

# Using CrossPATH for Network Management

## Application Note **Overview**

CrossPATH® from Kentrox sets new standards for efficiency and innovation. Its economical platform delivers high-capacity base station connectivity for the growth of existing networks and seamless migration to next-generation wireless services. The CrossPATH also leverages a cutting-edge Quality of Service (QoS) router utilizing Web browser GUI technology for unparalleled management flexibility and ease of use.

This application note addresses using the CrossPATH for network management. It will discuss:

- The user interface
- Methods of remote management
- Network element management capabilities
- SNMP functionality

## User interface

CrossPATH features a browser-based Graphical User Interface (GUI) that dramatically simplifies installation, configuration and network management (Figure 1). The primary method of programming the CrossPATH is a Web browser interface such as Microsoft Internet Explorer or Mozilla FireFox.

The CrossPATH has built-in router functionality that supports DHCP functionality. DHCP will automatically assign an IP address to a connected PC or compatible device without the need to configure the IP settings on the PC. Simply connect an Ethernet cable between the technician's laptop and the 4-port Ethernet switch on the CrossPATH and point your Web browser to the IP address of the CrossPATH - it's that easy. There is no need to program your laptop to match the network device.

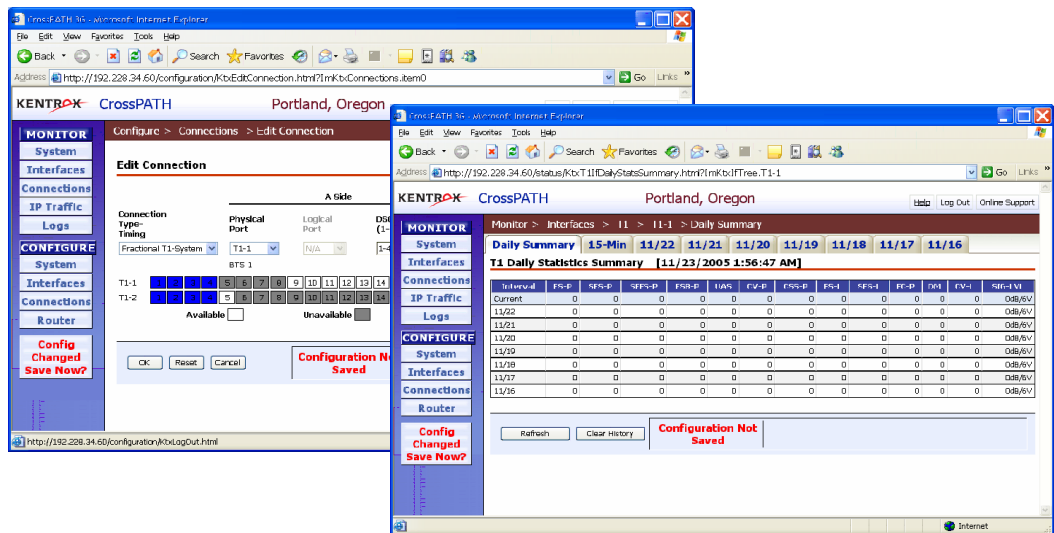


Figure 1: The CrossPATH easy-to-use GUI simplifies installation and configuration.

Because the CrossPATH GUI is browser-based, there are no Java applets, so you don't need to download and install Java software. All programming is conducted by a simple point-and-click interface. Programming of the T1 circuits and adding/deleting cross connects are supported with a graphic that demonstrates available T1 or timeslot information.

```

Telnet 192.228.34.60
CrossPATH 3G
Login: admin
Password: xxxxxxxx
Login successful
-->

Telnet 192.228.34.60
Last Operational Change : 5days, 11h:51m:39s
Link Up/Down Trap : Disabled
Attached IP Interface : ipwan-1

-->
connection      Connection Management Commands
dhcp            DHCP configuration commands
dns            DNS configuration commands (client / relay)
help          Top level CLI help
interface      Interface configuration and query commands
ip            Configure IP router
list          List configuration commands
log           Utilities for the system logs
ping         Utilities for measuring network statistics
policy
qos          QoS configuration and query commands
snmp        SNMP Agent configuration commands
source      Read a file of commands
system     System administration commands
traceroute  Utility to determine a network route
user       User commands
-->
--> int show ppp ppp-1

```

Figure 2: The CrossPATH CLI has an industry standard look and feel.

CrossPATH also has an interactive HELP system designed into each screen. This enables easy access to context-specific information right when you need it.

A command line interface (CLI) is available via the local craft (RS232) port or a Telnet session directly to the unit. The CLI is similar to industry defacto (Figure 2) and supports typical command line structure and standard help functionality. For additional information regarding the command line interface, view the "[CrossPATH CLI Reference Guide](#)".

## Methods of remote management

Cell site technicians are able to manage the CrossPATH remotely. The benefits of remote management include:

- Diagnosing a degrading T1 before an outage with on-board BERT test compatibilities
- Verifying T1 connections and performance
- Minimizing unnecessary truck rolls

There are several methods for remote management: In-band DS0(s), local Ethernet connection, dial-up modem, and Telnet.

### ***In-band DS0(s)***

CrossPATH has a built-in QoS edge router that can support up to 2 full T1s of Point-to-Point Protocol (PPP) WAN traffic. Once configured, the WAN interface will communicate with other CrossPATHs or standard T1 PPP routers over a DS0 or a selected group of DS0s. Once connected, the user can manage the unit via the Web browser interface or the command line via Telnet. Use the QoS capabilities of the router to prioritize remote technician access (management), IP video cameras, and/or VoIP phones at the remote site. QoS is user configurable and will deliver priority traffic first leaving the remaining traffic to fill the gaps.

### ***Local Ethernet connection***

The CrossPATH has a built in 4 port Ethernet switch capable of supporting up to 8 Virtual LANs (VLANs) for the creation of sub-network interfaces at a remote location. You can select to connect the CrossPATH to an existing Ethernet network and use the Web browser interface or Telnet to manage the unit.

### ***Dial-up modem***

You can connect an external modem to the local RS232 port and manage the unit by a dial-up modem connection over a POTS line. Once connected via the modem, the user can manage the unit using the CLI. For more detailed connection information, view the Kentrox Knowledge Base article [“Connecting a modem to DCE control ports.”](#)

### ***Telnet***

With any remote management connection that requires an IP address, the CrossPATH can be managed via Telnet. Opening a Telnet session to the IP address of the CrossPATH will open the CLI. Accessing the CLI can have potential benefits such as scripting or pre-configured commands that achieve a desired result.

## **Remote diagnostics**

CrossPATH has the ability to be a remote BERT test device (Figure 3). Using the internal BERT circuitry, any user can access the unit locally or remotely and start a BERT test. CrossPATH uses industry standard BERT patterns and can test head-to-head with any BERT test device or to a loopback within the test circuit. A flashing front panel Link LED indicates that a diagnostic function is currently enabled on that link.

The CrossPATH monitors the incoming signal for a specified test pattern commonly referred to as “pattern sync” and monitors receiver bit errors while the test is active. All reports are displayed in the BERT Monitor screen on the user interface. The user can insert a single error or select a fixed amount of errors to inject in order to verify link performance. The BERT test is based on a user selectable fixed time limit so that the test terminates and returns the link to normal traffic operation once the timer has expired.

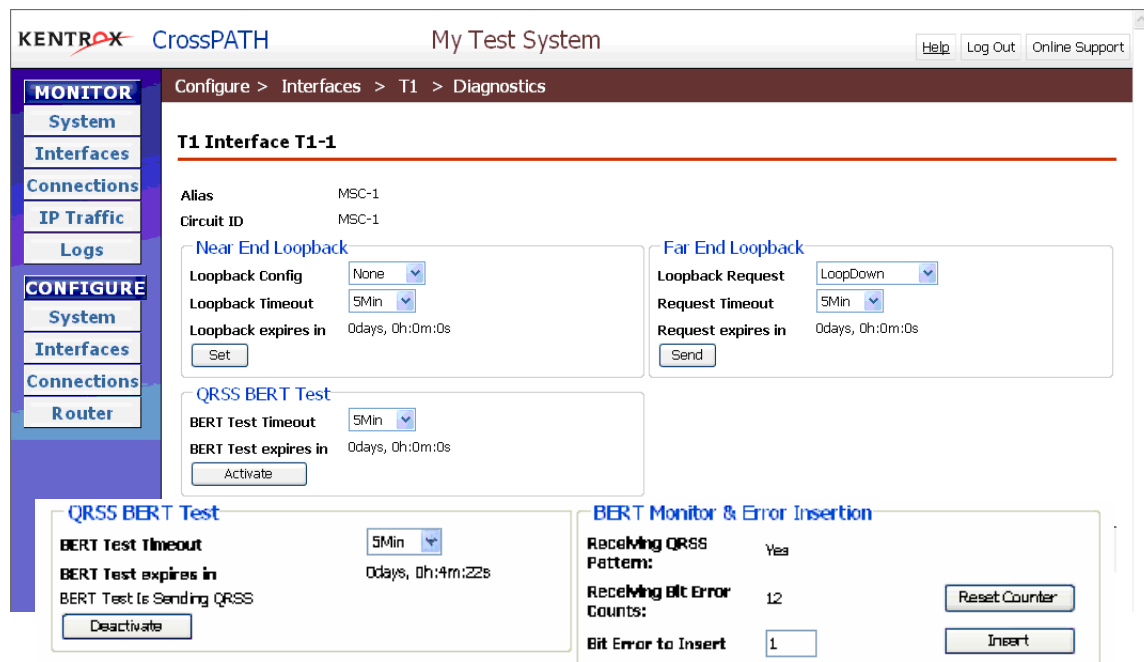


Figure 3: CrossPATH's BERT testing options.

The CrossPATH also supports line and payload loopback functionality on the local T1 interface. All T1 links will send in-band CSU loopback codes to remote devices as well as respond to these codes. Users implementing AT&T 54016 performance monitoring across their T1 facilities will also have the ability to send a remote payload loopback to compatible devices. All loopbacks are accessible remotely and support a timed loopback function. By entering a time limit, the user can be sure that the link will restore to normal traffic operation once the timer has expired. All diagnostic functions are recorded in the system log so that link events can be recorded and referred to in the future.

## Network element management compatibility

CrossPATH can be managed via an SNMP management system or a 3rd party element manager. Micromuse Netcool, Agilent NETeXPERT, and HP OpenView are some of the supported element management systems.

The CrossPATH is capable of having multiple element management devices programmed at once and can be saved as part of the operating configuration. This capability is useful when there are different tiers of management, such as a market NOC and a regional NOC, that both require SNMP information.

CrossPATH can also have multiple SNMP managers. CrossPATH supports user-configurable SNMP authentication for security purposes and provides a second layer of protection for your network traffic.

## SNMP functionality

CrossPATH's SNMP traps are generic and do not require the need for an enterprise-specific trap database. CrossPATH traps can be configured for SNMPv1 or SNMPv2c formats with appropriate SNMP authentication permissions. CrossPATH also uses standard MIBs allowing for easy implementation and configuration into an element management system without the need to compile an MIB database.

## Summary

Kentrox is an industry leader in quality network access products and providing solutions that are easy to install and manage, meeting the growing needs for both wireline and wireless access products. Kentrox continues to meet and exceed the networking requirements by providing innovative solutions for a very attractive price. Remote management demands are increasing as the industry continues to build additional telephone and BTS sites without increasing operations staff. The ability to access, configure, and diagnose the Kentrox equipment as well as other equipment becomes critical.

For more information, visit [www.kentrox.com/wireless](http://www.kentrox.com/wireless) or call us at 800-733-5511.

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