

Network Attached Storage Server Operating System



NASLite+ for USB Flash User Manual

SMB/CIFS, NFS, FTP and HTTP

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Revision History

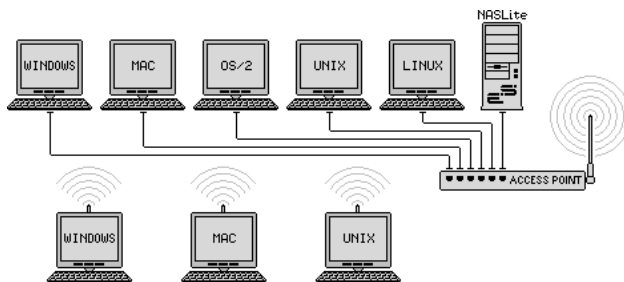
Revision 1.1 September 1, 2005

Revision 1.0 March 15, 2005

What is NASLite+ for USB Flash?

NASLite+ for USB Flash is a Network Attached Storage (NAS) Server Operating System designed to transform a basic computer into a dedicated SMB/CIFS, NFS, FTP and HTTP file server. NASLite+ for USB Flash is specifically designed to boot from a suitable USB flash drive. By booting via USB, all four IDE slots are made available for storage drives. In addition, NASLite+ for USB Flash eliminates the need for a configuration floppy since all necessary configuration data is saved directly to the USB flash drive.

NASLite+ for USB Flash is intended primarily for use in a small business or home office network. It is capable of handling 50 or more workgroup users easily and efficiently even when running on modest hardware. By design, NASLite+ for USB Flash is a community workgroup server and does not support features such as user management, disk quotas or the ability to join domains. However, it is very easy to set-up, to administer and to use.



Typical Multi-OS Network Configuration

Why Use NASLite+ for USB Flash?

NASLite+ for USB Flash is designed to capitalize on the ability of contemporary motherboards to boot from an inexpensive solid-state USB Flash drive. NASLite+ for USB Flash is optimized to perform at maximum efficiency with minimum of hardware requirements. Designed with simplicity in mind, NASLite+ for USB Flash is compact, stable and very reliable. NASLite+ for USB Flash boots directly from a suitable USB flash drive and runs entirely in RAM, thus ensuring consistent OS operation. NASLite+ for USB Flash offers the following features and benefits:

- Easy to operate and to administer
- Inexpensive to run and maintain
- Boots directly from the USB Flash drive
- Stores all configuration options directly to the USB Flash drive
- Remote administration through TELNET
- Simple configuration menu
- Stable and reliable
- SMB/CIFS, NFS, FTP and HTTP exported file systems
- BIOS independent fixed disk drive support
- S.M.A.R.T. support
- Large partition and file support
- Extremely compact in size (Runs in a 4MB RAM Disk)
- Low hardware requirements
- Wide range of PCI hardware support (ISA and EISA not supported)

Using readily available inexpensive components, it is easy to build a very capable NAS server using NASLite+ for USB Flash. As a network file server, NASLite+ for USB Flash may very well offer the highest possible storage capacity for the money. NASLite+ for USB Flash servers of Terabyte or more in storage space can often be built for little more than the cost of the necessary fixed disk drives.

For example, with NASLite+ for USB Flash you can take an existing desktop computer, install four 400GB IDE fixed disk drives, and have a fast, reliable 1.6 Terabyte NAS file server that can be used for a variety of network storage tasks.

NOTE: NASLite+ for USB Flash supports only IDE fixed disk drives as storage media. Drives such as CD, DVD and Iomega-ZIP as well as SCSI, SATA, USB, or FireWire connected fixed disk drives are not supported as storage media.

NOTE: NASLite+ for USB Flash is fully compatible with the CD-ROM based NASLite+ and floppy disk based NASLite file servers. Storage disks are fully interchangeable between all v1.x versions of NASLite.

Getting NASLite+ for USB Flash

NASLite+ for USB Flash is distributed on a CD-ROM or a downloadable CD-ROM ISO image. The CD-ROM contains the NASLite+ for USB Flash

Operating System and documentation as well as the USB Flash Memory Utility required to configure the bootable USB Flash drive. NASLite+ for USB Flash is available for purchase from the Server Elements (www.serverelements.com) website.

NOTE: *NASLite+ for USB Flash is a commercial product and is not freely distributable. Please do not make or distribute illegal copies. Doing so is not only illegal, but undermines our efforts and further impedes our ability to develop the product.*

USB Flash Drive Compatibility

Since NASLite+ for USB Flash is distributed on a CD-ROM, a user-supplied USB Flash drive is required. Although most USB Flash drives will work with most motherboards capable of booting from a USB Flash drive, there are some motherboards that simply will not boot from some USB Flash drives. Refer to your motherboard and BIOS documentation to determine if the USB Flash drive you intend to use is compatible with your motherboard.

Programming The Bootable USB Flash Drive

The distribution CD-ROM provides a special utility that facilitates the programming of your USB Flash drive. You'll need a computer with a bootable CD-ROM and USB support. The process is straightforward and is performed as follows:

1. With the PC powered OFF, insert the USB Flash drive into the USB port. **Ensure that there are no other USB storage devices connected to the PC at this time.**

NOTE: *Some BIOS/USB Flash drive combinations are more finicky than others. On rare occasions, in order to facilitate proper initialization, it may be necessary to power down the computer completely before inserting the USB Flash drive into the computer's USB port.*

2. Boot the computer with the NASLite+ for USB Flash distribution CD-ROM. If the utility fails to detect the USB Flash drive or the CD-ROM source files, the PC will be safely shut down allowing you to make the

necessary adjustments.

3. If all required conditions are met, the utility will allow you to enter the Main Options Menu where you can choose the type of configuration suitable for your application.
4. Select a configuration option (Options 1 or 2) and follow the on-screen directions. The USB Flash drive can be configured as a bootable superfloppy or as a fixed disk with a bootable partition. In most cases both options will work fine, but if for some reason one fails to boot with your motherboard, try the other. Some motherboards are just less tolerant than others.

NOTE: *To compensate for occasional discrepancies in the way the BIOS and Linux interpret Flash disk geometry, starting with NASLite+ for USB Flash v1.1, a modified master boot record (MBR) is used with the bootable partition configuration (Option 2). The modified MBR supports proper booting on many previously incompatible computers.*

5. If the configuration process is successful and all configuration tasks finish with a status of [DONE], then the USB Flash drive has been programmed successfully. Exit the utility and power the PC down.
6. Remove the USB Flash drive from the USB port. It is now ready for use



Basic Computer Requirements

NASLite+ for USB Flash is a network file server, so a fast computer is usually not necessary. Basic requirements are:

- Pentium or better processor
- PCI bus
- 64M or more of RAM
- 1 to 4 IDE fixed disk drives
- BIOS capable of booting from an USB Flash drive
- Available USB port
- PCI or on-board network interface adapter

In dedicated file servers, the performance is most often limited by the network speed. Fast processors will not improve performance and therefore are not required. Most motherboards that will be capable of booting USB devices will already be equipped with a capable processor. 64M of RAM should be sufficient for most applications, but additional RAM may be necessary if large-capacity fixed disks are used. For example, if 250GB fixed disks are used, 128M or more of RAM may be required for optimum performance.

Hardware Setup

If you are preparing a computer for conversion to a NASLite+ for USB Flash file server and wish to replace or add fixed disk drives, do this now and be sure the computer will boot with the new fixed disk drives installed. In addition, since NASLite+ for USB Flash boots from the USB Flash drive, it is necessary to configure the BIOS to the appropriate boot setting.

NOTE: *It's recommended that you set the BIOS IDE fixed disk drive configuration for all IDE fixed disk drives to "NOT INSTALLED" in order to avoid boot problems. NASLite+ for USB Flash does not use the BIOS to identify the available fixed disk drives. Computers with older BIOS may refuse to boot if unable to properly identify the installed fixed disk drives.*

To connect the NASLite+ for USB Flash server to the network, a PCI network interface is required. Many computers utilize a motherboard with a built-in or on-board PCI network interface and therefore will work fine. A general list of supported PCI network interface chipsets is as follows:

- 3COM
- Adaptec Starfire / DuraLAN
- AMD PCnet32 / 8111
- Broadcom 4400
- Davicom
- DECchip
- Digi International RightSwitch
- DIGITAL
- EtherExpress
- HP PCLAN
- Mysom MTD-800 series
- National Semiconductor DP83810 series
- NE2000 compatible
- nForce

- RealTek
- Recal-Interlan
- SiS 900/7016
- SMC
- Sundance Alta
- TI ThunderLAN
- Tulip
- VIA Rhine
- Western Digital
- Winbond W89c840

NASLite+ for USB Flash provides built-in support for a number of common gigabit network interfaces. NASLite+ for USB Flash supports the following gigabit network interface chipsets:

- 3Com 3C985
- Alteon AceNIC
- Broadcom Tigon3
- D-Link DL2000-based
- Intel(R) PRO/1000
- Marvell Yukon Chipset
- National Semiconductor DP83820
- NetGear GA620
- Packet Engines Hamachi GNIC-II
- Packet Engines Yellowfin
- Realtek 8169
- SysKconnect SK-98xx

Initial Software Setup

For the initial NASLite+ for USB Flash software setup, you'll need to have a monitor and a keyboard connected to the computer.

NASLite+ for USB Flash does not need to be installed on a fixed disk like most operating systems. It boots directly from the USB Flash drive and runs in a 4MB RAM Disk.

Initial NASLite+ for USB Flash configuration is summarized below:

1. Boot NASLite+ for USB Flash
2. Supply License ID
3. Configure Network Settings
4. Change Administration Password
5. Save Configuration Settings
6. Reboot to Apply Configuration
7. Configure storage disks
8. Reboot to mount storage disks

Detailed explanation of each configuration step follows:

Step 1 – Boot NASLite+ for USB Flash - Start by booting the computer using the configured USB Flash drive. After the boot sequence is complete, the initial login screen will be displayed.

NOTE: *When running NASLite+ for USB Flash, it's important to ensure that the only USB mass-storage device connected to your server is the USB Flash disk from which the OS boots. If other USB mass-storage devices are connected to the server, you may encounter configuration problems.*

At this stage of the configuration, NASLite+ for USB Flash is in Default Administration Mode. This mode is available only during the first time NASLite+ for USB Flash is booted. Synonymous to Factory Settings, Default Administration Mode is intended primarily to allow the administrator to configure the network settings and save the configuration. During Default Administration Mode, services are not started and fixed disk drives are not checked or mounted.

```

NASLite+ for USB Flash (C) 2005 Tony Z. Tonchev (tzt@serverelements.com)
Login as admin to access the NASLite+ Administration Menu.

> Checking System Resources ----- [ SUCCESSFUL ]
> Configuring NASLite+ ----- [ SUCCESSFUL ]
> License Verification ----- [ UNREGISTERED ]
> Mounting Storage Disk-1 ----- [ DISABLED ]
> Mounting Storage Disk-2 ----- [ DISABLED ]
> Mounting Storage Disk-3 ----- [ DISABLED ]
> Mounting Storage Disk-4 ----- [ DISABLED ]
> S.M.A.R.T. Status ----- [ DISABLED ]
> Launching Services ----- [ DISABLED ]
> Initializing Network ----- [ DISABLED ]
> Administration Mode ----- [ DEFAULTS ]

NASLite login:
    
```

**NASLite+ for USB Flash
Default Administration Mode
Console Login Screen**

The login name is **admin** (in lower case letters). During Default Administration Mode, the admin password is always **nas** (also in lower case letters). When you have successfully logged in, the NASLite+ for USB Flash Administration Utility

Options Menu will be displayed. All configuration settings are done using this menu. During Default Administration Mode, all menu options are available with the exception of Configure Storage Disks (Option 4).

```

NASLite+ for USB Flash v1.1 - Administration Utility

OPTIONS MENU

1 - Change Network Settings - ( 192.168.1.1 / 255.255.255.0 )
2 - Change Name - ( NASLite )
3 - Change Workgroup - ( MyWorkgroup )
4 - Configure Storage Disks
5 - Change Password
6 - Change Date and Time - ( Tue Aug 30 10:50:37 UTC 2005 )
7 - Reboot
8 - Shutdown
9 - Save Configuration

A - About
L - License - ( 00000-00000-00000-00000-00000 )
E - Exit

Select: >
    
```

**NASLite+ for USB Flash
Administration Utility Options Menu**

Step 2 - Supply License ID – Starting with NASLite+ for USB Flash v1.1, a valid License ID is required in order to enable NAS functionality. A typical License ID consists of 5 sets of 5 alphanumeric characters and should be unique for each running copy of NASLite+ for USB Flash. A unique license ID is supplied with each copy of NASLite+ for USB Flash at the time of purchase. You can enter a valid License ID by using License (Option L) of the Administration Utility Options Menu.

Step 3 - Configure Network Settings – NASLite+ for USB Flash network configuration consists of setting the IP Address, Server Name and Workgroup Name (Options 1, 2, and 3). Make sure that the IP address is unique and is in the same subnet as the rest of the local workgroup computers. The server name is what you will see when you browse the workgroup or network from your computer and should also be unique.

Step 4 - Change Administration Password – It is recommended that the default NASLite+ for USB Flash password be changed to something more effective than the Default Administration Mode

password. Change the admin password (Option 5) and save it (Option 9).

Step 5 - Save Configuration Settings - The network settings as well as the administration password are stored directly on the USB flash drive so when you have set the IP address, server name and workgroup name, and changed the administration password, the settings must be saved (Option 9).

Step 6 – Reboot to Apply Configuration - To apply the new configuration settings the NASLite+ for USB Flash server must be rebooted (Option 7). Booting NASLite+ for USB Flash with custom configuration settings will launch all services and enable the storage fixed disk drive configuration (Option 4) in the NASLite+ for USB Flash Administration Utility Options Menu.

NOTE: *Some BIOS/USB Flash drive combinations may be more finicky than others. On rare occasions an otherwise properly configured USB Flash disk may fail to initialize after boot. Observing the “Configuration Media” prompt can identify that condition. NASLite+ for USB Flash will not proceed unless the configuration media is available. This condition is hardware specific. In most cases powering the computer completely down and rebooting will resolve the problem.*

Now it is good to ensure that the network interface was detected and properly initialized. The **Initializing Network** status [SUCCESSFUL] is displayed, and the READY audible prompt generated (see NASLite+ for USB Flash as an Appliance), then the network interface is supported and ready.

If NASLite+ for USB Flash fails to detect and initialize the network interface, the CHECK NETWORK audible prompt is generated. In this case, the network interface may be damaged or not supported. A compatible, working network interface must be installed.

NOTE: *Previously configured storage drives, NASLite+ storage drives or storage drives configured with a floppy disk versions of NASLite will be mounted and exported accordingly at this time. A [SUCCESSFUL] status will be displayed for all currently mounted drives. Be careful not to reconfigure these drives unintentionally in the next step.*

```

NASLite+ for USB Flash (C) 2005 Tony Z. Tonchev (tzt@serverelements.com)
Login as admin to access the NASLite+ Administration Menu.

> Checking System Resources ----- [ SUCCESSFUL ]
> Configuring NASLite+ ----- [ SUCCESSFUL ]
> License Verification ----- [ REGISTERED ]
> Mounting Storage Disk-1 ----- [ SUCCESSFUL ]
> Mounting Storage Disk-2 ----- [ SUCCESSFUL ]
> Mounting Storage Disk-3 ----- [ SUCCESSFUL ]
> Mounting Storage Disk-4 ----- [ SUCCESSFUL ]
> S.M.A.R.T. Status ----- [ ACTIVE ]
> Launching Services ----- [ SUCCESSFUL ]
> Initializing Network ----- [ SUCCESSFUL ]
> Administration Mode ----- [ NORMAL ]

NASLite login:

```

**NASLite+ for USB Flash
Normal Administration Mode
Console Login Screen**

Step 7 - Configure Storage Disks – NASLite+ for USB Flash fixed disk drives need to be set up next (Option 4). The Configure Storage Disks menu screen (Option 4) explains the process in detail. Configuration will reformat each fixed disk drive. This may take a few minutes, depending on the disk capacity.

NOTE: *During storage disk configuration, all data currently on the fixed disk will be lost. If you wish to preserve the data, make sure it's properly backed up before configuring the fixed disk for use as NASLite+ for USB Flash storage.*

Step 8 – Reboot to mount storage disks - To finalize the NASLite+ for USB Flash configuration and mount all newly configured storage disks, a final reboot is necessary. Reboot the NASLite+ for USB Flash server (Option 7). Assuming all configuration settings are correct, the NASLite+ for USB Flash server should now be online and ready for use.

Remote Administration

NASLite+ for USB Flash can be administered remotely via TELNET. All administration options available via the console are also available remotely via TELNET. To confirm remote access, it is a good idea to log in to the NASLite+ for USB Flash server using TELNET from any computer on your network

at this point. For example, to login via TELNET from Windows, follow these steps:

1. Click Start, then click Run.
2. Open a TELNET session by Typing telnet and a space and then type the IP address of the NASLite+ for USB Flash server. For example: `telnet 192.168.1.1`, then click OK
3. You should get the NASLite+ for USB Flash login prompt. Login and you should see the NASLite+ for USB Flash Administration Utility Options Menu.
4. Log out (Option E).
5. Your TELNET window will close.

NOTE: While in Default Administration Mode, the NASLite+ for USB Flash Administration Utility will not be accessible remotely via TELNET.

Server Security



The storage made available by NASLite+ for USB Flash is not restricted in any way. As a community file server, any user capable of accessing the NASLite+ for USB Flash server via SMB/CIFS, NFS, FTP or HTTP can read and write openly. Only the NASLite+ for USB Flash Administration Utility is password protected in order to restrict unauthorized access to the Options Menu.

Using The SMB/CIFS Server

NASLite+ for USB Flash exports all storage disks to the local network via SMB/CIFS (Server Message Block)/ (Common Internet File System), commonly known as Microsoft Windows Networking. NASLite+ for USB Flash will export all installed and configured fixed disk drives available on the server computer as **Disk-1** through **Disk-4** respectively. These names are fixed and cannot be changed. All **Disk-X** shares are read/write enabled and are accessible by all local network and workgroup users. The **Disks** and **Info** shares are made available by default, and are read-only.

NASLite+ for USB Flash will appear as a member of the local workgroup when the Network Neighborhood is browsed. Accessing the NASLite+ for USB Flash storage drives is exactly the same as accessing remote windows shares. In addition to Windows, NASLite+ for USB Flash SMB/CIFS

shares can be accessed by most operating systems including OS X and Linux.

Name ▲	Comment
 Disk-1	NAS Disk-1 (Read / Write)
 Disks	NAS Disks (Read Only)
 Info	NAS Information (Read Only)

Typical NASLite+ for USB Flash Workgroup Shares

Using The NFS Server.

NASLite+ for USB Flash exports all storage disks to the local network via NFS (Network File System). NASLite+ for USB Flash will name all installed and configured fixed disk drives available on the server computer as **/export/Disk-1** through **/export/Disk-4** respectively. These names are fixed and cannot be changed. All **/export/Disk-X** exports are read/write enabled and are accessible by all users. The **/export/Info** export is made available by default, and is read-only.

To connect to a NASLite+ for USB Flash export via UNIX, the **mount** command can be used. Connections from OS X or KDE however are more convenient using the available GUI facilities. All that is required is the appropriate server export address as illustrated in the OS X example shown below:



Connecting to NASLite+ for USB Flash via OS X

Most UNIX operating systems should readily support mounting of remote NFS exports. **Windows Services for UNIX** is required for Windows NT/2K/XP to mount NASLite+ for USB Flash NFS exports.

To determine which drives are available and exported by NASLite+ for USB Flash, one can examine the **NFS Server Configuration (NFS Exports)** section of the Status Info **Server** page (see Status Info).

Using The FTP Server

NASLite+ for USB Flash exports all storage disks to the local network via FTP (File Transfer Protocol). NASLite+ for USB Flash will name all installed and configured fixed disk drives available on the server computer as **Disk-1** through **Disk-4** respectively. These names are fixed and cannot be changed. All **Disk-X** folders are read/write enabled and are accessible by all users. The **Info** folder is made available by default, and is read-only.

Name	Size	Type	Modified
Disk-1		File Folder	6/16/2004 8:51 AM
Disk-4		File Folder	6/23/2004 11:37 AM
Info		File Folder	6/23/2004 11:43 AM

Typical NASLite+ for USB Flash FTP Shared Folders

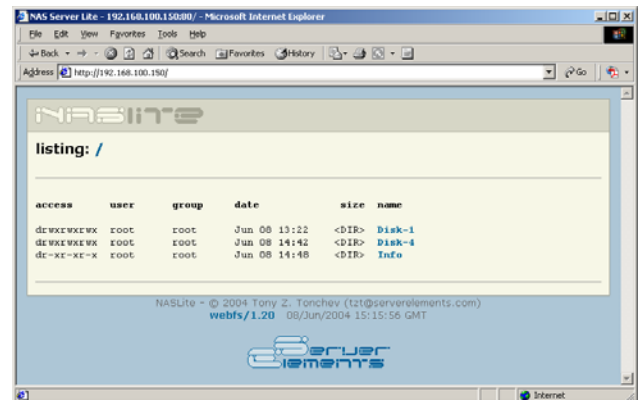
You will be able to connect to the NASLite+ for USB Flash server via any FTP client. For example assuming that your NASLite+ for USB Flash server IP address is set to 192.168.1.1, then entering `ftp://192.168.1.1` in the Windows Explorer's address bar will access the server contents. Since the server is read/write enabled, files and folders may be dragged-and-dropped to and from the NASLite+ for USB Flash server window.

Using The HTTP Server

The NASLite+ for USB Flash storage contents can be accessed using any web browser via HTTP (Hypertext Transfer Protocol). For example

assuming that your NASLite+ for USB Flash server IP address is 192.168.1.1. Entering `http://192.168.1.1` in the browser's address bar can then access the server content inside the browser window. All NASLite+ for USB Flash storage contents are made available via HTTP as read only.

The NASLite+ for USB Flash HTTP server supports a complete set of mime types, making it the perfect solution for serving music files, digital images, scanned forms and documents, HTML files, PDF documents, movie files or any other content suitable for read-only intranet web distribution.



Typical NASLite+ for USB Flash HTTP Content

Disk Health and Monitoring

When the NASLite+ for USB Flash server boots, each fixed disk drive filesystem is identified and checked. If a filesystem is identified and maintenance is scheduled, NASLite+ for USB Flash automatically analyzes and attempts to fix any existing filesystem problems before storage is made available for use.

NOTE: When a fixed disk drive filesystem is being checked, NASLite+ for USB Flash storage will not be available for use. The pending check may take anywhere from 1 to 20 or more minutes depending on the fixed disk drive size and contents. A pending check can be identified by observing the associated fixed disk drive activity LED shortly after booting NASLite+ for USB Flash. The associated fixed disk

drive activity LED will be continuously on for the duration of the check.

On rare occasions, NASLite+ for USB Flash will not be able to automatically repair a damaged filesystem. If this occurs, use the Configure Storage Disks submenu (Option 4). It provides the Check Storage Disk (Option C), necessary for manual filesystem check and repair. Checking each fixed disk drive filesystem may take a few minutes, depending on the disk capacity.

NASLite+ for USB Flash also monitors the health of the storage fixed disk drives using Self-Monitoring, Analysis and Reporting Technology (SMART) built into most modern ATA fixed disk drives. In many cases, NASLite+ for USB Flash will provide advanced warning of fixed disk drive degradation and failure. When NASLite+ for USB Flash first boots, it initiates a SMART Self-test for each one of the configured storage fixed disk drives.

Using the Configure Storage Disks submenu (Option 4), periodic SMART status monitoring can be disabled. When enabled, the SMART status of the configured storage fixed disk drives is checked every 5 minutes. The fixed disk drives SMART status can be viewed using the NASLite+ for USB Flash Status Info made available through the Info share.

In the event of approaching failure, with SMART status enabled, NASLite+ for USB Flash will begin generating a 5-beep audible alarm every 5 minutes. At that time it is best to take the necessary precautions to remove important data from the affected disk.

Content Backup

NASLite+ for USB Flash does not provide a built-in backup. Backup of content residing on a NASLite+ for USB Flash server is best performed from another workgroup computer.

NASLite+ for USB Flash as an Appliance

NASLite+ for USB Flash is well suited for operation as a network appliance, remotely administered and without an attached monitor and keyboard. Remote

administration can be performed from any computer on the same network via TELNET.

To compensate for the lack of visible indicators on the physical server, NASLite+ for USB Flash employs a number of audible prompts that indicate states and or conditions. The audible prompts are generated via the PC speaker, so no additional sound hardware is necessary.

NOTE: In reference to the **NASLite+ for USB Flash Audible Prompts table**, the information provided in the **AUDIBLE PROMPT** column represents the number of beeps and their pitch. For example, when the NASLite+ for USB Flash server is ready for use, it will generate a **READY** prompt by sounding two 300Hz beeps followed by a single 700Hz beep.

AUDIBLE PROMPT	STATE
2 x 300Hz 1 x 700Hz	READY - Server is online and ready for use.
2 x 700Hz 1 x 300Hz	SHUTDOWN - Power may be shut down manually in 5 seconds.
5 x 200Hz	CHECK NETWORK - Unable to detect or initialize network interface card.
3 x 700Hz 3 x 300Hz	CHECK DISK - Fixed disk drive fails overall SMART self-assessment.
5 x 700Hz	DEFAULT ADMINISTRATION MODE - Server started without a configuration floppy disk.

**NASLite+ for USB Flash
Audible Prompts**

Administration Utility

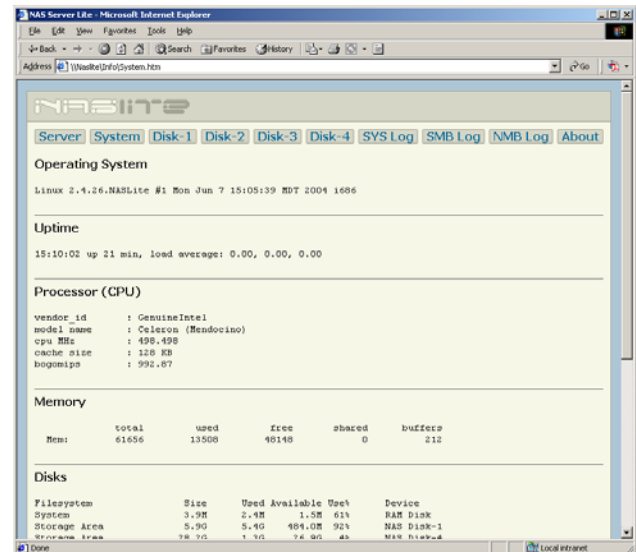
The NASLite+ for USB Flash Administration Utility is a console-based menu-driven utility that can be accessed at the server computer via a locally connected monitor and keyboard, or remotely through TELNET. The NASLite+ for USB Flash Administration Utility menu options are as follows:

- **1 - Change Network Settings**
Configure server IP address and netmask.
- **2 - Change Name**
Set unique server name. The server name is what the NASLite+ for USB Flash server calls itself when participating as a member of a Windows workgroup.
- **3 - Change Workgroup**
Set the name of the Windows workgroup this NASLite+ for USB Flash server will join.
- **4 - Configure Storage Disks**
Format available fixed disk drives for use as NASLite+ for USB Flash storage. Manually check and repair a filesystem. Enable or disable S.M.A.R.T. Status feature. Configure Storage Disks (Option 4) is not available in Default Administration Mode.
- **5 - Change Password**
Change the **admin** user password. During Default Administration Mode, the admin password is always **nas**.
- **6 - Change Date and Time**
Set the NASLite+ for USB Flash computer date and time. Provided values must be in GMT time.
- **7 - Reboot**
Reboots the NASLite+ for USB Flash server.
- **8 - Shutdown**
Shuts down the NASLite+ for USB Flash server.
- **9 - Save Configuration**
Saves network configuration settings to a NASLite+ for USB Flash configuration floppy disk.
- **A - About**
Displays basic status information about the current NASLite+ for USB Flash state.
- **L - License**
Set the NASLite+ for USB Flash License ID
- **E - Exit**
Exits the NASLite+ for USB Flash Administration Utility Options Menu.

NOTE: While in Default Administration Mode, the NASLite+ for USB Flash Administration Utility will not be accessible remotely via TELNET.

Status Info

NASLite+ for USB Flash exports a special **Info** share for the purpose of providing server status information. The status information is made available via a number of HTML pages that are automatically updated every 5 minutes. To access the server status pages, click to view any of the HTML files from the Info share. Your default HTML browser will open the selected HTML page. At that time you can navigate between the individual status pages by using the provided link buttons.



Typical NASLite+ for USB Flash Status Info Page

The NASLite+ for USB Flash Info share offers the following status information pages:

- **Server** - Provides information about server network settings, lists recent server users and displays the server (NFS and Samba) configuration files.
- **System** - Displays information about the server OS, uptime, load, CPU, memory, fixed disk drive usage and network interface

status.

- **Disk-1** - Displays Disk 1 initialization messages, hardware description and S.M.A.R.T. status information if applicable. Disk 1 is the primary (master) fixed disk drive on the primary IDE controller.
- **Disk-2** - Displays Disk 2 initialization messages, hardware description and S.M.A.R.T. status information if applicable. Disk 2 is the secondary (slave) fixed disk drive on the primary IDE controller.
- **Disk-3** - Displays Disk 3 initialization messages, hardware description and S.M.A.R.T. status information if applicable. Disk 3 is the primary (master) fixed disk drive on the secondary IDE controller.
- **Disk-4** - Displays Disk 4 initialization messages, hardware description and S.M.A.R.T. status information if applicable. Disk 4 is the secondary (slave) fixed disk drive on the secondary IDE controller.
- **SYS Log** – Displays the current system messages log file.
- **SMB Log** – Displays the current SMB/CIFS Server (smbd) log file.
- **NMB Log** - Displays the current NetBIOS Name Server (nmbd) log file.
- **About** – Contains general NASLite+ for USB Flash information.

Source Components

NASLite+ for USB Flash is built using a number of proprietary Server Elements components as well as one or more components of the following:

- **Linux Kernel**
(www.kernel.org) - POSIX compliant Unix clone
- **Samba**
(www.samba.org) - SMB/CIFS file services
- **nfs-utils**
(<http://sourceforge.net/projects/nfs/>) - NFS utilities

- **vsftpd**
(vsftpd.beasts.org) - FTP services
- **uClibc**
(www.uclibc.org) - Compact C library
- **BusyBox**
(www.busybox.net) - Compact Unix utilities
- **e2fsprogs**
(e2fsprogs.sourceforge.net) - Second extended file system utilities
- **webfs**
(www.bytesex.org) - Simple HTTP Server
- **smartmontools**
(smartmontools.sourceforge.net) - S.M.A.R.T. utility toolset.

Source code for the GPL portions of NASLite+ for USB Flash can be found on the Server Elements website (www.serverelements.com).

Internet Resources

Additional information, the latest releases, as well as well-mediated user forums covering NASLite+ for USB Flash and related OS products can be found on the Server Elements (www.serverelements.com) website. In addition to this manual, the user forums are the best place for information regarding the use, administration and maintenance of your NASLite+ for USB Flash file server.

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