

User Manual

LS-WTGL/R1 LinkStation Pro Duo

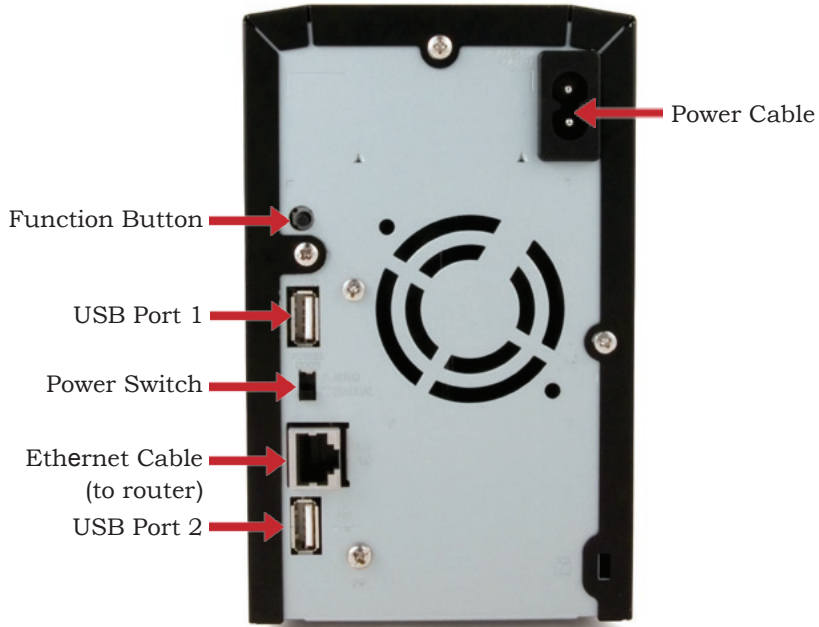


Congratulations on your new LinkStation Pro Duo. This user manual is intended to assist you in configuring it.

Because we're constantly updating our products, the images and text in this manual may vary slightly from the images and text displayed by your LinkStation. These changes are minor and should not affect the ease of setup adversely. As time passes, future user interfaces, updated software, and later versions of this manual may be freely available for download at our web site *www.buffalotech.com*.

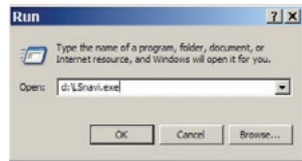
If you run into difficulties or need additional help, feel free to contact our technical support. Contact information for Buffalo Technology and our technical support is available on pages 66 and 67.

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Insert the LinkNavigator CD into your computer's CD-ROM drive.

On a PC, setup should automatically launch. If it does not, manually launch `setup.exe` by pressing *Start* and selecting the *Run...* option. When the *Run* dialog opens, type **d:\LSnavi.exe** (where d is the drive letter of your CD-ROM drive). Press *OK* to continue.



If you are installing the software on a Mac, open the CD and click *LinkNavigator* to begin installation.





Press the *Begin Installation* button to begin.

If you're installing on a PC, click on *Easy Setup* (the pink, upper button). Mac users can skip this step.

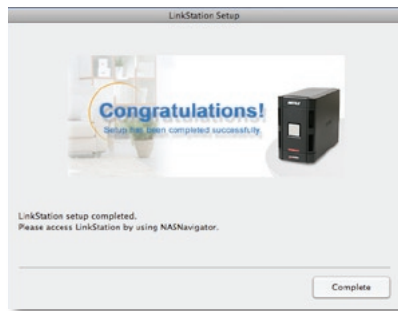
Click *Next* to step through the installation.





The wizard will step you through installation. Follow the directions on each screen and continue pressing *Next* to step through the installation.

When installation is complete, you may close the installation window.





Power Mode

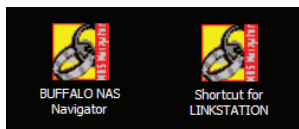
The “Power Mode” switch on the back of the unit has three positions: “Auto”, “On”, and “Off”. The “Auto” position automatically powers the unit on or off based with your PC. If your PC is turned on the LinkStation will power up; if the PC is turned off the LinkStation will power down.

You must have installed the NAS Navigator software on your PC for this feature to work. Otherwise, if you move the switch to “auto”, your unit will power down by itself and you will have to manually turn it back on.

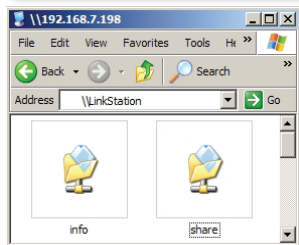
Also note that the unit needs to be powered on if you want to use the Web Access feature. When using Web Access, it is best to leave the Power Mode switch set to “On”.

Move the switch to the “Off” position to turn the LinkStation off. It will take about 35 seconds to shut down. Do not unplug or interrupt power to the unit until shutdown is complete and all LEDs are off.

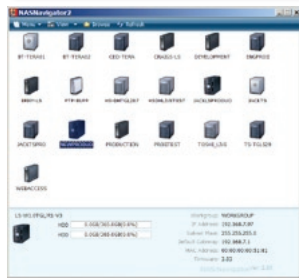
Using your LinkStation with a Windows PC



Two new icons will be on your desktop: *Shortcut for LinkStation* and *Buffalo NAS Navigator*.



Clicking *Shortcut for LinkStation* takes you directly to the folders on your LinkStation. *Share* is the main folder that you can put files and folders in. *Info* contains a copy of your user manual.

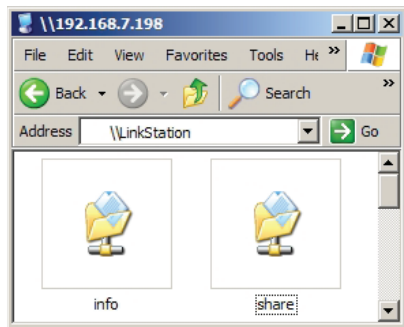


The *Buffalo NAS Navigator* icon opens the LinkStation's client utility. Turn to page 62 for more on using the NAS Navigator client utility.

Accessing LinkStation Data from your PC

To Access LinkStation Data from a PC:

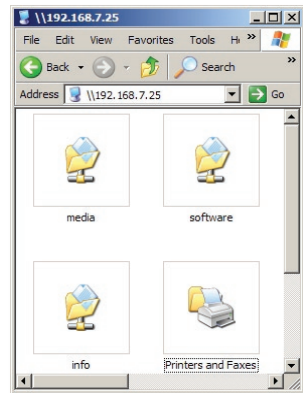
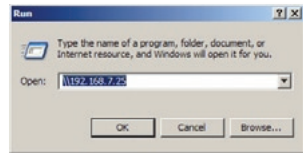
Your LinkStation uses “shares” (folders) to hold data. A share called “share” is already configured on your LinkStation, and you can create additional shares in *Shared Folders*. To start using your LinkStation, you can either click on the *Shortcut for LinkStation* on your desktop, or you may just use *drive L* in My Computer, which setup has mapped to the default share in your LinkStation.



Accessing LinkStation Data from your PC

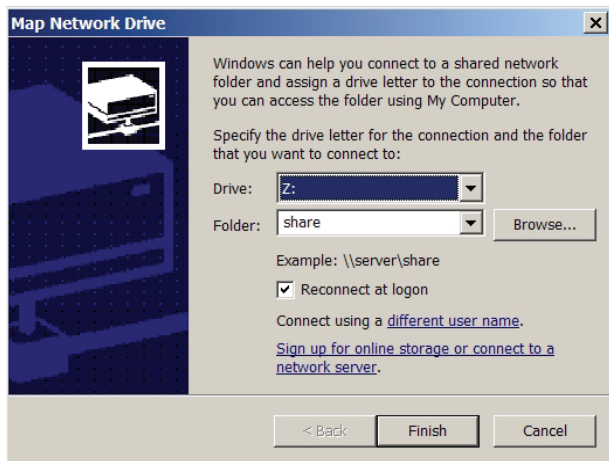
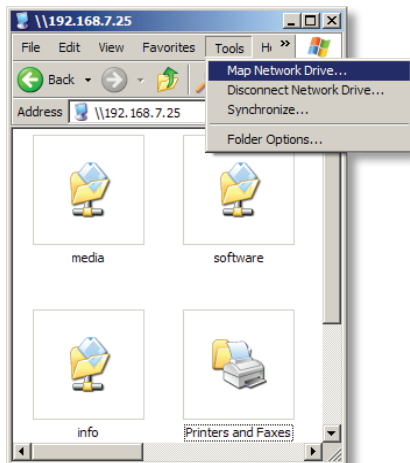
You can map additional drive letters to shares on your LinkStation. From the *Start* menu, select *Run....* Enter your LinkStation's hostname (if you don't know it, you can get it from the NASnavigator utility) or IP address. Press *OK*.

Your LinkStation should open. "Share" is a data folder in your LinkStation by default. "Info" contains your user manuals. If you have created other folders, they will be visible here too. You can map drive letters to any of these folders.

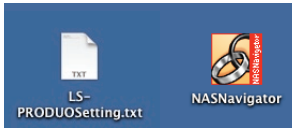


Accessing LinkStation Data from your PC

From the *Tools* pull-down menu, select *Map Network Drive*. Choose a drive letter from the *Drive:* pull down menu. To specify the folder to map, either find it with *Browse* or enter **\\LinkStation_Name\share_name** in the *Folder:* field, where *LinkStation_Name* is your LinkStation's hostname (page 21) and *share_name* is the name of a folder on your LinkStation. Check the *Reconnect at logon* checkbox to have Windows connect to this mapped drive everytime it starts. When finished, press the *Finish* button. Your share is now mapped to a drive letter.

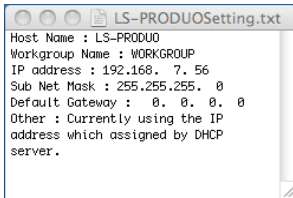


Using your LinkStation with a Mac



After installing the LinkNavigator software, your Mac will have two new icons on the desktop.

The *LS-ProDuoSettings.txt* file contains the IP address of your LinkStation. *NAS Navigator* is the LinkStation's client utility.



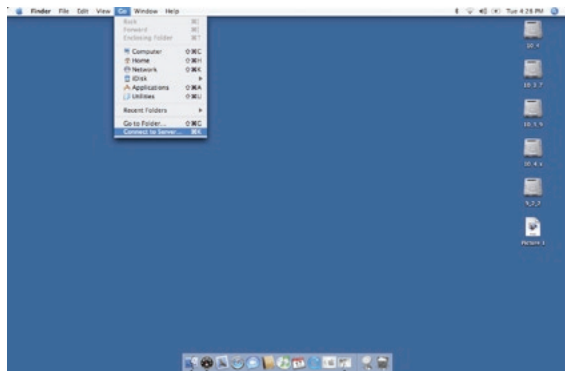
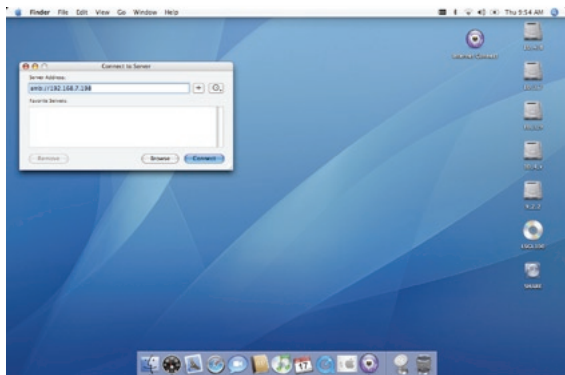
With the information in the *LS-ProDuoSettings.txt* file, you can easily connect to the LinkStation from any of your computers on your local network.



The *NAS Navigator* icon opens the LinkStation's client utility. See page 64 for more on using the NAS Navigator client utility.

Accessing LinkStation Data from a Mac

You can add a link to your LinkStation's share folder to your desktop by adding it to the Mac's server list. Begin by clicking *Go*, and then choose *Connect to Server*.



In the *Server Address* field, enter your LinkStation's IP address in the form *smb://ipaddress* (where "ipaddress" is your LinkStation's IP address), and click *Connect*.

You can get your LinkStation's IP address from the *LS-ProDuoSettings.txt* file on your desktop, or see page 16.

Accessing LinkStation Data from a Mac

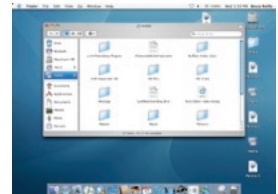
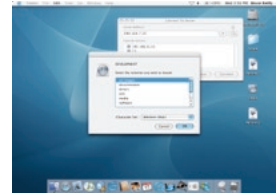
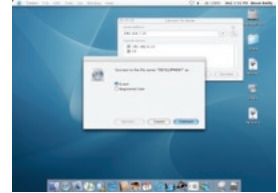
Select *Guest* and click on *Connect*. Note: If you have configured share permissions on your LinkStation, select *Registered User* and enter your login credentials.

Select the volume that you want to mount, such as *share* or *share-mac*, from the list of folders on the LinkStation.

The share will open. A link to it



will appear on your desktop.



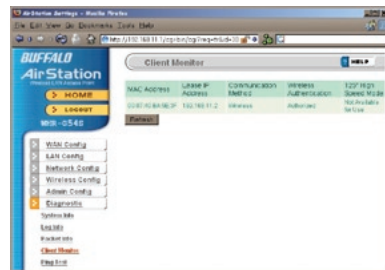
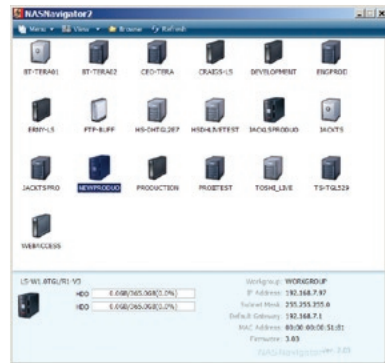
Accessing LinkStation Data from a Mac

If you don't know your LinkStation's IP address, there are several ways to get it.

One simple method is to use the NAS Navigator client utility (included on your CD) to find your LinkStation(s). Just click on the icon for your LinkStation and you'll be able to read its IP address.

The *LS-ProDuoSettings.txt* file on your desktop contains the IP address of the linkstation at the time that the setup program was run.

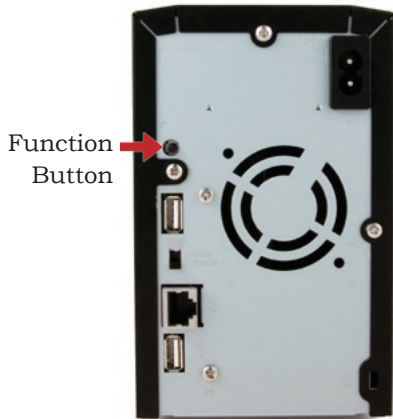
You can always get the LinkStation's IP address from your router's configuration utility. Many Buffalo routers list this information on the *Client Monitor* page, as shown to the right. Consult your router's documentation for instructions on identifying the LinkStation's IP address.



LinkStation Pro Duo has two USB 2.0 ports on the rear. This port can be used for adding an external USB Hard Drive or a USB Printer. LinkStation will share connected USB devices, allowing everyone on the network to use them. To connect a USB hard drive to your LinkStation, simply plug it into the USB port.

Once your USB hard drive is connected, see page 28 for configuring your LinkStation to use it.

To configure a USB printer, see page 43.



The Function Button has several functions.

You can copy digital media files directly to the LinkStation Mini from a USB storage device, such as a digital camera, USB flash drive, or external hard disk.

1. Connect your USB device to one of the USB ports on the LinkStation. The Function LED will glow solid blue for 60 seconds.
2. While the Function LED is still glowing blue, press the function button.

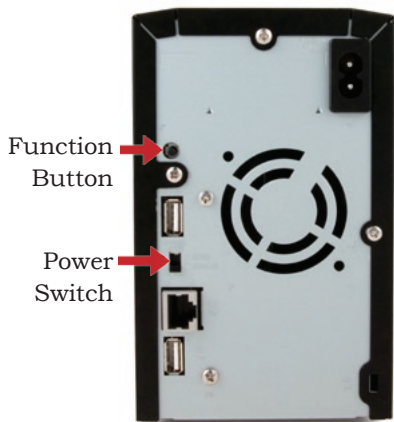
The following folder is created automatically:

DirectCopy/pictures/yyyymdd

where *yyyy* is the year, *mm* is the month, and *dd* is the day.

The following filetypes will be copied for USB MSC devices:

avi, divx, asf, mpg, mpe, m1v, vob, mts, m2ts, m2t, mpeg, mpeg2, vdr, spts, tp, ts, 3gp, mov, m4v, wmv, dvr-ms, xvid, mp4, m4v, jpg, jpeg, gif, png, tif, tiff, yuv, bmp, mp3, mpa, wma, aac, apl, ac3, lpcm, pcm, wav, m3u, m4a, mp4, m4b, aif, aiff, flac, ogg, mp2, mp1, mp4. If the USB device doesn't follow the USB MSC standard, then all files will be copied.



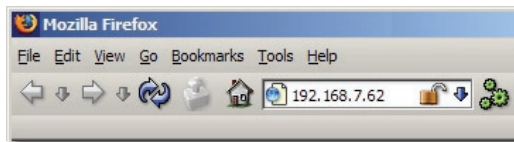
Initialization - You can easily bring your LinkStation back to factory settings with the following steps.

1. Move the power switch to the 'Off' position. The LinkStation will shut down after about 90 seconds.
2. While holding down the function button, move the power switch to the 'On' position. The function LED on the front of the LinkStation will begin to flash blue.
3. While the Function LED is still flashing, hold down the function button for six seconds.

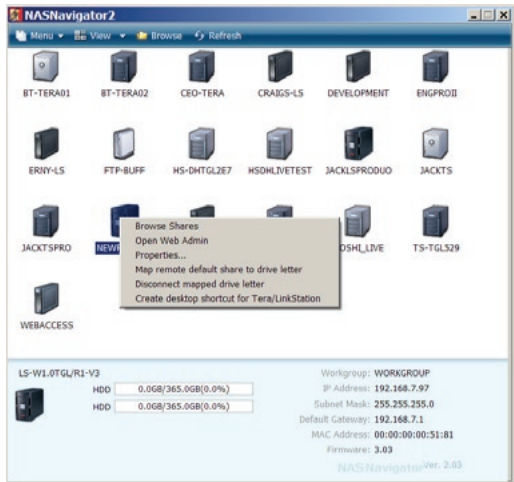
Dismount - Before disconnecting USB devices from the LinkStation, they should be dismantled. Hold the function button down until the function LED glows blue, and then turns off. It's now safe to unplug your USB device.

Note: Unplugging USB devices without dismantling them first may corrupt your data!

The Configuration GUI

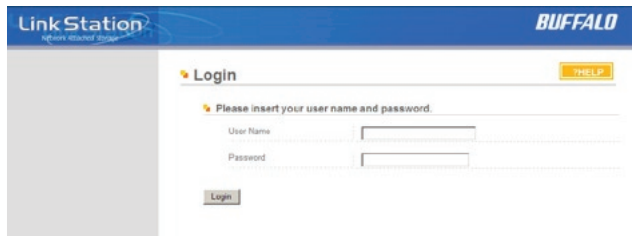


The Configuration GUI may be accessed at any time by typing the IP address of your LinkStation into the URL bar of a browser running on a computer connected to the same network as the LinkStation.



You may also open the Configuration GUI from NAS Navigator by right-clicking on your LinkStation and choosing *Open Web Admin*.

This login prompt will appear. Enter **admin** for the user name. Until you change it, the password for the admin account will be **password**. Press the *OK* button when finished.



The screenshot shows the Buffalo Link Station login interface. At the top left is the 'Link Station' logo with the tagline 'Network Attached Storage'. At the top right is the 'BUFFALO' logo. Below the logos is a 'Login' section with a yellow 'HELP' button. A message reads 'Please insert your user name and password'. There are two input fields: 'User Name' and 'Password'. A 'Login' button is located at the bottom left of the form area.

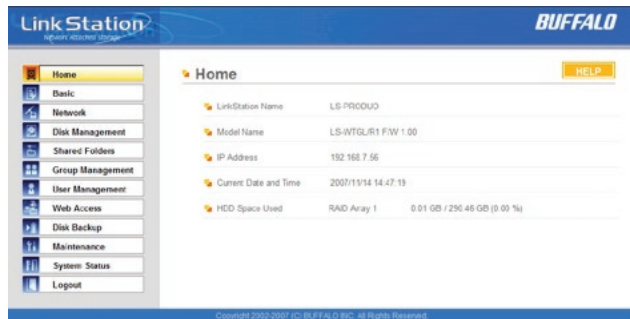
User name: *admin*

Password: *password*

See page 38 to change your password.

Welcome to *Advanced Settings*, the configuration GUI for the LinkStation! Bookmark this page in your browser so it can be easily accessed for future configuration changes. If the LinkStation's IP Address changes, you will need to recreate the link. You can also get here by typing `http://LinkStation_Name` into a Web browser, where `LinkStation_Name` is the name (hostname) of your LinkStation.

You are now at *Home*. Notice that the *Home* button is lit up in yellow. You can navigate this menu by clicking on the buttons at the left of the screen. Here at "Home", you can see basic information about your LinkStation's current configuration. You may close this screen by clicking *Logout* at the bottom left, or by just closing the browser window.



The screenshot displays the LinkStation Advanced Settings Home page. The interface features a blue header with the LinkStation logo and the Buffalo brand name. A vertical sidebar on the left contains a menu with the 'Home' option highlighted in yellow. The main content area, titled 'Home', displays the following configuration details:

LinkStation Name	LS-PRODD
Model Name	LS-WTGLR1 F/W 1.00
IP Address	192.168.7.56
Current Date and Time	2007/11/14 14:47:19
HED Space Used	RAID Array 1 0.01 GB / 290.45 GB (0.00 %)

A 'HELP' button is located in the top right corner of the main content area. The footer of the page contains the text: 'Copyright 2002-2007 (C) BUFFALO INC. All Rights Reserved.'

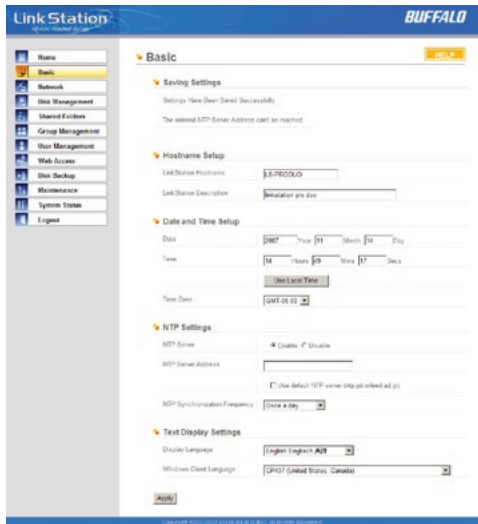
Basic

You may modify your LinkStation's hostname and description under *Hostname Setup*. A friendly, easy-to-remember name (e.g. "LinkStation") is recommended.

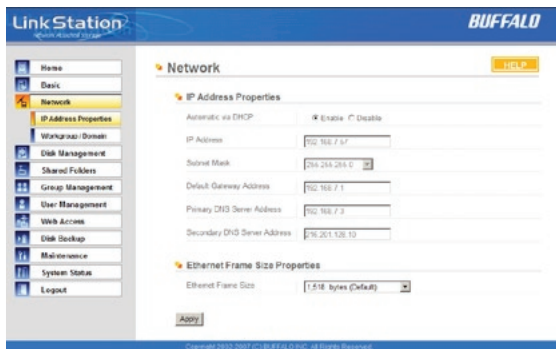
Make sure that the date and time are correct in *Date and Time Setup*. To synchronize time settings with those in your computer, press *Use Local Time*. To have your system time automatically set by an NTP server, enable *NTP Server* and enter an IP Address for an NTP server (e.g. 192.43.244.18) or use the supplied default NTP server.

Ensure that both the *Display Language* and the *Windows Client Language* are set to languages that you're comfortable with.

Once desired fields have been completed, press the *Apply* button.



Network (IP Address Properties)

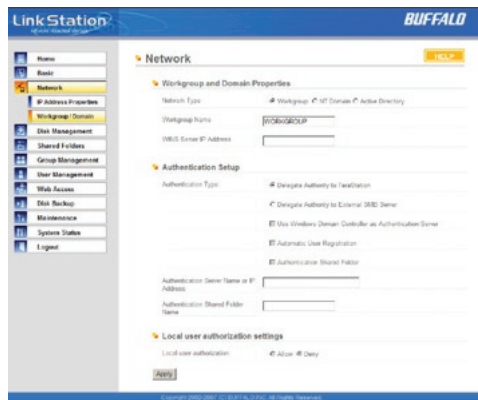


In most networks, LinkStation will get its IP Address automatically from a DHCP server. You may disable DHCP here. If DHCP is disabled and an IP Address is not set manually, it will default to *192.168.xxx.xxx* with subnet mask *255.255.0.0*. The LinkStation's *IP Address*, *Subnet Mask*, *Default Gateway Address*, and *DNS Server address* may all be entered manually under *IP Address Properties*.

Ethernet Frame Size may also be set manually on this page. Only use JumboFrame settings when operating in a Gigabit environment where all other clients support the same JumboFrame setting.

Click *Apply* after making any changes.

Network (Workgroup/Domain)



If you are unfamiliar with Domain/Active Directory networking, then please leave the *Network Type* selected as *Workgroup* and *Workgroup Name* set to *Workgroup*.

To make your LinkStation a member of a workgroup or an NT domain, enter the appropriate information into the fields on this page and click *Apply*.

If using *NT Domain* or *Active Directory*, LinkStation must be added as a member computer in the Domain Server.

Setting *NT Domain* or *Active Directory* for network type integrates the LinkStation with a server. The LinkStation Pro participates as a member device in the Domain and Active Directory networks, allowing the LinkStation to use Users and Groups that reside on the Domain or Active Directory System. If Active Directory is used, then the LinkStation will automatically receive update information

from the domain controller(s). To configure the LinkStation Pro on an Active Directory network, you must have the Domain Administrator login credentials. Enter the Domain Name and Domain Controller into the appropriate fields. In an Active Directory environment, check the Active Directory Domain checkbox and fill in the remaining fields. The Authentication Setup fields will be automatically filled out, so no input is needed there. Once you have finished, press *Apply*.

Disk Management (Drive Properties)

This page shows the properties for the drives in your LinkStation Pro Duo. If you have a USB hard drive plugged into the linkstation, its properties will appear here as well.

The screenshot shows the LinkStation Pro Duo web interface. The top navigation bar includes the LinkStation logo and the Buffalo logo. A left-hand navigation menu lists various settings categories, with 'Disk Management' selected. The main content area is titled 'Disk Management' and contains the following sections:

- RAID Array Information**

RAID Array 1	Status	Normal
	RAID Mode	RAID0
	Disk Structure	Disk 1, 2
	Total Capacity	605,262,336 kbytes (581.0z GB)
	Amount Used	8,300 kbytes (8.01 GB)
	Percent Used	0.30 %
	File Format	XPFS
- Disk Information**

Disk 1	Status	RAID Array 1
	Unit Name	S73320620A0
	Total Capacity	312,571,224 kbytes (298.01 GB)
Disk 2	Status	RAID Array 1
	Unit Name	S73320620A0
	Total Capacity	312,571,224 kbytes (298.01 GB)
- USB Disk Information**

USB Disk 1	Status	Not Detected
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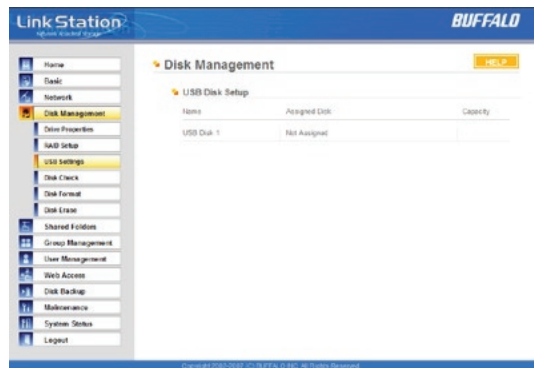
Disk Management (RAID Setup)

The screenshot shows the Buffalo Link Station web interface for RAID Setup. The left sidebar contains navigation links: Home, Basic, Network, Disk Management (selected), Drive Properties, RAID Setup (selected), USB Settings, Disk Check, Disk Format, Disk Erase, Shared Folders, Group Management, User Management, Web Access, Disk Backup, Maintenance, System Status, and Logout. The main content area is titled "Disk Management" and includes a "HELP" button. It is divided into three sections: "RAID Setup" with a table of RAID arrays, "RAID Scanning Setting" with radio buttons for RAID Scanning Function and checkboxes for RAID Scanning Schedule and RAID Scanning Start Time, and "RAID Array Error Detection Response" with radio buttons for Automatic Shutdown.

Name	RAID Mode	Disk Structure	Capacity
RAID Array 1	RADE	Disk 1, 2	801.18 GB

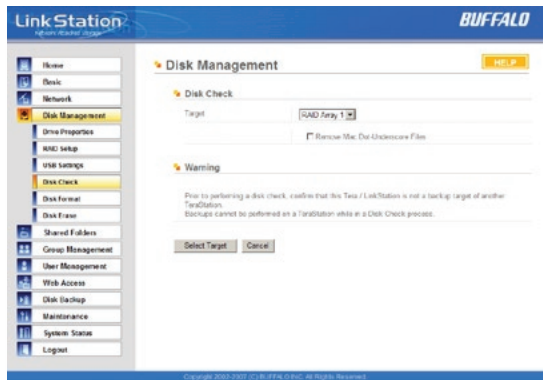
Configure your RAID settings here. To change the type of RAID array used, click on “RAID Array 1” under RAID Setup.

Disk Management (USB hard drives)



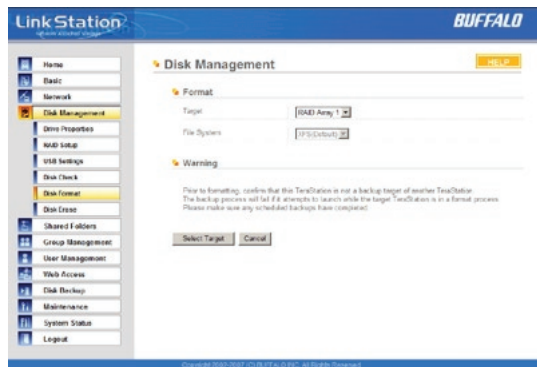
From here you can see your USB hard drive's system information. If the hard drives' information isn't displayed properly, try restarting your USB hard drives and then restarting your LinkStation. Some USB hard drives must be reformatted from within LinkStation before they can be assigned shares. Select *Disk Format* from the left-side menu to format your USB hard disk(s).

Disk Management (Disk Check)



Disk Check checks any of your hard drives for errors. To use *Disk Check*, select the disk that you want to check from the target pulldown and click *Select Target*. Then click on *Start Disk Check*.

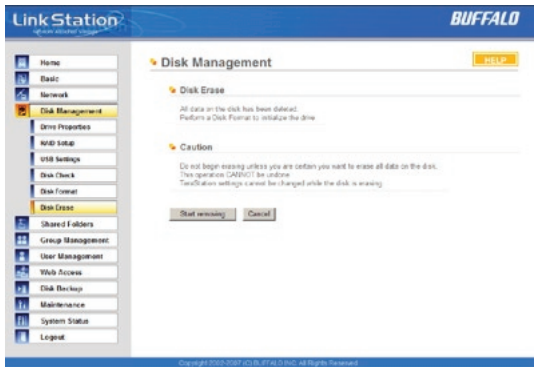
Disk Format



To format a hard drive or array, select it from the *Target Disk* drop box. Choose the file system desired from the *File System* dropdown (internal drives can only be formatted with XFS). Note that FAT32 has a 4 gigabyte filesize limit for individual files. If you choose FAT32 for your file system, you will not be able to store single files larger than 4 gigabytes on the drive. Use of the *XFS* or *EXT3* file systems is recommended. Press *Select Target Disk* when done, and then *Start format*.

Depending on the size of the target hard disk or array, a Disk Format may take several hours to complete. Performance will be slow during the disk format.

Disk Erase



To remove all data from a Disk, use *Disk Erase*. Once erased, this data cannot be restored.

Shared Folders

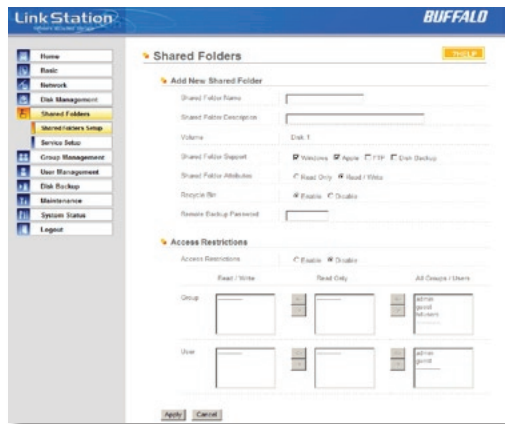
The screenshot shows the LinkStation web interface. The left sidebar contains a navigation menu with the following items: Home, Basic, Network, Disk Management, Shared Folders (highlighted), Shared Folders Setup (highlighted), Service Setup, Group Management, User Management, Web Access, Disk Backup, Maintenance, System Status, and Logout. The main content area is titled "Shared Folders" and includes a "HELP" button. Below this is the "Shared Folders Setup" section, which has a "Disk or Array" checkbox and a table of shares. The table has columns for "Shared Folder Name" and "Shared Folder Description". There are two rows of shares: one for "info" (TeraStation utilities) and one for "share" (TeraStation folder). At the bottom of the table are "Add" and "Delete" buttons. The footer of the page reads "Copyright 2002-2007 (C) BUFFALO INC. All Rights Reserved."

Shared Folder Name	Shared Folder Description
info	TeraStation utilities
share	TeraStation folder

To add new shares on your LinkStation, select *Shared Folders* from the left side menu, and then click the *Add* button under *Shared Folders Setup*.

To delete a share or shares, check the checkbox next to the shares you'd like to delete, and press the *Delete* button. Deleting shares will remove the share and erase all of the files and folders inside that share.

Adding a new Shared Folder



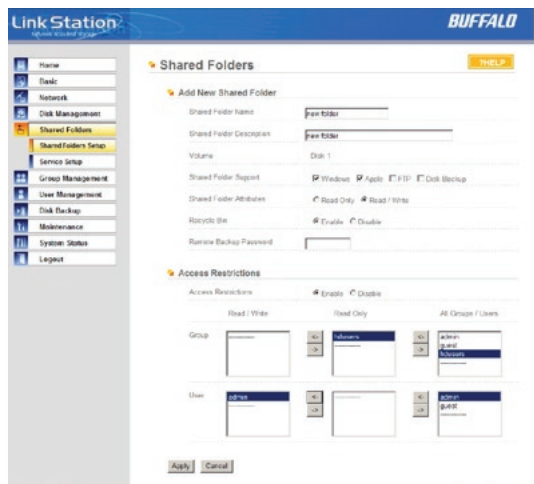
To add a new shared folder, enter a name for it in the *Shared Folder Name* box and choose which *Disk Space* it will reside in. You may also choose which operating systems and features the share will support by putting the appropriate checks next to *Shared Folder Support*, and whether the share supports the Recycle Bin by putting a selecting *Enable* or *Disable*. Enter a *Shared Folder Description* and a *Remote Backup Password* if desired. Click *Apply* to build the new shared folder.

Appletalk support is available for use with legacy Macs. Checking “Apple” by *Shared Folder Support* turns on AppleTalk, letting you use your LinkStation with older Macs. Note that Appletalk files are limited to 2GB maximum filesize and 32 characters for filenames. If a folder with AppleTalk

on is accessed from a modern OS through SMB, these limitations will not apply.

Remote Backup Password will set a password on this share for other LinkStations who want to use it as a remote backup target. This password will not affect users attempting to access the share; it only pertains to remote LinkStations trying to access this share for backup tasks.

Shared Folders (Access restrictions)

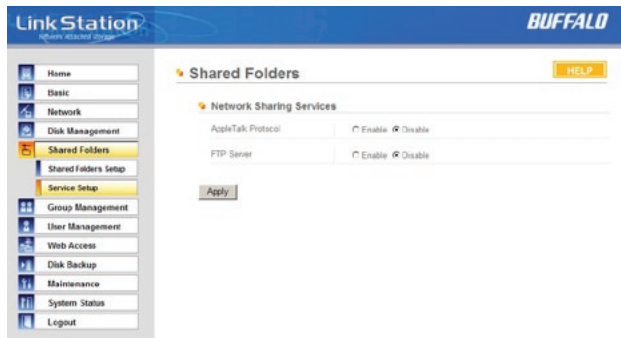


To use *Access Restrictions* for a share, select *Enable*.

Highlight groups or users in the *All Groups/ Users* column and use the left-pointing arrow buttons (located just to the left of each box) to move individual groups or users from the *All Groups/Users* column to the *Read Only* box (if you want to give them read access only) or all the way to the *Writable* box, if you want to give them full access to the share. Right-pointing arrows will move highlighted users or groups back to the right.

Click *Apply* when you have your groups and users in the appropriate boxes.

Shared Folders (Service Setup)

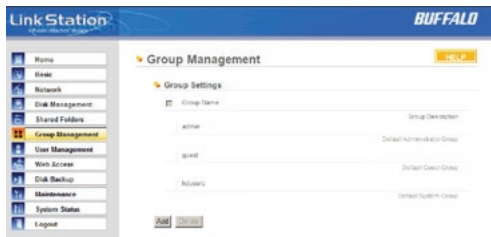


To allow FTP Access to your LinkStation, choose *Enable* for *FTP Server*. To enable legacy AppleTalk support, choose *Enable* for *AppleTalk Protocol*.

FTP Server Info: Enabling the FTP Server will allow users to connect to shares via FTP protocol. Their username and password is used for their login credentials, and they will only have access to shares that have read-only or writeable access to on the LinkStation. The network administrator of your network may need to enable traffic on port 21 to the LinkStation for FTP to work over the Internet.

Click the *Apply* button to set up these services.

Group Management



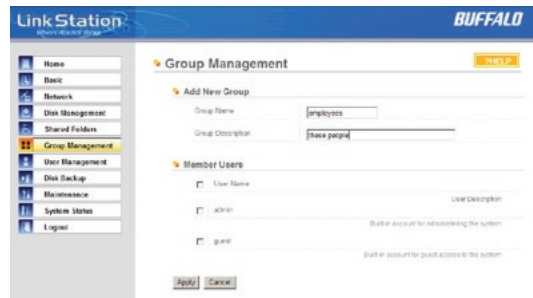
Groups allow for easier management of permissions in some networks, specifically networks with a lot of users in different departments.

To *Delete* a group, put a check next to its name and click *Delete*. To add a group to your LinkStation, click *Add*.

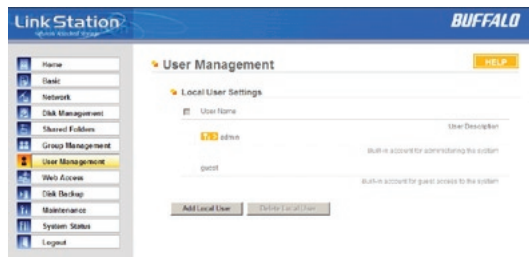
Add a name and a description to the *Add New Group* fields. Put checks next to each *Member User* that you want to be part of the group. Click *Apply* when your group is set up the way you want it.

Active Directory and Domain Groups are not shown here but are available under Share Management.

Members can be added or removed from a group at any time by editing the group. This is done by clicking on the Group name on the main Group Settings page.

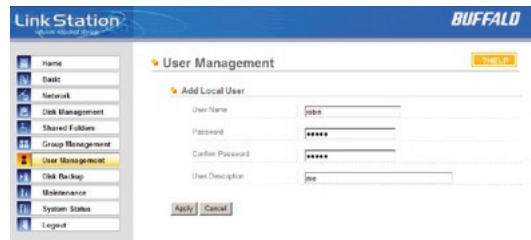


User Management

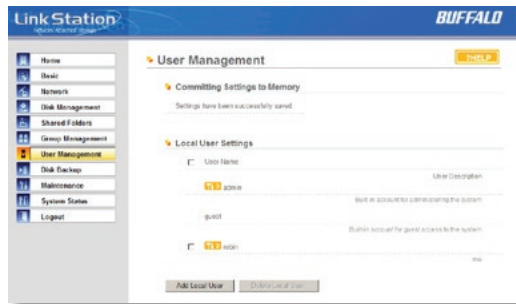


LinkStation is preconfigured with two users, *admin* and *guest*, out of the box. The *admin* and *guest* user accounts cannot be deleted. To delete any other user, put a check next to their name and click *Delete*. To add a new user, click *Add*.

The *Add New User* dialog will appear. Enter a *User Name*, *Password*, and *User Description* for the new user and click the *Apply* button. If a user will be accessing the LinkStation from a Windows 95/98 computer, their password should be 15 characters or less. Mac OS 8 and OS 9 users's passwords should be 9 characters or less. Users of other OSs may have passwords of up to 20 characters.

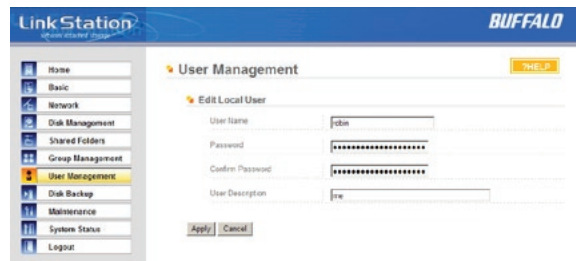


User Management (changing passwords)

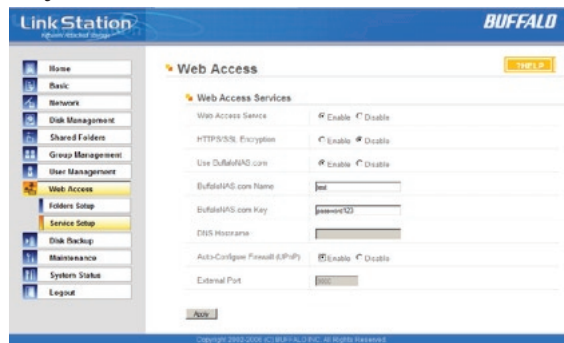


To change an account's password, click on the name of the account under *User Settings*. Note: if a user name and password are used to log into a user's windows computer or domain, the same user name and password should be used when creating the user's account on the LinkStation, or problems accessing shared folders may occur.

Enter the desired new password in both boxes and click *Apply*.



With Buffalo's WebAccess, you can access your LinkStation from anywhere in the world with an Internet connection. It's easy to access your files, or share them with other people, wherever they may be.



WebAccess is set up from within the Configuration GUI. First, select 'Web Access', and then 'Service Setup' from the menu on the left.

To use Webaccess, set 'Web Access Service' to *Enable*.

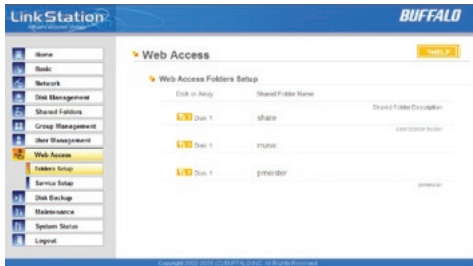
You may enable SSL Encryption if desired.


Using 'BuffaloNAS.com' is recommended. Otherwise, you'll have to manage your own DNS settings.

'Auto-Configure Firewall' is also recommended if your router supports UPnP (most do since 2001). If you choose not to enable this, you must manually configure your router and firewall to forward internal port 9000 to the Internet.

Choose a name for your BuffaloNAS account and a password ("key"). This name is the name that will be used to access your LinkStation and to share with your friends. The password for this protects other people from using it, so picking a strong password is recommended.

Click *Help* in the top right of the window for detailed information on each setting.



Select 'Folders Setup' in the left-side menu. Any shares on your LinkStation will appear on the list to the right. Click on the  icon beside it to select a share for web access.

Choose your desired level of Web Access from the 'Web Access Settings' dropbox:

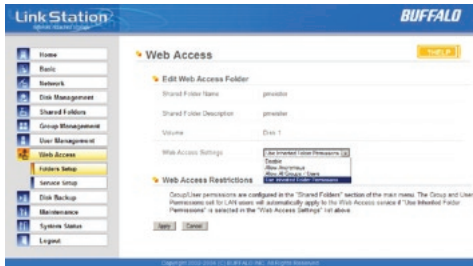
'Disable' will prevent remote access to this share through WebAccess. This is the default setting.

'Allow Anonymous' will allow *anyone* to access the share. Choose this if you want your LinkStation share and all files on it to be freely accessible by everyone.

'Allow All Groups/Users' will allow only people who have an account on the LinkStation to access this share remotely.

'Use Inherited Folder Permissions' will allow people with an account on the LinkStation to access the share remotely only if they have read permissions on the specific share that they're accessing.

Click the *Apply* button to save your changes.



To access your LinkStation remotely, open a browser window on any computer connected to the Internet and go to *buffalonas.com*.

In the dialog box, type the BuffaloNAS name that you set on page 37.

Alternately, you can go directly to your share by typing *BuffaloNAS.com/your_BuffaloNAS_name* in the URL window.

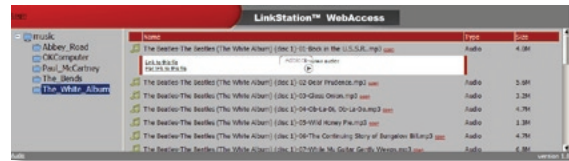
The folders from your LinkStation's share will appear. Files from anonymous shares will appear to the right. To see files from shares that are not set to anonymous, you will need to *log in*. The 'login' link is on the top left corner of the page.



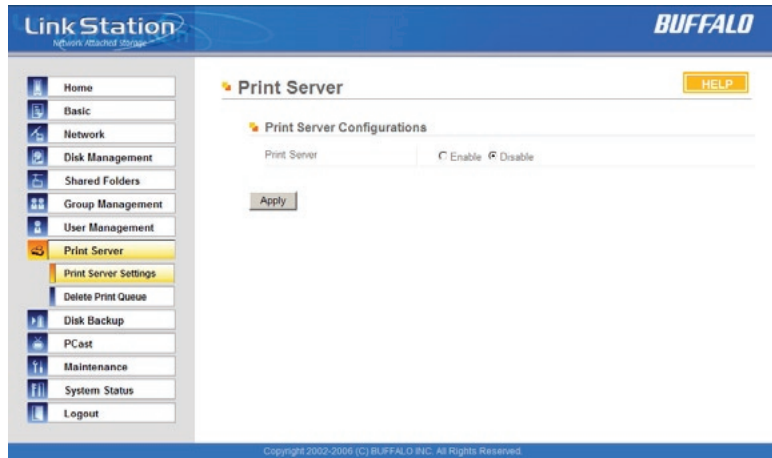


To access individual folders on the right, click on their *open* links.

Clicking on individual files will give you other options, depending on the filetype. Clicking on the *Audio* link at the bottom left corner of the page will give you options for playing music files, including the opportunity to launch a Flash-based music player that will stream your audio files directly through the Web interface.

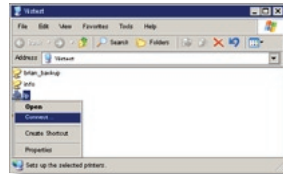
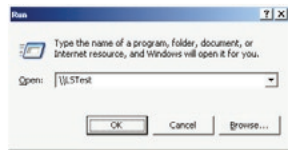


If a USB printer is plugged into your LinkStation, you can easily add the printer to any Windows PC on your network. Follow these steps for each PC that you want to be able to access the printer.

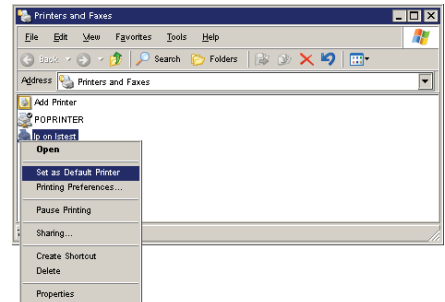
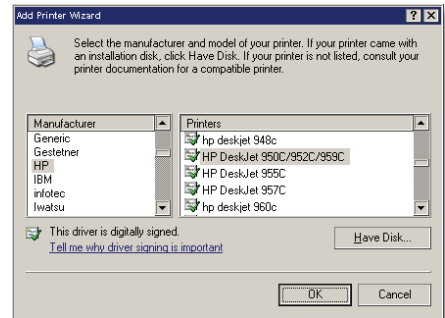


- To begin, enable the print server in the configuration GUI for your LinkStation.

- Access the LinkStation by pressing *Start*, selecting the *Run...* option, and entering `\\LinkStation_Name` (where `LinkStation_Name` is the DNS name of your LinkStation). Press the *OK* button when finished.
- Right click on the *lp* icon and select *Connect*.
- You may receive a warning about installing from a trustworthy source. If you receive this message, press *Yes* to continue.
- You will receive a warning that the server does not have the proper drivers. Press *OK* to continue.

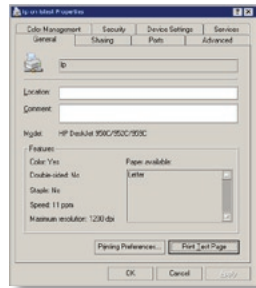
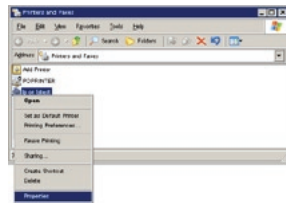


- The *Add Printer Wizard* will launch. Select the proper driver for your printer. If the specific printer is not in the list, you will be required to insert the CD that came with your printer into your PC's CD-ROM drive and press the *Have Disk* button. Refer to your printer documentation for further information on installing your printer if necessary. Press *OK* to finish.
- If *lp* is the only printer installed on the PC, then it will automatically be set as the default printer. If it's not the only printer, you may make it the default printer by clicking *Printers and Faxes* in Control Panel, right clicking on the *lp* printer icon and selecting the *Set as Default Printer* option from the *File* drop-down menu.

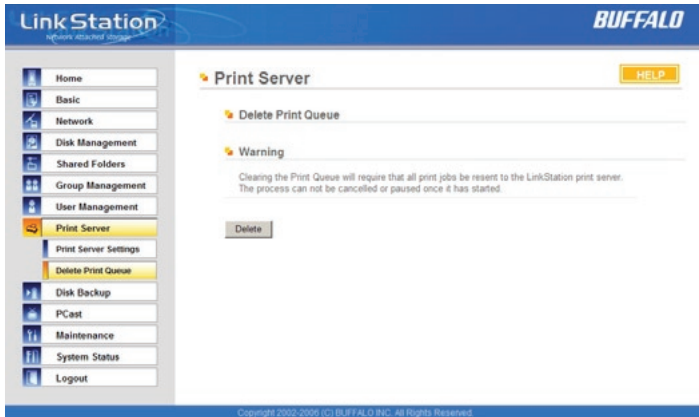


- To print a test page or configure additional printer settings, right click on the *lp* printer icon and select *Properties*. This will open the printer's driver properties page.
- Press the *Print Test Page* button to print a test page. You can also browse through the available settings for the printer. Please refer to the printer's documentation for more information on changing the printer's settings.

NOTE: The printer installation process can be done on any machine on your network. Multiple machines may print to the printer at the same time. Repeat this process on all computers that require access to the printer.



Print Server (Delete Print Queue)



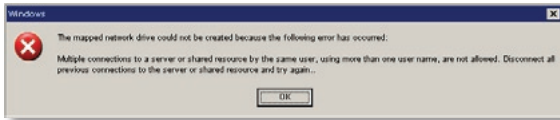
If a corrupt print job is sent to a printer, printing may suddenly fail. If your print jobs seem to be locked up, clearing the print queue may resolve the issue.

To delete the print queue, press the *Delete* button. This will clear all current print jobs. Users will have to re-send any incomplete print jobs to the printer.

If there are still problems printing to the printer, then check the printer manufacturer's documentation for troubleshooting information. Also, verify that the USB cable is securely fastened to both the printer and the

LinkStation. Finally, you may try turning the LinkStation off, turning the printer off, turning the printer back on, and then turning the LinkStation back on again.

Accessing Multiple Shares from a single PC

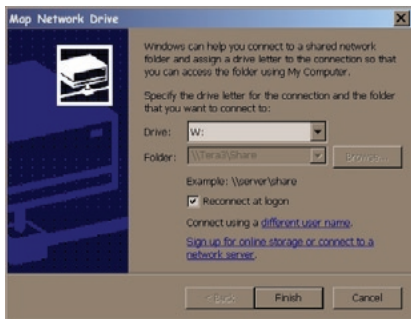


When accessing multiple shares to a Windows PC, you may see this error message.

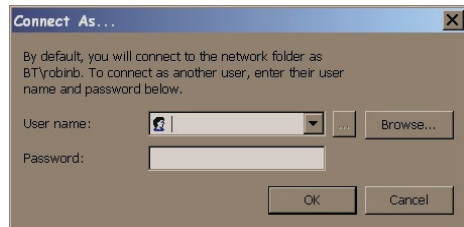
This is caused by having multiple shares to the same resource using different login credentials.

The error occurs when connecting to at least one secure, restricted share. Due to a constraint in Microsoft Windows, only one set of login credentials can access or map drive letters for a network resource such as the LinkStation. As such, only one username and password can be used while mapping drives to a PC. If unsecure, unrestricted shares are mapped and then an attempt to map a secure, restricted share is made from the same PC, this error will occur. To prevent this, you must create all mapped shares using the same login and password information. Please follow the steps on the next page to remedy this problem.

Mapping Multiple Shares

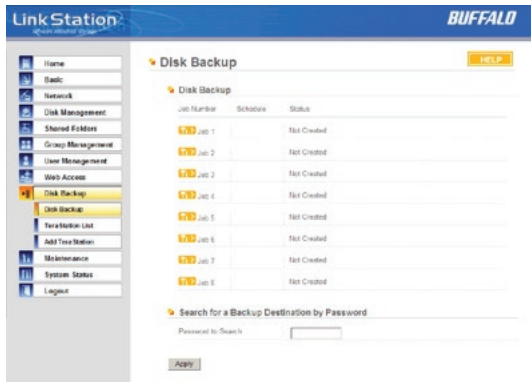


When mapping any share, select the *Connect using a different user name* option. A login and password prompt will appear. Use the username and password required by any secure, restricted shares for *all* shares. All mapped shares on a single PC must use the same username and password!



If only unrestricted shares are being mapped, then it's not necessary to set a username and password for shares. Multiple mapped drives to unrestricted shares can exist without a username or password as long as no restricted, secure shares are mapped. If an unrestricted share and a restricted share are both being mapped or accessed, use the restricted username and password for the unrestricted share login by using the *Connect using a different user name* option. This will allow a Windows PC to access both shares without any problems.

Disk Backup



The screenshot shows the Link Station Buffalo web interface. The left sidebar contains a navigation menu with the following items: Home, Basic, Network, Disk Management, Shared Folders, Group Management, User Management, Web Access, Disk Backup (highlighted), Disk Backup (sub-item), Termination List, Add Test Station, Maintenance, System Status, and Logout. The main content area is titled "Disk Backup" and features a yellow "HELP" button. Below the title is a section for "Disk Backup" containing a table with columns for Job Number, Schedule, and Status. The table lists eight jobs, all with a status of "Not Created". Below the table is a section titled "Search for a Backup Destination by Password" with a text input field labeled "Password to Search" and an "Apply" button.

Job Number	Schedule	Status
670 Job 1		Not Created
670 Job 2		Not Created
670 Job 2		Not Created
670 Job 4		Not Created
670 Job 5		Not Created
670 Job 5		Not Created
670 Job 6		Not Created
670 Job 7		Not Created
670 Job 8		Not Created

To create a backup job, click on a job number. The *Edit Backup Job* dialog will appear.

Disk Backup (Edit Backup Job)

Edit Backup Job

Job Number: Job 1

Backup Job Schedule: Not Scheduled Immediately Every day Every week

Backup Date:

Backup Time: Hour Minute

Encrypted Transfer: Enable Disable

Compressed Transfer: Enable Disable

Overwrite Backup: Enable Disable

Differential Backups

Backup Source and Destination Folders

Local Backup Shared Folder Destination Backup Shared Folder

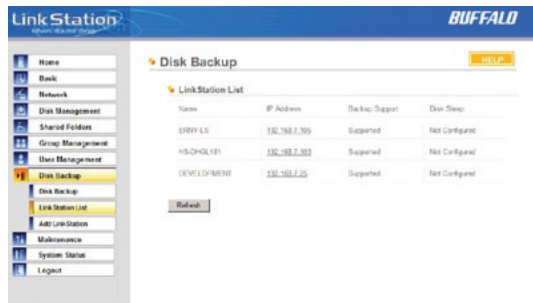
Choose a source and destination folder for backup and click Select

A *Backup Job* can run regularly on a daily or weekly schedule, or immediately by appropriate choices in the *Backup Job Schedule* field. *Date* and *Time* for the backup may be entered, and *Encryption* and *Compression* enabled or disabled. Enable *Overwrite Backup* to have each scheduled backup write over the previous backup, or *Differential Backups* to backup only files changed since the previous backup.

Select the folder to be backed up from the *Local Backup Shared Folder* dropdown, and the destination for the backup files from the *Destination Backup Shared Folder* dropdown. The destination folder may be on a USB drive attached to the LinkStation, or another LinkStation on the network. Click on *Select* to approve the backup targets.

Click the *Apply* button when your backup job is set up the way you want it, or *Clear Job* to stop a job from running again.

Disk Backup (LinkStation List)



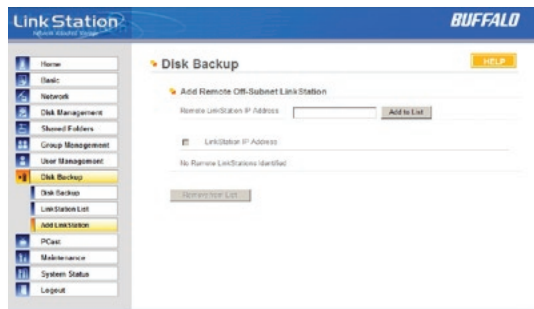
The screenshot shows the Buffalo LinkStation web interface. The left sidebar contains navigation options: Home, Back, Network, Disk Management, Shared Folders, Group Management, User Management, Disk Backup (selected), Disk Backup, LinkStation List, Add LinkStation, Maintenance, System Status, and Logout. The main content area is titled 'Disk Backup' and contains a 'LinkStation List' section. A table lists three LinkStations with their names, IP addresses, backup support status, and configuration status. A 'Refresh' button is located below the table.

Name	IP Address	Backup Support	Disk Status
DRIVE LS	192.168.7.309	Suspended	Not Configured
HSCHOOL181	192.168.7.302	Suspended	Not Configured
DEVELOPMENT	192.168.7.25	Suspended	Not Configured

The LinkStation list shows other LinkStations in your network that you can configure network backups to.

Press *Refresh* to get a list of LinkStations on your network.

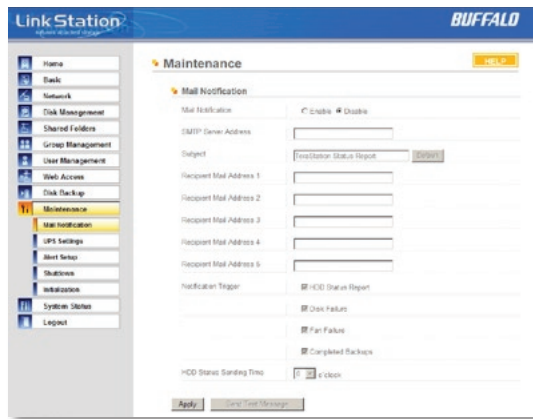
Disk Backup (Add LinkStation)



To add a remote LinkStation to your network, enter its numerical IP Address in the *Remote LinkStation IP Address* field and click the *Add to List* button. For remote LinkStation backups, make sure both firewalls are configured to allow traffic in and out of their networks.

Note: Disk Backups between two LinkStations use port 8873 for encrypted backups and port 873 for backups with no encryption.

Maintenance (Notification)



The screenshot shows the LinkStation web interface for Buffalo. The left sidebar contains a navigation menu with options: Home, Back, Network, Disk Management, Shared Folders, Group Management, User Management, Web Access, Disk Backup, Maintenance (highlighted), Mail Notification (highlighted), UPS Settings, Alert Setup, Shutdown, Initialization, System Status, and Logout. The main content area is titled 'Maintenance' and contains a 'Mail Notification' section. This section has a 'Mail Notification' header with 'Enable' and 'Disable' radio buttons. Below this are several input fields: 'SMTP Server Address', 'Subject' (with a dropdown menu showing 'LinkStation Status Report'), 'Recipient Mail Address 1' through '5', 'Notification Trigger' (with checkboxes for 'HDD Status Report', 'Disk Failure', 'Fan Failure', and 'Completed Backups'), and 'HDD Status Sending Time' (with a dropdown menu showing '10:00'). At the bottom of the form are 'Apply' and 'Cancel (Go Back)' buttons.

If your LinkStation is remotely managed, you may choose to receive nightly status reports and be notified of any disk events by email. To set this up, enable *Mail Notification* and enter the IP Address of your SMTP server* in the *SMTP Server Address* field. Select a *Subject* line for the emails (i.e. “LinkStation Status Report”) and enter the email address of each person you want to receive notification emails into a *Recipient Mail Address* field.

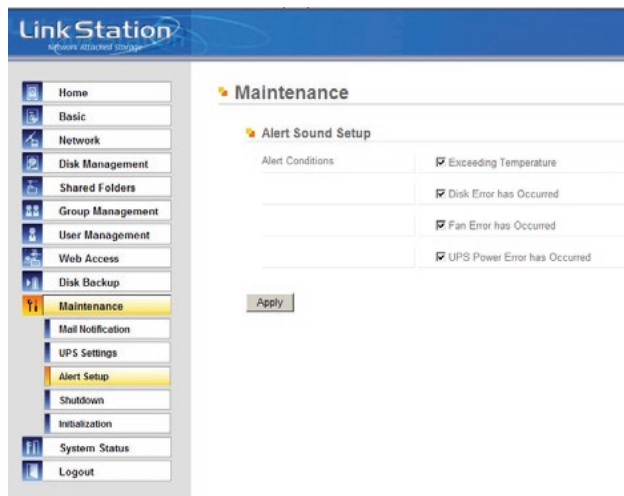
* SMTP server must be an *open* type server. Currently, there’s no provision for entering a username or password.

Maintenance (UPS Settings)

The screenshot displays the Buffalo LinkStation web interface. The top navigation bar includes the 'Link Station' logo and the 'BUFFALO' brand name. A left-hand sidebar lists various system management options, with 'Maintenance' and 'UPS Settings' highlighted. The main content area is titled 'Maintenance' and contains a sub-section for 'UPS Power Settings'. This section includes several configuration options: 'Synchronize with UPS' (radio buttons for 'Enable' and 'Disable'), 'UPS Connection Type' (a dropdown menu set to 'UPS unconnected'), 'Shutdown Condition when Power Failure' (radio buttons for 'Shutdown TeraStation after' followed by a numeric input field set to '5' and the unit 'Seconds of Power Failure'), and 'Shutdown TeraStation when UPS Reports "Battery Low" status' (radio buttons for 'Enable' and 'Disable'). At the bottom of the settings area, there is an 'Apply' button.

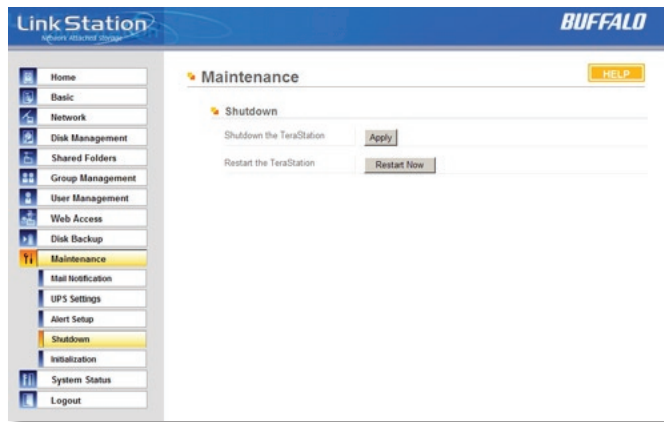
If using an Uninterruptable Power Supply, configure the LinkStation's UPS settings here.

Maintenance (Alert Settings)



Alerts can be configured on the LinkStation to make audible noises when a problem is detected. Along with the audible noise, alert emails will be sent out if *Mail Notification* was properly configured. Please select the features you would like to receive an audible sound alert from and then press the *Apply* button.

Maintenance (Shutdown)



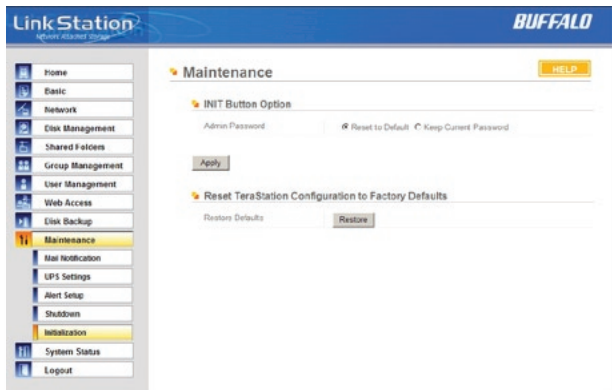
From the *Shutdown* page, press *Apply* to shutdown LinkStation. This has the same function as holding down the power button on the front of LinkStation, but may be done remotely. Turning on the LinkStation after a shutdown requires a physical button push on the front of LinkStation. The *Restart Now* button simply reboots the LinkStation, bringing it back to functionality after about 120 seconds.

Maintenance (Initialization)

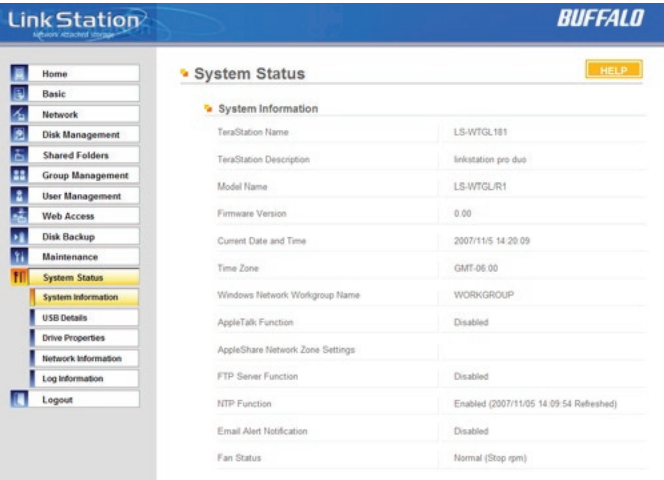
Initialization is a reset procedure that restores all settings back to the default, out of box, configuration. All configuration, users, groups, and backup jobs are lost, but actual data and shares on the hard are NOT lost. If you want all data to be erased, reformat the drive.

Specify whether the LinkStation shall keep its administrator password after a initialization or whether the password should be reset to the default password (default password is *password*). Press the *Apply* button once you make the selection.

Press the *Restore* button to begin the initialization process; this will restore all settings to factory defaults but will NOT erase the data on the hard drives.



System Status (System Information)



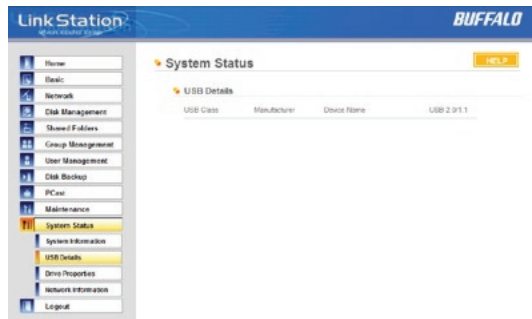
The screenshot shows the LinkStation web interface. The top navigation bar includes the LinkStation logo and the Buffalo brand name. A left-hand menu lists various system management options, with 'System Status' highlighted. The main content area is titled 'System Status' and contains a 'System Information' section with a table of system details.

System Information	
TeraStation Name	LS-WTGL181
TeraStation Description	linkstation pro duo
Model Name	LS-WTGLR1
Firmware Version	0.00
Current Date and Time	2007/11/5 14:20:09
Time Zone	GMT-06:00
Windows Network Workgroup Name	WORKGROUP
AppleTalk Function	Disabled
AppleShare Network Zone Settings	
FTP Server Function	Disabled
NTP Function	Enabled (2007/11/05 14:09:54 Refreshed)
Email Alert Notification	Disabled
Fan Status	Normal (Stop rpm)

This page shows you the System Information for your LinkStation.

Firmware updates are occasionally available from www.buffalotech.com for the LinkStation Pro Duo. These must be executed from a Windows PC on the same network. Your router, switch, or hub should pass through ports 8873 and 22939 for this to work (most do).

System Status (USB Details)



The screenshot shows the LinkStation web interface. The top navigation bar includes the LinkStation logo and the Buffalo logo. A left sidebar contains a menu with options: Home, Basic, Network, Disk Management, Show Folders, Group Management, User Management, Disk Backup, iPCat, Maintenance, System Status (highlighted), System Information, USB Details (highlighted), Drive Properties, Network Information, and Logout. The main content area is titled 'System Status' and contains a sub-section 'USB Details'. Below this, there is a table with the following data:

USB Class	Manufacturer	Device Name	USB 2.0/1.1

This page shows you details on USB hard drives and UPSs plugged into your LinkStation. In this example, no USB hard drives are plugged in to the LinkStation.

System Status (Drive Properties)

The screenshot shows the 'System Status' page in the Link Station web interface. The left sidebar contains navigation links: Home, Basic, Network, Disk Management, Shared Folders, Group Management, User Management, Web Access, Disk Backup, Maintenance, System Status (highlighted), System Information, USB Details, Drive Properties, Network Information, Log Information, and Logout. The main content area is titled 'System Status' and includes a 'HELP' button. It is divided into three sections: RAID Array Information, Disk Information, and USB Disk Information.

RAID Array Information

RAID Array 1	Status	Normal
	RAID Mode	RAID0
	Disk Structure	Disk 1, 2
	Total Capacity	609,262,336 bytes (581.04 GB)
	Amount Used	8,000 bytes (0.01 GB)
	Percent Used	0.00%
	File Format	NTFS

Disk Information

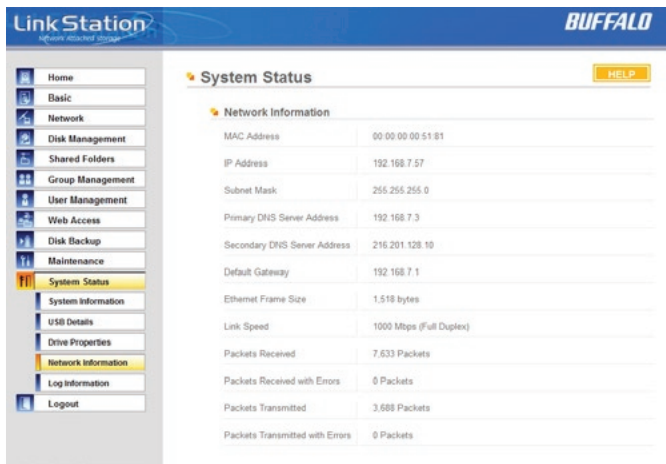
Disk 1	Status	RAID Array 1
	Unit Name	ST3320620AS
	Total Capacity	312,571,224 bytes (298.05 GB)
Disk 2	Status	RAID Array 1
	Unit Name	ST3320620AS
	Total Capacity	312,571,224 bytes (298.05 GB)

USB Disk Information

USB Disk 1	Status	Not Detected
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This page shows you the properties of all hard drives in and attached to your LinkStation.

System Status (Network Information)

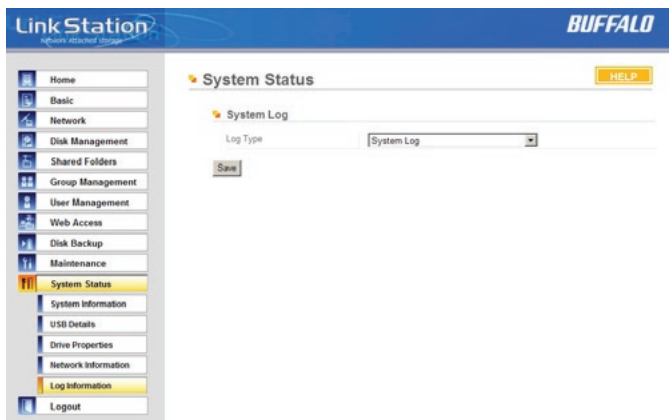


The screenshot displays the Buffalo Link Station web interface. The left sidebar contains a navigation menu with the following items: Home, Basic, Network, Disk Management, Shared Folders, Group Management, User Management, Web Access, Disk Backup, Maintenance, System Status (highlighted), System Information, USB Details, Drive Properties, Network Information (highlighted), Log Information, and Logout. The main content area is titled "System Status" and includes a "HELP" button. Under the "Network Information" section, the following data is presented:

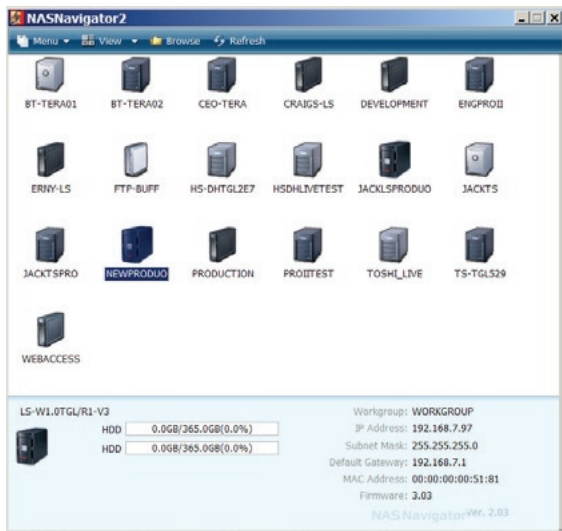
MAC Address	00 00 00 00 51 81
IP Address	192.168.7.57
Subnet Mask	255.255.255.0
Primary DNS Server Address	192.168.7.3
Secondary DNS Server Address	216.201.128.10
Default Gateway	192.168.7.1
Ethernet Frame Size	1,518 bytes
Link Speed	1000 Mbps (Full Duplex)
Packets Received	7,633 Packets
Packets Received with Errors	0 Packets
Packets Transmitted	3,688 Packets
Packets Transmitted with Errors	0 Packets

This page shows you the System Information for your network connection.

System Status (Logs)



Choose a Log from the dropdown menu and click *View* to see it.

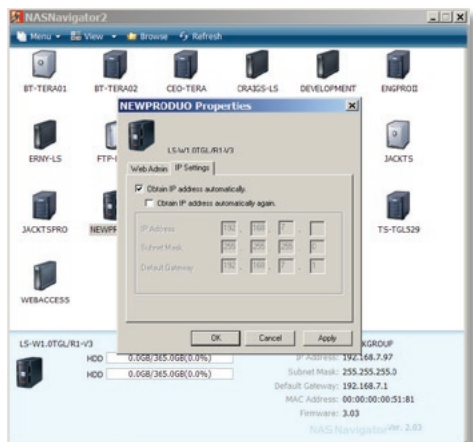


This is the *Buffalo NAS Client Utility*. Installed on your PC, it allows you to access each of the LinkStations (and TeraStations) on your network. Click *View* to get icons for each of your LinkStations. Highlight each tab to show the Host Name, Workgroup, IP Address, and Subnet Mask, Gateway, and MAC Address of the associated LinkStation, as well as the firmware version it's running.

Right-click on a LinkStation for more options. You can open the Web Admin GUI, map a share to a drive letter, or create a shortcut on your desktop.

To change a LinkStation's IP Address, click *Menu* and choose *Properties*.

IP Address Setup



From the *IP Settings* tab, you may enter your *IP Address* and *Subnet Mask* manually, or enable your LinkStation to acquire them automatically from a DHCP server. Press *OK* when you're done.

Disk Errors

If LinkStation encounters a disk error, it will be reported in the LinkStation status on the top of any of the Web-Based configuration screens. Run a *Disk Scan* in the event of this error. If that doesn't work, try a reformat. Reformatting the drive will delete all of the data on it so try to backup any data you can before beginning. Finally, if none of the above solutions help, then please contact Technical Support for further assistance.

LED Flash Codes:

- 3 flashes - Partition problem with hard drive. Reformat the hard drive.
- 4 flashes - Fan problem.
- 5 flashes - ROM problem.
- 6 flashes - Hard Drive can not be recognized.
- 7 flashes - Problem with motherboard (RAM, LAN, or Hard Drive controller).

Data Transfer Rates:	10/100/1000 Mbps
Hard Drives:	(2) SATA 7200 rpm
Main Connector Type:	RJ-45 (Ethernet)
USB Interface:	USB 2.0/1.1
Protocol Support:	TCP/IP SMB, FTP (File Sharing) HTTP (Management) NTP (Time Synchronization)
Power Supply:	Internal; 100-240V 50/60Hz
Client OS Support:	Windows® Vista™, XP, 2000, Mac OS® 10.3.9 or later
Power Consumption:	~21W (with no USB devices connected)
Dimensions:	3.9" x 6.4" x 8.7" (99 x 163 x 221 mm)
Weight:	~6.8 lbs. (3.1 kgs)
Operating Environment:	41°-95° F, 5°-35° C; 20-80% non-condensing

Buffalo Technology USA Inc.
11100 Metric Blvd., Suite 750
Austin, TX 78758

GENERAL INQUIRIES

Monday through Friday
8:30am-5:30pm CST

Direct: 512-794-8533 | **Toll-free:** 800-456-9799 | **Fax:** 512-794-8520 | **Email:** sales@buffalotech.com

TECHNICAL SUPPORT

North American Technical Support by phone is available 24 hours a day, 7 days a week. (USA and Canada).

Toll-free: (866) 752-6210 | **Email:** info@buffalotech.com

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GENERAL INQUIRIES

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TECHNICAL SUPPORT

Buffalo Technology provides technical support in English, German, French, Italian and Spanish. For opening hours and relevant telephone numbers, please go to:

www.buffalo-technology.com/contact

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