Remote Access Serial Communications - Serial Server
RFL eXmux 3500® IP Access Multiplexer

The RFL eXmux 3500 is a hardened IP Access Multiplexer engineered for mission critical infrastructures that seamlessly transport voice, serial, video and Ethernet data communications over Ethernet/IP or MPLS networks. The eXmux 3500 is a Layer 2 device with an integrated managed Ethernet switch which allows the eXmux 3500 to be used either in a private network with other eXmux 3500's or as part of a larger Ethernet/IP/MPLS network. Both fiber (using SFPs) and RJ-45 connections are available for the eXmux 3500; uplink speeds of up to a Gigabit are possible.

This application note illustrates the eXmux-3500 IP access multiplexer basic remote access communications with remote devices that has serial (RS232, DB9) interface functionality using the Serial Server IU as depicted in Figure 1 below.
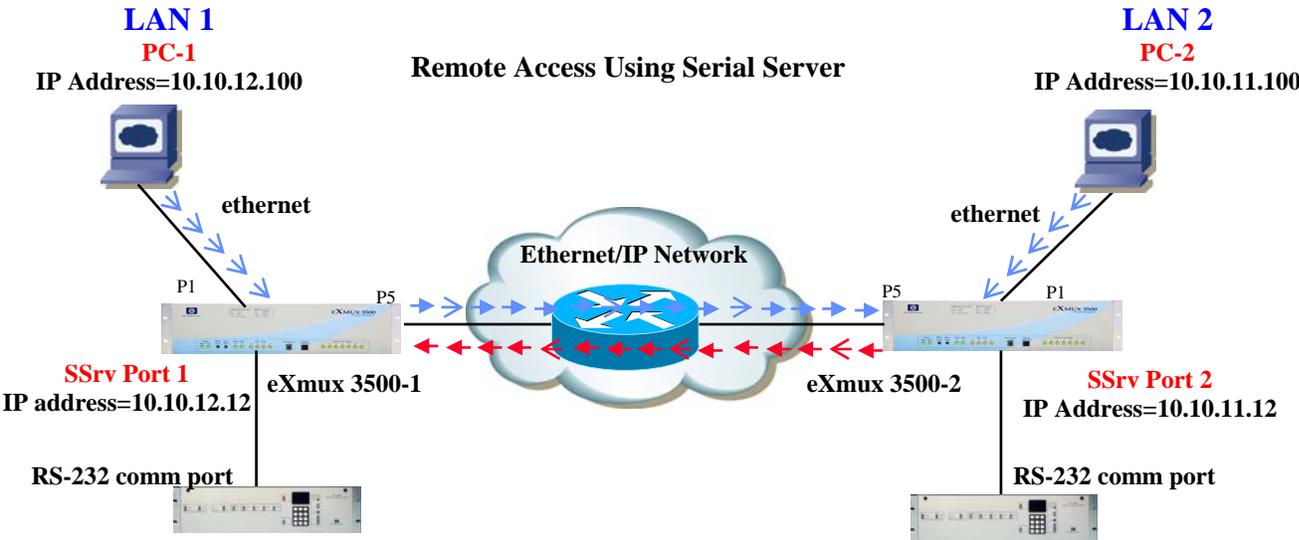

LAN 1
PC-1
IP Address=10.10.12.100

Remote Access Using Serial Server

LAN 2
PC-2
IP Address=10.10.11.100

ethernet

ethernet

Ethernet/IP Network

P1   P5

P5   P1

SSrv Port 1
IP address=10.10.12.12

eXmux 3500-1

eXmux 3500-2

SSrv Port 2
IP Address=10.10.11.12

RS-232 comm port

RS-232 comm port

Figure 1…Remote Access Communication Topology

Serial Server IU Implementation

The Serial Server (SSrv) is an IP-based interface unit (IU) of the eXmux 3500 that supports remote communications to a serial device connected either RS-232 or RS-485/4W using either standard Telnet (Unsecured) or SSH (Secure Shell - Tunneling) IP applications.

In Figure 1, when a serial port of the Serial Server IU is configured as PC-Client (Telnet or SSH server mode), any PC connected to a network e.g. PC-1 & PC-2 as a remote client can remotely communicate using any available terminal emulator application tools e.g. Putty, Hyperterminal, Tera-Term, ProComm, Windows DOS, Unix/Linux that supports Telnet, to the SSrv IU port's assigned IP Address and will be able to access the CLI for provisioning or program interface to get information from the serial communication port of the device connected into it. The Telnet remote sessions can be accomplished within LAN e.g. PC-1 to SSrv Port 1, PC-2 to SSrv Port 2 or LAN1 - LAN2 crossing a router e.g. PC-1 to SSrv Port 2, PC-2 to SSrv Port 1.

Remote Access using Telnet Protocol:

Telnet is an application network protocol that is used in a LAN or Internet to provide a bi-directional interactive "**clear text**" communications using a virtual terminal connection. Telnet is a client-server protocol, based on a reliable connection-oriented transport. Typically this protocol is used to establish a connection to Transmission Control Protocol (TCP) well-known port number 23, where a Telnet server application is listening.

eXmux 3500 Serial Server IU port supports the standard Telnet protocol. The SSrv port is configured as PC-Client in Telnet PCC mode (Figure 2) with Server Role for Telnet-Client remote access. eXmux 3500 SSrv's Telnet application is implemented using different TCP port number to provide an added access security measure.

Remote Access using SSH Protocol - Tunnel

SSH or Secure Shell is an application network protocol that is used in a LAN or Internet to provide a bi-directional interactive **"encrypted"** communications using a virtual terminal connection. SSH is a client-server protocol that allows data to be exchanged using a secured channel between two networked devices based on a reliable connection-oriented transport. Typically this protocol is used to establish a connection to Transmission Control Protocol (TCP) well-known port number 22, where a SSH server application is listening. The encryption used by SSH is intended to provide confidentiality and integrity of data over an unsecured network, such as the Internet.

eXmux 3500 Serial Server IU port supports the standard SSH protocol to create encrypted tunnel connection. The SSRV port is configured as PC-Client (Figure 3) in SSH PCC mode with PCC Pub Key and Server Role for Telnet-Client remote access. eXmux 3500 SSrv's Telnet application thru SSH-Tunnel is implemented using different TCP port number to provide an access security measure in addition to standard encryption.
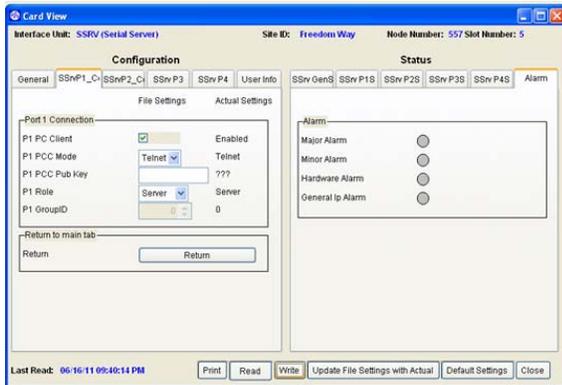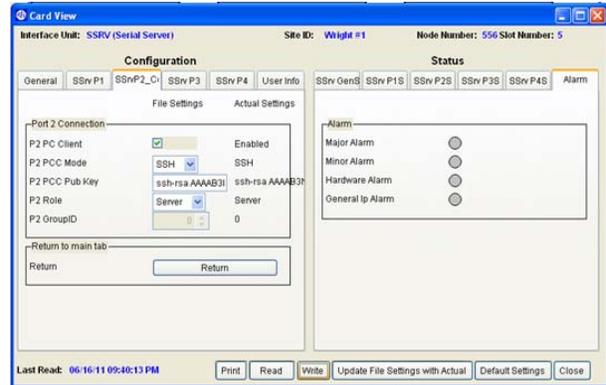
Figure 2…Telnet Protocol   **Figure 3…SSH-Tunneling Protocol**

Please refer to the eXmux 3500 User Manual for the detailed configurations guide. Contact RFL at 973- 334-3100 for further assistance.