

Introduction

Before setting up your TeraStation, it is recommended to get familiar with some of the basic features and terminologies associated with the device. Depending on the operating system of the systems that will be attaching to the TeraStation, a summary of important limitations is included as well.

Special Notes

- The Gigabit Ethernet LAN interface is backward compatible with 1000BASE-T/100BASE-TX/10BASE-T Ethernet LAN interfaces. It is not necessary to use only 1000BASE-T LAN hardware with the TeraStation.
- Group and User Level access can be customized for each Shared Folder you create on the TeraStation drives. By default, Shares will be created with full access to every user, so to maximize the security of a new Shared Folder, select Groups and Users that should be allowed access at the time the Share is created.
- Should there be no disk access over a 30 minute period of time, TeraStation will safely stop the revolution of the internal drives to preserve disk life. Should an access be requested, the drives will automatically begin operating again - creating a minimal delay to allow for safe start up of the disk.
- USB 2.0/1.1 ports are located on the front and rear panel of the TeraStation. External USB drives can be attached to expand the total capacity of network attached storage or be used as backup destinations for the contents of the internal hard drives. If a USB printer is attached, the TeraStation can act as a print server to make it available to other network devices.
- TeraStation offers four Disk Modes for the internal drives. The type of mode selected should correspond to the desired usage and capacity of the network available storage.

Standard Mode (250GB×4)

Each drive is recognized as a single 250 GB share. Should a drive failure occur, the contents of the drive will be lost. Therefore, in Standard Mode, it is vital to implement an effective backup procedure to another TeraStation or USB drives if data loss due to drive failure is not acceptable.

Spanning Mode (1TB×1)

All four drives are recognized as a single 1000 GB share. Should a drive failure occur, the contents of all 4 drives will be lost. Therefore, in Spanning Mode, it is vital to implement an effective backup procedure to another TeraStation or USB drives if data loss due to drive failure is not acceptable.

Mirroring Mode RAID 1 (250GB×2)

Two pairs are created from the 4 drives as two separate 250 GB shares. Data stored on each pair is mirrored automatically to the drive it is paired with. Therefore, should a single drive fail, data is not lost as it is also located on the mirrored drive of the pair. Drive replacement and rebuilding of the Mirror should occur as soon as possible though.

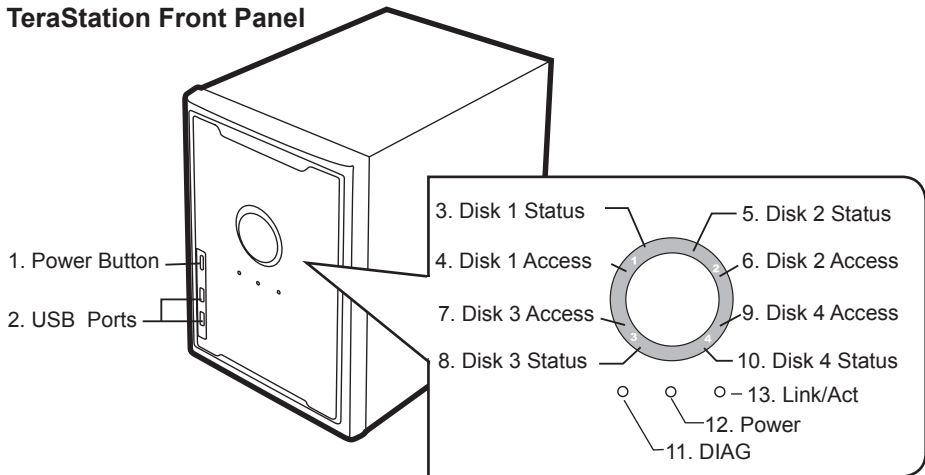
Parity Mode RAID 5 (750GB×1)

All four drives are recognized as a single 750 GB share. Using parity and striping data across all four drives, data can be salvaged in the event of a disk failure, but a failed drive should be replaced as soon as possible.

Note: The number of capacity is depending on the total HDD capacity. Above number represents HD-H1.0GTL/R5 case.

Introduction

TeraStation Front Panel



1. Power Button

Power ON - Press the Power Button.
Power OFF - Press and hold the Power Button for three seconds and release.

2. USB 2.0/1.1 Ports (Series A)

External USB Hard Drives and USB Printers can be connected for sharing over the network.
Other USB devices are not supported - such as USB card readers and flash drives.

3. Disk 1-4 Status/Full (also 5, 8 and 10)

a. OFF - Corresponding hard drive not detected
b. Green - Corresponding hard drive detected
c. Green Blinking - Disk Check/Format in progress
d. Red - Drive capacity at over 90% used
Red Blinking - Possible physical drive failure

4. Disk 1-4 Access (also 4, 7 and 9)

Green Blinking - Hard drive being accessed

Note: While the TeraStation is in the startup process, the above LEDs will blink in a pattern like a roulette wheel. Once startup has completed, normal or diagnostic operation will resume.

11. DIAG

When an error occurs, the DIAG LED will blink in a pattern that can be read to understand an error message or alert. When RAID Array Configuration is running the DIAG LED blinks once a seconds too.

Note: While a firmware update is taking place the Power and DIAG LEDs will flash. This does not indicate any errors or problems, but rather a warning to not interrupt or turn off the TeraStation. Never turn off or remove power from the TeraStation while upgrading the firmware.

12. Power

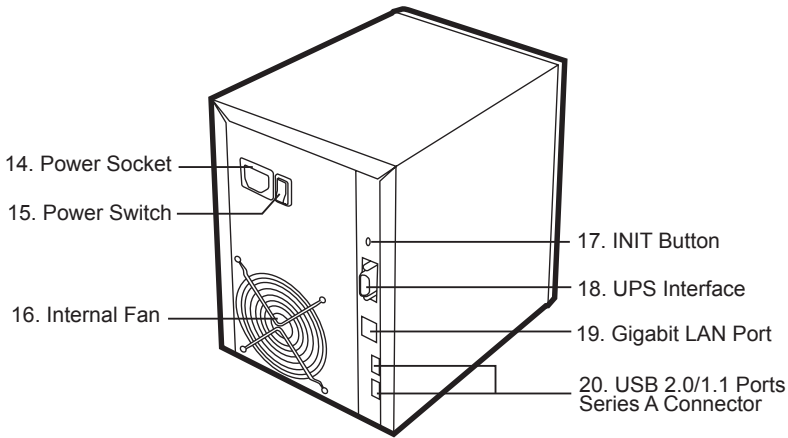
OFF - Power source is off
Green - Power source is on
Green Blinking - System booting or shutting down
Green Slow Blinking - Disk Sleep Mode

13. Link/Act

Blue - 1000Mbps link detected
Green - 100Mbps link detected
Red - 10Mbps link detected

When the Link/Act LED is blinking, it denotes network activity in or out of the TeraStation LAN adapter.

TeraStation Rear Panel



14. Power Socket

The connector for attaching the power cord to the TeraStation.

15. Power Switch

The main power switch for the TeraStation. Once set to the ON position, the Power Button on the front panel of the TeraStation can be used for controlling the starting and shutdown of TeraStation.



Note: If the power switch is left in the OFF position for an extended period of time, the internal system clock of the TeraStation may reset to its default setting of November 1, 2004. The system time will need to be set again to keep the local system time accurate should this occur.

16. Internal Fan

The internal fan will adjust its speed depending on the temperature of the TeraStation. To prevent possible overheating, keep the fan clear and clean of any obstacles or dust accumulation.

17. INIT Button

The INIT switch is used to restore factory default settings on the TeraStation. Reference page 23 of this manual for further instructions on this process.

18. UPS Interface

The connector for attaching the TeraStation to a UPS Power Supply to allow safe shutdown of the TeraStation in the event of a power failure. This interface is non-LPS. The cable type DP-1, DP-1P or DP-2,DP-2P can be used to connect to UPS.

19. Gigabit LAN Port

The connector for attaching the TeraStation to a network via Ethernet cable. Applicable indoors Local Area Network system without hazardous voltage.

20. USB 2.0/1.1 Ports (Series A Connector)

External USB Hard Drives and USB Printers can be connected for sharing over the network. Other USB devices are not supported - such as USB card readers and flash drives.

Important Limitations

Note: The following information is based on the status of the latest released firmware for TeraStation. Future updates will be reflected in updated manuals. For the latest firmware available, check our company website at www.buffalotech.com.

- The writing of files greater than or equal to 2 GB is prevented due to operating system limitations with Windows 98SE/98/95 and Mac (AppleTalk) operating systems.
- The writing of files greater than or equal to 4 GB is prevented due to operating system limitations with the Windows Millennium operating system.
- File names and folder names should not contain more than 120 characters in their entire directory path to prevent errors when attempting to copy to them.
- TeraStation does not support the Hidden File attribute.
- Over extended periods of time, the set time of the TeraStation may slip behind and require the clock to be reset. To circumvent this behavior, use the NTP client feature which is explained fully on page 12 of this manual.
- When using Chinese characters in a Shared Folder or Workgroup name, there may be occasional problems with the name properly displayed. To circumvent this behavior, use non-Chinese characters when the behavior is displayed.
- The following terms are not allowed to be used as names when creating Users or Groups on the TeraStation:
root,bin,daemon,sys,adm,tty,disk,lp,sync,shutdown,halt,operator,nobody,mail,news,uucp,ftp,km
em,utmp,shadow,users,nogroup,all,none,hdusers,admin,guest
- The following terms are not allowed to be used as names when creating Shared Folders on the TeraStation:
info,spool,usbdisk1,usbdisk2,usbdisk3,usbdisk4,lost+found,global,printers,homes,lp
- The following characters are not allowed to be included in the name used for a file or Shared Folder when using Mac OS (AppleTalk) devices with the TeraStation.
? [] / \ = + < > ; : " , | *

- For Users that will be accessing the TeraStation Shared Folders from Windows 98SE/98/95 computers, do not create a password longer than 15 alphanumeric characters. For Users that will be accessing the TeraStation Shared Folders from Mac OS computers, do not create a password longer than 9 alphanumeric characters.
- Though the TeraStation uses a Journaling File System to prevent data loss in the event of a power failure, there is a remote possibility of the following phenomenon occurring during a power failure during a file copy:
 - File attributes can be lost for a file that was midway through copying at the point of the power failure.
 - A hard drive error may be indicated falsely that requires the TeraStation to be rebooted and a Disk Check run and a re build of any RAID arrays.
 - A file that was midway through copying at the point of power failure may not be able to be deleted unless the TeraStation is restarted.
- The status of the internal drive capacities, capacity used and available space may not add up to the total size of the hard drive. This is due to some of the drive space being used for system information.
- When a Windows user name and password is used to log into a Windows computer or domain, the same user name and password should be used when creating the user's account on the TeraStation. Otherwise, problems accessing Shared Folders may occur.
- When copying a file that uses superscript in its file name (common with some international character sets), the date and time attributes may not be properly set on the TeraStation for that particular file.
- The drive volume indicated from the TeraStation browser interface and the drive volume indicated by Windows may vary.
- When using Windows ME/98SE/98/95 operating system, do not use the Windows Family Logon with TeraStation. Instead, use the Windows Network Login service with an identical user name and password created for the user on the TeraStation.
- The Disk Backup and Disk Sleep services can not be used concurrently on the TeraStation. To avoid conflicts, only use one of these services on your TeraStation. The TeraStation will still stop the spinning of its internal disks if Disk Backup is used and there is 30 minutes of non-activity.
- If a Mac OS user logs on to a Microsoft Windows Domain, the same credentials can not be used for the user name and password to access a TeraStation.
- File and directory attributes can not be modified by an FTP client when the TeraStation FTP server is enabled. To modify attributes, use the browser management instructions shown on page 16 of this manual.
- When using Jumbo Frame, the switch must support the Jumbo Frame standard designated (4100 bytes/7418 bytes). For further information, reference page 13 of this manual.
- When backing up one TeraStation to another as shown on page 19, the same Ethernet frame size must be used on both TeraStations as shown on page 13 of this manual.
- If the Disk Sleep mode is enabled while a backup is in progress, the backup job in progress will complete and then be disabled. No further backups will occur unless Disk Sleep mode is disabled.
- If the Disk Mode or Shared Folders are moved or deleted after a backup has already been scheduled, be sure to modify the scheduled backups to reflect the change to prevent loss of data due to failed backups.

Mac OS Limitations

- When using Mac OS X (post 10.2 with AppleTalk) without SMB, do not use Japanese characters in folder or file names to prevent errors accessing the data over a network.
- Mac OS 9 and Mac OS X can not see files on the network with names made up of over 32 characters.
- Occasionally, when a file is accessed by a Mac OS computer within a Shared Folder, an information file will be created in the same folder. If the file is then deleted by a Windows OS computer, the original file may no longer be accessible by Mac OS computers.
- Updating the TeraStation's firmware from a Macintosh computer is not possible.
- The AppleZone given out by default by the AppleShare Server is used by the TeraStation. It is not possible to change the AppleZone that the TeraStation joins.

USB Limitations

- Only external USB hard drives and USB printers are supported by TeraStation.
- If a USB peripheral does not support Plug and Play, it may be necessary to turn the TeraStation off when plugging in or unplugging the USB peripheral and restarting.
- Up to four external USB hard drives can be connected to TeraStation concurrently. For best performance, use Buffalo external hard drives.
- If a USB hard drive has two partitions, only the first partition will be detected by TeraStation.
- If a USB hard drive is connected to TeraStation formatted as FAT16/32, the following restrictions apply:
 - The drive can not be used as a Shared Folder. The available space can only be used as a backup destination target.
 - Backups of files greater than or equal to 2 GB can not be performed.
 - Files created by Mac OS X such as DS_Store can not be backed up to the FAT16/32 USB drive and errors may occur.
- Only one printer can be connected to the TeraStation via USB at a time.
- An attached printer can not use the following when being shared by TeraStation:
 - WPS (Windows Printing System) Printer
 - Non-PostScript Printer (Macintosh)
 - Duplex-only communication (Two-Way)
 - Refer to the printer user manual how to disable this style of printing.
 - Errors may occur with some duplex printers, yet printing will still complete. Also some features such as the printer reporting low ink levels over the network may not function due to not supporting Two-Way communication.
- When a multi-function (all-in-one) printer is attached to the TeraStation, only the printing function will work. Features like fax or scanning will not function.
- Some attributes may not be included with files and folders when backed up to a USB drive formatted with FAT32.

Microsoft Domain Limitations

- If TeraStation is to be part of a Windows Domain, the TeraStation should be added beforehand on the Domain Controller with a compute account in Server Manager.
- TeraStation does not support digitalized SMB packets. Depending on some settings with Windows 2003 Server, the TeraStation may not be able to join the domain.
- Macintosh users will not be able to verify the TeraStation as a domain member.
- FTP connections will not be able to verify the TeraStation as a domain member.
- If the TeraStation name is changed, the new name will need to be registered with the Domain Controller as a member of the domain by giving it a computer account.
- If the access certification of the TeraStation to a domain expires or becomes invalid, the process of joining the TeraStation to the domain will need to be redone.
- If a user name for a domain exceeds 20 characters, TeraStation will accept the user name as shortened to only 20 characters.
- TeraStation does not conform to domains after Windows 2000 native mode. Dynamic updates are not supported.
- Only 1000 user names can be acquired by TeraStation from a domain.
- Groups can not be acquired by TeraStation from a domain. Only user names can be acquired and used for access restrictions to TeraStation resources.

UPS Limitations

- TeraStation can not receive a shutdown signal from an attached UPS until at least 10 seconds have passed since it completed its startup process.