

LevelOne

FNS-6000

Desktop NAS w/ 2-bay, Printer Server & Broadband
Router

User's Manual

Version: 1.0

CUSTOMER SERVICE

To obtain service or technical support for your system, please refer to the registration card for detailed contacts.

TRADEMARKS

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LIMITED WARRANTY

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FCC STATEMENT

LevelOne has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- z Reorient or relocate the receiving antenna
- z Increase the separation between the equipment or device

CAUTION

Danger of explosion if battery is incorrectly replaced. replace only with the same or equivalent type recommended by the manufacturer. dispose of used batteries according to the manufactur

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Overview of the LevelOne FNS-6000

Introduction

Thank you for choosing the LevelOne FNS-6000. This product offers the following features:

- Share your storage over Microsoft, Unix and Apple network.
- Protect your data via RAID technology and management.
- Easy administration through simple web interface.
- Built-in firewall / NAT router function for Internet sharing.

Package Contents

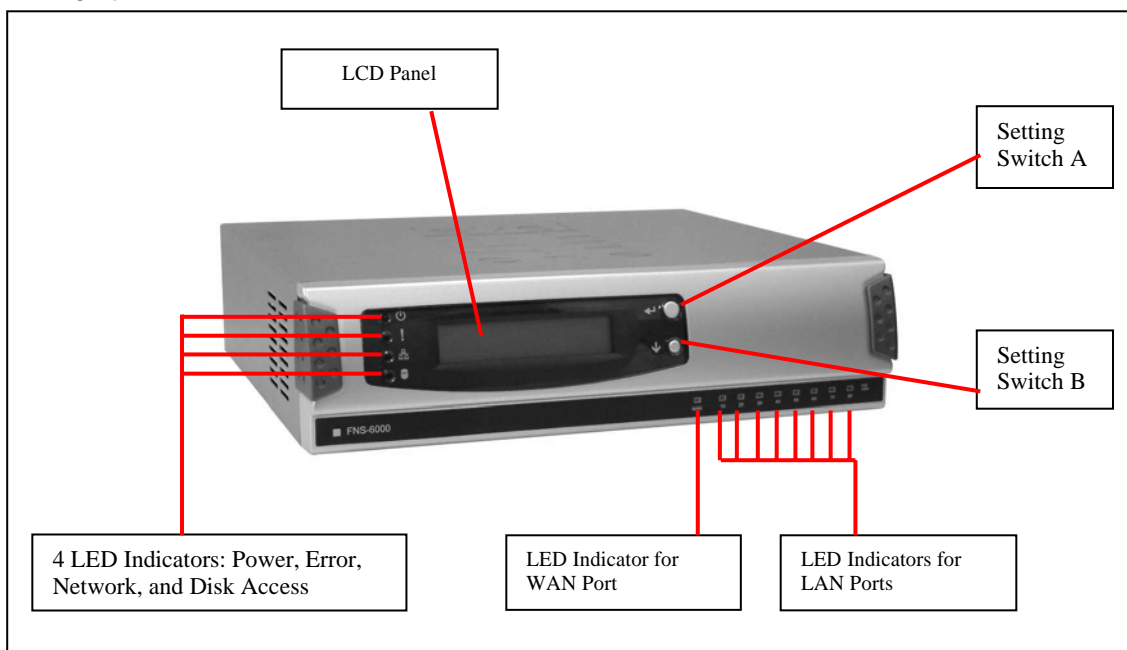
The LevelOne FNS-6000 box contains:

- LevelOne FNS-6000
- User's Manual
- Power Cord
- One CAT 5 Network Cable
- Quick Install Wizard CD-ROM

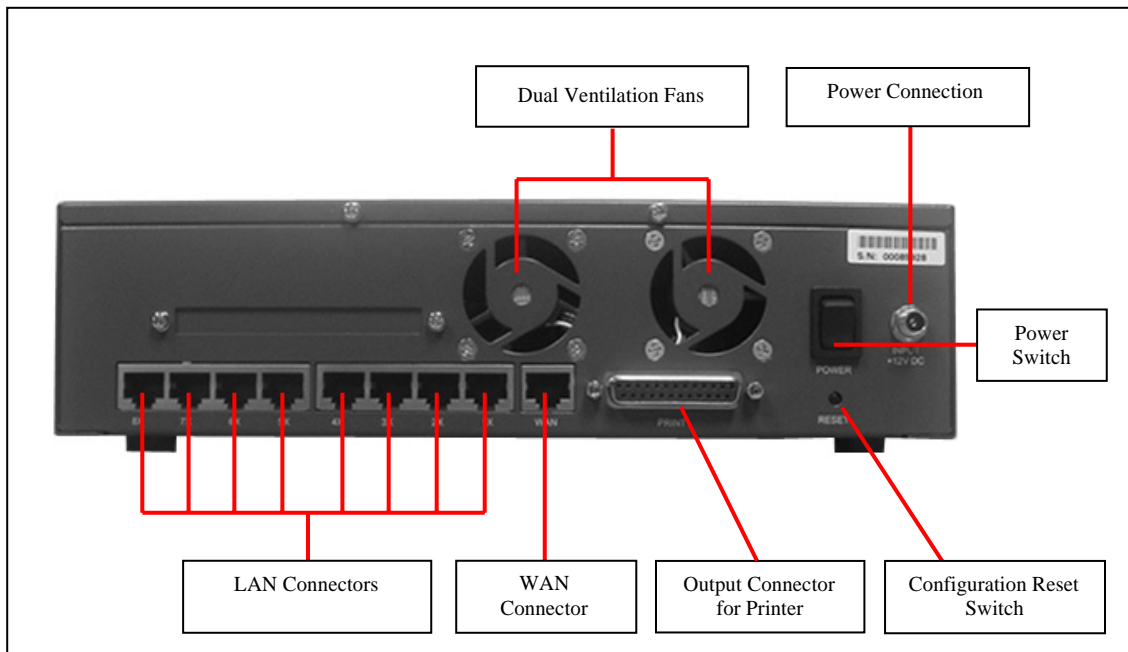
System Overview

FNS-6000

- **Front**



- **Rear View**







- **Network Status Indicators**

There are nine LED indicators at the lower right area of the rear panel. Each LED indicate the network status of the corresponding WAN or LAN port as below:

Color	Indicates
Green	Current connection is at 100Mbps. The flashing light indicates data is being transmitted.
Red	Current connection is at 10Mbps. The flashing light indicates data is being transmitted

Indicator light at the left of the LCD panel

	Shines when power is on
	Indicates a system error which needs to be corrected
	This light flashes when data is being transmitted through the network
	This light flashes when data is being stored or retrieved from the disks

Installation of the LevelOne FNS-6000

Installing the Hardware

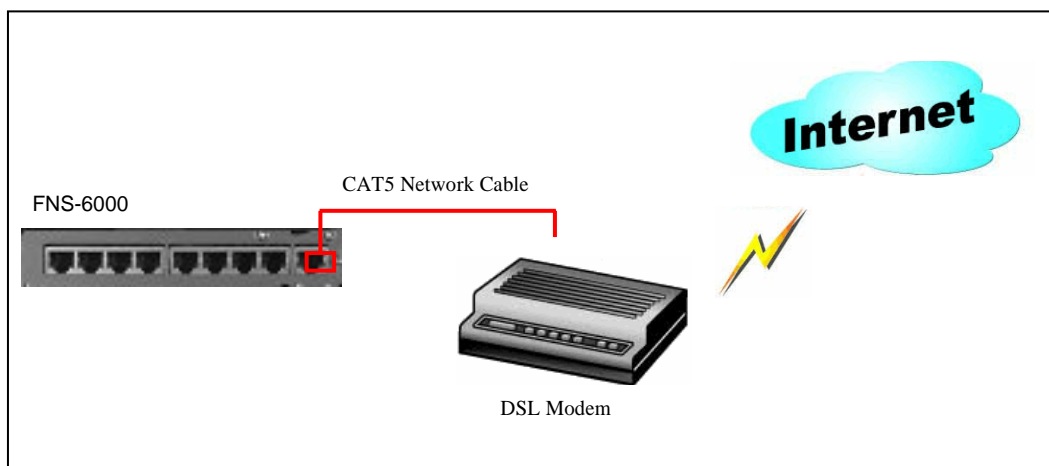
Please follow these instructions to install your LevelOne FNS-6000.

1. Connecting the LevelOne FNS-6000 to the Internet

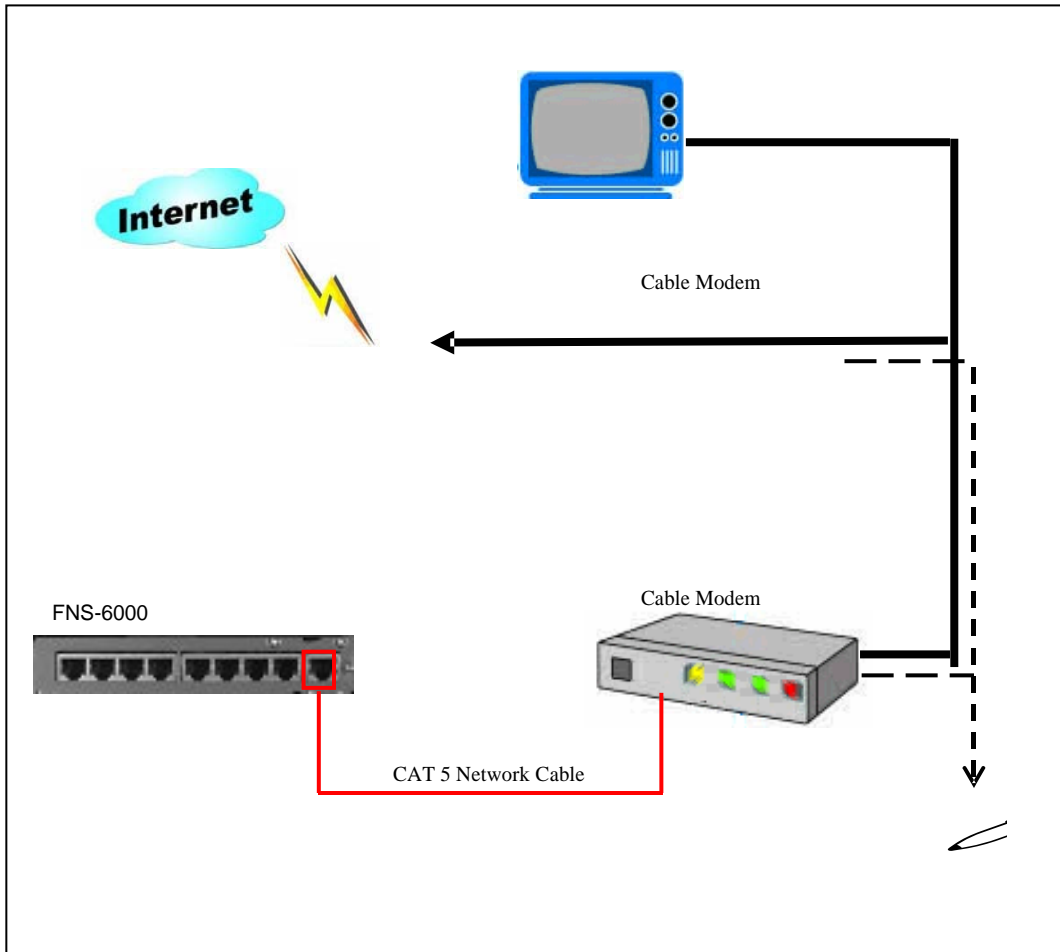
Consult the drawings below to make the connections.

- Broadband Internet Access via DSL Modem

Please use the network cable included with the LevelOne FNS-6000 to connect the WAN port to the DSL modem.

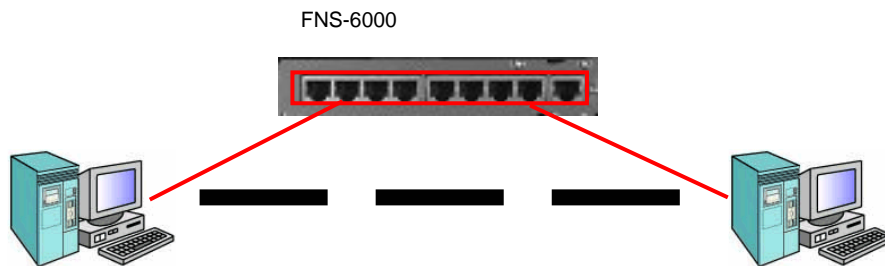


- Broadband Internet Access via Cable Modem
Please use the network cable to connect the WAN port to the cable modem.



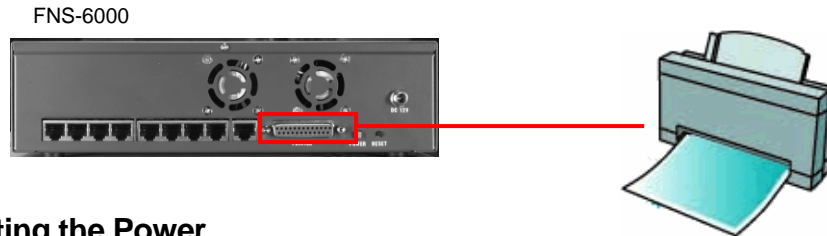
2. Connecting the PCs to the LevelOne FNS-6000

Simply connect one end of a network cable from the one of the LevelOne FNS-6000's LAN ports in to a network port of your computer.



3. Connecting the Printer

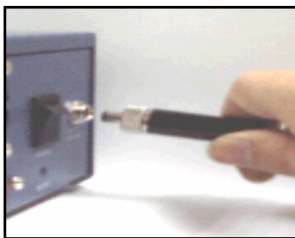
The FNS-6000 can provide the function of a network print server by connecting a printer as shown in the diagram below. Please use the printer cable to connect the printer to the printer port on the back of the LevelOne FNS-6000. Follow the software installation procedures described in Chapter 5, and the LevelOne FNS-6000 is ready to print your documents.



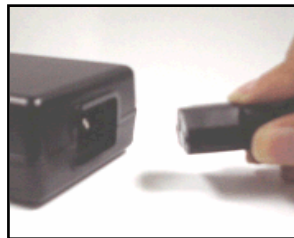
4. Connecting the Power

Please refer to the following diagrams to connect the power.

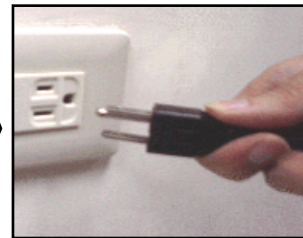
FNS-6000



1. Plug-in the power adaptor and secure the screw knob.



2. Plug the power cord into the power adaptor.



3. Then please plug in the power to the electrical wall socket or extension cord.

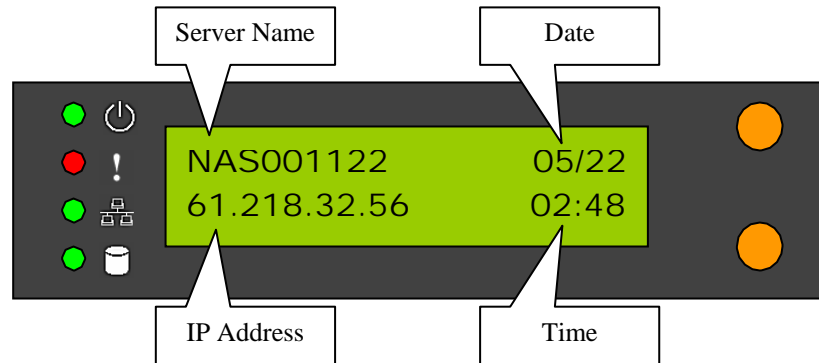


Please make sure the power adaptor is safely secured to the back end of the FNS-6000 prior to plug-in the electrical wall socket or extension cord.

5. Powering up the LevelOne FNS-6000

Once all the cables have been properly connected, push the power switch on the back of the LevelOne FNS-6000. The LCD panel will light up and the system is ready for set-up.

FNS-6000



At this time the hardware installation of your LevelOne FNS-6000 is complete.

Set-up Before First Operation

Before proceed to further configuration, you need to properly adjust the network configuration of your computers in order to connect to the LevelOne FNS-6000 through the local network.

- **Default Network Configuration of the LevelOne FNS-6000**

By factory default, your LevelOne FNS-6000 will try to build the connection to the Internet (WAN) via the DHCP protocol. If the Internet connection service that you are using does not support DHCP protocol, you will need to change the WAN configuration to successfully connect to the Internet. Please consult your Internet Service Provider (ISP) or network administrator to get the correct WAN configuration information.

Before you change the WAN configuration, your LevelOne FNS-6000 will continuously try to obtain the external IP address from WAN via the DHCP protocol. However, this will not affect the connection between the LevelOne FNS-6000 and the local computers. By factory default, the internal IP address of your LevelOne FNS-6000 in the local network is **192.168.1.254**, and the DHCP service is activated to perform IP address allocation and management for local network.

Please make sure the computer is connected to one of the LAN ports on the back of the

- **The Network Configuration of Computers in the Local Network**

To ease network management, it is suggested that you configure the local computers to accept dynamic IP addresses assigned by the LevelOne FNS-6000. Please refer to below illustrations about how to set up local computer network configuration of the local computer that runs Windows 98 or Windows ME.

Control Panel

File Edit View Favorites Tools Help

Address Control Panel

1. Double-click on "Network" in the Control Panel for a list of installed network components.

2. Highlight TCP/IP (if you have two or more network interface cards, please select the proper one) and click on "Properties".

Network

Configuration Identification Access Control

The following network components are installed:

- NetBEUI -> Intel(R) PRO/100+ Server Adapter (PILA8470)
- NetBEUI -> Intel(R) PRO/100+ Server Adapter (PILA8470)
- TCP/IP -> Intel(R) PRO/100+ Server Adapter (PILA8470E)**
- TCP/IP -> Intel(R) PRO/100+ Server Adapter (PILA8470B)
- File and printer sharing for Microsoft Networks

Add... Remove Properties

Primary Network Logon:
Client for Microsoft Networks

File and Print Sharing...

Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.

3. Click on the "Obtain an IP address automatically" option and click "OK". Then return to the Network dialog and click "OK" again. You will be asked to restart your computer. After rebooting, the computer will use DHCP to obtain an IP address automatically.

TCP/IP Properties

Bindings Advanced

DNS Configuration Gateway WINS

An IP address can be automatically assigned to your computer. If your network does not automatically assign an IP address, your network administrator can assign an IP address to the space below.

Obtain an IP address automatically

Specify an IP address:

IP Address: []

Subnet Mask: []

Detect connection to network

OK Cancel

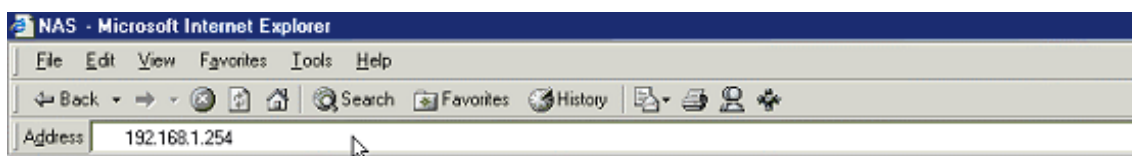
After rebooting, please check to ensure that your computer has successfully obtained its correct IP address. Below is a description of how this is done in Windows 98 or Windows ME:

1. Click "Run" in the Start menu.

2. Type "winipcfg" and click on "OK".

3. If the IP address is between 198.168.1.100 and 192.168.1.200, your computer has obtained a dynamic IP address successfully. Otherwise, please make that the network cable is properly connected to the LAN port and the network status indicator on the front of the LevelOne FNS-6000 lights up.

Once these steps have been successfully completed, you can connect to the LevelOne FNS-6000 by typing the default internal IP address (192.168.1.254) in the address bar of your browser as shown below:



Administration of the LevelOne FNS-6000

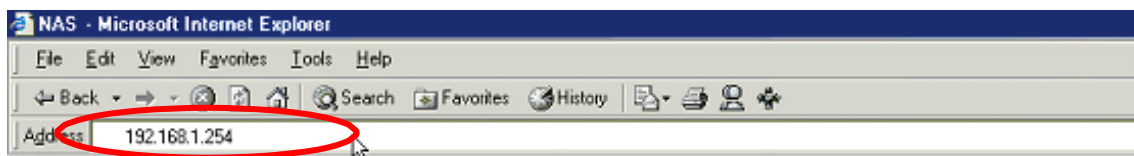
Once you have installed the LevelOne FNS-6000 and other hardware, and connected it to the network, you can use your browser (supports Microsoft Internet Explorer 5.0 or later and Netscape Navigator 4.5 or later; Microsoft Internet Explorer 5.5 is recommended) to complete administrative tasks for the LevelOne FNS-6000.

Accessing the Administration Page

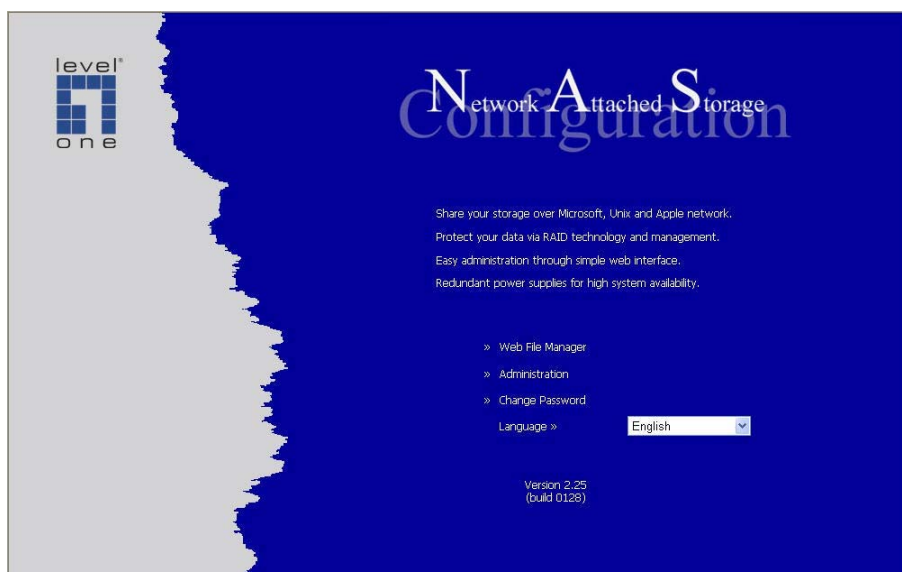
The following methods allows administrator to access the Administration page:

1. Launch your web browser (Microsoft Internet Explorer version 5.5 is recommended). you know the IP address of the LevelOne FNS-6000, type the IP address in the address bar of the browser and press “Enter”. The IP address can also be obtained on the LCD display of the LevelOne FNS-6000 (see Appendix A).

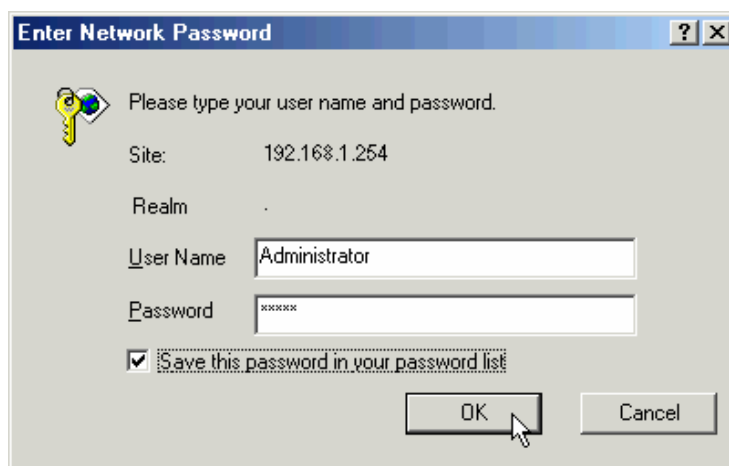
Note: If the computer you are using is connected to the LevelOne FNS-6000 via the LAN port, please type the LAN IP address of the LevelOne FNS-6000 (the default address is 192.168.1.254) in the address bar of the browser. If your computer is connected to the WAN port, please type the external IP address of the LevelOne FNS-6000.



2. Use the Quick Installation Wizard (see Appendix C) and double-click on LevelOne FNS 6000 in the list which appears. When the browser displays the home page of your



Enter the user name and password to continue the administration setup.



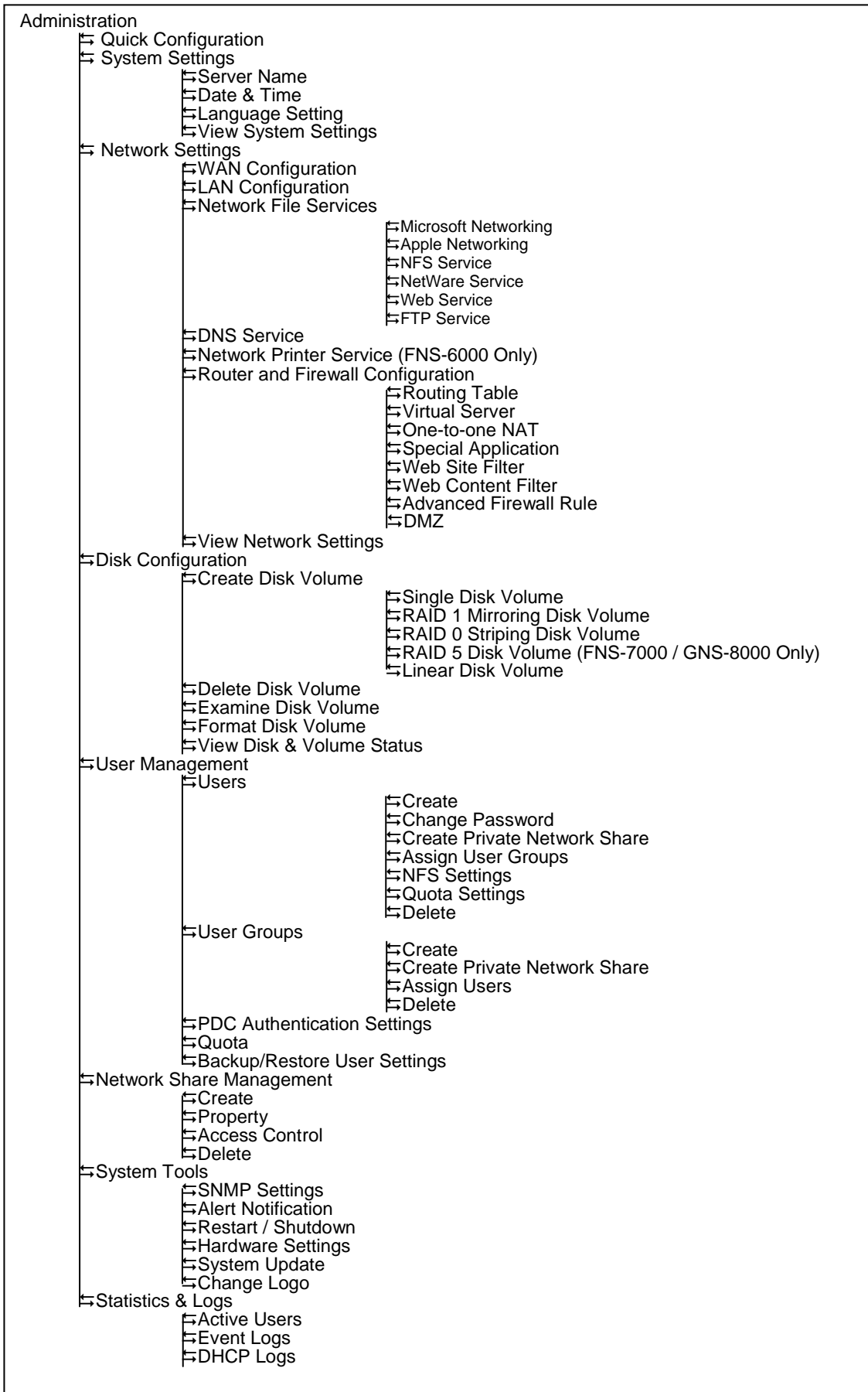
The factory default login name and password are as follows:

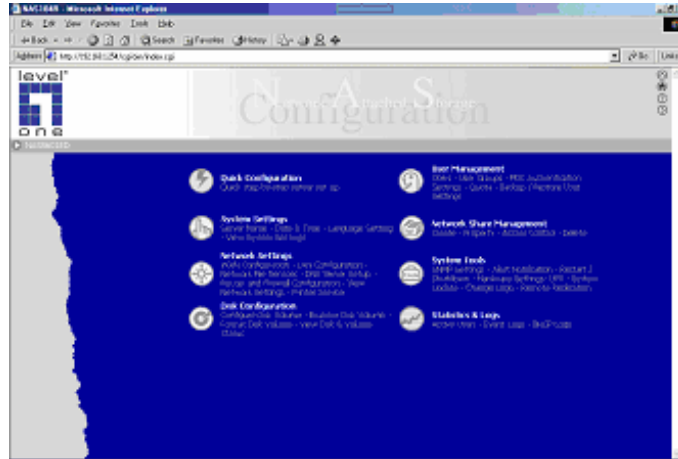
Login:	Administrator
Password:	admin

If this is the first time you enter the Administration page, the Quick Configuration page appears automatically. Please refer to the Quick Configuration section for more details

Server Administration

The Server Administration comprise the following eight sections:





Quick Configuration

The Quick Configuration will guide you through the configuration process step-by-step, as follows:

1. Enter the name, workgroup and description for this server.
2. Change the administrator's password.
3. Enter the date, time and time zone for this server.
4. Select the language that this server will use for file names.
5. Enter the IP address, subnet mask and default gateway for this server
6. Select the network file services that you want to provide on this server.
7. Configure disk volume on this server.
8. Configure the method of user authentication.
9. Manage users and user groups for this server.
10. Manage network shares on this

Due to different configurations, it might takes from 3 to 10 minutes to complete the Quick Configuration.

System Settings

Basic system settings include the server name, date, time, and language settings.

- **Server Name**

You must assign a unique name for your LevelOne FNS-6000 for ease of identification within the local network. The server name can accommodate as much as 14 characters, which can be a combination of letters (A-Z or a-z), numbers (0-9) and

server will not accept name containing blank spaces, period (.), or name with only

Next, you must configure your LevelOne FNS-6000 to the workgroup. The workgroup represents a basic computer group within the Microsoft Network. Files are normally shared within the group. Workgroups can accommodate as much as 15 characters but must exclude the following characters:

; : " < > * + = \ | ? , [] /

The first character cannot be a period (.). For ease of management and usage, please set your LevelOne FNS-6000 and attached computer(s) in the same workgroup.

Moreover, the LevelOne FNS-6000 allows you to specify comments (such as administrator name, department, or location) that describe the LevelOne FNS-6000 for

- **Date & Time**

Set the date, time, and time zone according to your location. If the settings are incorrectly entered, the following problems may occur:

1. When using a web browser to access or save a file, the time of the file accessed or saved may be out of sync.
2. The system event log time will be incorrect compared to the actual time an action occurred.

- **Language Setting**

The server is based on the language settings and uses it accordingly while creating or displaying files and directories. Select the correct language settings to avoid the following problems:

1. Inability to create files or directories with special characters
2. Inability to display files or directories name with special characters

Network Settings

The network settings include the TCP/IP configuration for WAN and LAN, network service settings, router and firewall configuration, etc.

- **WAN Configuration**

According to your WAN connection, you can choose the following four methods to configure the TCP/IP settings to the external network:

1. **Use PPPoE Protocol**

PPPoE is commonly used in DSL-based broadband services to establish the Internet connection. Please check with your ISP to check if PPPoE is used. You will also need the user name and password information that supplied by your ISP to properly configure the PPPoE settings.

2. Use PPTP Protocol

If the LevelOne FNS-6000 is connecting to a remote PPTP server through the WAN port, you need to use the PPTP protocol.

3. Use DHCP Protocol

The DHCP protocol is usually used in a Cable modem environment or the intranet. The system will obtain the IP address settings automatically via DHCP.

4. Use Static IP Address

The fixed IP address is usually used in some DSL broadband services or intranet, and an IP address must be entered manually in configuring the network. You will need to enter the following information:

IP Address

The IP address is a 32-bit digit code used to identify each single entity on a network. The IP address is separated into 4 groups of eight bits separated by dots. (e.g.

Subnet Mask

The subnet mask is used to define computer within the same local network. It is a 32 bit digit code. (e.g. 255.255.255.0)

Default Gateway

The gateway is generally referred as an interchange point that connects two networks. If you don't know the gateway's IP address, please ask your IS or network administrator.

There are several available options in addition to the basic settings:

Allow entering administration web pages from external network

If this option was not enabled, you will not be able to perform system administration from the computers connected to the WAN port. You may also assign the HTTP port number for entering administration web pages.

Disable response to ICMP packets to avoid attacks from hackers

For additional security, when enabling this option, outside computers cannot use the 'ping' program to probe for IP address of this server.

- **LAN Configuration**

If you use the LevelOne FNS-6000 as the gateway to connect to the Internet, there is normally no need to change the LAN configuration. Simply change the network configuration of the computers on the LAN to automatically obtain IP addresses via DHCP protocol. By default, the LevelOne FNS-6000 provides the NAT function to allow the computers on your LAN to share a single WAN

Fixed IP address

The IP address is a 32-bit digit code used to identify each single entity on a network. This address will be used for all clients in the internal LAN to access this LevelOne FNS-6000. You can check the current LAN IP address of the LevelOne FNS-6000 from the LCD panel (see Appendix A).

Subnet Mask

The subnet mask is used to define computer within the same local network. It is a 32-bit digit code: 255.xxx.xxx.xxx.

Default Gateway

The gateway is generally referred as an interchange point that connects two networks, such as LAN and WAN. You don't need to configure gateway address if NAT function is enabled; just set it as 0.0.0.0.

Enable DHCP Server

Once the DHCP server function is activated, the LevelOne FNS-6000 will assign dynamic IP addresses to any computer in the local network that is configured to automatically obtain IP addresses.

Note: Only one DHCP server can be activated at any time in a network, or it may cause errors in communication.

Enable NAT Function

NAT (Network Address Translation) allows the clients that use the internal private IP address to access the Internet. This option should be enabled if you use the LevelOne FNS-6000 to connect to the Internet.

Wireless LAN Configuration

Your LevelOne FNS-6000 is designed to act as an Access Point (AP) in the wireless LAN. The system is fully compliant with IEEE 802.11b standard, and provides powerful WEP encryption support for wireless security enhancement.

- **Network File**

Microsoft Networking

Users using the LevelOne FNS-6000 on the Microsoft Windows operating systems must start Microsoft Network Services.

If the local network has a WINS server installed, please specify the IP address. The LevelOne FNS-6000 will automatically register its name and IP address with the WINS service. Or you can enable your LevelOne FNS-6000 as the WINS server for your network.

Apple Networking

Users using the LevelOne FNS-6000 on Apple Mac operating systems must enable AppleTalk network support.

If your AppleTalk network uses extended networks and is assigned with multiple zones, please assign a zone name to the LevelOne FNS-6000. If you do not want to assign a network zone, please enter an asterisk (*). Asterisk (*) is the default setting.

NFS Service

Users using LevelOne FNS-6000 on Unix/Linux operating system computer or server must start Unix/Linux NFS service. The LevelOne FNS-6000 supports NFS version 2.0. To correctly use the NFS service, you must assign a User's UID and IP address. Please select **User Management** • **Users** • **NFS Settings** to start the setup.

NetWare Service

If you wish to use NetWare to access the LevelOne FNS-6000, you should activate the NetWare service. The LevelOne FNS-6000 will then operate in a manner similar to a Novell NetWare 3.12 file server.

Web Service

Other than standard OS support, you have the choice to use a web browser to access your files on the LevelOne FNS-6000. If your LevelOne FNS-6000 is connected to the Internet and uses a valid IP address, the LevelOne FNS-6000 allows you to access your files using a web browser from anywhere in the world.

FTP Service

If you wish to download files from or upload files to your LevelOne FNS-6000 by using file transfer protocol (FTP), you must first activate the FTP service.

- **DNS Service**

DNS (Domain Name System) is used to map a domain name to its corresponding IP address and vice versa. A DNS server provides the domain name service through the network. Using this, you can create and manage your domain name in the Internet. If you

do not know how to register a domain name, please contact your ISP. According to your domain configuration, you can configure the LevelOne FNS-6000 as the primary DNS

Primary DNS Server

The primary name server is responsible for maintaining a list of host name records and their associated IP addresses. You can add the following name records to your domain:

- A Forward Address Record
- NS Name Server Record
- MX Mail Exchange Server Record

You may also specify the forwarding servers; the LevelOne FNS-6000 will forward all DNS requests that can't be resolved locally to the specified DNS server (typically your ISP) and return the response to the client.

Secondary DNS Server

The LevelOne FNS-6000 can be configured as a secondary DNS server to provide redundant DNS service for your domain.

- **Network Printer Service**

The network printer service enables printer sharing via Microsoft or Apple networking. Please refer to Chapter 5 for detailed procedure to configure the network printer.

- **Router and Firewall**

Routing Table

The static route defines the network path to reach a specific network or host. You may need to set up a static route if this system is connected to more than one network.

If you do not have other routers in the network, you will not need to add any static routing entry. The system will use the default routing table for communication between WAN and LAN.

Virtual Server

This feature allows you to make the service provided by the internal server accessible to the users from Internet. The Internet users will then use the WAN IP address of the LevelOne FNS-6000 to access all of your virtual servers.

One-to one NAT

This feature allows you to map an external public IP address to an internal private IP address hidden by NAT. To use this feature, you will need to have more than one public IP address from your ISP. You can use this feature to have several servers using internal IP addresses to be accessed from the Internet.

Special Application

This feature allows you to use some on-line applications that require 2-way communication or simultaneous sessions. If you use on-line games, conferencing or messaging software, you may need to configure this function.

Web Site Filter

The web site filter provides a mean to block access to undesirable web sites. If a web site address is added into web site filter, access to that site is blocked for all clients in the internal LAN.

Web Content Filter

The web content filter allows you to block access to web sites with undesirable contents.

Advanced Firewall Rule

This feature allows administrators to define a set of rules to examine the network packet flow between internal LAN and external WAN. By default, all packets from external networks are denied except for web site requests. No packets from the internal network are blocked or discarded.

DMZ

This feature allows one computer on your LAN to be exposed to all users on the Internet. This can allow 2-way communication between the DMZ host and other users from the external network. If you meet troubles to use some Internet gaming or video-conferencing application on your local computer, you may try to configure this computer as the DMZ host.

- **DDNS Service**

DDNS (Dynamic DNS) service allows the Internet users to use a domain name to access the LevelOne FNS-6000 or the servers on your LAN rather than an IP address. This feature is particularly useful if you are using the broadband service that assigns a dynamic WAN IP address. To activate the DDNS service, you must first apply an account from a free DDNS service provider (See Appendix D).

Note: The LevelOne FNS-6000 currently supports the DynDNS (<http://www.dyndns.org/>) DDNS service.

Disk Configuration

The LevelOne FNS-6000 can accommodate a maximum of two disks. The Disk Volume can be configured according to your needs.

- **Single Disk**

You can choose to use a stand-alone disk. However, if the disk is damaged, all data will be lost.

- **RAID 1 Mirroring Disk Volume**

Mirroring Disk protects your data by automatically backing up the contents of one disk onto the second disk of a mirrored pair. This protects your data if one of the disks fails. Unfortunately, the storing capacity is equal to a single disk, as the second drive is used to automatically back up the first. Mirroring Disk is suitable for personal or corporate use to store important data.

- **RAID 0 Striping Disk Volume**

Striping disk combines two or more disks into one larger disk. It offers the fastest disk access but it does not have any protection of your data if the striped array fails. The disk capacity equals the number of disks in the array times the size of the smallest disk. Striping disk is usually used to maximize your disk capacity or for fast disk access but not for storing important data.

- **Linear Disk Volume**

You can combine two or more disks into one larger disk. During file saving, the files are saved on physical disks but do not have a disk failure file protection function. The overall capacity of linear disks is the sum of all disks. Linear disks are generally used for storing large data and are not appropriate to use for protection of important data.

By factory default, the LevelOne FNS-6000 has been pre-set into one large disk. If you wish to use other disk configurations, the settings can be changed during t

Configuration access. Furthermore, to increase the hard disk life, the hard disk will go to standby mode if there is no access within 30 minutes. If any data access happens while the hard disk is in stand-by mode, it will take 3 or 5 seconds for the hard disk to return to normal mode. You can select **System Tools · Hardware Settings** to change the setting.

You can also perform the following disk administration:

- [Create Disk](#)
- [Delete Disk](#)
- [Examine Disk](#)
- [Format Disk](#)
- [View Disk & Volume](#)

User Management

The LevelOne FNS-6000 can share its files with multiple users. It is important to plan and organize users and user groups' accessibility to ease the administration work.

- **User**

The factory default settings contains the following user settings:

Administrator

By default, the Administrator is a member of the Administrators group and has access to the system Administration. You cannot delete the user Administrator.

Guest

When you use a non-registered user name to login, the server recognizes it as a guest and will allow limited access. A guest does not belong to any user group. You cannot delete the user guest or create a password.

Anonymous

When you connect to the server by FTP service, you can use the name to login as a guest. You cannot delete this user or change its password.

You can create a new user according to your needs. The following information is required to create a new user:

- **User Name**

The user name must not exceed 32 characters. It is case insensitive and it can contain double-byte characters (Such as Chinese, Japanese, and Korean) But it cannot contain any of the characters below:

" / \ [] : ; | = , +

- **Password**

The password must not exceed 16 characters. Due to security concerns, the password must be at least 6 characters. Try to avoid using codes that are easily decipherable.

You can perform the following settings for users:

- Create
- Change
- Create Private Network
- Assign User
- NFS
- Quota
- Delete

z User Groups

To administer access rights, you can create user groups. User groups are a collection of users with the same access rights to files or folders. By factory default, the server contains the following pre-defined user groups:

Administrators

All members of the administrators group have the rights to perform system management. You cannot delete the administrators user groups.

Everyone

All registered users belongs to everyone group. You cannot delete the everyone use group or any of its users.

You can administer user groups with the following:

- Create User
- Create Private Network
- Assign
- Delete User

User groups name must not exceed 256 characters. It is case insensitive and it can contain double-byte characters (Such as Chinese, Japanese, and Korean) But it cannot

" / \ [] : ; | = , +

To properly manage security, it is very important to manage users and user groups. You may set the share access parameters of each user or user group accordingly.

- **PDC Authentication Settings**

If you have a Windows PDC (Primary Domain Controller) server to handle the domain security in your network, you don't need to re-enter all the users and groups with the LevelOne FNS-6000. You can simply enable the PDC authentication

LevelOne FNS-6000 will connect with the NT domain and get all the information of the domain users and groups automatically.

To enable PDC authentication, you must enter the domain name as well as the user name and password already established in this domain. The LevelOne FNS-6000 will use the user name and password to log in to the NT domain and retrieve user and group information. Once you have configured the LevelOne FNS-6000 to use PDC authentication, all NT domain users and groups will appear in lists of users and groups for which you can define access rights.

Note: NetWare users cannot be authenticated via the PDC server. To properly authenticate NetWare users, please go to **User Management • Users • Change**

- **Quota**

The amount of space given out to all users in the system can be limited in order to manage and allocate it efficiently. Once these restrictions are in place, users will be prevented from obtaining more space once they have reached their limit. This prevents monopolizing of a large amount of disk space by a small group of users. No limitations are set on the system when it leaves

- **Backup/Restore User Settings**

You may back up all user settings on to your computer as well as restore previously backed up user settings file to your LevelOne FNS-6000. This function allows you to easily maintain the user settings.

Network Share Management

The primary purpose of network storage is file sharing. In a standard operation environment, you can create different network share folders for various types of files, or provide different file access rights to users or user groups. By factory default, a “public” share folder is created. The share folder gives full access to all

Administer network shares with the following:

- Create a Network
- Change the name, path and comment of a network share
- Set access right for a network
- Remove a network

You can create new network shares according to your needs. While creating a network share the following parameters must be set:

- **Network Share Name**

The network share name must not exceed 12 characters. It cannot contain double-byte characters (such as Chinese, Japanese, and Korean) as well as the characters listed below:

" . + = / \ : | * ? < > ; [] %

- **Disk Volume**

The network share will be created under the specified disk volume.

- **Path**

All data are stored under the assigned path onto the disk volume. You can select **Specify Path Automatically** to allow the server to automatically create a new path on the disk volume to store the network share files. Or you can assign a specific path for the share folder. The manually assigned path cannot exceed 256 characters and cannot contain the characters listed below:

" \ : | * ? < > ; ` '

- **Comment**

The **Comment** field allows a brief description of the share folder to help users identify its purpose in a network neighborhood window. The comment cannot exceed 128 characters.

Once the network share is created, you can start assigning access rights to users or user groups:

- **Full Access**

Full access allows the user or user group to read, write, create, or remove all files and directories in the network share.

- **Read Only**

Reads files only in the network share but denies functions to write, create or delete files or directories.

- **Deny Access**

Denies all files on the network share.

System Tools

The following system tools allow optimized maintenance or management of your LevelOne FNS-6000:

- **SNMP Settings**

In order to use Simple Network Management Protocol (SNMP) to manage the LevelOne FNS-6000's network components, the SNMP service must be started.

- **Alert Notification**

Configures administrator's e-mail address and SMTP server's IP address. In case of warning or malfunction, an email is automatically sent to the administrator.

- **Restart / Shutdown**

Powers off or restarts the LevelOne FNS-6000.

- **Hardware Settings**

You can enable or disable the following hardware functions of your LevelOne FNS-6000:

1. Enable LCD panel setting function

Allow you to change the TCP/IP configuration using the LCD panel buttons.

2. Enable configuration reset switch

Depress and hold on the configuration reset switch for 5 seconds to reset the administrator password and network settings to the factory default.

3. Enable hard disk standby mode

Hard disk will go to standby mode if there is no access within the period you specify.

4. Enable buzzer

If the buzzer is disabled, it will not sound when a system error occurs, but the warning light will still shine.

- **System Update**

Performs system software updates. Make sure that the image file that you are about to update is the correct version and read through the instructions carefully. It is wise to back up all existing data on the LevelOne FNS-6000 prior to performing system software update. The current settings will remain unchanged after the system is upgraded.

- **Change Logo**

You can place a picture that you desire on the upper right corner of the home page. The size of the picture cannot exceed 20K.

Statistics & Logs

You can monitor the current logon user of the LevelOne FNS-6000 and the system event logs for the purpose of user administration or system diagnostic reference.

- **Active Users**

Displays information of all online users.

- **Event Logs**

The LevelOne FNS-6000 can store thousands of recent event logs, including warning, error and information messages. In the event of a system malfunction (LCD error indicator lights up), the event logs can be retrieved to help

- **DHCP Logs**

If the DHCP server function is activated, you can use it to monitor all of the assigned dynamic addresses, client MAC addresses and other information.

Accessing the LevelOne FNS-6000

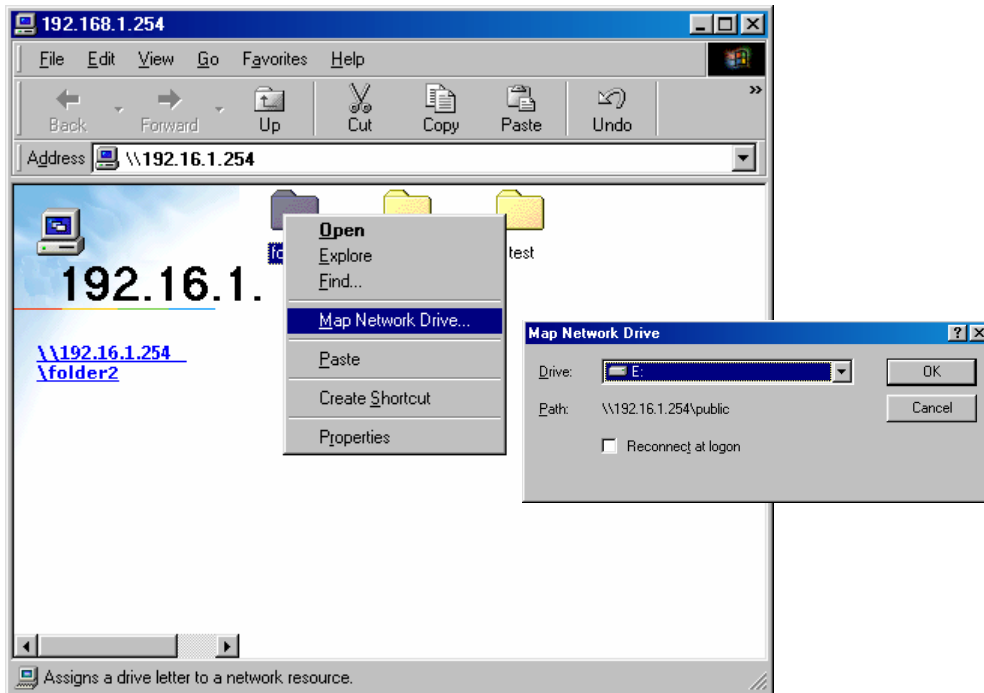
Using Microsoft Windows

Under the Microsoft Windows operating system, you can access the LevelOne FNS-6000 using the following steps:

1. Use the locate and connect the LevelOne FNS-6000 within the local network
 - Click on the **Start** button and select **Run** in the Windows menu bar. Enter the name of the LevelOne FNS-6000, for example:
\\NAS004001
 - You may also look for the LevelOne FNS-6000 within the Network Neighborhood. Locate the workgroup and find the name of your LevelOne FNS-6000. When the server is found, double-click on the server name to connect.
 - You may also use the “Search for Computers” function to look for your LevelOne FNS-6000 in Windows. Under Windows ME or Windows 2000, please follow these steps:
 1. Open “My Network Places” folder.
 2. Under the tools bar menu click “Search”.
 3. Computer Name path key-in LevelOne FNS-6000 name.
 4. Click once on **Search**.

Once the LevelOne FNS-6000 is found, double-click your mouse button on the icon to connect.

2. Once the connection to the LevelOne FNS-6000 is successful, all listing on your available network share are displayed. Move the mouse pointer to the network share you want to access and click the right button once. A popup menu appears; select “**Map Network Drive**”. A popup window that allows you to assign a drive letter for the network share appears (note: do not use the drive letter used by the CD-ROM). If you wish to make the share folder available for your next start-up, check the “**Reconnect at logon**” box on the popup window and click on “OK” to make the network share as one disk drive in your system.



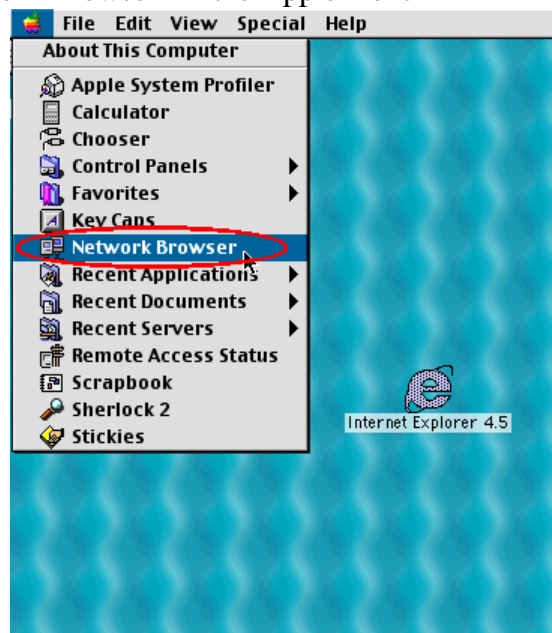
3. Once the network share is a part of your system disk drives, you can locate the network share in “My Computer” and access it as a regular hard disk drive.

Using the Apple Mac Operating System

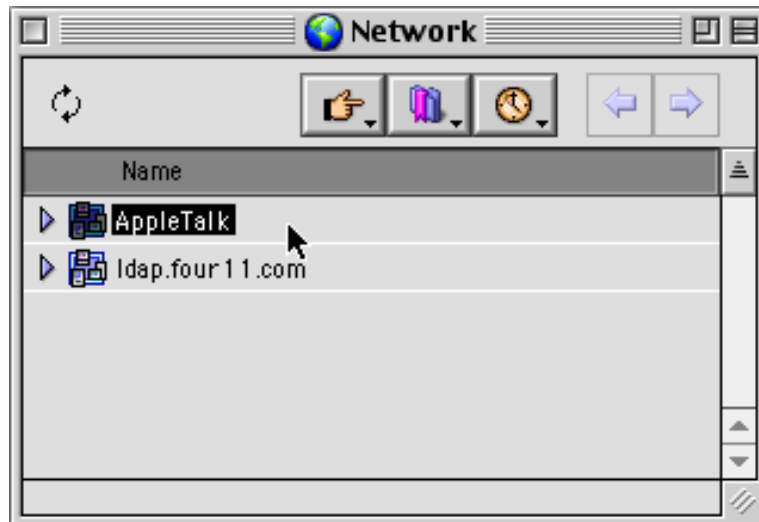
If you are a Mac OS user, you can use the following two methods to access to your

1. Using Network

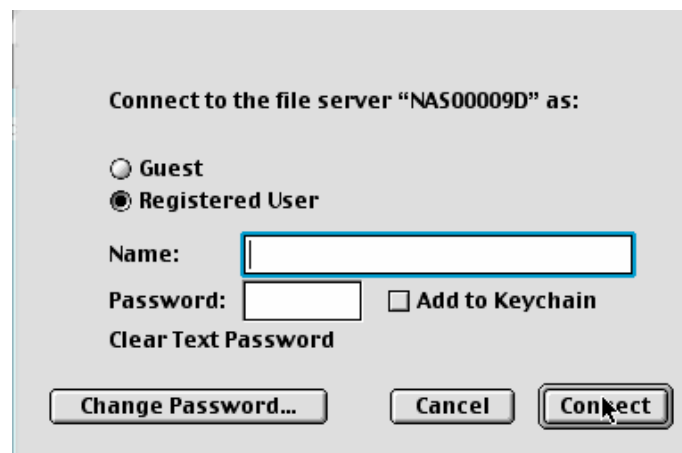
- a. Choose “Network Browser” in the Apple menu



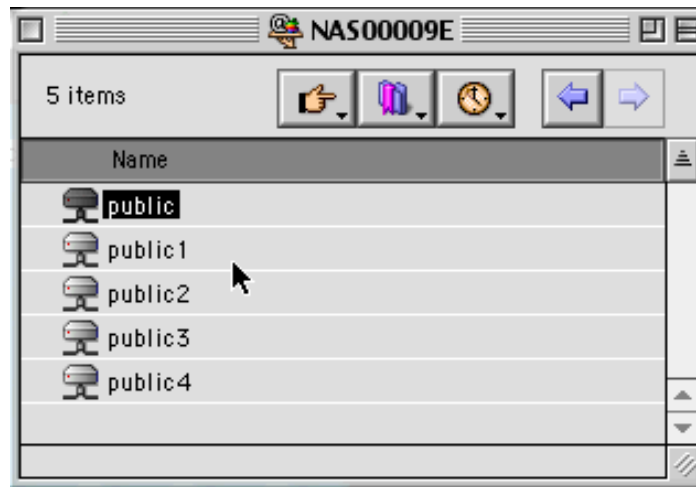
- b. In the “Network Browser”, choose AppleTalk; a list of all computers on the AppleTalk network appears. Choose the LevelOne FNS-6000.



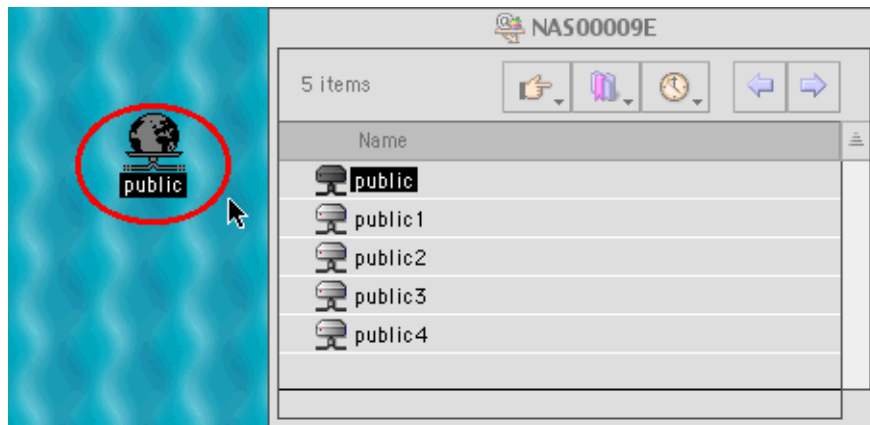
- c. Once the LevelOne FNS-6000 is chosen, the system will request you to input the login name and password. Click “Connect” or use “Guest” to enter. When the login name and password are confirmed, a popup window informs you that the connection is made with the LevelOne FNS-6000.



- d. When the LevelOne FNS-6000 is connected, the network browser displays all the network shares. You can then access or drag & drop the share folders.

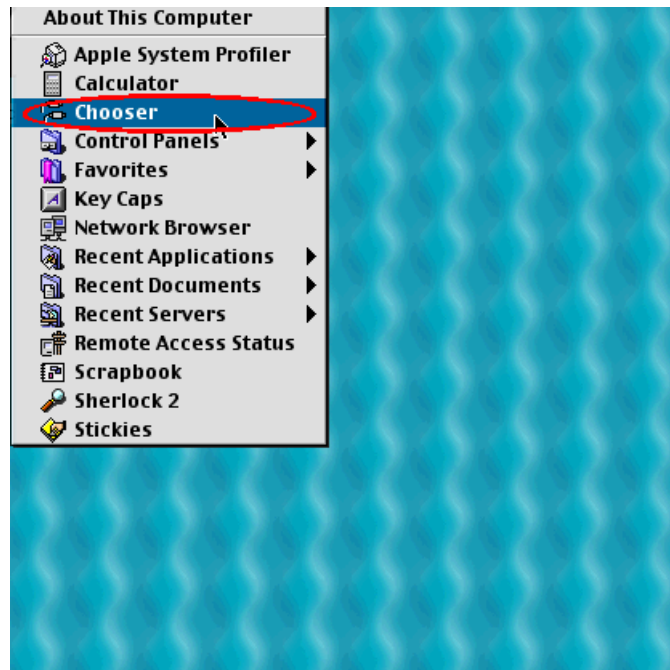


- e. Choose either one of the network shares to start to link. The network share

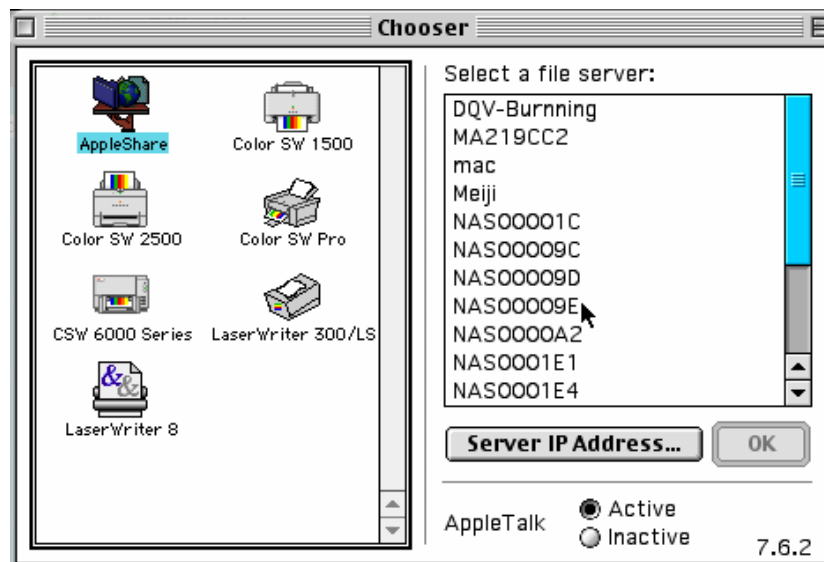


2. Using the Chooser

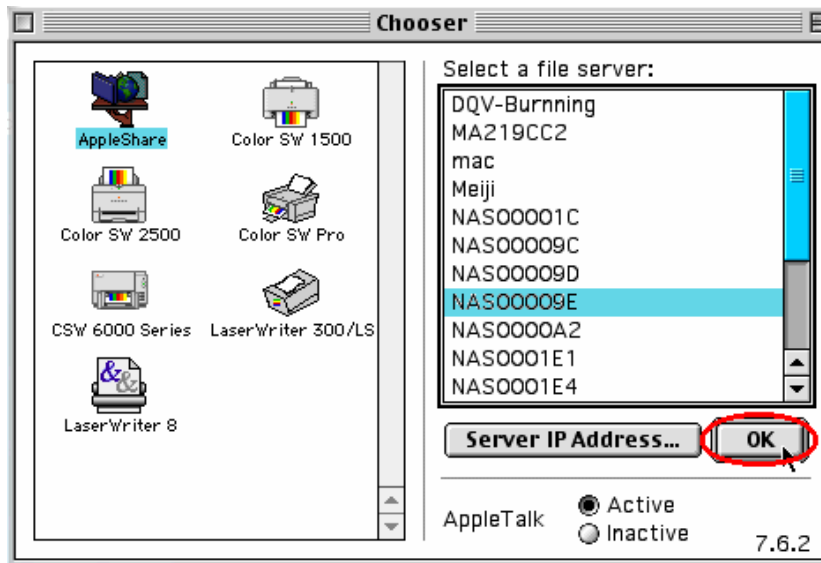
- a. Select **Chooser** in the Apple menu bar



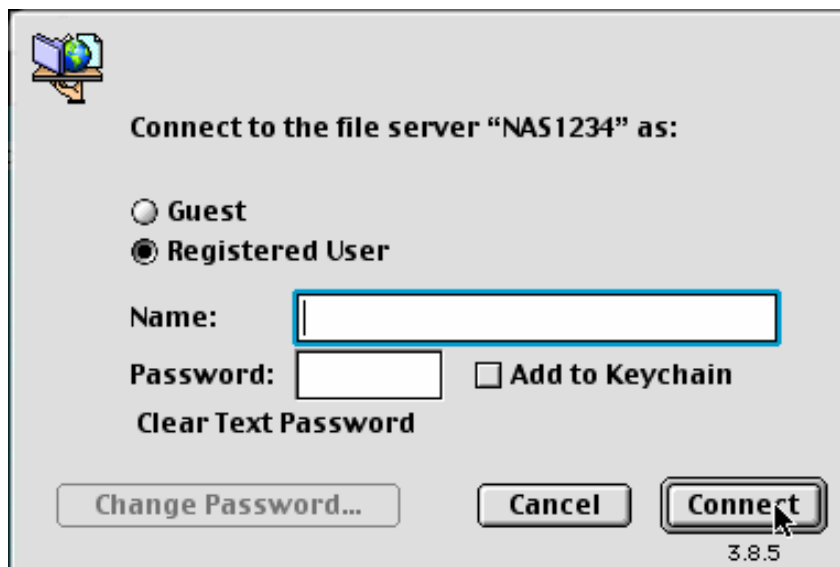
- b. Click on **AppleShare**. The name of the LevelOne FNS-6000 appears on the right side of the window.



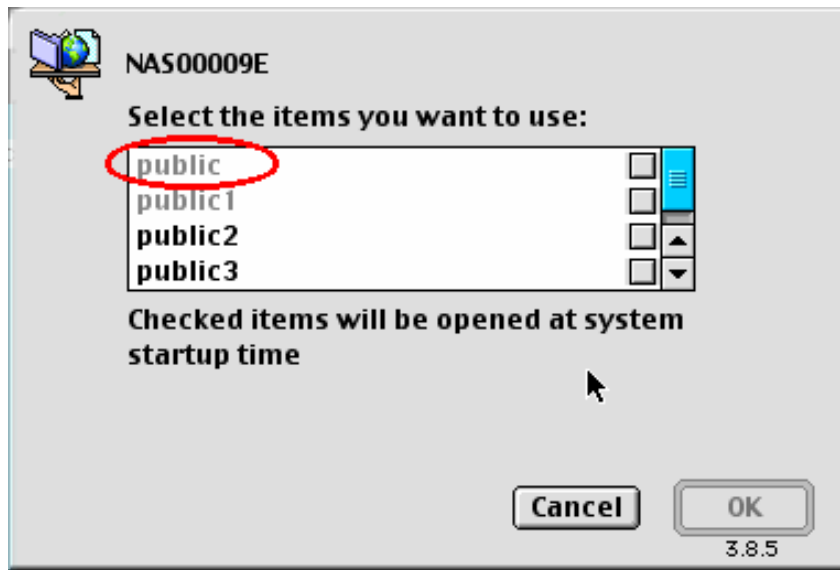
- c. Use the mouse to highlight the LevelOne FNS-6000 and then click on the “OK” bottom right-hand side of the screen.



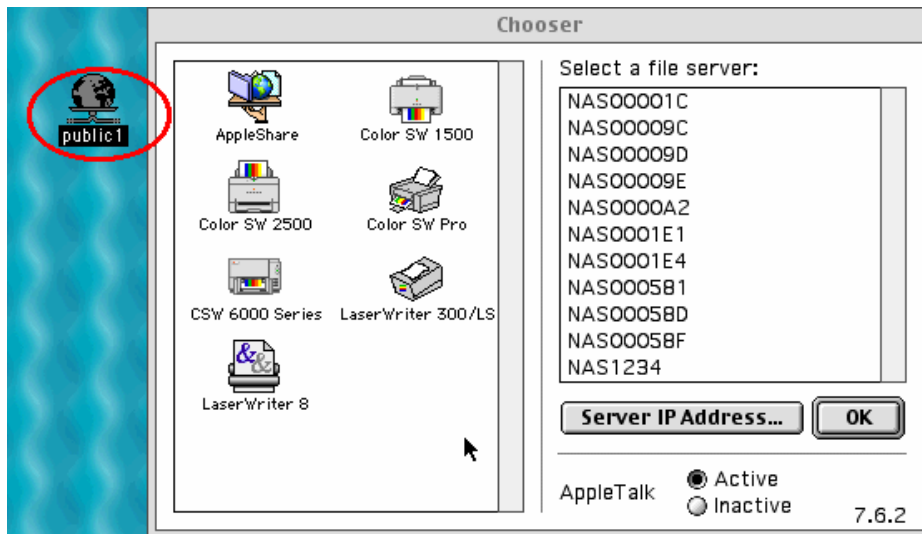
- d. Enter the correct login name and password or use “Guest” to login, then click on “Connect”.



- e. All available network shares will be listed. Use the mouse to choose a network share and click on “OK”.



- f. You can then close the Chooser program. Double click on the icon on the desktop to access your files.



Using the Unix/Linux Operating System

Other than Microsoft OS and Mac OS, your LevelOne FNS-6000 supports Unix based systems (such as IBM AIX, HP-UX, Sun Solaris, Linux, Free BSD, etc) through the NFS service:

1. Under Unix, use the following commands

```
mount -t nfs <LevelOne FNS-6000 IP address>:/<Network Share Name> <Directory to Mount>
```

For example, if your LevelOne FNS-6000's IP address is 192.168.0.1 and you want to link the network share folder "public" under the /mnt/pub directory, use the following command.

```
mount -t nfs 192.168.0.1:/public
```

Note: You must login as "root" user to initiate the above command

2. Logged in as the user id that you defined, you can use the mounted directory to access your network share files.

For more information about NFS settings, please refer to your Unix system documentation.

Using Novell NetWare

If you are accessing the LevelOne FNS-6000 from the NetWare client, please refer to the NetWare user's manual for more information. The LevelOne FNS-6000 functions as a NetWare 3.12 file server.

Using a Web Browser

Other than OS support, your Disk On-line Server also provides a convenient web style file management that allows using a standard web browser to access your data. If you link the LevelOne FNS-6000 onto the Internet and use a public IP address, you can logon to access the files from anywhere in the world.

For more information, please refer to Appendix B.

Using File Transfer Protocol (FTP)

In addition to working with multiple operating systems, the LevelOne FNS-6000 also supports FTP. You can use popular FTP software and enter the user name and password to connect to the LevelOne FNS-6000. Or you may key in anonymous as the user name in order to access public network share folders that is open to

Installing the Network Printer

Enabling Network Printer Service

To enable the print server function, please connect the printer to the printer port on the rear panel of your LevelOne FNS-6000. Then enter the system administration web page via the browser, go to **Network Settings · Network Printer Service** to enable the network printer service.

Check the “Enable network printer service” option to enable the print server function.

Please enter the name for this network printer. You can see the network printer name in Microsoft or Apple networking.

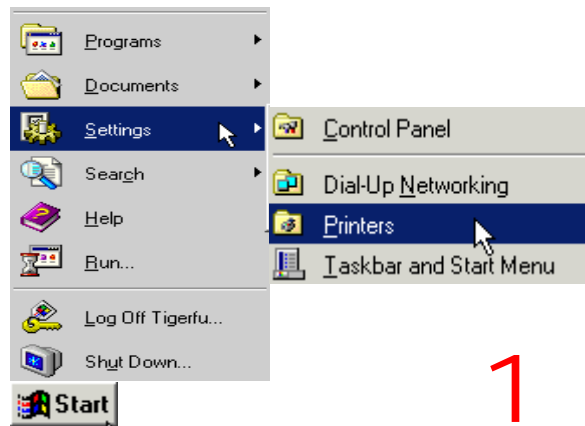
Please enter a brief description

After updating all settings, please click on “Apply”

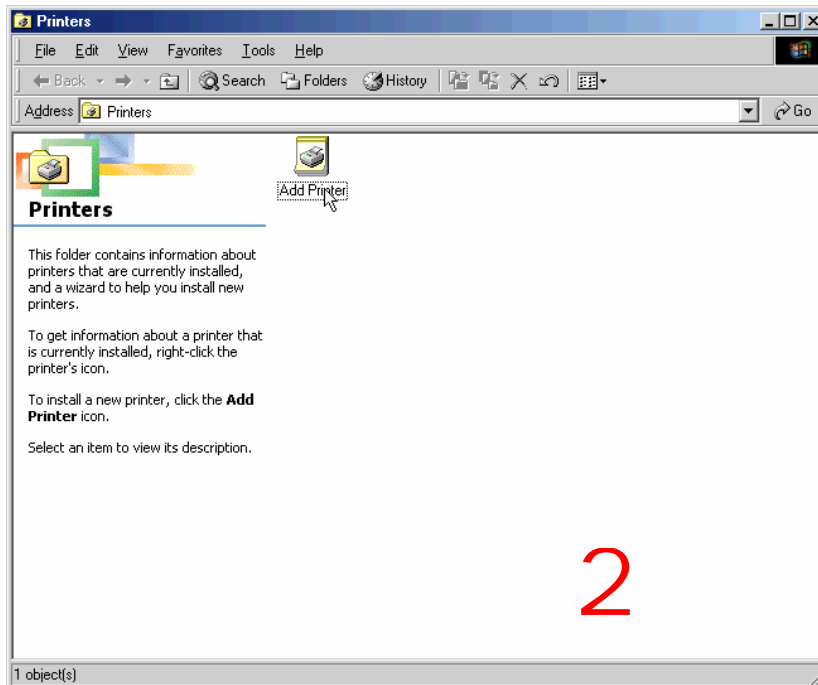
Setting Up the Printer on Your Computer

You will need to install the network printer on your computer. On a Windows 98 or

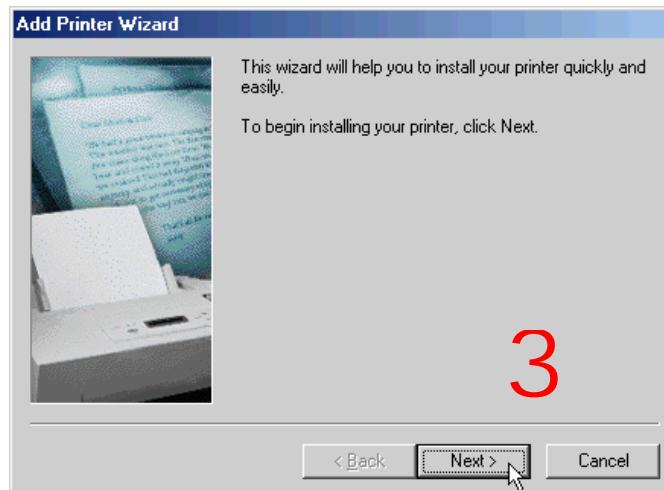
1. Select “**Settings**” in the **Start** menu and click on “**Printers**”



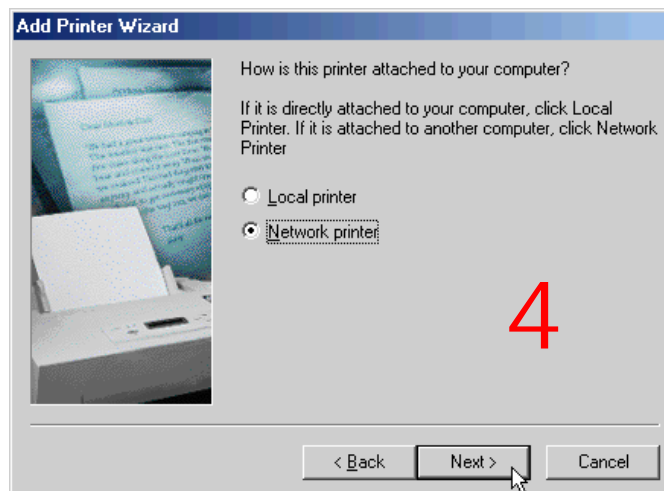
2. Click “Add Printer” to run the Add Printer Wizard



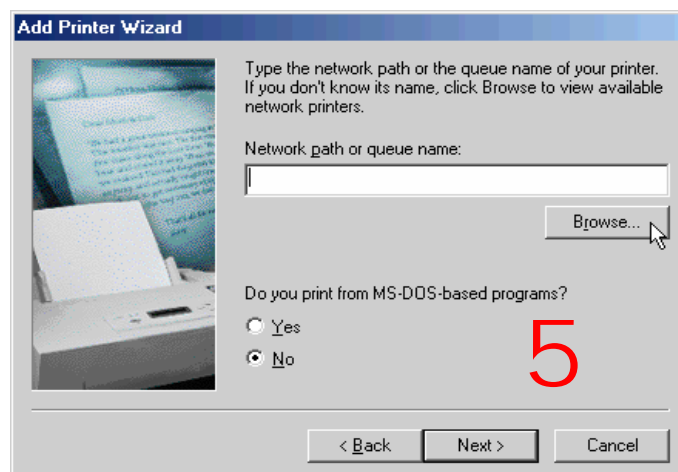
3. Follow the on-screen instruction and click “Next”



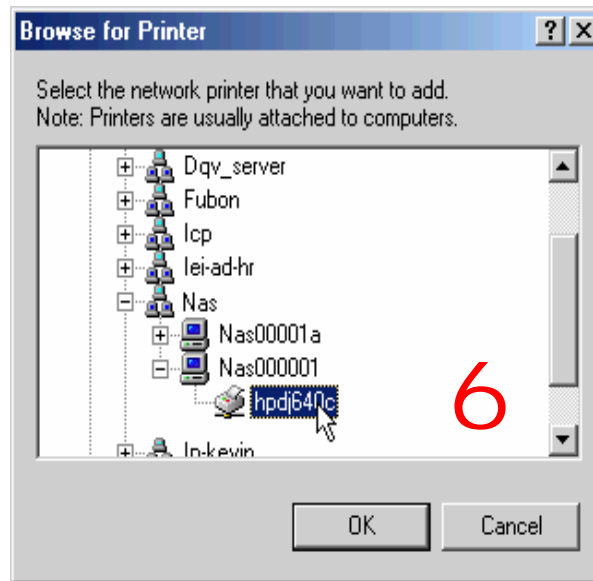
4. Choose “Network printer” and click “Next”



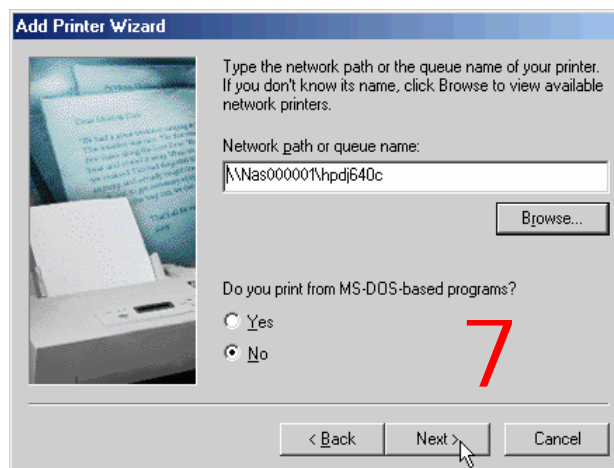
5. Enter the network path or queue name for the printer, or click on “Browse...” to view available network printers. If you enter a path or queue name, skip to step 7. Or you may click “Browse...” to locate the printer.



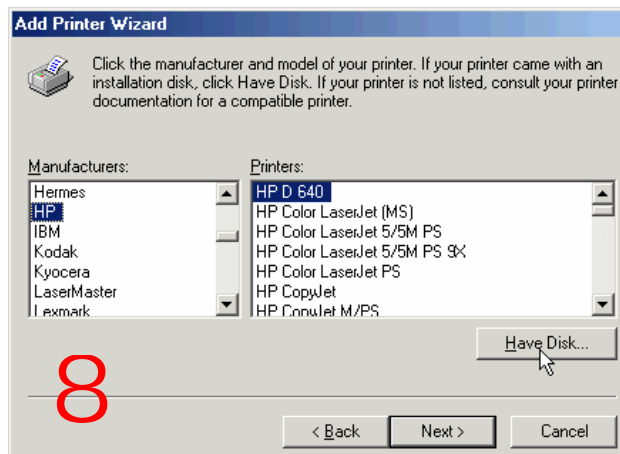
- Please find the LevelOne FNS-6000 within the network neighborhoods. Select the printer icon under your LevelOne FNS-6000 and click “OK”.



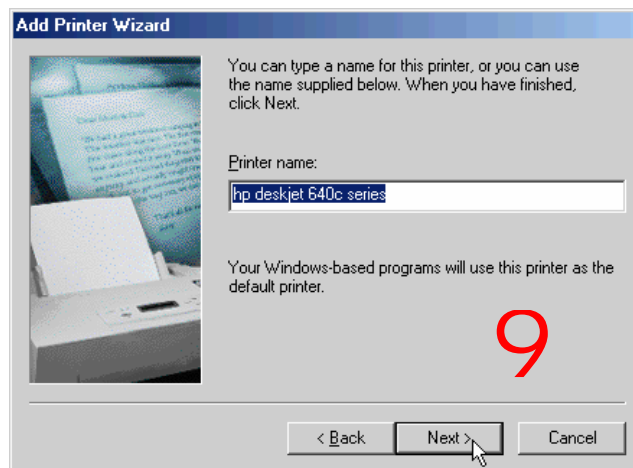
- Verify the network path and click “Next”



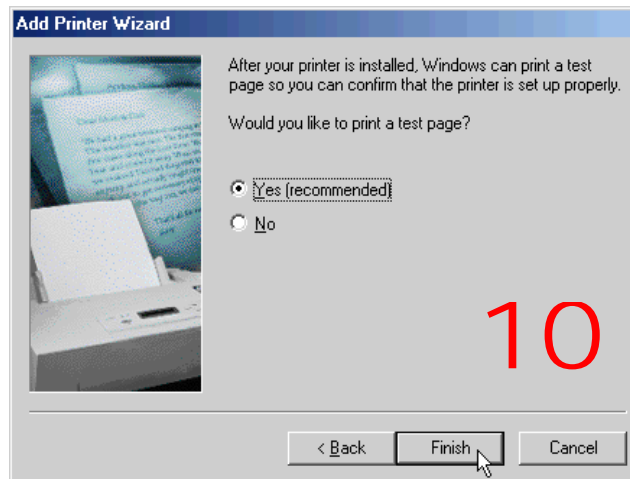
- You will be asked to choose the driver for your network printer. Please follow the on screen instructions to install the driver.



9. Enter the name for your printer and click “Next”



10. Click “Finish” to print a test



11. Please verify if the test page was printed successfully. If you find any problems, please consult the trouble-shooting guide or user’s manual of the printer.

LevelOne FNS-6000 - Maintenance

The LevelOne FNS-6000 has been specially designed to run on 24 hours, 7 days a week and to be ready at all times. It is also robust to protect against system crashes caused by power loss. This section provides a general maintenance overview.

Shutdown/Restart the Server

Please use the following steps to shutdown/restart the server:

1. Ask all the connected users to save their working files and stop using the LevelOne FNS-6000.
2. Open the administration web page and go to **System Tools** · **Restart/Shutdown**. Follow the instructions to restart or shutdown the system.

Reset the Administrator Password & Network Settings

If you accidentally forget the administrator password, you will not be able to perform any administration work on the LevelOne FNS-6000. Under this condition, you can reset the administrator password and network configuration to the factory default.

1. Use the tip of a ball point pen and depress the configuration reset switch located on the back of the LevelOne FNS-6000. Hold it for about 5 seconds until the beep.
2. The network configuration will be reset, and you may need to re-configure some of all of the network settings before you can connect to the LevelOne FNS-6000.
3. Use a web browser to connect to the LevelOne FNS-6000. Enter the **System**

Login:	Administrator
Password:	admin

You can then perform system administration.

Note: If the configuration reset switch is disabled in the **System Tools** · **Hardware Settings** page, you are no longer able to use this function. Please remember your administrator password.

Disk Failure or Malfunction

If you are suffering from a disk failure or malfunction, please do the following:

1. Log all abnormal events or messages for technician's reference
2. Stop all operations of the LevelOne FNS-6000 and power it off.

3. Contact the customer service for technical support

Note: Your LevelOne FNS-6000 must be repaired by a trained technician. Please do not try to repair the LevelOne FNS-6000 on your own.

Power Outage or Abnormal Shutdown

In the event of power outage or abnormal shutdown of the LevelOne FNS-6000, the system should return to its original state prior to shutdown or power outage after restart. If the system is not operating within normal parameters, please proceed with the

1. In the event of system configuration setting lost during power outage or abnormal
2. In the event of abnormal operation or an error message, please contact customer

To prevent similar occurrences, we suggest that you periodically backup all critical files or folders and remember the following tips:

1. Follow **Shutdown/Restart the Server** steps described above for normal shutdown or restart.
2. If you are able to anticipate power outage, please backup all critical files or folder prior to power outage and shutdown your server normally. Restart your server once the power has returned to normal.

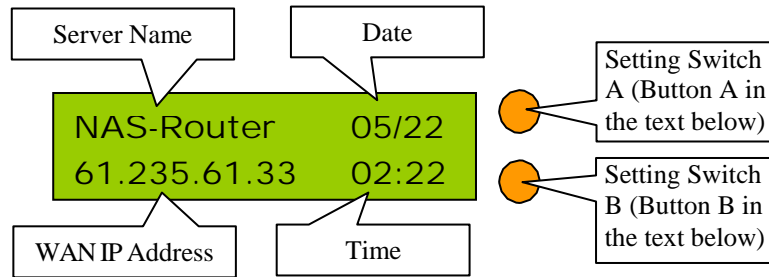
To prevent major data lost of data in the event of a disk failure, please back up your data periodically.

Appendix A LCD Panel

Displayed Information

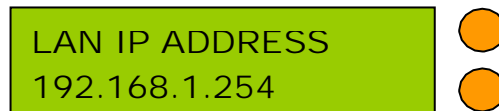
After system powers on, the following information is displayed on the LCD panel:

FNS-6000

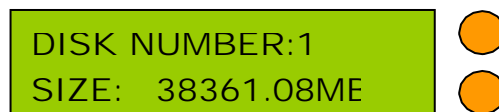


Checking IP Address, System and Disk Information

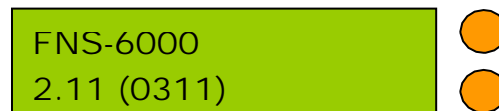
Press B to display the internal IP addresses of this LevelOne FNS-6000 in the local network. Computers connected to the LAN ports can access the LevelOne FNS-6000 via this IP address.



Click on B again to show the available disk space. Please note that this is actually the entire amount of disk space, and not the amount of space that you can use.



Click B again to display the model number and version information as shown below:



System Setup Function

z Entering a System Page

1. Press the switch A for two seconds to enter System Setting

2. Press the switch B for selection options.
3. Press the switch A to enter the selection options:

z **NETWORK SETTINGS**

After enter the Network Settings menu, please press the switch B to choose DHCP or Static IP.

1. **DHCP** - Obtain IP Address Automatically

The LevelOne FNS-6000 will automatically obtain the IP address settings via DHCP protocol.

2. **STATIC IP** - Specify Static IP Address

Press the switch A to select STATIC IP and complete the following steps:

- *SET STATIC IP*

Press the switch B to set the IP address settings (press the switch B to select the number 0~25). Press the switch A for the next number.

- *SET NETMASK*

Follow the same procedure as above.

- *SET GATEWAY*

Follow the same procedure as above.

- *SELECT STATIC IP*

Press the switch B to select YES or NO and confirm by pressing the switch A. NO will return to the Network Settings menu.

- *RESTART SYSTEM*

You need to restart the system to make changes effective. Press the switch B to select YES or NO and press the switch A to confirm.

z **POWER DOWN**

Press the switch A to shutdown the system.

z **REBOOT SYSTEM**

Press the switch A to reboot the system.

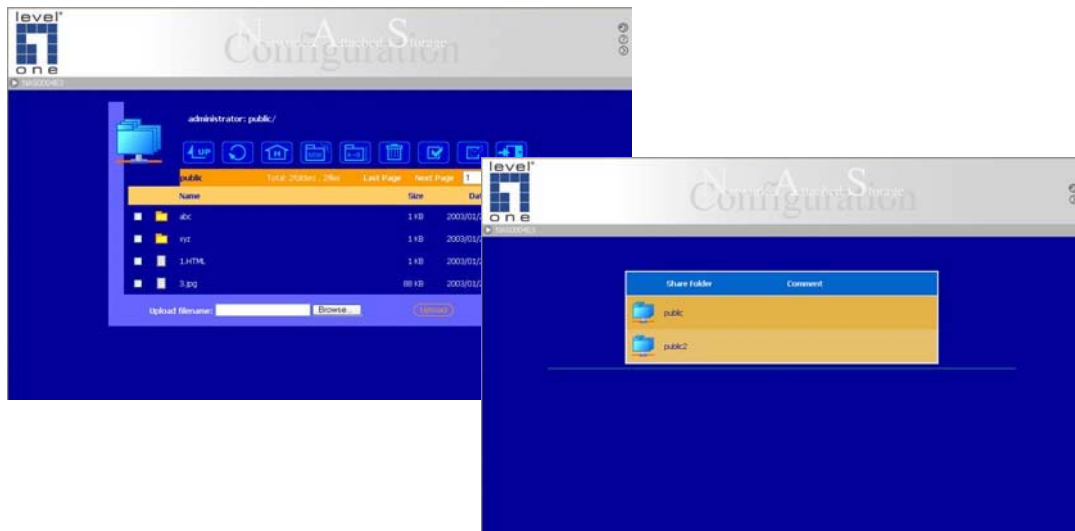
z **EXIT**

Press the switch A to exit the settings menu.

Appendix B Web File Manager

Using Web File Manager

Start your web browser and enter your LevelOne FNS-6000's home page. Select **Web File Manager** and enter the correct login name and password. You may also enter "guest" in the login name field with no password to access the network shares on the




The LevelOne FNS-6000 allows you to organize your network share folders on-line. You can save these files inside folders as well as rename and remove files or folders.


- **How to View Files On-line**

Click on a file displayed on the web page. The file's data are displayed on the browser. If your browser does not support the file format, the download window pops up automatically. Once the file is downloaded, you can open it on

- **How to Create Folders**


1. Enter the folder that you want to create the new folder
2. On the tool bar, click on  (Create Folder).
3. Enter the name of the new folder and confirm.

- **Renaming Files or Folders**

1. Select the file or folder you want to rename.
2. On the tool bar, click on  (Rename).
3. Enter the new file or folder name and confirm

- **Deleting Files or Folders**

1. Check the file(s) or folder(s) you wish to delete

2. On the tool bar, click on  (Delete).
3. A window appears. Click on OK to delete the selected file or folder.

To delete all files and folders, click on  (Select All), then click on  (Delete).


- **Uploading**

1. Enter the folder of the file you want to upload.
2. Click on “Browse...” to select the file you want to upload
3. Click on “Upload”.

- **Downloading**

1. Click the right mouse button on the file which you want to download.
2. A context menu appears. Click on “Save Target As...” to download the file

- **Logging Out Web File Manager**

On the tool bar, click on  (Logout) to leave the web file manager.

Web File Manager Icon



Up - go back to the parent folder



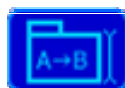
Refresh – reload the current page



Home - go back to the network shares list home page



Create Folder – create a new folder



Rename – rename the selected file or folder



Delete – remove the selected file(s) or folder(s)



Select All – select all files and folders



Select None – cancel all selection



Logout – leave the web file manager



Full access network share folder



Read-only network share folder



Malfunction network share folder

Appendix C Quick Install Wizard

Introduction

The Quick Install Wizard enables you to list the LevelOne FNS-6000 within your local network and display basic information such as server names, workgroups and IP addresses. You may also set up the server name, date/time and basic network configuration of the LevelOne FNS-6000 via this program.

Screenshot

The screenshot displays the Quick Install Wizard interface. It features a table listing discovered LevelOne NAS servers. The table has three columns: Name, IP Address, and Workgroup. The 'Teddy Kuo' server is selected. Below the table are five buttons: Configure, Details, Refresh, Help, and Exit. Callouts provide detailed explanations for each element.

Name	IP Address	Workgroup
LisaChiang	192.176.0.1	RMA
NAS00009C	172.16.13.193	NAS
eric huang	172.16.13.76	NAS
DQV-NAS	172.16.14.182	NAS
NAS39002C	172.16.14.167	NAS
NAS000004	172.16.13.108	NAS
NAS00009E	172.16.13.82	NAS
Teddy Kuo	172.16.13.174	Teddy NAS
DQV-2	172.16.14.125	NAS
DQV_TEST	172.16.14.107	NAS
Home	172.16.14.133	NAS
NAS0000A3	172.16.13.79	NAS

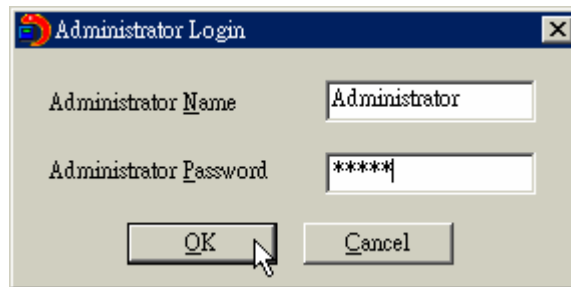
Callouts:

- All LevelOne NASs can be identified using a unique server name.
- Indicates the IP address of the server.
- Windows workgroup joined by the LevelOne NAS.
- Set up Server Name, Date, Time and basic network configurations.
- View detailed information about the selected server.
- Re-search for LevelOne NASs in the network zone
- Display operating instructions for the Installation Wizard
- Configuration complete; exit program

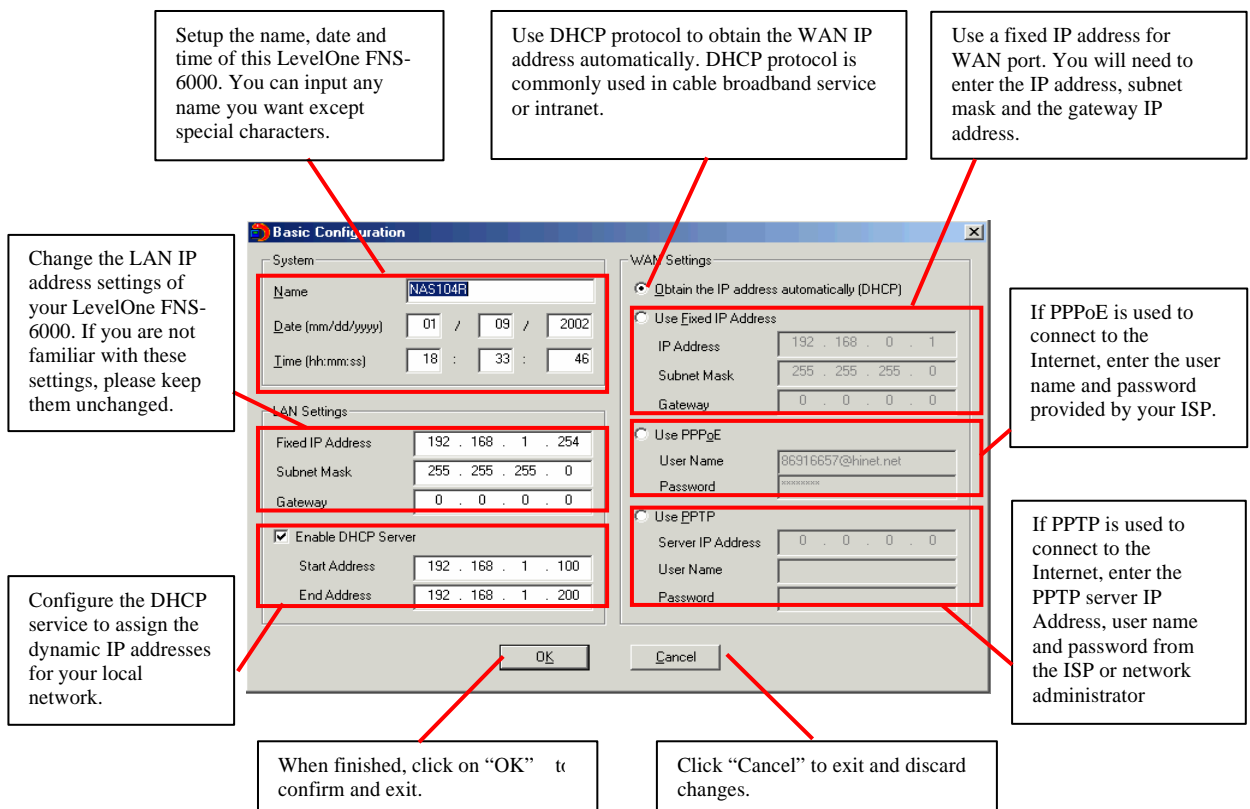
Operation Help

1. Set up your LevelOne FNS-6000:

Select the LevelOne FNS-6000 that you want to configure, and then click on the Configure button. An authentication window asking you to enter the administrator's password appears as shown below:



Click on OK after entering the password. If the name and password are correct, the configuration window is displayed on the screen:



The image shows a "Basic Configuration" dialog box with several sections and annotations:

- System:** Name: NAS104R; Date: 01 / 09 / 2002; Time: 18 : 33 : 46.
- LAN Settings:** Fixed IP Address: 192 . 168 . 1 . 254; Subnet Mask: 255 . 255 . 255 . 0; Gateway: 0 . 0 . 0 . 0; Enable DHCP Server; Start Address: 192 . 168 . 1 . 100; End Address: 192 . 168 . 1 . 200.
- WAN Settings:** Obtain the IP address automatically (DHCP); Use Fixed IP Address (IP Address: 192 . 168 . 0 . 1, Subnet Mask: 255 . 255 . 255 . 0, Gateway: 0 . 0 . 0 . 0); Use PPPoE (User Name: 86916657@hinet.net, Password: ****); Use PPTP (Server IP Address: 0 . 0 . 0 . 0, User Name: , Password:).

Annotations (callouts) include:

- Setup the name, date and time of this LevelOne FNS-6000. You can input any name you want except special characters.
- Use DHCP protocol to obtain the WAN IP address automatically. DHCP protocol is commonly used in cable broadband service or intranet.
- Use a fixed IP address for WAN port. You will need to enter the IP address, subnet mask and the gateway IP address.
- Change the LAN IP address settings of your LevelOne FNS-6000. If you are not familiar with these settings, please keep them unchanged.
- Configure the DHCP service to assign the dynamic IP addresses for your local network.
- If PPPoE is used to connect to the Internet, enter the user name and password provided by your ISP.
- If PPTP is used to connect to the Internet, enter the PPTP server IP Address, user name and password from the ISP or network administrator.
- When finished, click on "OK" to confirm and exit.
- Click "Cancel" to exit and discard changes.

Change the settings and click on OK when done to complete the configuration setup.

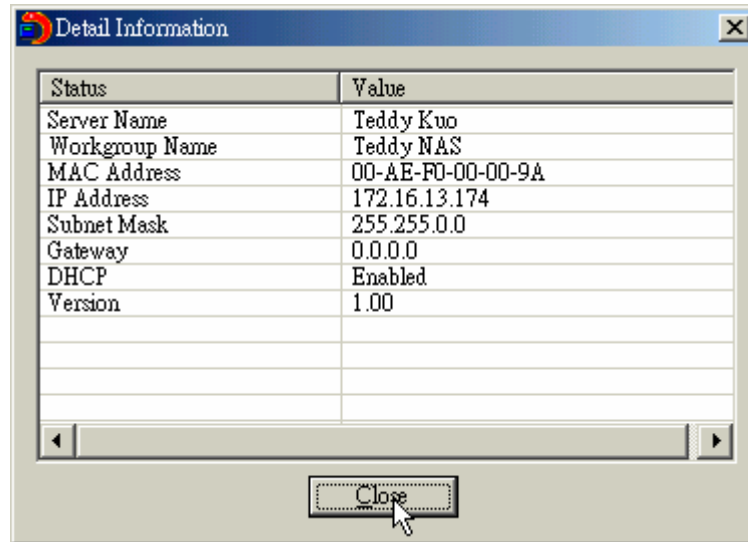
Note:

1. After changing some settings, you may be asked to restart the LevelOne FNS-6000.
2. If you want to set up detailed configuration, you need to enter the administration page of the LevelOne FNS-6000 via the browser.

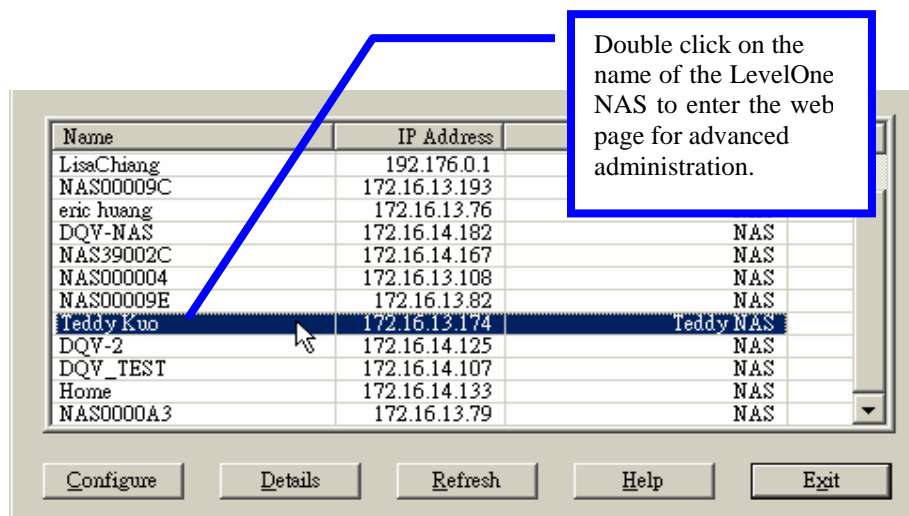
For more configurations, check your browser under “System Administration”

Viewing detailed information on the LevelOne FNS-6000:

Choose the LevelOne FNS-6000 by highlighting it with the mouse, then click on “Group Data” to display current settings and status as shown below:



- To find information on other LevelOne FNS-6000 in the same network:**
Click on “Refresh” in the Toolbar to find information on other LevelOne FNS-6000 in the same network.
- To display User Help File:**
Click on “Help” display the Help file.
- To enter the home page of the LevelOne FNS-6000:**
Double click on the name of the LevelOne FNS-6000 to enter the web page for advanced administration.



Appendix D

Registering a Dynamic Domain Name

Introduction

Your LevelOne FNS-6000 supports the DDNS service provided by DynDNS. You can go to the web site of DynDNS (<http://www.dyndns.org/>) and register for a dynamic domain name. Configure and activate the DDNS service, then the Internet users will be able to access your LevelOne FNS-6000 via this dynamic domain name. When the ISP assigns a new WAN IP address, the LevelOne FNS-6000 will update the new address to the DynDNS server automatically.

Registration Procedure

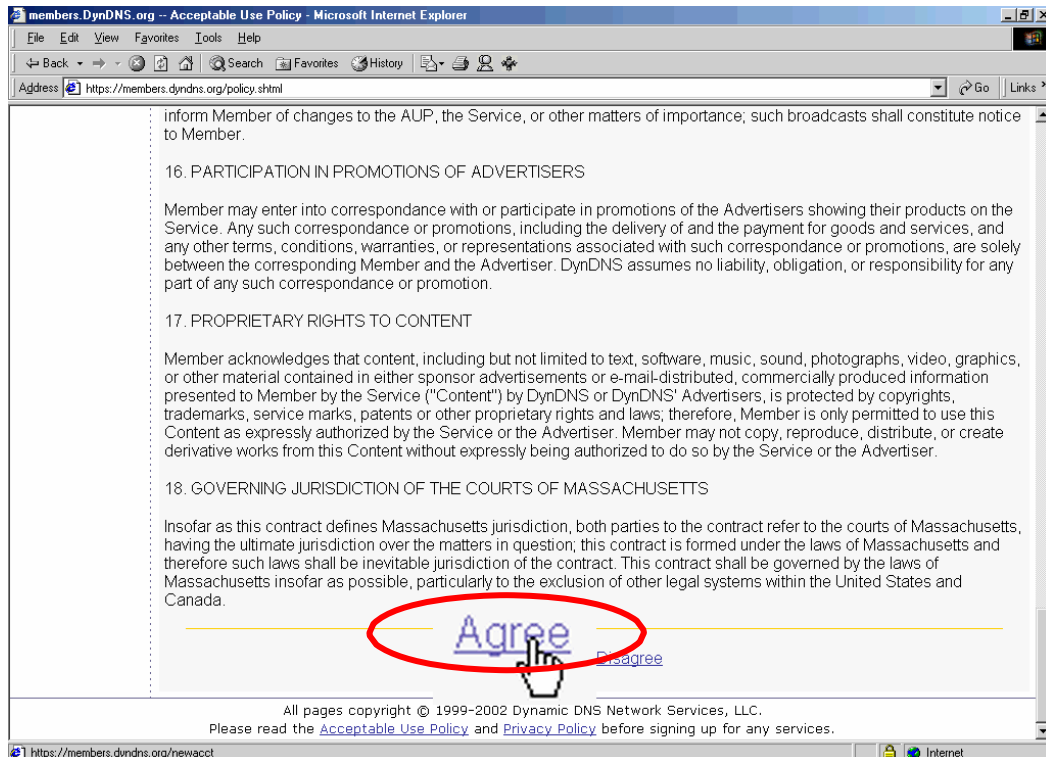
Please follow below steps to register a dynamic domain name:

Note: This guide is for reference only. If there are any changes, please refer to the instructions or documents on the web site.

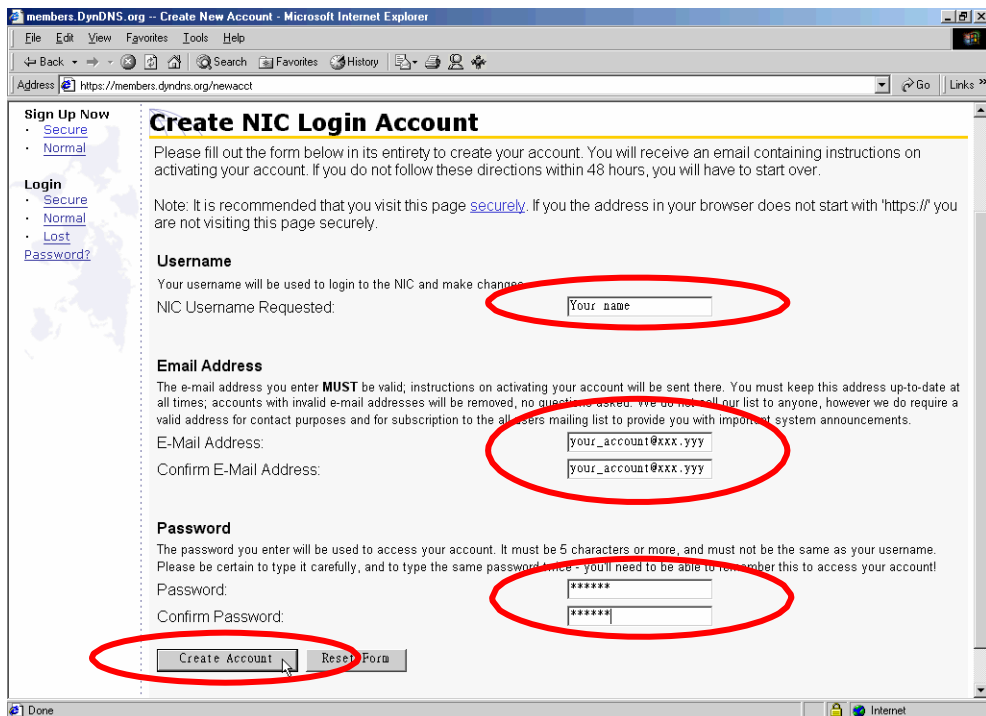
- a. Open the browser and connect to <http://www.dyndns.org>. Click on “Sign Up Now” to begin the registration process.



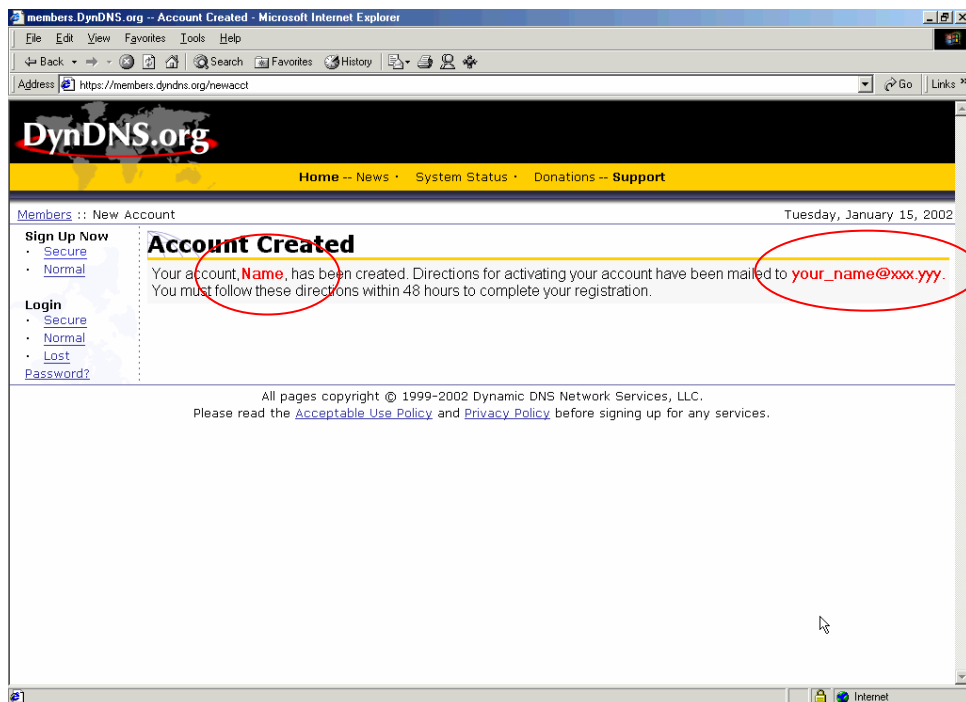
b. Click on “Agree” if you accept the service agreement.



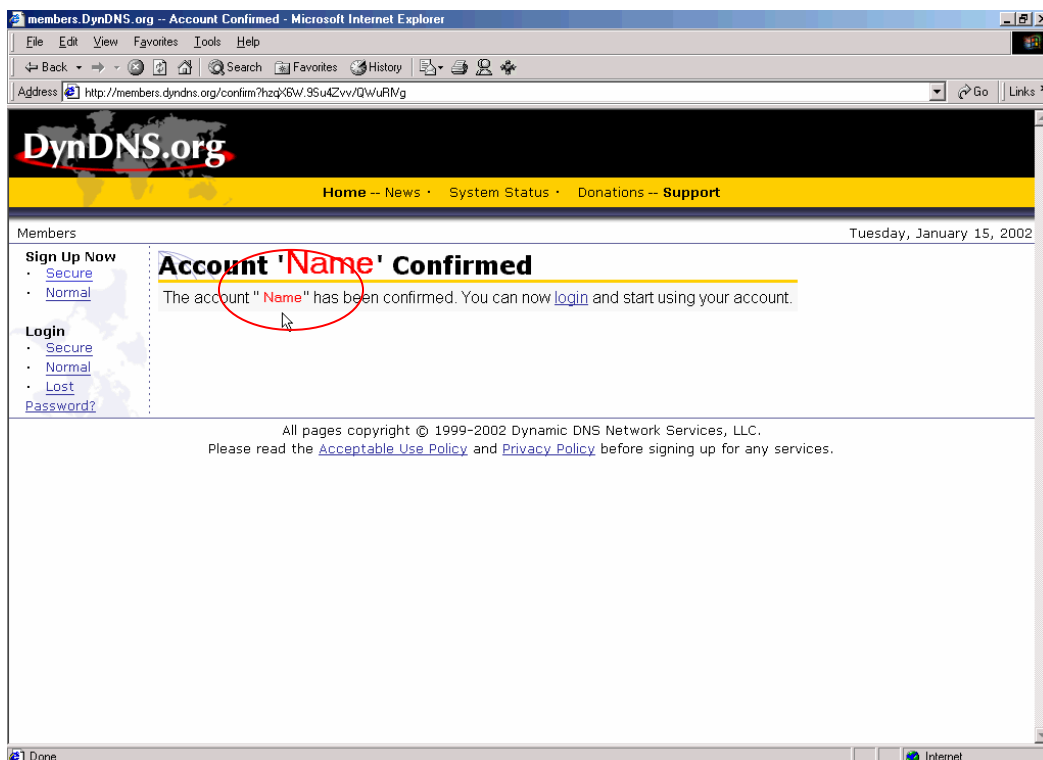
c. Enter the username, email address and password to create a DDNS service account. You will need to enter the same username and password in the **Network Settings · DDNS Service** page of the LevelOne FNS-6000 system administration. Please verify your email address to receive the confirmation message from the server. Then click on “Create Account” to proceed.



- d. If below web page appears on the screen, your account has been successfully created and a confirmation message has been sent to your -mail address. Please follow the instructions in the e-mail to activate your account within 48 hours.



- e. When you have finished the process of confirmation, a new screen will appear and you can apply for your own dynamic domain name.



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