



## USER MANUAL

# **EtherTRAK<sup>®</sup>** Industrial Ethernet Managed Switch & Remote Access Modem CLI User Manual



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This manual applies to **firmware v4.4.1000** in the following products:

- ET-5MS-# Managed Ethernet switch with 5 10/100 ports
- ET-5MS-MDM-# Managed Ethernet switch with 5 10/100 ports and integrated modem
- ET-9MS-# Managed Ethernet switch with 9 10/100 ports
- ET-9MG-# Managed Ethernet switch with 6 10/100 and 3 Gigabit ports
- ET-10MG-# Managed Ethernet switch with 8 10/100 and 2 Gigabit ports
- ET-16MS-# Managed Ethernet switch with 16 10/100 ports
- ET-18MG-# Managed Ethernet switch with 16 10/100 and 2 Gigabit ports
- SL-5MS-# Slim Line Managed Ethernet switch with 5 10/100 ports
- SL-5MS-MDM-# Managed Ethernet switch with 5 10/100 ports and integrated modem
- SL-8MS-# Slim Line Managed Ethernet switch with 8 10/100 ports
- SL-8MG Slim Line Managed Ethernet switch with 8 10/100/1000 ports
- SL-10MG Managed Ethernet switch with 7 10/100 and 3 Gigabit ports
- SL-16MS Managed Ethernet switch with 16 10/100 ports
- SL-18MG Managed Ethernet switch with 16 10/100 and 2 Gigabit ports
- EF26 Rack Mount Gigabit Managed Ethernet switch with 26 ports
- EH26 Rack Mount Managed Ethernet switch with 26 10/100 ports
- EK32 Rack Mount Gigabit Managed Ethernet switch with 32 ports
- EF32 Rack Mount Managed Ethernet switch with 32 10/100 ports

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The CLI is constructed with an eye toward automation of CLI-based configuration. The interaction is modeled on that used in many Internet protocols such as Telnet, FTP, and SMTP. After each command is entered and processed, the switch will issue a reply that consists of a numeric status code and a human-readable explanation of the status. See, for example, the SMTP protocol specification in *RFC 821- Simple Mail Transfer Protocol* (<http://www.faqs.org/rfcs/rfc821.html>), specifically, "Appendix E - Theory of Reply Codes." for more details.

The general format of commands is:

```
section parameter [value]
```

Where

- **Section** is used to group parameters.
- **Parameter** will specify the parameter within the section. For example, the network section will have parameters for DHCP, IP address, subnet mask, and default gateway.
- **Value** is the new value of the parameter. If **value** is omitted, the current value is displayed.

Please note that new values will not take effect until explicitly committed.

Sections and parameter names are case sensitive (e.g., "Network" is not the same as "network").

**NOTE:** Any commands in section 2 of the CLI guide with the exception of the global commands must be prefaced with the name of the section they are in. For example, to change the IP address of the switch, you would type:

```
network address <newIP>
```

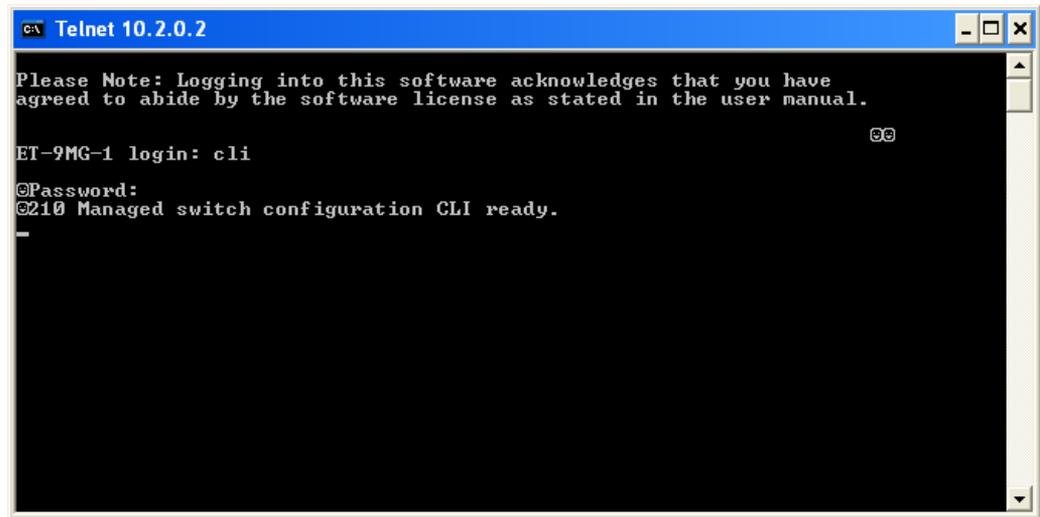
This is because the address command is in the network section of this manual.

## Accessing the CLI

To access the CLI interface, establish Ethernet or serial connectivity to the switch.

To connect by Ethernet, open a command prompt window and type:

`telnet <switchip>` (where <switchip> is the IP address of the switch)



```
Telnet 10.2.0.2
Please Note: Logging into this software acknowledges that you have
agreed to abide by the software license as stated in the user manual.
ET-9MG-1 login: cli
@Password:
@210 Managed switch configuration CLI ready.
```

At the login prompt, type “cli” for the username and “admin” for the password. The switch will respond with “Managed switch configuration CLI ready”.

## Section 2

## CLI Commands

### Global Commands

The following global commands are available anywhere in the CLI:

Command	Effect
commit	Values are inter-validated as needed. If valid, values are committed. Please note that this may take some time depending on changes
defaults	Restore factory defaults
quit	CLI is exited. Uncommitted changes are discarded without prompting
reset	Reset the switch
help	Print a help message
prompt	Enable/disable the prompt (usage: "prompt enabled" or "prompt disabled")

#### Note:

When restoring factory defaults, network settings may be maintained by adding a "savenw" option. In other words:

```
defaults
```

restores all values but

```
defaults savenw
```

restores all defaults except the current settings for DHCP, IP address, etc.

### access Configuration

The following administrative access settings are settable via the CLI:

Parameter	Default	Allowable values
snmp	both	none, snmpv2, snmpv3, both
terminal	both	none, telnet, ssh, both
web	both	non, http, https, both
cli	1	0, 1
uitimeout	0	0-999
rouser	public	Any valid user name
rwuser	private	Any valid user name
ropass	none	A password, followed by the same password repeated
rwpass	None	A password, followed by the same password repeated
adminpass	admin	A password, followed by the same password repeated
fwload	serial	"serial" for serial firmware loading or "network" to enable Ethernet only

## alarm Configuration

The following values may be configured in the alarm configuration:

Parameter	Default	Allowable values / Description
list	n/a	No value, view all current alarm settings
powerloss	enabled	'enabled' , 'disabled' / alarm output will be low if a power input is lost
ringfailure	disabled	'enabled' , 'disabled' / alarm output will be low if a power input is lost
<b>These settings require a port number, usage:</b> alarm <parameter> <port #> [<new value>]		
linkloss	disabled	'enabled' , 'disabled' / alarm output is triggered when link is down on the specified port

## info Configuration

The following values may be read from the info command:

Parameter	Default	Allowable values / Description
fwversion	n/a	View the current firmware version
cfgversion	n/a	View the configuration version number
macaddr	n/a	View the MAC address of the switch
link	n/a	'all', port# / show specified port(s) link status
<b>These settings require a filter to be specified:</b> info <parameter> <filter type> [<value>]		
mactable	n/a	Filter can be 'id', 'port', 'mac'. See below for syntax

For the **info mactable** command, the filter parameters are:

**id={\*|#}** Show all/one specific filtering database by ID

**port={\*|#[,#[,....]]}** Show all/one/multiple specific port(s)

**Note: port 33 is the switch CPU**

**mac={\*|xx}:{\*|xx}:{\*|xx}:{\*|xx}:{\*|xx}:{\*|xx}** Show only MAC

addresses matching the given pattern

## network Configuration

The switch can have DHCP enabled or disabled. When it is enabled, settings for IP address, subnet mask, and default gateway may still be set. The values will be stored and used should DHCP be disabled in the future.

The following values may be set in the network configuration:

Parameter	Default	Allowable values
dhcp	disabled	enabled, disabled
address	10.2.0.1	Any IPv4 address in dotted decimal notation.
subnet	255.255.0.0	Any IPv4 address in dotted decimal notation.
gateway	none	Any IPv4 address in dotted decimal notation or "none" to indicate no gateway.
hostname	Model id	Any valid Internet host name. See <i>RFC 952 – DoD Internet host table specification</i> ( <a href="http://www.faqs.org/rfcs/rfc952.html">http://www.faqs.org/rfcs/rfc952.html</a> ).
dns1	none	Any IPv4 address in dotted decimal notation, or "none".
dns2	none	Any IPv4 address in dotted decimal notation, or "none".
domain	""	A valid Internet domain
ntp	none	Any FQDN (if dns1 or dns2 is set, otherwise any IPv4 address in dotted decimal notation), or "none" to indicate no ntp server.

## portsecurity Configuration

The following values may be set in the port security configuration

Parameter	Default	Allowable values / Description
list	n/a	List all current port security information
enable	n/a	Enables MAC-based port security
disable	n/a	Disables MAC-based port security
add	n/a	Any valid MAC and port number / allow communication by the specified MAC on the specified port
remove	n/a	Any valid MAC / remove a MAC address from the security table

## port Configuration

The following values may be set in the port configuration:

Parameter	Default	Allowable values
list	n/a	No value, lists all settings for all ports
monitor	1	Any port number
<b>These settings require a port number, usage:</b> port <port #> <parameter> [<new value>]		
name	port_#	A string
admin	enabled	enabled, disabled
negotiation	enabled	enabled (auto-negotiation), disabled (fixed negotiation)
ratelimit	enabled	enabled, disabled
direction	none	none, egress, both
giveip	disabled	enabled, disabled
ipaddr	none	An IP address
Sfp	1000	100,1000
speed	(see below)	(see below)

With auto negotiation, <speed> may be:  
10H, 10F, 100H, 100F, 1000F, or FC

With fixed negotiation, <speed> maybe:  
100H or 100F

Valid settings: 'enabled' (will automatically set other speeds to 'disabled')

The syntax for the port speed command is as follows:

```
PORT <PORT #> SPEED ...
```

```
(negotiation enabled)
```

```
speed 10H enabled
```

```
speed 10F disabled
```

```
...
```

```
which act like checkboxes on a web form
```

Or, with negotiation disabled

```
speed 10H enabled
```

```
speed 100F enabled
```

```
...
```

```
which act like radio buttons on a web form
```

speed FC enabled/disabled is available in both modes

For combo ports, the SFP speed may be set as follows:

```
port <port#> sfp <speed>
```

## ring Configuration

The following values can be configured in the ring section:

Parameter	Default	Allowable values / Description
list	n/a	View the list of configured rings
master	auto	'auto', 'this' / configure how the switch determines the ring master
<b>The settings below require a ring number, usage:</b> <code>ring &lt;parameter&gt; &lt;ring #&gt; [&lt;new value&gt;]</code>		
enable	0	'0', '1' / view or change whether the ring is enabled
name	n/a	Any text value / View or change the specified ring name
ports	n/a	(see below) / View or change this ring's primary and backup ports

To set the primary and backup ports for a specified ring, the syntax is:

```
ring ports <ring#> <primary port #> <secondary port #>
```

## rstp Configuration

The following values may be set in the RSTP configuration:

Parameter	Default	Allowable values / Description
protocol	none	'none' 'stp' 'rstp' / View or change the spanning tree protocol
priority	0	A multiple of 4,096 in the range of 0-61440 / View or change the priority
mma	6	An integer in the range 6-40 / View or change the maximum message age
hellowtime	1	An integer in the range of 1-10 / View or change the hello time
fwddelay	4	An integer in the range 4-30 / View or change the forwarding delay
Txlimit	1	An integer in the range of 1-10 / View or change the transmission limit
<b>The settings below require a port number, usage:</b> <code>rstp &lt;parameter&gt; &lt;port #&gt;[&lt;new value&gt;]</code>		
exclude	0	'2', '1', '0' / View or change whether this port is excluded from STP
pprio	0	An integer in the range of 0-240 / View or change this port's priority
pcost	none	'auto' or integer in the range of 0-200,000,000 / View or change this port's cost
type	1	'1', '0' / View or change this port's edge type
ptp	Auto	'ForceTrue', 'ForceFalce', 'Auto' / View or change this port's point-to-point setting

## qos Configuration

The following values may be set in the QoS Configuration:

Parameter	Default	Allowable values / Description
schedule	strict	'strict', 'fair' / View or change the fairness rule
<b>The following require a port number:</b> qos <parameter> <port#> [<new value>]		
usetag	1	'0', '1' / View or change whether tag priorities are used
useip	1	'0', '1' / View or change whether IP priorities are used
pref	tag	'tag', 'ip' / View or change which to use if both tags and IP are enabled
priority	1	0-3 / Default priority to give to packets received on this port
type	normal	'normal', 'add', 'remove', 'double' / The type of connection to this port
<b>The following require a tag number:</b> qos tag<tag #> [<new value>]		
tag	(depends on the tag)	0-3 / View or change the priority of the specified tag

If <new value> is not present, the current setting will be displayed

The following values may be set in the VLAN Configuration:

Parameter	Default	Allowable values / Description
vlist	none	No value, lists all configured VLANs
plist	none	No value, lists the VLAN settings for each port
mode	disabled	'disabled', 'port', 'standard', 'secure' / View or change VLAN mode
coretype	none	Value in hexadecimal with a 0x prefix / View or set Ethertype for core tags
mgmtvlan	1	1-4094 / View or set the management VLAN ID
learning	shared	'shared', 'independent' / Change VLAN learning mode
mgmtports	all	1-9 / View or set the management VLAN port
<b>The commands below require a vlan # from vlist</b>		
name	n/a	A string of no more than 33 characters
vtype	n/a	'port', 'tag' / View or change the type of this VLAN
id	n/a	An integer between 1 and 4094 / View or change the ID of this VLAN
ports	n/a	Syntax: vlan ports <vlan#> <add/remove> <port#>
<b>The commands below require a port #</b>		
pvid	1	A VLAN # from vlist valid range of 1-4094
force	0	'0', '1'
add	(see below)	(see below)
remove	(see below)	(see below)

The examples below explain the syntax of the "port", "add" and "remove" commands:

To add a Port Based VLAN:

```
vlan ports <vlan #> add <port #>
vlan ports <vlan #> remove <port #>
vlan add <name> port <port #> <port #> [...]
```

To add a Tag based VLAN :

```
vlan add <name> tag <vlan ID> <port #> <port #> [...]
```

To remove a VLAN:

```
vlan remove <vlan # or all>
```

## igmp Configuration

The following commands may be used to configure IGMP:

Parameter	Default	Allowable values / Description
rlist	n/a	No value/ Lists router settings for all ports
mode	disabled	disabled, snoop, router / view or change IGMP mode
msupp	none	none, ip, all / view or change the multicast suppression method
version	2	1, 2 / IGMP version
robustness	2	1-99 / IGMP robustness
qinterval	125	60-125 / IGMP query interval
qresponse	10	1-30 / IGMP query response interval
<b>The commands below require a port number:</b>		
router	0	0, 1 / identify ports which lead to IGMP routers
exclude	0	0, 1 / Exclude a port from the processing of IGMP requests and queries

## chkpt Configuration

The following values may be set in the checkpoint configuration:

Parameter	Default	Allowable values / Description
save	n/a	None / saves a checkpoint
restore	n/a	net, nonet / net saves current network settings, nonet discards them
ftpsave	n/a	A file name
ftprestore	n/a	A file name

## tftp Configuration

The following options can be set in TFTP configuration:

Parameter	Default	Allowable values
tftp	""	A valid fully-qualified domain name

## tz Configuration

The following values may be set in Timezone configuration:

Parameter	Default	Allowable values
list	(see below)	(see below)
value	none	A time zone from list

**Note:** To view a list of all timezones, use the command "tz list [<prefix>]" with the option to filter by timezones beginning with the characters in <prefix>

## General Configuration

The following commands are general commands which are not part of another subsection:

<b>Command</b>	<b>Default</b>	<b>Allowable values / Description</b>
location	<set location of switch>	Any text value / location of the switch
contact	<set name (and email) of contact for switch>	Any text value / contact information of the network or site administrator

## Example Configuration Session

In the following example, **bold text** is sent by the switch and normal text is entered by the user. Upon connection to the serial port of the switch, a login banner and prompt are displayed.

**Please Note: Logging into this software acknowledges that you have agreed to abide by the software license as stated in the user manual.**

```
Switch login: cli
Password: <hidden>
210 Managed switch configuration CLI ready.
network dhcp
212 Current dhcp setting is 'disabled'
network address 192.168.1.1
112 address set to '192.168.1.1'
network hostname switch-1
112 hostname set to 'switch-1'
rstp protocol rstp
113 protocol set to 'rstp'
info link all
219-List of link status
Port#  Name          Link
1      port_1         down
2      port_2         down
3      port_3         100f
4      port_4         down
5      port_5         down
6      port_6         down
7      port_7         down
8      port_8         down
219 List of link status
info fwversion
219 Current fwversion setting is '4.4'
vlan mode standard
117 mode set to 'standard'
vlan mgmtports
217 Current mgmtports setting is 'C 1 2 3 4 5 6 7 8'
commit
210 Values committed.
quit
210 Managed switch configuration CLI done.
```

After quit, the CLI program will exit and the session will terminate. A login banner and prompt will be presented again.

Please note that there may be a delay of up to a minute between the commit command and the CLI's response. This is normal.

## Section 3

## Service Information

### Service Information

We sincerely hope that you never experience a problem with any **Sixnet** product. If you do need service, call **Sixnet** at (518) 877-5173 and ask for Applications Engineering. A trained specialist will help you to quickly determine the source of the problem. Many problems are easily resolved with a single phone call. If it is necessary to return a unit to us, an RMA (Return Material Authorization) number will be given to you.

**Sixnet** tracks the flow of returned material with our RMA system to ensure speedy service. You must include this RMA number on the outside of the box so that your return can be processed immediately.

The applications engineer you are speaking with will fill out an RMA request for you. If the unit has a serial number, we will not need detailed financial information. Otherwise, be sure to have your original purchase order number and date purchased available.

We suggest that you give us a repair purchase order number in case the repair is not covered under our warranty. You will not be billed if the repair is covered under warranty.

Please supply us with as many details about the problem as you can. The information you supply will be written on the RMA form and supplied to the repair department before your unit arrives. This helps us to provide you with the best service, in the fastest manner. Normally, repairs are completed in two days. Sometimes difficult problems take a little longer to solve.

If you need a quicker turnaround, ship the unit to us by air freight. We give priority service to equipment that arrives by overnight delivery. Many repairs received by mid-morning (typical overnight delivery) can be finished the same day and returned immediately.

We apologize for any inconvenience that the need for repair may cause you. We hope that our rapid service meets your needs. If you have any suggestions to help us improve our service, please give us a call. We appreciate your ideas and will respond to them.

### For Your Convenience:

Please fill in the following and keep this manual with your **Sixnet** system for future reference:

P.O. #: \_\_\_\_\_ Date Purchased: \_\_\_\_\_

Purchased From: \_\_\_\_\_

To obtain support for Sixnet products:

<b>On-line support:</b> <a href="http://www.sixnet.com">http://www.sixnet.com</a>	<b>Phone:</b> +1 (518) 877-5173
	<b>Fax:</b> +1 (518) 877-8346
<b>Latest product info:</b> <a href="http://www.sixnet.com">http://www.sixnet.com</a>	<b>E-mail:</b> <a href="mailto:support@sixnet.com">:support@sixnet.com</a>
<b>Mailing address:</b> Sixnet Technology Park, 331 Ushers Rd, Ballston Lake, NY 12019	

### Product Support