

User Manual TeraStation iSCSI TS-ITGL/R5

Introduction

Congratulations on your new TeraStation! Your TeraStation iSCSI is a huge block of iSCSI storage, ready to add to your server or PC via ordinary wired Ethernet connections. This guide will help you configure it.

There are many ways to configure and use iSCSI storage products like the TeraStation. In this guide we give one example of configuring a simple iSCSI volume on a single workstation. Many other configurations are usable.

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

If you run into difficulties or need additional help, feel free to contact our technical support. Contact information for Buffalo Technology and our technical support is available on pages 48 and 49.

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Layout



Layout



Layout



Power Cable (to outlet or surge protector)

Begin by connecting your TeraStation's power and Ethernet cables. The Ethernet cable should be connected to an extra NIC on your server or to a router, hub, or switch on your network.

For best performance, all network equipment should be gigabit or better. Use a NIC with enough RJ-45 ports for all your iSCSI devices, or separate NICs for each iSCSI device. Assign static IP addresses for each iSCSI device. Bridge the ports for all the NICs in the server (including the LAN connection). Statically assign the IP address for the LAN to the "Bridged" connection, not on the actual NIC for the LAN. Provided uninterruptable power supplies for all iSCSI devices, as well as the server itself. Simpler configurations may work, but this kind of uncompromising setup is recommended for best performance and reliability.

After all connections are made, turn the TeraStation on by pushing the power button on the front panel. It will take about a minute to boot.

Confirm that your PC has Microsoft's iSCSI Initiator software installed. Insert the TeraNavigator CD into its CD-ROM drive.

Setup should automatically launch, or you can manually launch it by pressing *Start* and selecting the *Run...* option. When the *Run* dialog opens, type **d:\TSnavi.exe** (where d is the drive letter of your CD-ROM drive). Press *OK* to continue.

Run	<u>? ×</u>
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	d:\setup.exe
	OK Cancel Browse



In this example, we'll connect iSCSI TeraStation(s) with all default settings to a Windows computer. Press the *Begin Installation* button to begin.

Easy Setup automatically configures your TeraStation and installs software. It's recommended for first-time users.

The *Advanced Setup* option only installs software. Depending on your network settings, you may have to manually change some of the Terastation's settings to connect to it successfully.





If your TeraStation is connected correctly when you get to this window, it will be highlighted in the drop-down list. If you have multiple units to set up, select the correct TeraStation from the list.

Select *First Setup* for the initial installation.

To install the software on additional computers, chose *Additional Setup*.





Once the TeraStation is installed, you'll need to install the iSCSI connection tool. Click *Next*, then continue to click *Next*, stepping through the menus until the iSCSI connection tool is installed.

If you have additional iSCSI TeraStations to install, go back and rerun Easy Setup for each before launching the iSCSI connection tool.

Click Yes to launch the iSCSI connection tool.



arget product	ISCSI2	F	Register the iSCSI Hard Disk.
fodel name	TS-I1.0TGL/R5	Series Name	TS-IGL/R5
P Address	192.168.7.107 (DHCP)	Subnet Mask	255.255.255.0
irmware	1.01	MAC Address	00:16:01:7E:1D:AC
(olume			
		S	earch Exit

If the TeraStation has more than one volume, choose the volume you want to connect to from the drop down list. Check *Connect at start up.* Click *Connect.* Repeat these steps to add additional volumes if desired.

Make sure that your ISCSI TeraStation is selected in the *Target product* window. Click *Register the iSCSI Hard Disk*, and then *OK*.

e Setup ⊦) iSCSI Hard Disk Cor Help	-	
Target product	ISCSI2	Remo	we the registered iSCSI Hard Disk.
Model name	TS-I1.0TGL/R5	Series Name	TS-IGL/R5
IP Address	192.168.7.107 (DHCP)	Subnet Mask	255.255.255.0
Firmware	1.01	MAC Address	00:16:01:7E:1D:AC
Volume Current status User authorizati I Resun	array1 : Disconnected on : Disable se connection when start up. (Conti	1	Connect
		S	earch Exit

arget product	ISCSI2	Remo	ve the registered ISCSI Hard Disk.
odel name	TS-I1.0TGL/R5	Series Name	TS-IGL/R5
Address	192.168.7.107 (DHCP)	Subnet Mask	255.255.255.0
mevare	1.01	MAC Address	00:16:01:7E:1D:AC
	: Disconnected ion : Disable re connection when start up. (Cont	tinuous Connection)	Connect

If Disk Management does not open automatically, you may launch it manually. From the *Setup* menu at the top of the window, choose *Launch Disk Management*.

Each connected volume from your iSCSI TeraStation(s) now appears as a hard drive in Disk Management.

uter Management clion View Window Help		-		_ [] X
Cton View Window Help				لدلعتم
er Management (Lacal) were Viewver wered Folders sored Folders coll Users and Groups (D:)	Partition Easic FAT32 Heal Partition Easic NTPS Heal	thy (EISA Configuration) 55 M thy (Unknown Partition) 4.63 thy (System) 106.0 thy (Boot) 122.0 thy 6064 thy 6064	47 MB 65 % GB 661 MB 14 % 66 GB 31.69 GB 29 % 17 GB 28.64 GB 23 % 19 GB 246.39 GB 37 %	Fault To No No No No No No No
L Defragmenter Monopement Is and Applications Easic 212,82 CB Online	55 Mil F Healthy (Dot)	(C:) 106.06 GB MTFS Healthy (System)	4.64 GB FAT32 Healthy (Unknown P	*
43P Disk 1 Bosic 698.49 CB Online	quattro (F:) 608.49 CB NTFS Healthy			
439 Dick 2 Basic 698-99 CB Online	Quattro (H:) 646.49 CR MTPS Healthy			
ia9 Disk 3 Remevable (II.) No Media				
3 8 mida 4 Removable (3:) No Media				
B Disk 5 Removable (K.) No Media				
B Disk 6 Removable (L)				
QP Disk 7 Dynamic 927,63 G8 Online	927.63 G8 Unaflocated			
⁶⁹ Disk S Dynamic 463.01.00 Notice	463.81 CB Unallocated			

Installation (Disk Management Wizards)

Initialize and Convert Disk Wizard	
Select Disks to Convert The disks you select will be converted to dyna	umic disks.
Select one or more disks to convert: Disks: Disk 1 Disk 2 Disk 3 Disk 5 Disk 5 Disk 6 Disk 7 Disk 8 Disk 8 Disk 9 Disk 10	*
	< <u>B</u> ack <u>N</u> ext > Cancel

Right-click on the volume in *Disk Management* and click *New Volume* to start the *New Volume Wizard*. Click *Next*. The *Initialize and Convert Disk Wizard* will open. Use it to convert your new logical volumes to dynamic disks. Put a checkmark next to each of your disks and click *Next* to step through the menu.

New Volume Wizard		×
	Welcome to the New Volume Wizard	
	This wizard helps you create volumes on dynamic disks.	
	A volume is a portion of one or more hard disk drives that is treated as a separate disk. You can format a volume with a file system. You gain access to a volume through a drive letter or mount point.	
	To continue, click Next.	
	< Back, Next > Cancel	

ect Volume Type There are five types of volumes: simple	ple, spanned, striped, mirrored, and RAID-5.
Select the volume you want to creat	te:
C Simple	
Spanned	
C Striped	
Description	
Create a spanned volume if you n	disk space on more than one dynamic disk, need a volume that is too large for a single disk, ne by adding free space from another disk.
	< Back Next > Cancel
lume Wizard ect Disks You can select the disks and set the	e disk size for this volume.
ect Disks	
ect Disks You can select the disks and set the	
ect Disks You can select the disks and set the Select the dynamic disks you want t Agailable: Disk 1 97276 MB	o use, and then click Add. Selected: Disk 2 307196 MB
ect Disks You can select the disks and set the Select the dynamic disks you want t Agailable:	o use, and then click Add. Selected Disk 2 307196 MB Disk 3 307196 MB
ect Disks You can select the disks and set the Select the dynamic disks you want I Available: Disk 1 97276 MB Disk 1 97275 MB	o use, and then click Add. Selected Dak 3 307195 MB Dak 5 307195 MB Dak 5 307195 MB Dak 5 307195 MB
ect Disks You can select the disks and set the Select the dynamic disks you want t Agailable: Disk 1 97276 MB Disk 7 97276 MB	o use, and then click Add. <u>Selected</u> <u>Add</u> → <u>Disk 3</u> 307196 MB <u>C Remove</u> <u>Disk 5</u> 307196 MB
ect Disks You can select the disks and set the Select the dynamic disks you want t Available: Disk1 97276 MB Disk1 97276 MB Disk 7 7752 MB Disk1 2 102395 MB	o use, and then click Add. Selected. Oak 2 307195 MB Oak 3 307195 MB Oak 5 307195 MB
ect Disks You can select the disks and set the Select the dynamic disks you want t Available: Disk1 972/51MB Disk 7 77823MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB	o use, and then click Add. <u>Add</u> → <u>Cleanove</u> CRegove All Disk 3 307195 MB Disk 5 307195 MB Disk 3 307195 MB Disk 8 307195 MB Disk 9 307195 MB ▼
ect Disks You can select the disks and set the Agailable: Disk1 97276 MB Disk 7 77823 MB Disk1 07 7775 MB Disk1 10 77757 MB Disk1 12 102395 MB Total Maximum available space in MB:	o use, and then click Add. <u>Add</u> <u>Dek 2 307155 M8 Dek 5 307155 M8 Dek 5 307155 M8 Dek 5 307156 M8 Volume size in megabytes (M8) [307195 </u>
ect Disks You can select the disks and set the Select the dynamic disks you want t Available: Disk1 972/51MB Disk 7 77823MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB Disk 10 77577MB	o use, and then click Add. Add → Eected Cemove Cemove Cemove Cemove Cemove Dick 3 307195 M8 Dick 5 307195 M8 Dick 3 307195 M8
ect Disks You can select the disks and set the Agailable: Disk1 97276 MB Disk 7 77823 MB Disk1 07 7775 MB Disk1 10 77757 MB Disk1 12 102395 MB Total Maximum available space in MB:	o use, and then click Add. <u>Add</u> <u>Dek 2 307155 M8 Dek 5 307155 M8 Dek 5 307155 M8 Dek 5 307156 M8 Volume size in megabytes (M8) [307195 </u>

Choose your desired volume type. Use *Simple* if you have only one volume to mount. *Spanned* and *Striped* volumes require multiple disk volumes to create. Click *Next* when ready.

Add all dynamic disks that will be included in the volume to the *Selected* column by highlighting them and then clicking the *Add* button.



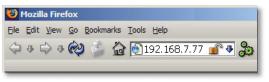
Choose your desired drive letter. Click Next.

Choose your desired format and volume label. Click Next.

Your new volume is installed and ready to use!



The Configuration GUI is where most of the TeraStation's settings can be changed.



To access it, type the IP address of your TeraStation into the URL bar of a browser running on a computer connected to the same network as the TeraStation.

Advanced Settings

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

TeraStation PR0			BUFFALD	User name: admin
is(si Network Storage				Password: password
	Login Please Provide your provide	ur User Name and Password	HELP	
	User Name Password	admin		
	Login			

Welcome to the configuration GUI for the TeraStation!

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

ISCSI Service is activated	ъ Но	me				HELP
Home		TeraStation Name	JACKRACKII			
Basic		Model Name	TS-IGL/R5 F/W 1	01		
Network						
Disk Management		IP Address	192.168.7.77			
Setup Volume	- N	Current Date and Time	2008/6/18 14:49:5	6		
Maintenance						
System Status	1.1	HDD Space Used	RAID Array 1	927 GB		
Logout		Client Information				
I'm here!		Volume Name	Computer N	ame	IP Address	
		Disconnected				

bottom left will cause it to beep, making it easier to find.

Note that many settings cannot be changed while the iSCSI service is running. Click the button in the top left corner of the page to disable the iSCSI service if settings need to be changed. After changing settings, click the button again to restart the iSCSI service.

Note: Changing settings in the configuration GUI may break existing connections to the TeraStation. You may have to reconnect your computer to your iSCSI TeraStation after changing settings with the configuration GUI.

Basic

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

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

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

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

	- Deele	HEL
	Basic	
	Information	
Password	Information	
	iSCSI service is activated.	
	Access Control settings can not b	e changed when the service is activated.
ment		
	Setup	
_	TeraStation Hostname	ISCSI
-		
	Date and Time Setup	
	Date	2008 Year 4 Month 17 Day
	Time	13 Hours 33 Mins 28 Secs
		Use Local Time
	Time Zone	GMT-06:00 💌
	NTP Settings	
	NTP Server	CEnable C Disable
	NTP Server Address	192.43.244.18
	THE SEVEL PROPERTY	
		Use default NTP server (ntp.jst.mfeed.ad.jp)
	NTP Synchronization Frequency	Once a day
	Text Display Settings	
	Display Language	English Englisch 英雄
	Access Control(Whole sys	stem)
	Access Control function	C Enable C Disable E Mutual Authorization
	User Name	
	Password	
	Password(Mutual Authorization)	
	Password(Mutual Authorization) Security Setting ISCSI HDD Connecting tool	@ Reply _C Not reply

Admin Password

By default, the admin password is "password". Change it to something more secure here.

Home	Basic		HELP
Basic			
Basic	Administrator Passv	vord Setting	
Administrator Password Setting	User Name	admin	
Network	Password		
Disk Management	Confirm Password		
Setup Volume			
Maintenance	Apply Cancel		
System Status			
Logout			

Network (IP Address Properties)

TeraStation PR	ò	BUFFALO
Home	Network	HELP
Basic	IP Address Properties	
Network Disk Management	Automatic via DHCP	c Enable 🔿 Disable
Setup Volume	IP Address	192.168.7.107
11 Maintenance	Subnet Mask	255.255.255.0 *
System Status	Default Gateway Address	192.168.7.1
Logour	Primary DNS Server Address	192.168.7.5
	Secondary DNS Server Address	192.168.7.3
	se Ethernet Frame Size Prop	erties
	Ethernet Frame Size	1,518 bytes (Default)
	Apply	
	Copyright 2002-2008 (C) BUFFALO	NC. All Rights Reserved.

By default, the TeraStation will attempt to get its IP Address automatically from a DHCP server. You may disable DHCP here. If DHCP is disabled and an IP Address is not set manually, it will default to 192.168.11.150. The TeraStation's IP Address, Subnet Mask, Default Gateway Address, and DNS Server address may all be entered manually under IP Address Properties.

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

Click Apply after making any changes.

Disk Management (Drive Properties)

This page shows the current properties of your hard drives and RAID Arrays. To change these settings, click on *RAID Setup* at left.

	Disk Manag	gement	
	RAID Array	Information	
agement	RAID Array 1	Status	Normal
nties		RAID Mode	RAIDS
		Disk Structure	Disk 1. 2. 3. 4
		Drak Structure	
		Total Capacity	729,527,424 kbytes (695.73 GB)
		Logical Volume Wanager (LVM)	Disable
_			
	RAID Array 2	Status	Not Configured
	 Disk Inform Disk 1 	Statum	
	LUBE 1		RAD Array 1
		Unit Name	8P2504C
		Total Capacity	244,198,584 kbytes (232.89 GB)
	Disk 2	Status	RAD Array 1
		Unit Name	SP2504C
		Total Capacity	244,198,584 kbytes (232.89 GB)
	Disk 3	Status	RAID Array 1
		Unit Name	SP2504C
		Total Capacity	244,198,584 kbytes (232.89 GB)
	Disk 4	Status	RAID Amy 1
		Unit Name	SP2504C
		Total Capacity	244,198,584 kbytes (232.89 GB)

RAID Arrays

TeraStation uses *RAID* ("Redundant Array of Independent Disks") technology to control the four hard drives in your TeraStation. RAID may be configured several ways:

RAID 0 - All four drives are combined into one large, fast drive, giving the maximum capacity for your TeraStation. This size is the one listed on your TeraStation's box and shows the total capacity of the TeraStation with no data used for redundancy. RAID Spanning is fast and efficient, but with no redundancy, if one hard drive fails, all data on the TeraStation is lost.

RAID 1 (mirroring) - Hard drives are arranged in mirrored pairs. Each half of the pair reads and writes exactly the same data. This costs you half the total capacity of the array, but provides excellent redundancy. If a hard drive fails, the mirror continues to supply data, so you may work on normally. You may replace the damaged or defective drive at any time, and normal RAID 1 mirroring will then be automatically restored.

RAID 5 (parity) - All drives in a RAID 5 array reserve part of their data space for parity information, allowing all data to be recovered if a single drive fails. The parity information takes up about one hard drive's worth of space, so if you set up all four drives in the TeraStation as a RAID 5 array, your usable capacity will be about 3/4 of the total capacity of the TeraStation. This is the default configuration.

RAID 10 - Combines RAID 1 and RAID 0 for a fast, secure array. Half of the TeraStation's total capacity is used for redundant information.

Disk Management (RAID Setup)

This page shows your current RAID arrays. You may delete old arrays or create new ones by clicking on the underlined *RAID Array* # under *RAID Array Configuration*.

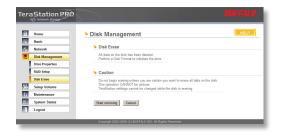
The *RAID Scanning Settings* set a specific time for the TeraStation to scan and inspect its RAID arrays. It is recommended to set a time where the TeraStations usage will be minimal (perhaps the middle of the night). TeraStation will be significantly slower while the RAID scan occurs. *Begin Immediate RAID Scan* specifies the TeraStation to run a RAID Scan immediately.



You may also disable *RAID Array Error Detection Response* from this page. Normally, this is set to automatically shut down the RAID array when an error is detected. Though it is not recommended, you may disable that behavior by selecting *Disable*.

NOTE: TeraStation has four internal hard drives. Before creating a new RAID array, you may have to delete one or more pre-existing RAID Arrays to clear up the hard drives for your new one. This will destroy all data currently on the disks, so back up any important data before deleting RAID arrays. Whether you want to clear out an old array or create a new one, begin by clicking on the array's underlined *RAID Array* #, under *Name*.

Disk Management (Disk Erase)



Disk Erase removes all data from the selected disk. This may take several hours to complete. It cannot be undone.

Volume Settings

Home	Setup Volume	HELP
Basic Basic Mexvork Dick Management Setup Volume Maintenance Maintenance Logout		
	Shared Folders Setup	
	E Disk Area Volume Name	Access Control / Size
	Volume Description RAID Array 1 array1	-/695GB

Here you can enable or disable volumes, shares, and folders.

Maintenance (Notification)

TeraStation PRO		41.0
Home	Naintenance	ELP
Basic	Se Mail Notification	
Disk Management	Mail Notification @ Enable C Disable	
Setup Volume	SMTP Server Address 192.168.100.250	
1 Maintenance	SMTP Pot No.	
Mail Notification		
UPS Settings	Authentication Type login(SMTP-AUTH)	
Alert Setup	User Name	
Status LCD Panel Setup	Password	
Syslog Transfer Shutdown	SSL/TLS CSL CTLS Disable	
Initialization		
System Status	Subject TeraStation Status Report Default	
Logout	Recipient Mail Address 1 admin(gyahoo.com	
	Recipient Mail Address 2	
	Recipient Mail Address 3	
	Recipient Mail Address 4	
	Recipient Mail Address 5	
	Notification Trigger IDD Status Report	
	System Alert	
	Disk Failure	
	🗵 Fan Failure	
	HDD Status Sending Time 9 0 clock	
	Apply Send Test Message	
	Copyright 2002-2008 (C) BUFFALO INC. All Rights Reserved.	_

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

Maintenance (UPS Settings)

Home	Maintenance	HELP
Basic		
letwork	UPS Power Settings	
k Management	Synchronize with UPS	C Enable C Disable
p Volume	UPS Connection Type	UPS Dedicated Port (APC Style)
nance	Shutdown Condition when Power Failure	
tification	Shutdown Condition when Power Pallure	Shutdown TeraStation after 5 Seconds of Power Failure.
ngs		
tup		C Shutdown TeraStation when UPS Reports
Panel Setup		"Battery Low" status.
sfer		
		Do not shutdown when detecting power line fa
ion		
itatus		Shutdown when iSCSI connection becomes 0
	UPS Behavior After TeraStation has Shutde	own C Tum Off @ Alive
	UPS Recovery Function	@ Enable @ Disable

You may enable *Synchronize with UPS* and *UPS Shutdown Conditions* from this page. Consult your Uninterruptable Power Supply's documentation for further information about setting up your UPS system.

Buffalo Technology recommends the use of APC SmartUPS Serial Uninterruptable Power Supplies. Other UPSs may use different pin configurations. Compatibility cannot be guaranteed with other UPSs. Turn to the next page for more on the TeraStation's UPS serial port.

Maintenance (UPS Settings)

UPS / Maintenance port

This is TeraStation's serial port pin assignment for serial UPS products.

Connector Pin Assignment.

Pin	Signal	Description
1	NC	NC
2	RXD	APC_Line_Fail
3	TXD	APC_UPS_Shutdown
4	NC	OMR_UPS_Shutdown
5	GND	GND
6	NC	NC
7	NC	+12V
8	NC	OMR_Line_Fail
9	NC	NC

Maintenance (Alert Settings)

TeraStation PRO	>	BUFFALD
Basic	Maintenance Alert Sound Setup	HELP
Disk Management	Alert Conditions	Exceeding Temperature
Setup Volume		Disk Error has Occurred
Mail Notification		Fan Error has Occurred UPS Power Error has Occurred
UPS Settings Alert Setup		
Status LCD Panel Setup Syslog Transfer	Apply	
Shutdown		
System Status		
Logout		
	Copyright 2002-2008 (C) BL	JFFALO INC. All Rights Reserved.

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

Maintenance (Status LCD)

lome	Maintenance	HEL
Basic		
letwork	Status LCD Setup	
Disk Management	LCD Display Items	R Host Name / IP Address
Setup Volume		🔽 Disk Mode
Maintenance		Time
fail Notification		
IPS Settings	Flip Display Items	C Enable C Disable
lert Setup	LCD Back Light Setting	Dim Down << C1 C2 C3 C4 C5 >> Dim Up
itatus LCD Panel Setup		
iyslog Transfer	LED Settings	
ihutdown	LED	Dimmer << C1 C2 C3 C4 @ 5 >> Brighter
nitialization	LED Synchronization	C Enable C Disable
System Status		
ogout	LED (Sleep)	Dimmer << @1 @2 @3 @4 >> Brighter
	LED Wakeup Time	9 💌 O'Clock
	LED Sleep Time	18 y O'Clock
	LED Sleep Time	18 💌 O'Clock

The Status LCD Setup allows configuration for the LCD display on the front of TeraStation. Please select the type of information that the front panel should display from the *LCD Display* Items. Automatically Switch LCD Items tells the TeraStation to cycle through the selected display items every 10 seconds. Disabling this feature means the LCD display does not cycle, and it will stay on the same display item until the Display button on the front of TeraStation is pressed. The LCD screen and green LED buttons brightness can be controlled via their respective settings. Press the *Apply* button once all of the settings have been configured.

Maintenance (Syslog Transfer)

Home	Maintenance		HELP
Basic			
Network	Syslog Transfer		
Disk Management	Syslog Transfer	C Enable C Disable	
Setup Volume	Syslog Server IP Address		
Maintenance	Law Information	System Log	
Mail Notification	Log Information	System Log	
UPS Settings		m iSCSI Log	
Alert Setup			
Status LCD Panel Setup	Apply		
Syslog Transfer			
Shutdown			
Initialization			
System Status			

Check *Enable* to allow system logs to be transferred. Press *Apply* once all of the settings have been configured.

Maintenance (Shutdown)

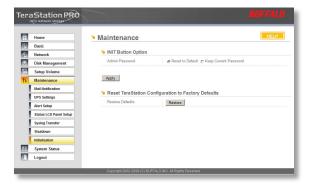
TeraStation PRO	\supset	BUFFALD
	Maintenance Shutdown Indown TenStation Restart the TensStation Restart New	2HELP.

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

Maintenance (Initialization)

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

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



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

Home	System Status	HELP
Basic		
Network	System Information	
Disk Management	TeraStation Name	ISCSI
Setup Volume	Model Name	TS-IGL/R5
Maintenance	Firmware Version	1.01
System Status		1.01
System Information	Current Date and Time	2008/4/17 13:37:16
USB Details	Time Zone	GMT-06:00
Drive Properties	Windows Network Workgroup Name	BT
Network Information	windows retwork workgroup reame	01
Log Information	NTP Function	Enabled (2008/04/17 12:31:02 Refreshed)
Logout	Email Alert Notification	Disabled
	Fan Status	Normal (1050 RPM)

This page shows you the System Information for your TeraStation.

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

System Status (USB Details)

TeraStation PRO	\sum			BUFFALO
Basic	System Stat USB Details	HELP		
Disk Management	USB Class	Manufacturer	Device Name	USB 2.0/1.1
Setup Volume				
11 Maintenance				
FI System Status				
System Information				
USB Details				
Drive Properties				
Network Information				
Log Information				
Logout				
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This page shows you details on USB hard drives and UPSs plugged into your TeraStation.

Configuration GUI

System Status (Drive Properties)

This page shows you the properties of all hard drives and RAID arrays in and attached to your TeraStation.

ne	System Status		
ác .	RAID Array information		
work	RAD Array 1	Status	Normal
k Management			
ap volume		RAID Mode	RADS
m Status		Disk Structure	Disk 1, 2, 3, 4
n Information		Total Capacity	729,527,424 kbytes (\$95.73 GB)
SABS		Lopial Volume Wanager (3,VW)	Deathe
reporties		Colore Annual Herader (CAN)	Disasie
k Information	RAD Anny 2	Status	Net Configured
meton			
	 Disk Informa 		
	Disk 1	Status	RAD Assay 1
		Unit Name	SP2504C
		Total Capacity	244,198,684 kbytes (232.89 GB)
	Disk 2	Status	RAID Acury 1
		Unit Name	SP2564C
		Total Capacity	244,199,584 kbytes (232.09 GB)
	Disk 3	Status	RAD Anay 1
		Unit Name	8P2504C
		Total Capacity	244,198,584 kbytes (232.89 GB)
	Disk 4	Status	RAID Array 1
		Unit Name	SP2504C
		Total Capacity	244,150,584 kbytes (232.09 GB)

Configuration GUI

System Status (Network Information)

Home	System Status		
Basic			
Network	Network Information		
Disk Management	MAC Address	00:16:01:7E:1D:AC	
Setup Volume	IP Address	192.168.7.107	
Maintenance	Subnet Mask	255.255.255.0	
System Status			
System Information	Primary DNS Server Address	192.168.7.5	
USB Details	Secondary DNS Server Address	192.168.7.3	
Drive Properties	Default Gateway	192.168.7.1	
Network Information	Schuck Outerray	132.100.1.1	
Log Information	Ethernet Frame Size	1,518 bytes	
Logout	Link Speed	1000 Mbps (Full Duplex)	
	Packets Received	1,051,177 Packets	
	Packets Received with Errors	0 Packets	
	Packets Transmitted	20,915 Packets	
	Packets Transmitted with Errors	0 Packets	

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

Configuration GUI

Log Information

TeraStation PRO	\rightarrow	BUFFALO
Home Basic Basic Network Dick Management Setup Volume Maintenance System Status System Information USB Details Drive Properties Network Information Logiourt	System Status System Log Log Type System Log Save	HELP N
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This page lets you save or display system log information. Choose the log you want from the *Log Type* dropdown and click *Save*. The dialog will let you save or display ("Open") the logfile.

Troubleshooting

If TeraStation encounters a disk error, it will be reported in the *TeraStation status* on the top of any of the Web-Based configuration screens. Run a Disk Scan in the event of this error. If that does not resolve the problem, a *format* is recommended. Formatting the drive will delete all of the data on it, so back up any data you can before formatting. Finally, if none of the above solutions help, then please contact Technical Support (see pages 47 and 48 for Technical Support contact information).

Troubleshooting

DIAG LCD Codes:

Error Code	Description	Alert Sound
E00	MPU error: Main MPU is not responding.	А
E01	Error on DRAM DATA LINE	А
E02	Error on DRAM ADDRESS LINE	А
E03	Error on RTC CHIP	А
E04	Failed to load kernel (FLASH error)	А
E10	UPS AC LINE FAIL Error	В
E11	FAN Error: Fan rotation speed is low or fan is stopped.	В
E12	Cooling Error: Cooling by fan cannot catch up.	В
E13	Error has occurred on RAID Array x.	В
E14	Cannot mount RAID Array x.	В
E15	Not Used	
E16	Cannot find HDDx.	В
E17	Cannot communicate with RTC chip (IC12).	А
E18	Cannot communicate with SATA chip (IC1).	А
E19	Cannot communicate with SATA chip 2 (IC2)	А
E20	Cannot communicate with USB chip (IC5)	А
E21	Cannot communicate with Ethernet chip (IC13)	А
E22	Cannot mount HDDx	В
E23	HDDx faulty (HDDx is excluded from raid because of error	s) B

Replacing a Hard Drive

Turn the key counter-clockwise to open drive door.





Squeeze the tabs gently and swing the tray latch upward.

The hard drive tray will now slide out.



Lower the drive carefully to the work surface.

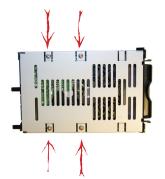




Gently push down on the two tabs to release the plug.

Pull the plug straight out to remove the drive.





To remove the hard drive from its cage, set the assembly on a soft surface and remove these four screws. Install a new hard drive by doing the same steps in reverse order:

Begin by screwing the new hard drive into the cage.

Plug the power/data connector into the hard drive.

Slide the hard drive cage back into the TeraStation.

Press the latch down to lock the hard drive cage in place.









Technical Specifications

LAN Standards:	IEEE 802.3u 100BASE-TX; IEEE 802.3 10BASE-T
Transmission Types:	1000Mbps/100Mbps/10Mbps; 100BASE-TX
	4B/5B, MLT-3;10BASE-T Manchester Coding
Access Media:	CSMA/CD
Media Interface:	RJ-45
USB Standard:	USB 2.0 Hi-Speed (HS) Full-Speed (FS) Low-Speed (LS)
USB Connector:	USB A Connector (2)
Data Transmission Speed:	Max: 480 Mbps (HS Mode) Max: 12 Mbps (FS Mode)
UPS:	UPS Compatible (Serial/USB connection)
Power Consumption:	~56W (Varies based on size)
Dimensions:	6.7" x 9.3" x 12.2" (170 x 235 x 310 mm.)
Weight:	~15.8 lb (7.2 kg) (Weight varies based on size)
Operating Environment:	32° - 95° F; 20-80% non-condensing

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TECHNICAL SUPPORT

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

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