APPENDIX B

Installation Instructions, Xylogics Annex Terminal Server

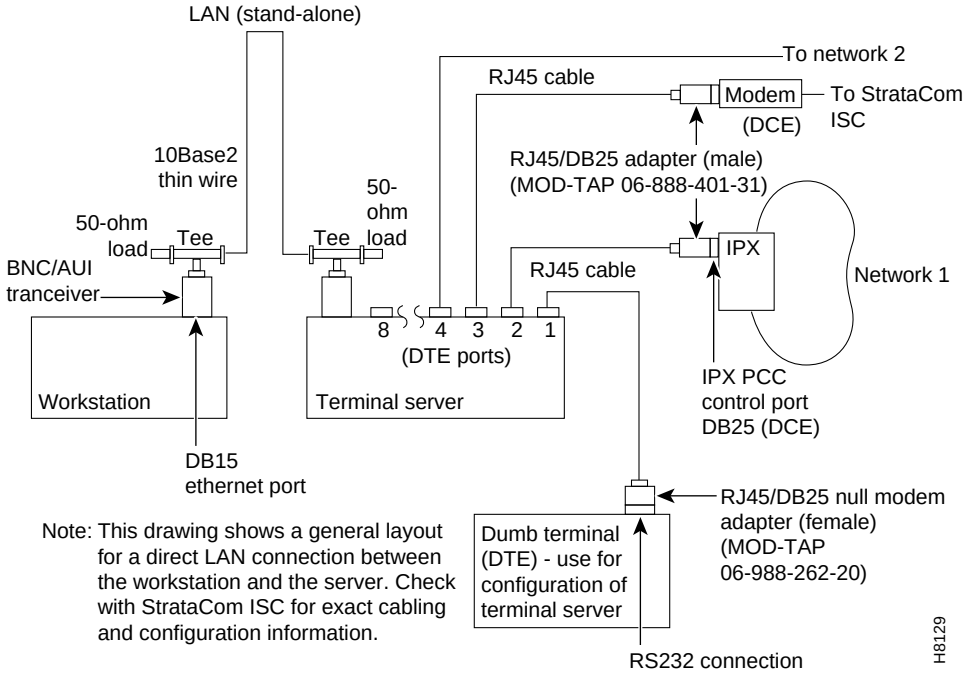
The following paragraphs provide installation instructions for the Xylogics Annex Terminal Server.

Installation of the terminal server consists of making the proper cabling connections, installing the terminal server software on the workstation, initial configuring and booting of the terminal server, and setting up the terminal server serial ports.

Equipment Required for Terminal Server

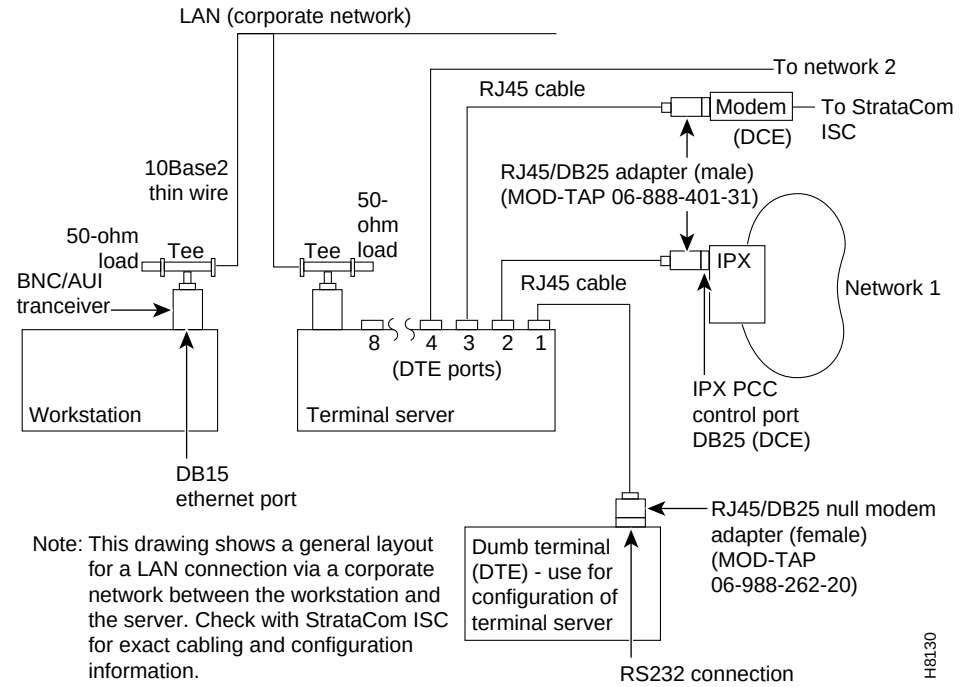
1. The Xylogics Annex Terminal Server with the following hardware is used:
   - Two thin wire ethernet BNC, T-connectors or 10 Base-T connectors.
   - A 50-ohm coax cable with BNC connectors if connecting directly between the workstation and the terminal server (length depends on the distance between the StrataView Plus workstation and the terminal server.
   - 2 terminators, 50 ohms (BNC connector).
   - 1 BNC/AUI transceiver.
   - RS232 serial cables and adapters for the number of terminal ports being used.
2. The following terminal server software is required: annex-ux r8.0 on tape cartridge. (Software may be updated.)
3. For a StrataView Plus workstation connected to a terminal server via a standalone LAN, see Figure B-1 and Figure B-3.
4. For a StrataView Plus workstation connected to a terminal server via a corporate LAN, see Figure B-2 and Figure B-3.

Figure B-1 Standalone LAN Connection



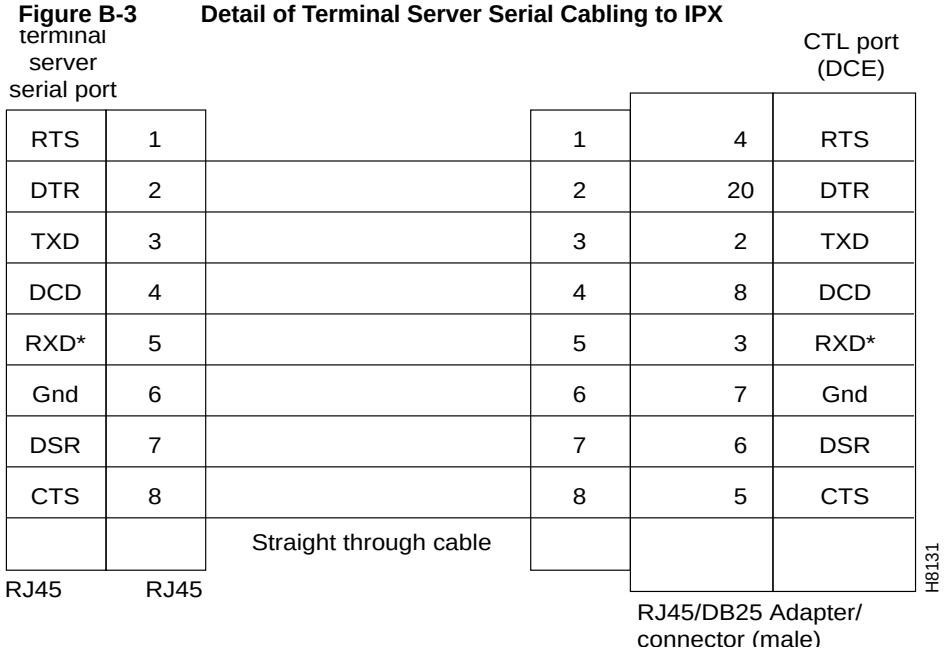
Note: This drawing shows a general layout for a direct LAN connection between the workstation and the server. Check with StrataCom ISC for exact cabling and configuration information.

Figure B-2 Corporate LAN Connection



Note: This drawing shows a general layout for a LAN connection via a corporate network between the workstation and the server. Check with StrataCom ISC for exact cabling and configuration information.

Figure B-3 Detail of Terminal Server Serial Cabling to IPX



Installing Terminal Server Software on the Workstation

The following information was current at the time of printing, and is included for your reference only. Check the *Annex Software Installation Notes* that came with your copy of Annex for any changes. Annex SW 8.0 or later must be installed.

1 Place the Annex software tape into the tape drive and close the door.

2 Log in as root and enter the following commands:

mkdir /usr/users/annex
cd /usr/users/annex
tar -xvf /dev/rst0

Note The device name `rst0` in the previous command is an example. If your tape drive uses a different device name, substitute it for `rst0`.

./install-annex

3 The Annex software banner screen displays. Hit return to start the installation.

4 Answer the installation questions as follows:

Enter Machine Type #: **1**
Enter OS #: **1**
Enter Net S/W Type #: **1**
Where do you want the
annex utilities installed? [/usr/annex]**/usr/users/annex**
BFS directory name [/usr/spool/erpcd/bfs]:
/usr/users/spool/erpcd/bfs
Do you want to install manual pages at
this time? [n]:**y**

Enter on-line manual page type #: [1]**1**
Enter manual page layout type: [1]**1**
Enter manual page extension type: [1]**1**
What is the extension used? [1]**1**
Remove these directories? [y/N]**y**
Shall I compile the tools for you? [y]**y**
Shall I install the tools for you? [y]**y**

5 Enter the following commands:

mkdir /usr/users/var
mkdir /usr/users/var/spool
cd /var/spool
cp -r erpcd /usr/users/var/spool/erpcd
rm -r erpcd

6 Edit the `/etc/services` file and add the following line to the end of the file, if it does not already appear in the file:

erpc 21/udp #rpc listener

Caution When editing the `/etc/hosts` file, do not replace the line containing the local host address which looks something like the following:

```
127.0.0.0.1 localhost
```

7 Edit the `/etc/hosts` file and add the following lines, if they do not already appear there. (This is an example for a workstation named "hedgehog" at address 192.9.200.89. It also assumes that the terminal server is at 192.9.200.80. Your own host name and addresses will be different.)

192.9.200.89 hedgehog
192.9.200.80 tserv

Initial Configuring and Booting of the Terminal Server

1 Unpack the Annex terminal server.

2 Examine the hardware configuration.

3 Connect the transceiver to the network.

4 Connect a terminal with an RS232 cable to port 1 of the annex. (This is a DTE to DTE connection. Therefore, a null modem is required. This can be a combination of a straight RJ45 cable with an RJ45/DB25 modem adapter on the dumb terminal end.)

5 Power up the terminal and set the terminal at 9600 and 8 bits with 1 stop bit.

6 Power up the Annex and within 5 seconds push the test button in the front panel of the Annex.

7 Set up an IP address for the terminal server and the preferred load host IP address (i.e. the host workstation). The addresses shown in the following example, 192.2.200.80 and 192.2.200.89, are sample addresses. Contact your network administrator for the appropriate addresses for your location.

Note The following example lists the Annex messages current at the time of printing and is for reference only.

Note You can use **`addr -d`** to see the current setting.

For example, opposite the “monitor::” prompt enter the following:

monitor:: **addr**

Enter Internet address [<invalid or initialized>]:: **192.2.200.80**

This is the terminal server's address in this example.

Enter Subnet mask [<default 255.255.255.0>]::
Enter preferred load host Internet address[<any boot>]:: **192.2.200.89**

This is the Sun SPARCstation's address in this example. Accept the rest of the prompts with **`<RETURN>`** as needed.

8 To save the changes do a boot as follows:

— On the terminal, enter Annex monitor command **`boot`** (in the monitor mode) and accept the default answer in response to the question.

— The terminal display should show a group of periods, and the front panel lights should be flashing to indicate that booting is in progress.

— As the boot finishes, the terminal will transit into cli mode with “annex:” displayed. (This indicates that the booting of the terminal server software from the Sun SPARCstation has been completed.)

Setting Up the Terminal Server Serial Ports

The following was current at the time of printing, and is included for your reference only. Check the *Annex Software Installation Notes* that came with your copy of Annex software for any changes.

1 You should still be logged in as **`root`**; if not, log in as **`root`**, and enter:

cd /usr/users/annex
na

2 In response to `command` prompt, enter:

annex *tserv*

Note The name `tserv` is the name given to the annex terminal server in this example, and is stored in the user's `/etc/hosts` file.

3 For each port that is selected to serve as a slave for out-bound flow, set port speed, control_line type, mode, input_flow_control, output_flow_control. For example, for port 2 enter the following:

port 2
set port speed 19200
type hardwired
mode slave
control_lines none
output_flow_control start/stop
input_flow_control start/stop
reset 2

4 If you were connecting a dial-in modem, for example, for the inbound port from the modem, set flow_control to modem_control, type to dial_in, and mode to cli. For example, for port 3:

port 3
set port speed 9600
type dial_in
mode cli
control_lines modem_control
output_flow_control start/stop
input_flow_control start/stop
reset 3

You can use "show port" to see the port setting.

5 To quit, enter:

quit

6 Then you need to configure the port that you're using on the terminal server to connect to the IPX. Annex SW 7.0.1 or later must be installed. If you're using serial port 2 as in this example, you want to set port 2 as an outbound port on the terminal, enter:

rtelnet -rC tserv 2 /dev/ttyDD

(for Annex SW 7.0.1}

7 Edit the `config.sv` file in the `/usr/users/svplus` directory, to change the default fields `ttya` and `9600` to *ttyDD and 19200* so that StrataView Plus will be using the terminal server at 19200.

Preferably, the device file `/dev/ttyDD` is one that did not previously exist. In this example, ttyDD is used; some other name could have been used.

8 Use the **cnfterm** command to change the IPX control port speed to 19200.

Note Using the **cnfterm** administration window command, you can use a dumb terminal connected to the IPX control port to set the IPX control port speed to 19200, and at the same time ensure that DTR is set to No. If you have only the workstation, you may need to initially configure the terminal server port (port 2 in this example) and the **config.sv** file for a 9600 rate. This is the default rate of the IPX. Once you have established communication to the IPX control port, you can change the IPX control port to 19200, and then the terminal server port and the **config.sv** file to 19200.

Diagnostics for the Terminal Server

1. If the Annex is having a problem with booting in the hardware installation, the System Administrator should disconnect and connect the transceiver from the terminal server, or recycle the power of the terminal server (or a combination of the above procedures). Also, try the Annex monitor command **erase** and then repeat the Annex monitor command **addr**.

   For additional information refer to the *Xylogics Micro Annex Communications Server Hardware Installation Guide, User's Guide,* and *Network Administrator's Guide*.

2. After a successful installation of hardware and software for the terminal server, the System Administrator can use **/etc/ping** to test the internet communication.

3. If there is any data activity at the terminal server, the LED for the active port should be on (or flashing during bursty data). The front panel has an LED for each port.

4. When communication is established, entering "ps -aux" from the unix command line should reflect the **erpcd** and **rtelnet(s)** processes as active in the UNIX kernel.

Rebooting the Workstation

Every time the host station for the terminal server is rebooted, the **erpcd** and **rtelnet** commands must be entered again. For example,

1. Login as `root`

2. Enter:

   cd /usr/users/annex
   erpcd

3. Next, the terminal server port that connects to the IPX must be configured. In this example, `/dev/ttyDD` is the id that has been given to the port in the config.sv file. If this is serial port 2, as in this example, it should be set as an outbound port on the terminal server. To do this, enter:

   rtelnet -C -k -r tserv 2 /dev/ttyDD

   If INSTALL is run after the annex terminal server software has been installed, a command line is added to the **rc.local** file to invoke the **erpcd** command. The **rtelnet** command line can then be added to the **rc.local** file. With both these lines added to the **rc.local** file, it is not necessary to manually enter the **erpcd** and **rtelnet** commands on a reboot. Or, for this example, you can just add the following two lines to the `rc.local` file without having to run the INSTALL program, as follows:

   /usr/users/annex/erpcd
   rtelnet -C -k -r tserv 2 /dev/ttyDD