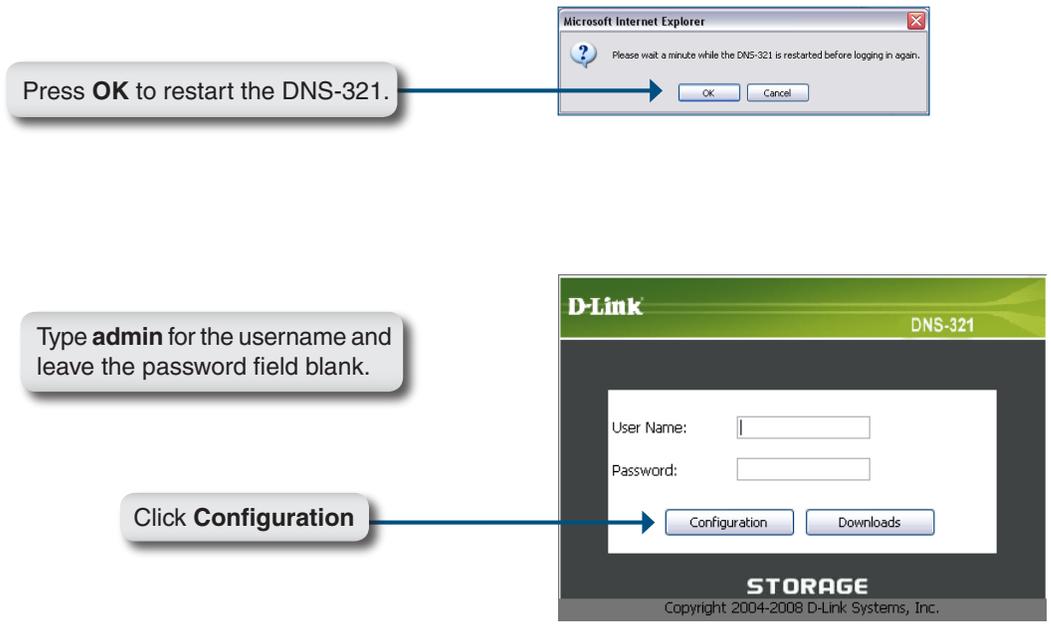
Select the type of hard drive configuration, Standard, JBOD, RAID 0 or RAID 1.



A warning message appears informing you that your drives will be formatted and all data will be erased. Click **OK** to continue.

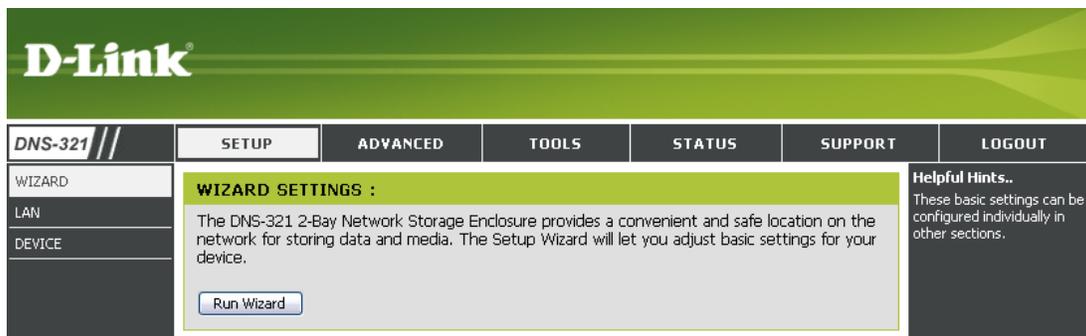


When formatting of the drive completes, the DNS-321 will prompt the user to restart. A restart countdown screen will appear, and when the restart is complete, the login screen will appear:



**Note:** After logging in to the DNS-321 for the first time it is recommended to add a password to the admin account. (See page 39 for details.)

After login, you will be redirected to the DNS-321 web UI:



## Web UI

The DNS-321 web UI defaults to the *Setup* page. The main categories for configuration are located in the menu tabs at the top of the page. These categories include:

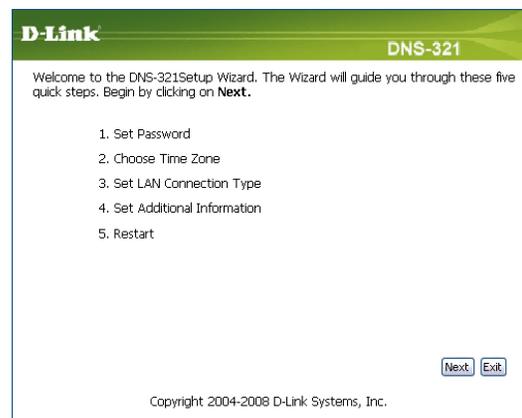
- **Setup** - Contains the DNS-321 setup wizard, as well as the LAN configuration settings and device settings.
- **Advanced** - Allows the DNS-321 administrator to configure users, groups of users and their storage quotas. The UPnP AV server, iTunes server, FTP server and DHCP server settings are all contained here as well.
- **Tools** - Contains the configuration options for Admin account, time and system settings, and e-mail alerts. Power management options and RAID configuration options are also available.
- **Status** - Contains a summary of DNS-321.
- **Support** - Contains the DNS-321 help files.
- **Logout** - Clicking this button will log the admin out and end the DNS-321 configuration session.

These pages and their configuration options will be discussed in detail in the following pages of this manual.

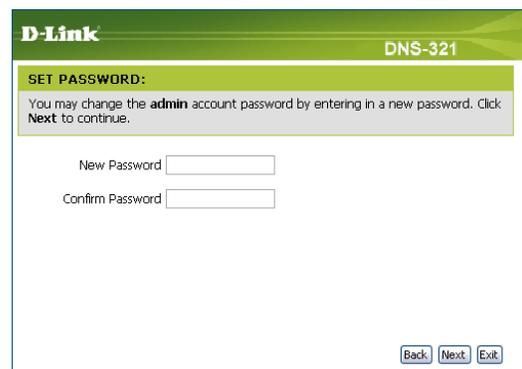
# Setup Wizard

The DNS-321 has a setup Wizard that allows you to quickly configure some of the basic device settings.

When running the DNS-321 setup wizard, the welcome screen details the five steps of the wizard. Click **Next** to continue.



It is recommended you set an admin password here. Enter the new password and re-enter it for confirmation. Click **Next** to continue.



Set the appropriate Time Zone and click **Next** to continue.

**D-Link** DNS-321

**CHOOSE TIME ZONE:**  
Select the appropriate time zone for your location and click **Next** to continue.

Time Zone  
GMT Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London

Back Next Exit

Edit or change the DNS-321 LAN information, or keep the current settings, click **Next** to continue.

**D-Link** DNS-321

**SELECT LAN CONNECTION TYPE:**  
Select your connection type and fill out the IP information if necessary. Click **Next** to continue.

DHCP Client  
 Static IP

IP Address 192.168.0.32  
Subnet Mask 255.255.255.0  
Gateway IP Address 192.168.0.1  
DNS1  
DNS2

Back Next Exit

Enter a workgroup, name, and description for the DNS-321, or leave the default values and click **Next** to continue.

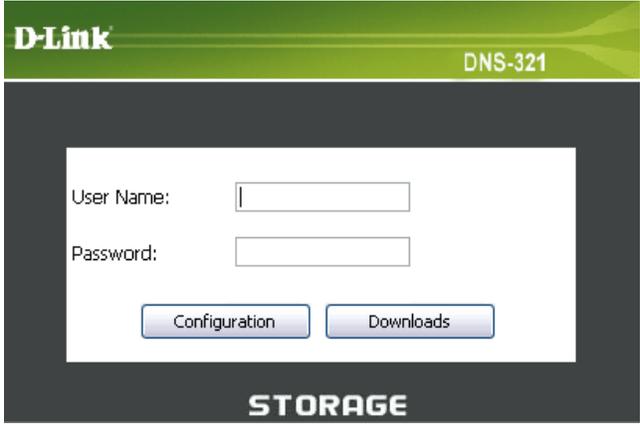
The screenshot shows the 'SET ADDITIONAL INFORMATION' screen of the D-Link DNS-321 configuration wizard. The title bar includes the D-Link logo and 'DNS-321'. Below the title, there is a section header 'SET ADDITIONAL INFORMATION :'. The main text reads: 'Enter your Workgroup, Name, and Description for the DNS-321 if necessary. Otherwise you may accept the default values and click **Next** to continue.' There are three input fields: 'Workgroup' with the value 'workgroup', 'Name' with the value 'dlink-335613', and 'Description' with the value 'DNS-321'. At the bottom right, there are three buttons: 'Back', 'Next', and 'Exit'.

When the wizard completes, click **Back** to go back and make changes or click **Restart** to restart the DNS-321 and save the configuration.

While the DNS-321 is restarting, a countdown screen will appear.

The screenshot shows the 'SETUP COMPLETED' screen of the D-Link DNS-321 configuration wizard. The title bar includes the D-Link logo and 'DNS-321'. Below the title, there is a section header 'SETUP COMPLETED :'. The main text reads: 'The Setup Wizard is complete. Click **Back** to make any changes. Click **Restart** to save the current settings and restart the DNS-321.' At the bottom right, there are three buttons: 'Back', 'Restart', and 'Exit'. At the bottom center, there is a copyright notice: 'Copyright 2004-2008 D-Link Systems, Inc.'

When the login prompt appears, login using the new administrator password.



## LAN

The Local Area Network settings for the DNS-321 can be configured on the LAN page.

**Link Speed** The LAN Link Speed is set to Auto by default, but can be manually set to 100Mbps or 1000Mbps.

**DHCP Client** Selecting DHCP Client will cause the DNS-321 to obtain an IP address from the local DHCP server, such as your router.

**Static IP** Selecting Static IP requires you to assign the IP information for the DNS-321 manually.

The screenshot displays the D-Link DNS-321 web interface. At the top, the D-Link logo is visible. Below it, a navigation bar includes 'DNS-321 //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', 'SUPPORT', and 'LOGOUT'. The left sidebar shows 'WIZARD', 'LAN', and 'DEVICE'. The main content area is titled 'LAN SETTINGS :'. It contains the instruction: 'Select your connection type and fill out the IP information if necessary.' Below this are 'Save Settings' and 'Don't Save Settings' buttons. The 'LAN SETTINGS :' section includes: 'Speed 1000 Mbps', 'Link Speed' with radio buttons for 'Auto' (selected), '100', and '1000', and an 'Apply' button. Underneath, there are radio buttons for 'DHCP Client' (selected) and 'Static IP'. The 'Static IP' section has input fields for 'IP Address : 192.168.0.32', 'Subnet Mask : 255.255.255.0', and 'Gateway IP Address : 192.168.0.1'. There are also empty input fields for 'DNS1 :' and 'DNS2 :'. On the right side, a 'Helpful Hints...' box contains the text: 'A Static IP is recommended if you will be using the FTP server.'

## Device Settings

The device settings page allows you to assign a workgroup, name and description to the DNS-321.

**Workgroup** Assign a workgroup name to the DNS-321.

**Name** Assign a unique name to the DNS-321. The name can be used to access the device from a web browser instead of using the IP address.

For example, <http://dlink-xxxxxx>.

This is useful if there is more than one DNS-321 on the network. By default, the device name is dlink-xxxxxx, where xxxxxx is the last six digits of the MAC address.

**Description** Assign a device description to the DNS-321.

The screenshot shows the D-Link DNS-321 web interface. At the top, it displays 'Product Page: DNS-321' and 'Firmware Version: 1.00'. The D-Link logo is prominently featured. Below the logo is a navigation menu with tabs for 'DNS-321 //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', 'SUPPORT', and 'LOGOUT'. The 'SETUP' tab is selected. On the left side, there is a sidebar with options: 'WIZARD', 'LAN', and 'DEVICE', with 'DEVICE' being the active selection. The main content area is titled 'DEVICE SETTINGS :'. It contains the instruction 'Enter a workgroup, name, and description.' followed by two buttons: 'Save Settings' and 'Don't Save Settings'. Below this, there are three input fields: 'Workgroup' with the value 'workgroup', 'Name' with the value 'dlink-335613', and 'Description' with the value 'DNS-321'. On the right side of the interface, there is a 'Helpful Hints..' section with text explaining how to access the device via a web browser using the name 'dlink-335613', where '335613' represents the last six digits of the MAC address.

# Advanced Users/Groups

The Users/Groups menu is used to create and manage user and group accounts. Up to 64 users and 10 groups can be created. By default, all users have read and write access to all folders but access rules can be created in the Network Access menu.

To create user names and passwords in the *User and Group Creation* menu:

- Click the **User** radio button
- Type a unique User Name for each user added
- Enter and confirm the user Password
- Click **Add** to create the new user

The user will be added to the *User List* and will be available for assignment to a user group.

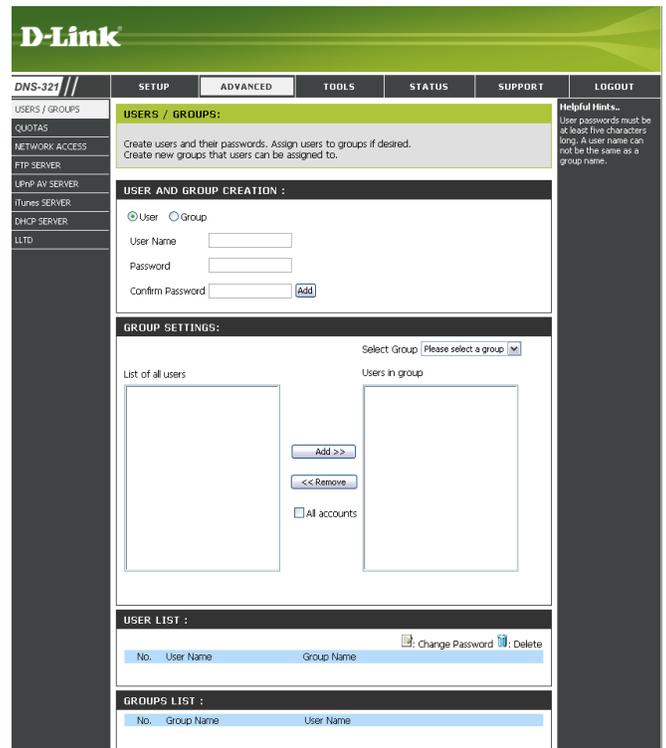
To create a Group:

- Click the **Group** radio button
- Type a unique group name and click **Add**

The group will appear in the *Group List* and will be available for user assignment in the *Group Settings* menu.

To add a user to a user group, under *Group Settings*:

- Select an available group from the *Select Group* drop-down menu
- Highlight the user from *List of all users*
- Click the **Add>>** button



The user is now listed in the *Users in group* list.

To delete a user from a group, under *Group Setting*:

- Select the group
- Highlight the user to be removed
- Click the <<**Remove** button

To remove a user or group from the User or Group lists, click the trash can icon of that group or user.

To change a user password, click the notepad icon of the user.

## Quotas

The DNS-321 supports storage quotas for both groups and individual users. Assigning a quota to a group or user will limit the amount of storage they are allocated. By default, users and groups do not have a quota.

**User Quota Settings** User quotas are displayed here. Quotas can be edited by clicking on the notepad icon.

**Group Quota Settings** Group quotas are displayed here. Quotas can be edited by clicking on the notepad icon.

**Quota Status** Displays the current status of the quota feature. The quota function can be started or stopped here.

**D-Link**

**DNS-321** // SETUP ADVANCED TOOLS STATUS SUPPORT LOGOUT

USERS / GROUPS

**QUOTAS**

Assign hard drive space quotas for users or groups.

Helpful Hints..  
The hard drives must be finished synchronizing before quotas can be set.

NETWORK ACCESS

FTP SERVER

UPnP AV SERVER

ITunes SERVER

DHCP SERVER

LLTD

**QUOTAS SETTINGS :**

**USER QUOTA SETTINGS :**

NO.	User Name	Volume_1		Volume_2		Edit
		Used	Limit	Used	Limit	
1	rw_test	unlimited		unlimited		

**GROUP QUOTA SETTINGS :**

NO.	Group Name	Volume_1		Volume_2		Edit
		Used	Limit	Used	Limit	

**QUOTA STATUS :**

Status: Stopped

## Configuring Quotas

By default, all users and groups are displayed on the Quota Settings page and cannot be deleted. The default quota setting is “Unlimited”.

To add a quota:

Click the notepad icon of the user you want to add a quota.

Set a quota amount (MB) for the user and click **Apply**.

**QUOTAS SETTINGS :**  
Assign hard drive space quotas for users or groups.

**USER QUOTA SETTINGS :**

NO.	User Name	Volume_1		Volume_2		Edit
		Used	Limit	Used	Limit	
1	rw_test	unlimited		unlimited		

**USER QUOTA SETTINGS :**

User Name

Volume\_1 Quota Amount  MB

Volume\_2 Quota Amount  MB

NO.	User Name	Volume_1		Volume_2		Edit
		Used	Limit	Used	Limit	
1	rw_test	unlimited		unlimited		

The user, amount of used storage, and storage limit are displayed.

**QUOTAS SETTINGS :**

Assign hard drive space quotas for users or groups.

**USER QUOTA SETTINGS :**

NO.	User Name	Volume_1		Volume_2		Edit
		Used	Limit	Used	Limit	
1	rw_test	0 MB	300 MB	0 MB	300 MB	

Click **Enabled** to turn quota function on. Once enabled, the status will change to **Started**.

**QUOTA STATUS :**

Status: Stopped

**QUOTA STATUS :**

Status: Started

## Network Access

The Network Access settings allow you to assign users and groups access rights to specific folders or volumes. By default, all volumes are open to anyone with read/write access on the local network. Before specific user or group rules can be created, the default rules must be deleted.

**Network Access Settings** Assign permissions for users and groups on the local network here.

**Category** Determines whether the access rule will apply to a group or an individual user.

**User** Select the user or group the access rule will apply to.

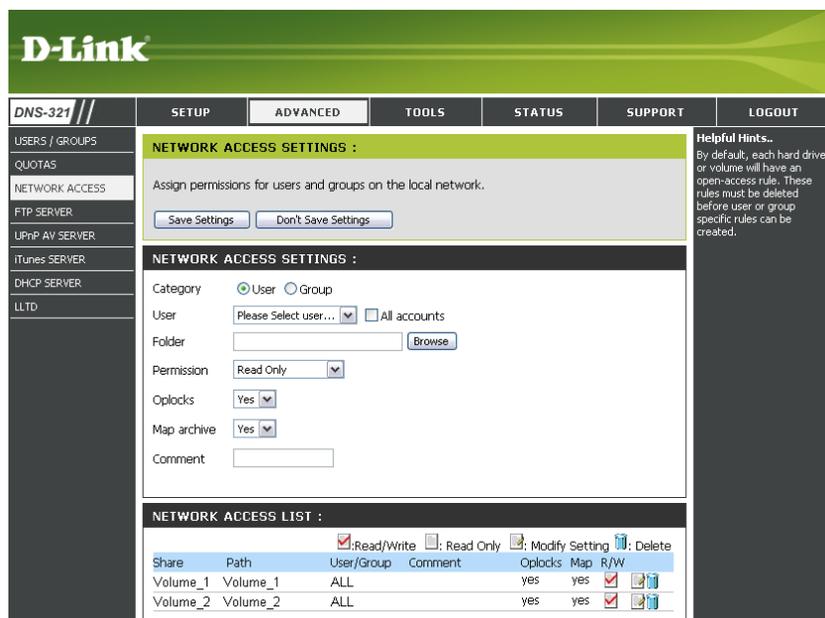
**Folder** Browse and select the folder or directory you are controlling access to.

**Permission** Set the user or group permission to Read Only or Read/Write.

**Oplocks** Opportunistic locks (oplocks) are a characteristic of the LAN Manager networking protocol implemented in the 32-Bit Windows family. Oplocks are guarantees made by a server for a shared logical volume to its clients. These guarantees inform the Client that a file's content will not be allowed to be changed by the server, or if some change is imminent, the client will be notified before the change is allowed to proceed.

Oplocks are designed to increase network performance when it comes to network file sharing. However it is recommended to set the share oplocks to **No (off)** when using file-based database applications

By default Windows Vista™ has Oplocks enabled and cannot be disabled. If you are having network performance issues with applications sharing files from the DNS-321, you may try to improve performance by setting Oplocks to **No (off)**.



**Helpful Hints..**  
By default, each hard drive or volume will have an open-access rule. These rules must be deleted before user or group specific rules can be created.

Share	Path	User/Group	Comment	Oplocks	Map	R/W	Delete
Volume_1	Volume_1	ALL		yes	yes	✓	🗑️
Volume_2	Volume_2	ALL		yes	yes	✓	🗑️

## Section 3 - Configuration

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**Map Archive** When enabled, the file attribute "Archive" will be copied as the file is being stored on the DNS-321. Certain backup software attach this attribute to files that are being stored as backups.

**Comment** Enter a comment for reference or description of the rule.

**Network Access List** Lists all defined access rules.

## FTP Server

The DNS-321 is equipped with a built in FTP Server. The server is easy to configure and allows users access to important data whether they are on the local network or at a remote location. The FTP server can be configured to allow user access to specific directories, and will allow up to 10 users to access the DNS-321 simultaneously.

**FTP Account Settings** This section contains the user and group configuration settings for access to the FTP folder to the DNS-321.

**Category** Determines whether the FTP server rule will apply to an individual user or a group.

**User** Select the group or user the FTP server rule will apply to.

**Folder** Browse and select the folder or directory you are granting FTP access to. Select **root** to grant access to all volumes.

**Permission** Set the user or group permission to Read Only or Read/Write.

**FTP Server Settings** This section contains the configuration settings for the DNS-321 FTP Server (refer to the next page).

**FTP Access List** The FTP access rights for users and groups can be added and edited here.

**FTP Server Status** The current settings and status of the DNS-321 FTP Server are displayed here.

**D-Link**

DNS-321 // SETUP ADVANCED TOOLS STATUS SUPPORT LOGOUT

**FTP SERVER SETTINGS :**  
Assign permissions for users and groups who will be accessing the FTP server from over the Internet.

**FTP ACCOUNT SETTINGS :**  
Category:  User  Group  
User: Please Select user...  All accounts  
Folder: root   
Permission: Read Only

**FTP SERVER SETTINGS :**  
Max User: 10  
Idle Time: 2 (1~10 Minutes)  
Port: 21 (1~65535,Default:21)  
Flow Control:  Unlimited  x 10 Kbps  
Client Language: Western European

**FTP ACCESS LIST :**

Path	User/Group	R/W
		<input checked="" type="checkbox"/> :R/W : Read/Write <input type="checkbox"/> :Read Only <input type="checkbox"/> :Modify settings <input type="checkbox"/> :Delete

**FTP SERVER STATUS :**

Status: Stopped  
Port: 21  
Max. User: 10  
Flow Control: Unlimited  
Idle Time: 2  
Client Language: Western European

**Helpful Hints..**  
If your DNS-321 is connected to a router, you will need to forward port 21 (in the router configuration) to the IP address of the DNS-321. From the outside world, remember to access this FTP server by using the WAN address of your router.

## FTP Server Settings

- Max User** Set the maximum amount of users that can connect to the FTP server.
- Idle Time** Set the amount of time a user can remain idle before being disconnected.
- Port** Set the FTP port. Default is 21.
- Flow Control** Allow you to limit the amount of bandwidth available for each user.
- Client Language** Most standard FTP clients like Windows FTP, only support Western European codepage when transferring files. Northern European, Central European, Traditional and Simplified Chinese as well as Cyrillic codepage support has been added for non standard FTP clients that are capable of supporting these character sets.
- Apply** Click **Apply** to save your rule.
- FTP Access List** List all defined FTP Rules.

**FTP SERVER SETTINGS :**

Max User  ▼

Idle Time  (1~10 Minutes)

Port  ( 1~65535,Default:21)

Flow Control  Unlimited   x 10 KBs

Client Language  ▼

---

**FTP ACCESS LIST :**

Path	User/Group	R/W
		<input checked="" type="checkbox"/> :R/W : Read/Write <input type="checkbox"/> :Read Only <input type="checkbox"/> :Modify settings <input type="checkbox"/> :Delete

If you are behind a router, you will need to forward the FTP port from the router to the DNS-321. Additional filtering and firewall settings may need to be modified on your router to allow FTP Access to the DNS-321 from the Internet. Once the port has been forwarded on the router, users from the internet will access the FTP server through the WAN IP address of the router.

If you are using a D-Link router, such as the WBR-2310 used in the example below, your port forwarding rule should be similar to the following:

- Name** Name the DNS-321 FTP server rule.
- IP Address** Enter the IP address of the DNS-321.
- Public Port** Enter the public FTP port. By default, the port is 21.
- Private Port** Enter the private FTP port. By default, the port is 21.
- Traffic Type** Set the traffic type to TCP.



If you use an FTP port other than 21, then users accessing the FTP server using an FTP client will have to specify the non-standard port, and users who are using a browser will have to specify the port in the URL (e.g. ftp://ftp.dns321.com:3000, where the FTP port is 3000).

## UPnP AV Server

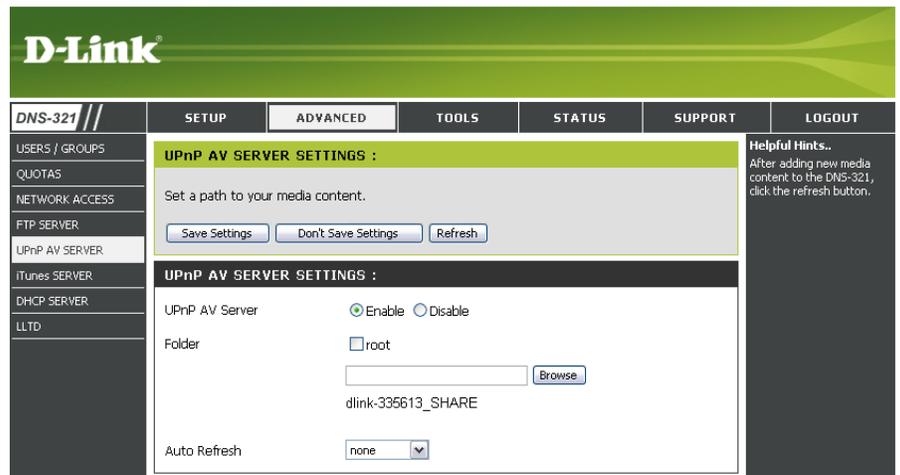
The DNS-321 features a UPnP AV Server. This server provides the ability to stream photos, music and videos to UPnP AV compatible network media players. If the server is enabled, the DNS-321 will be automatically detected by UPnP AV compatible media players on your local network.

**UPnP AV Server** Select Enable or Disable to enable or disable the DNS-321 UPnP AV server.

**Folder** Specifies the folder or directory that will be shared by the UPnP AV server. Select **root** to share all files on all volumes, or click **Browse** to select a specific folder.

**Auto Refresh** Set the device to auto refresh your media every 5 minutes up to every 24hrs.

**Refresh** Click **Refresh** after adding new files to be used by UPnP AV compatible devices.



## iTunes Server

The DNS-321 features an iTunes Server. This server provides the ability to share music and videos to computers on the local network running iTunes. If the server is enabled, the DNS-321 will be automatically detected by the iTunes program and the music and videos contained in the specified directory will be available to stream over the network.

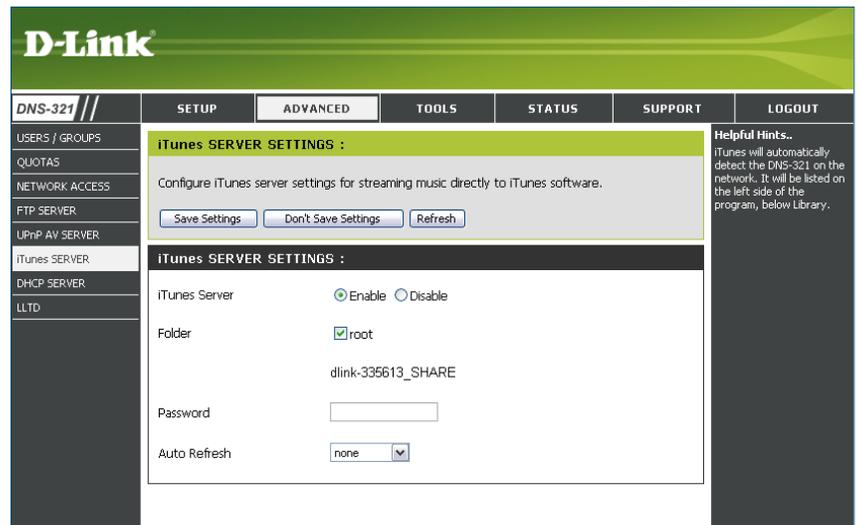
**iTunes Server** Select **Enable** or **Disable** to enable or disable the DNS-321 iTunes server.

**Folder** Specifies the folder or directory that will be shared by the iTunes server. Select root to share all files on all volumes, or click **Browse** to select a specific folder.

**Password** Sets password for the iTunes server. (Optional)

**Auto Refresh** Set the device to auto refresh your media every 5 minutes up to every 24hrs.

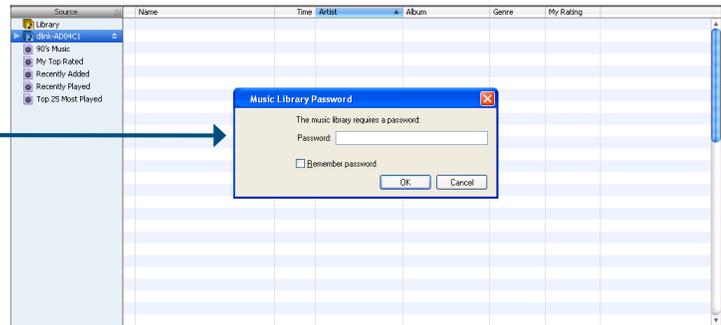
**Refresh** Click **Refresh** after adding new files to be used with iTunes.



### Section 3 - Configuration

After enabling the iTunes server on the DNS-321, launch iTunes. In your iTunes utility, select the DNS-321 and enter the iTunes server password if required.

Select the DNS-321. When prompted, enter in the iTunes server password. Click **OK**.



Media stored on the DNS-321 will then be available for use in iTunes.



## DHCP Server

The DNS-321 can be used as a DHCP Server. As a DHCP server, it can be used to serve IP addresses to devices on your local network. However, this feature should not be enabled if you already have a DHCP server, such as a router on your local network.

**DHCP Server** Enable or Disable the DNS-321 DHCP Server.

**Starting IP Address** Enter the starting IP address for the range of addresses assigned by the DHCP server.

**Ending IP Address** Enter the ending IP address for the range of addresses assigned by the DHCP server.

**Lease Time** Set the duration of time that an IP address will remain assigned to a device.

**DHCP Client List** Displays the Hostname, IP address, MAC address, and Expired Time of the clients that have received a DHCP address.

The screenshot shows the D-Link DNS-321 web interface. The top navigation bar includes 'DNS-321 //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', 'SUPPORT', and 'LOGOUT'. The left sidebar lists various configuration sections: 'USERS / GROUPS', 'QUOTAS', 'NETWORK ACCESS', 'FTP SERVER', 'UPnP AV SERVER', 'iTunes SERVER', 'DHCP SERVER', and 'LLTD'. The main content area is titled 'DHCP SERVER SETTINGS' and contains the following information:

- DHCP SERVER SETTINGS :** Enable the DHCP server to distribute IP addresses on the network. Buttons: Save Settings, Don't Save Settings, Refresh.
- DHCP SERVER :**
  - DHCP Server :  Enabled  Disabled
  - Starting IP Address :
  - Ending IP Address :
  - Lease Time :
- DHCP CLIENT LIST :**

Host name	IP Address	MAC Address	Expired Time

On the right side, there is a 'Helpful Hints..' section with the text: 'If you already have a router assigning DHCP to the network, do not enable this feature. The DHCP server should be used when no other DHCP server is available.'

## LLTD

The DNS-321 supports LLTD (Link Layer Topology Discovery) and is used by the Network Map application that is included in Windows Vista™.

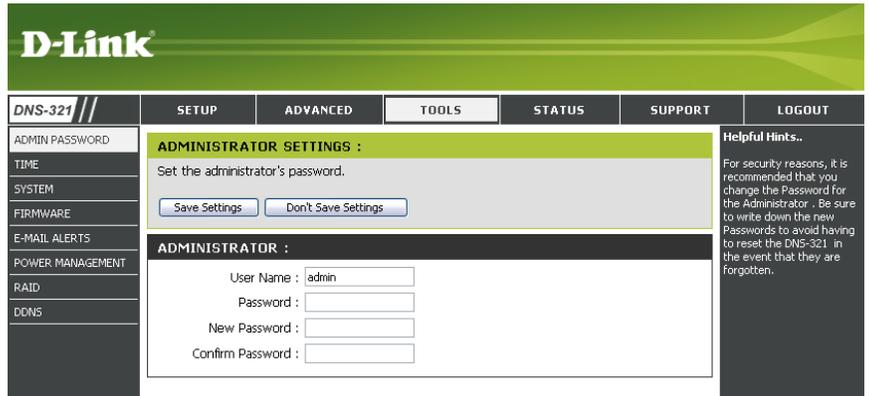
**LLTD** Select to enable or disable LLTD on your DNS-321.



# Tools Admin

The Admin menu allows you to set a password for the admin account. It is recommended to set an admin account password when first configuring the DNS-321.

- User Name** The administrator user name is *admin*, and this cannot be changed.
- Password** Enter the current password. (Leave this blank if you have not set a password yet.)
- New Password** Enter a new password.
- Confirm Password** Enter the new password again for confirmation.
- Save Settings** Click **Save Settings** to save the new password.



## Time

The DNS-321 Time page contains several different options for setting the device's internal clock. It is important that accurate time is set so that scheduled backups and downloads will be accurate.

**Time Zone** Select your time zone from the drop-down menu.

Click **Set Time** after selecting your time zone.

**NTP Server** Network Time Protocol (NTP) synchronizes the DNS-321 with an Internet time server.

D-Link provides two time servers for your convenience. Choose the one closest to your location.

Click **Set Time** after selecting the location.

**From My Computer** This option will synchronize the DNS-321 clock with your computer.

Click **Set Time** to sync with the local computer.

**Set Time Manually** This option allows you to set the time and date manually.

Enter the appropriate time and date and click **Set Time**.

D-Link		
DNS-321	SETUP   ADVANCED   TOOLS   STATUS   SUPPORT   LOGOUT	
ADMIN PASSWORD	<p><b>SYSTEM TIME SETTINGS :</b></p> <p>Set the system time by syncing with NTP, syncing with your computer, or manually entering it.</p> <p>Time: 12:39:47      Date: 01/09/01</p> <hr/> <p><b>TIME ZONE SETTINGS :</b></p> <p>Time Zone: <input type="text" value="GMT Casablanca, Monrovia"/> <input type="button" value="Set Time"/></p> <hr/> <p><b>NTP SERVER :</b></p> <p>NTP Server: <input type="text" value="Select NTP Server"/> <input type="button" value="Set Time"/></p> <hr/> <p><b>FROM MY COMPUTER :</b></p> <p>Set time from my computer. <input type="button" value="Set Time"/></p> <hr/> <p><b>SET THE DATE AND TIME MANUALLY :</b></p> <p>Month: <input type="text" value="01"/> Day: <input type="text" value="09"/> Year: <input type="text" value="2008"/></p> <p>Hour: <input type="text" value="12"/> Minute: <input type="text" value="39"/> Second: <input type="text" value="02"/> <input type="button" value="Set Time"/></p>	
TIME		
SYSTEM		
FIRMWARE		
E-MAIL ALERTS		
POWER MANAGEMENT		
RAID		
DDNS		
<p><b>Helpful Hints..</b></p> <p>Using the NTP option will guarantee the time to be accurate provided that the DNS-321 is connected to the Internet and your DNS values (in SETUP &gt; LAN) are valid.</p>		

## System

The DNS-321 System menu provides options for system restarts, saving and loading configuration settings, and idle times setting.

**Restart** Click **Restart** to reboot the DNS-321.

**Restore Defaults** Click **Restore** to reset the DNS-321 to its factory default settings. This will erase all previous configuration changes.

**Shutdown** Click **Shutdown** to turn off the DNS-321.

**Configuration Settings** Click **Save** to save the current DNS-321 configuration settings to a file on the local computer. If at a later time you need to reload this configuration after a system reset, browse the file and click **Load**.

**Idle Time** Enter the time (in minutes) that the administrator will be allowed to remain idle while accessing the DNS-321 configuration utility that users will be allowed to remain idle while accessing the download schedule settings.

Click **Apply** to activate and save the settings.

## Firmware

The DNS-321 Firmware menu makes it simple to check for new firmware releases and upload them to the device.

### Firmware Upgrade

This section provides a link to check for new firmware on the D-Link support website.

If a new firmware is available, download the file to your local computer.

### Current Firmware Info

This section provides information about the current DNS-321 firmware.

When upgrading the firmware, click **Browse** to select the new firmware file on your local computer.

Click **Apply** to begin the firmware upgrade process.

The screenshot shows the D-Link web interface for the DNS-321 device. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, SUPPORT, and LOGOUT. The left sidebar contains a menu with options: ADMIN PASSWORD, TIME, SYSTEM, FIRMWARE (highlighted), E-MAIL ALERTS, POWER MANAGEMENT, RAID, and DDNS. The main content area is divided into two sections:

- FIRMWARE UPGRADE :** This section contains a message: "A new firmware upgrade may be available for your DNS-321. It is recommended to keep your DNS-321 firmware up-to-date to maintain and improve the functionality and performance of your storage device." Below this, it says: "Click here [D-Link Support Page](#) to check for the latest firmware version available." At the bottom of this section are "Apply" and "Cancel" buttons.
- CURRENT FIRMWARE INFO :** This section displays the current firmware details: "Current Firmware Version : 1.00" and "Firmware Date : 02/26/2008". There is a "File Path" input field with a "Browse..." button next to it.

On the right side of the interface, there is a "Helpful Hints.." section with text: "Firmware updates are released periodically to maintain and improve the functionality of your DNS-321 and also to add features. If you run into a problem with a specific feature of the DNS-321, check our support site by clicking on the [Support](#) link and see if an updated firmware is available for your DNS-321."

## E-Mail Alerts

With the DNS-321 E-Mail Alerts, you can configure e-mails to be sent alerting you to certain operational conditions and drive status conditions. These alerts can prove helpful with the management and safeguarding of important data.

### Email Alert Settings

This section contains the configuration settings for the your e-mail account and alert preferences.

Once configured, use the **Test E-Mail** button to send a test e-mail and confirm your settings are correct.

### Email Alert Types

This section contains the alert options and their configuration settings.

The screenshot shows the D-Link DNS-321 web interface. The top navigation bar includes 'DNS-321', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', 'SUPPORT', and 'LOGOUT'. The left sidebar lists various configuration categories: ADMIN PASSWORD, TIME, SYSTEM, FIRMWARE, E-MAIL ALERTS (highlighted), POWER MANAGEMENT, RAID, and DDNS. The main content area is titled 'E-MAIL ALERTS' and contains the following sections:

- E-MAIL ALERTS :** A brief description: "E-mail yourself alerts for certain conditions or for drive space status updates." Below this are three buttons: "Save Settings", "Don't Save Settings", and "Clear Saved Settings".
- E-MAIL ALERT SETTINGS :** This section contains configuration options:
  - Login Method: Radio buttons for "Account" (selected) and "Anonymous".
  - User Name: Text input field.
  - Password: Text input field.
  - SMTP Server: Text input field.
  - Sender E-mail: Text input field.
  - Receiver E-mail: Text input field.
  - A "Test E-Mail" button is located at the bottom of this section.
- ALERT TYPES :** A list of alert conditions with checkboxes:
  - Space Status Interval: 0 (Hours) 0 (Minutes)
  - A Volume Is Full
  - A Hard Drive Has Failed
  - The Administrator's Password Has Been Changed
  - Firmware Has Been Upgraded
  - System Temperature Has Exceeded Fahrenheit 140 °F

Enabling this feature will cause the DNS-321 to shut down after the selected temperature is exceeded and an e-mail is sent.

The right sidebar contains a "Helpful Hints..." section with the text: "The SMTP server is your outgoing mail server. If you aren't sure what this is, contact the company that provides e-mail services for you."

## E-Mail Alert Settings

**Login Method** Select either **Account** or **Anonymous**. Choosing Anonymous does not require a User Name or Password.

**User Name** Enter the appropriate user name for your e-mail account.

**Password** Enter the appropriate password for your e-mail account.

**SMTP Server** Enter the IP address or domain name of your outgoing mail server. If you are unsure of this value, contact your e-mail provider.

**Sender E-Mail** Enter the "from" e-mail address (e.g. alerts@dns321.com). This field does not require a valid e-mail address. However, if your e-mail client is filtering spam, make sure you allow this address to be received.

**Receiver E-Mail** Enter the e-mail address you want to send the alerts to. This address must correspond with the SMTP server configured above.

**Test E-Mail** Click the Test E-Mail button to send a test alert and confirm your settings are correct.

**E-MAIL ALERT SETTINGS :**

Login Method :  Account  Anonymous

User Name :

Password :

SMTP Server :

Sender E-mail :

Receiver E-mail :

**E-MAIL ALERT SETTINGS :**

Login Method :  Account  Anonymous

SMTP Server :

Sender E-mail :

Receiver E-mail :

## E-Mail Alert Types

- Space Status** Select an interval in hours and minutes to have a status of space remaining on the drives e-mailed.
- A Volume Is Full** An alert will be sent when the hard drive is full.
- A Hard Drive Has Failed** An alert will be sent if a critical error occurs on one of the drives.
- The Administrator Password Change** An alert will be sent if the admin password is changed.
- Firmware has been Upgraded** An alert will be sent if the firmware is upgraded.
- System Temperature Exceeded** An alert will be sent if the DNS-321 device temperature exceeds the set threshold. After the alert has been sent, the DNS-321 will power off for safety.

**ALERT TYPES :**

- Space Status Interval:  (Hours)  (Minutes)
- A Volume Is Full
- A Hard Drive Has Failed
- The Administrator's Password Has Been Changed
- Firmware Has Been Upgraded
- System Temperature Has Exceeded   °F

Enabling this feature will cause the DNS-321 to shut down after the selected temperature is exceeded and an e-mail is sent.

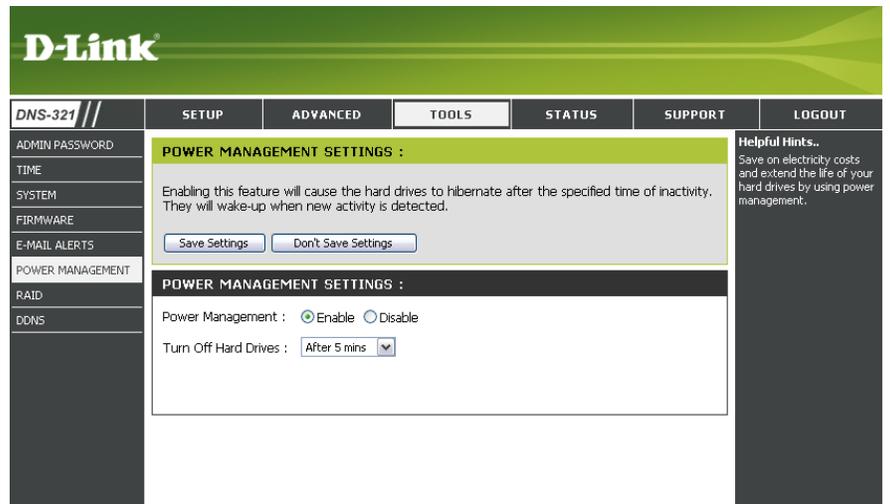
## Power Management

The DNS-321 Power Management feature allows you to configure the drives to shut down while power remains constant to the device. The drives will power up again when data is accessed.

**Power Management** Enable or Disable Power Management on the DNS-321.

**Turn off Hard Drives** Set the amount of idle time before the drives will shut down.

Click **Save Settings** to activate and save your changes.

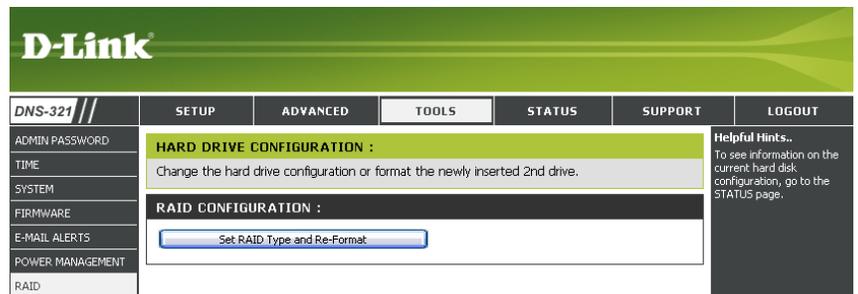


## RAID

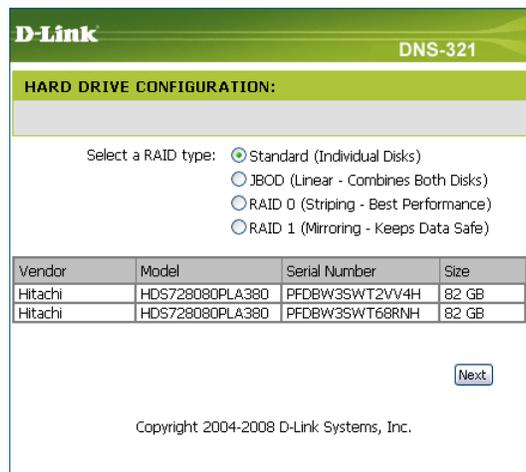
The DNS-321 supports four different disk configuration types: **Standard**, where each drive is a unique volume, **JBOD**, which combines both drives in a linear fashion to create one volume, as well as **RAID 0** and **RAID 1**.

**RAID Settings** Click **Set RAID Type and Re-Format** to change the current drive configuration.

All data will be lost on your hard drives when changing the drive configuration.



A pop-up window will appear with the drive configuration options:



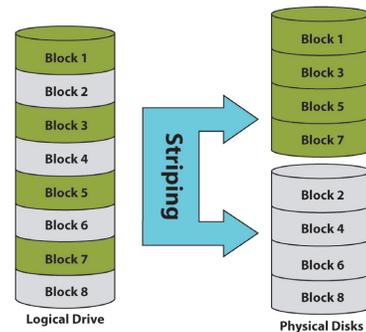
## What is RAID?

RAID, short for Redundant Array of Independent Disks, is a combination of two or more disks with the aim of providing fault tolerance and improving performance. There are several different levels of RAID, with each providing a different method of sharing or distributing data amongst the drives. The DNS-321 supports RAID levels 0 and 1.

**RAID 0** RAID 0 provides *data striping*, which spreads out blocks of data over both drives, but does not provide data redundancy.

Although performance is improved, the lack of fault tolerance means that if one drive fails, all data in the array will be lost.

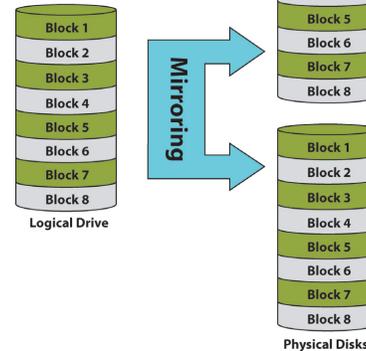
### RAID 0



**RAID 1** RAID 1 provides *mirroring* over both disks, with the same read/write speed of a single disk. A RAID 1 array can only be as large as its smallest member disk.

Because the data is stored on both disks, RAID 1 provides fault tolerance and protection, in addition to performance advantages.

### RAID 1



## DDNS

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your domain name to connect to your server regardless your IP address.

- DDNS** Select **Enable** or **Disable**.
- Server Address** Enter the DDNS server address or select from the drop-down menu.
- Host Name** Enter your DDNS host name.
- Username or Key** Enter your DDNS username or key\*.
- Password or Key** Enter your DDNS password or key\*.
- Verify Password or Key** Re-enter your password or key\*.
- Timeout** The time between periodic updates to the Dynamic DNS. The timeout period is measured in hours
- Status** Displays your DDNS status.

The screenshot shows the D-Link web interface for a DNS-321 device. The main navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, SUPPORT, and LOGOUT. The left sidebar lists various system settings like ADMIN PASSWORD, TIME, SYSTEM, FIRMWARE, E-MAIL ALERTS, POWER MANAGEMENT, RAID, and DDNS. The main content area is titled 'DDNS SETTINGS' and contains the following information:

**DDNS SETTINGS :**  
 The Dynamic DNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your host name to connect to your game server no matter what your IP address is.  
[Sign up for D-Link's Free DDNS service at www.DLinkDDNS.com.](http://www.DLinkDDNS.com)

**DDNS SETTING :**

DDNS	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Server Address	<input type="text"/> << <input type="button" value="Select Dynamic DNS Server"/>
Host Name	<input type="text"/> (e.g.: me.mydomain.net)
Username or Key	<input type="text"/>
Password or Key	<input type="text"/>
Verify Password or Key	<input type="text"/>
Timeout	<input type="text" value="576"/> (hours)
Status	Disconnected

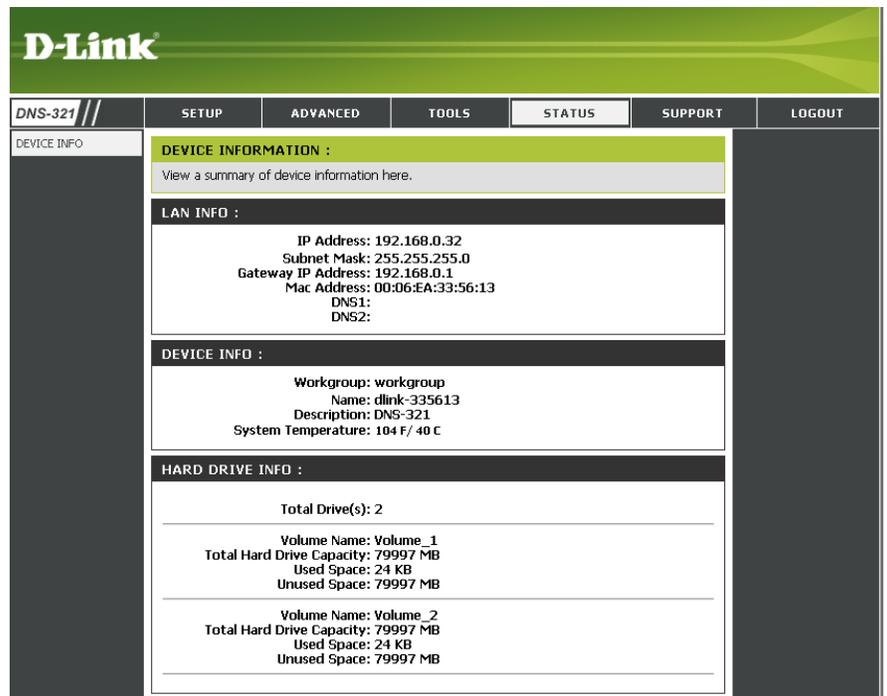
On the right side of the page, there is a 'Helpful Hints...' section with the text: 'To use this feature, you must first have a Dynamic DNS account from one of the providers in the drop down menu.'

\* If a key is provided and utilized by your DDNS provider, enter the key in all three fields (username, password, and verify password).

# Status

## Device Information

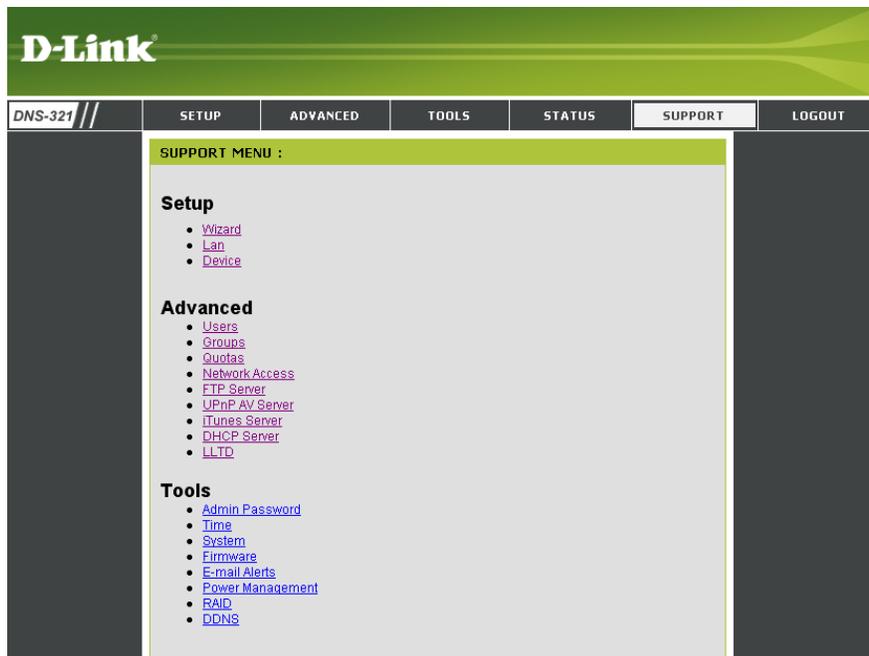
- LAN Info** Displays the local network settings of the DNS-321.
- Device Info** Displays the workgroup, name, description and current temperature of the DNS-321.
- Hard Drive Info** Displays the hard drive information, including the disk mode, total size, used and remaining drive space.



D-Link						
DNS-321	SETUP	ADVANCED	TOOLS	STATUS	SUPPORT	LOGOUT
DEVICE INFO	<b>DEVICE INFORMATION :</b>					
	View a summary of device information here.					
	<b>LAN INFO :</b>					
	IP Address: 192.168.0.32 Subnet Mask: 255.255.255.0 Gateway IP Address: 192.168.0.1 Mac Address: 00:06:EA:33:56:13 DNS1: DNS2:					
	<b>DEVICE INFO :</b>					
	Workgroup: workgroup Name: dlink-335613 Description: DNS-321 System Temperature: 104 F/ 40 C					
	<b>HARD DRIVE INFO :</b>					
	Total Drive(s): 2					
	Volume Name: Volume_1 Total Hard Drive Capacity: 79997 MB Used Space: 24 KB Unused Space: 79997 MB					
	Volume Name: Volume_2 Total Hard Drive Capacity: 79997 MB Used Space: 24 KB Unused Space: 79997 MB					

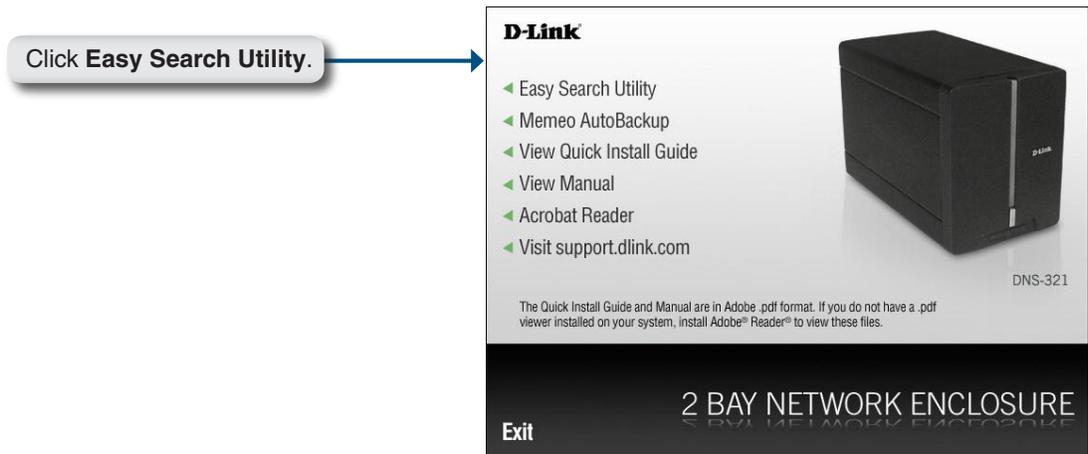
# Support

The DNS-321 Support page provides a menu of Support topics explaining the features of the device.



## Mapping a Drive

You can use the D-Link Easy Search Utility to map drives to your computer. Insert the DNS-321 CD into your CD-ROM drive.



The Easy Search Utility will load and detect any DNS-321 devices that are on the local network. If the DNS-321 you are working with does not show up in the device list, click **Refresh**.

If the DNS-321 you are working with does not show up in the device list, click **Refresh**.

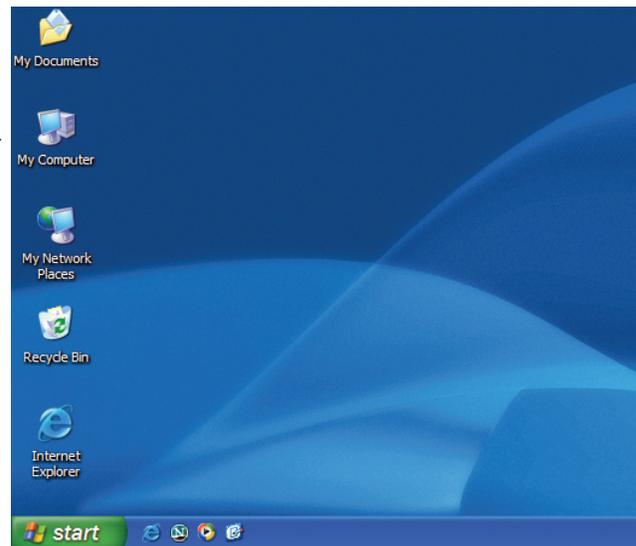
The screenshot shows the 'D-Link Easy Search Utility' window. It is divided into three main sections: 'Network Storage Device', 'LAN', and 'Drive Mapping'.  
1. **Network Storage Device:** A table lists available devices. One device is highlighted: 'dlink-AD04C1' with IP '192.168.0.32', Netmask '255.255.255.0', and Gateway '192.168.0.1'. To the right of the table are buttons for 'Refresh', 'Configuration', and 'Language'.  
2. **LAN:** Fields for IP, Netmask, and Gateway are shown with their respective values. A 'Receive DHCP' dropdown is set to 'Enable'. An 'Apply' button is at the bottom right.  
3. **Drive Mapping:** A table lists 'Volume\_1' and 'Volume\_2'. To the right is an 'Available Drive Letters' dropdown menu with 'E:' selected. 'Connect' and 'Disconnect' buttons are below it.  
Callouts with arrows point to: 'Refresh' (from 'Highlight an available DNS-321.'), 'Volume\_1' (from 'Available volumes will be displayed under Drive Mapping. Highlight the volume you want to map.'), and 'Connect' (from 'Select an available drive letter from the drop-down menu and click **Connect**.').

Once connected, your mapped drive(s) will appear in **My Computer**.

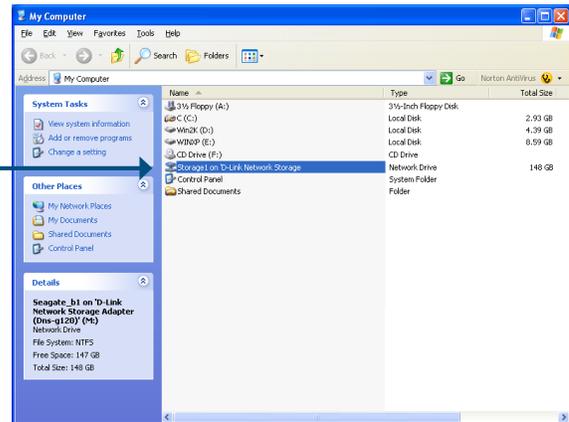
## Section 3 - Configuration

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Double-click the **My Computer** icon on your desktop.



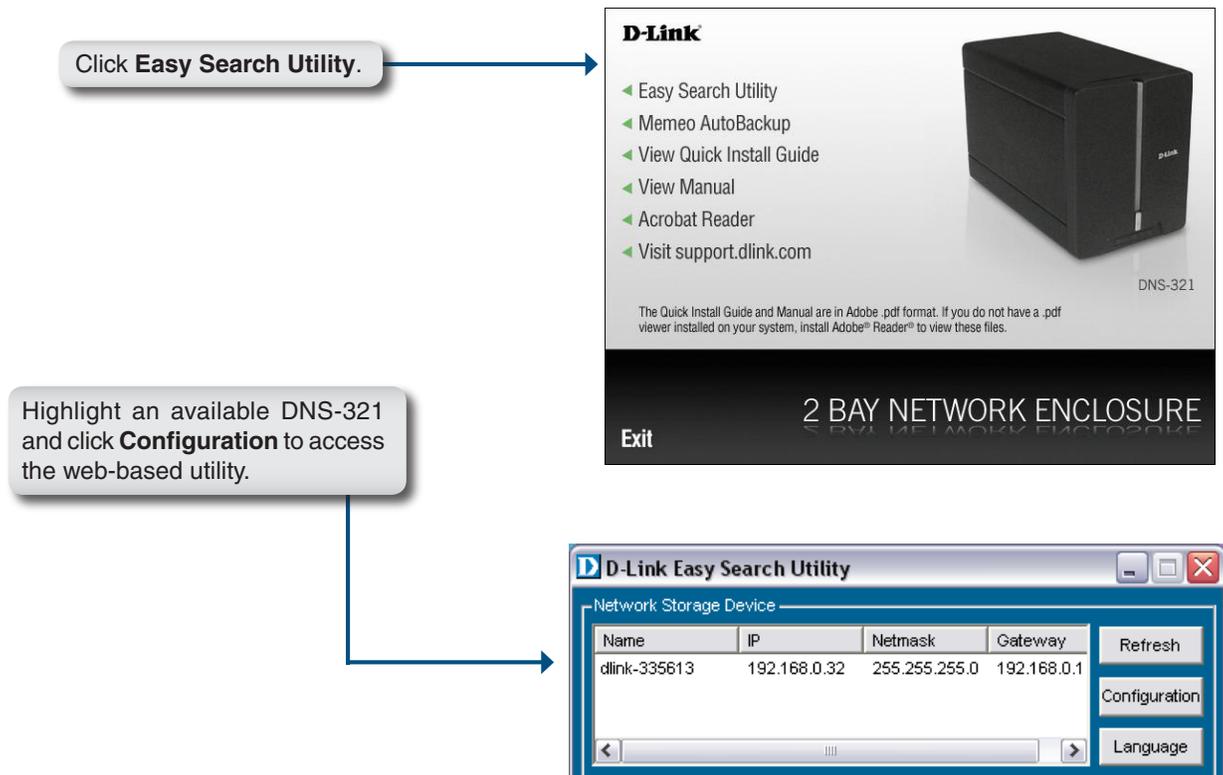
Double-click on the mapped drive to access the files and folders.



## Download Scheduling

The DNS-321 Download Scheduling feature allows you to schedule folder or file downloads and backup sessions.

Begin by accessing the configuration page of the DNS-321:



The DNS-321 login screen will appear:



The DNS-321 Download Scheduling configuration page will appear.

## Schedule Downloads

**Scheduling Settings** Configure download and backup schedules here.

**Schedule List** The Schedule List will display all completed, active, and pending scheduled downloads and backups.

The screenshot shows the D-Link DNS-321 web interface. At the top, there is a green header with the D-Link logo. Below the header, there is a navigation bar with tabs for "DNS-321 //", "SCHEDULE DOWNLOADS", "STATUS", "SUPPORT", and "LOGOUT". The main content area is divided into two sections: "SCHEDULING SETTINGS" and "SCHEDULE LIST".

**SCHEDULING SETTINGS :**

Schedule downloads of files and folders from an FTP server, web server, or local network share.

Save Settings Don't Save Settings

**SCHEDULING SETTINGS :**

Login Method:  Account  Anonymous

User Name: \*\*\*\*\*

Password: \*\*\*\*\*

Type: File

URL: [Text Field] Test Local

Save To: [Text Field] Browse

When: Date: 01 / 09 / 2001

Time: 13 : 33

Recurring Backup: None 00 : 00

Incremental Backup (Only for local backup)

**SCHEDULE LIST :**

Status	Download Path	Save To	Time	Del
Refresh				

**Helpful Hints...**  
Always test the URL before applying changes. This will help to ensure a successful download.

## Scheduling Settings

**Login Method** Select the appropriate login method to access the files for download. If the site requires login credentials, select Account and enter a valid username and password.

**Type** Select **File** or **Folder**, depending on what you want to download or backup.

**URL** Enter the URL of the site or server you are initiating a transfer from.

E.g. ftp://123.456.789/Test  
ftp://123.456.789/test.txt  
http://www.test.com/test.txt

**Test** Click **Test** to test if the URL is valid, and the user name and password are correct.

**Local** Click **Local** to set the source file or folder from one of the internal drive volumes. Browse the file or folder, and click **OK** to accept the network path.

**Save To** Enter a valid destination drive on the DNS-321, or click **Browse** to select the destination.

**When** Enter the date and time you want the scheduled backup or download to initiate.

**Recurring Backup** Designate the interval and time you want the backup or download to run unattended.

**Incremental Backup** By default all local backups and file/folder downloads are in Overwrite mode, meaning that identical files in the destination folder will be overwritten by the source files. Checking **Incremental Backup** will have the DNS-321 compare identical file names at the source and destination. Files will only be overwritten if the source file is more recent.

**SCHEDULING SETTINGS :**

Login Method  Account  Anonymous

User Name

Password

Type

URL

Save To

When Date :   /

Time :  :

Recurring Backup   :

Incremental Backup (Only for local backup)

# Replacing or Adding a New Hard Drive

It is recommended that you backup your important files before replacing or adding a new hard drive to the DNS-321.

## **Replacing a Hard Drive:**

Please make sure the power is off before replacing a hard drive. After you have installed the new drive, turn on the DNS-321 and then connect to the Web UI. The DNS-321 will prompt you to format the new drive (Standard, RAID 1 mode) or both drives (JBOD, RAID 0 mode).

## **Adding a New Hard Drive:**

The DNS-321 is able to work with one single hard drive under Standard mode. Please make sure the power is off before installing a second hard drive.

After you have installed the new drive, turn on the DNS-321 and then connect to the Web UI. The DNS-321 will prompt you to format the new drive.

**Note: Formatting a hard drive will erase the data stored on the hard drive. Please backup important data before formatting a hard drive.**

# Contacting Technical Support

U.S. and Canadian customers can contact D-Link technical support through our web site or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DNS-321)
- Hardware Revision (located on the label on the bottom of the device (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the device).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

## For customers within the United States:

**Phone Support:**  
(877) 453-5465

**Internet Support:**  
<http://support.dlink.com>

## For customers within Canada:

**Phone Support:**  
(800) 361-5265

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Version 2, June 1991

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- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

## **Limited Warranty:**

D-Link warrants that the hardware portion of the D-Link product described below (“Hardware”) will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below (“Warranty Period”), except as otherwise stated herein.

- Hardware (excluding power supplies): One (1) year
- Free Technical Support - Basic Installation: Ninety (90) days

The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

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**Non-Applicability of Warranty:**

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**Submitting A Claim:**

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization (“RMA”) number by completing the RMA form and entering the assigned Case ID Number at <https://rma.dlink.com/>.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the product and will not ship back any accessories.
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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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# Registration



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Version 1.0  
March 20, 2008