

PowerNet SoftServer

Installation Guide

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1 SoftServer Overview

Introduction

Sites that have a UNIX-based host can implement a software-only solution for meeting their RF needs. A *SoftServer* package turns a computer with a UNIX operating system (OS) into a fully operational PowerNet server. *SoftServers* are available for HPUNIX, IBM AIX, NCR, and SCO variants of the UNIX operating system.

In addition, a *VTERM* emulation package, which performs VT-100, VT-220, and HP-700 emulation, and *TIP* software for RF terminals are included with the *SoftServer* package. See the *VTerm User Manual*.

Specially designed *Enablers* are also available for RF application development and are referenced at the end of this chapter.

Features

SoftServer packages offer the following

- **Easy Installation** - Two sets of software are installed. One includes the PowerNet RF System. The second has specific device drivers which are system dependent. The entire installation is system-prompted, and is complete in a matter of minutes.
- **Cost Effective** - An available UNIX system can be utilized, there is no waste of existing resources.
- **UNIX Variants** - Software for a variety of types and versions of UNIX are available.
- **Multiple RF LANs** - Up to 32 Spectrum One RF LANs can be connected to the UNIX system with the addition of serial ports. You can buy as few or as many as needed, and more can be added at a later time.

Documentation

The *SoftServer* essentially becomes a PowerNet for which full documentation is found in the *PowerNet System Manual*. This *Installation Manual* begins with the

PowerNet RF software (the base package) which is common to all UNIX variants. Then, the second half of the package, with device drivers, follows.

Conventions

This document uses the same typographical conventions as the *PowerNet System Manual*.

Product Information

The current SoftServer Packages and associated software are listed below with products numbers. Note that new packages become available frequently, so call your sales representative if another version is required.

Product #	Description
CNT5000-3400	SCO UNIX 2-User
CNT5000-3408	SCO UNIX Screen Formatter
CNT5000-3409	SCO UNIX Scan Editor
	All include 80386, 80486, Pentium processor support
CNT5000-3420	NCR UNIX 2-USER
CNT5000-3428	NCR UNIX Screen Formatter
CNT5000-3429	NCR UNIX Scan Editor
CNT5000-3430	IBM AIX 2-User
CNT5000-3438	IBM AIX Screen Formatter
CNT5000-3439	IBM AIX Scan Editor
	All Power & Power PC Architectures supported
CNT5000-3450	HP-UX 2-User
CNT5000-3458	HP-UX Screen Formatter
CNT5000-3459	HP-UX Scan Editor
	All Precision Architecture RISC version 1.0 or higher
CNT7000-7001	CWNE -Certified Wireless Network Engineer Training
CNT7000-7002	CWNT -Certified Wireless Network Technician Training
Upgrade Packs	Description
CNT5000-1160	Terminal License 8-Pack
CNT5000-1161	Terminal License 2-Pack
	Qty (8 Packs)
CNT5000-1160	1
CNT5000-1162	2
CNT5000-1163	3-5
CNT5000-1164	6-11
CNT5000-1165	12-23
CNT5000-1166	24-29

System Requirements

A minimum of 2 MB of RAM and 10MB hard disk space are required for the minimal system to run without any RF terminals attached. When system logging is used, an additional 10MB of disk space is required.

In the SCO environment, each attached RF terminal uses around 250 KB of system memory - similar to another 'hard-wired' terminal user on the system. Consider that each RF terminal is, in a sense, just like another wired terminal attached to the host system— each terminal utilizes system resources. The goal is to keep the UNIX system from having to perform memory to disk swapping for each terminal session which drastically effects overall system and RF terminal application response times. The following is a guide for additional memory requirements based on terminal count and application. Each 8MB of memory increases terminal counts according to the table below.

Total Installed Memory:

8 MB	8 Users
16 MB	32 Users
32 MB	104 Users
64 MB	240 Users

This page is intentionally left blank.

2 Base Package Installation

Introduction

The software that adds RF controller functionality to the UNIX system is installed with two basic procedures. The first procedure is transferring the installation package from the media to a temporary directory. The second procedure is executing the installation program and following the system prompts. This chapter provides information and instructions for both the installation procedures and the variants involved.

Caution: You must be a **superuser** (root) in order to perform this installation. System Administrators and certified RF Network Engineers are qualified to install this software. Please read the *PowerNet Reference Manual* before attempting this installation in order to be familiar with operation of the software once it is installed.

Before you begin...

Before beginning the installation, you must have in-depth knowledge of the UNIX system. Briefly, you must know:

- The use of the operating system's *cpio* command for the media that contains the SoftServer. The SoftServer product is shipped on a variety of media (disk, tape, CD-ROM, etc.) based on the operating system of the machine you are installing on.
- All filenames of the serial ports available to the RF system. Since the SoftServer product utilizes serial ports for configuration and, in some cases, connectivity to the RF network, knowledge of the device names are important. It is also important to know exactly how these ports are pinned (DCE or DTE) when connecting RF equipment to the target machine.
- Serial port speeds which must be either 57.6, 38.4, or 19.2 Kbaud. For example, some RF terminal equipment requires configuration information be sent to the RF terminal at 38.4K. Also, slower link speeds can affect the performance of the RF network in its ability to pass data between the SoftServer product and any serially connected RF transceiver devices.

- The planned setup for your RF network—you need at least one serial port for a transceiver LAN (for serially connected transceivers), and one for a cradle LAN. If the SoftServer product is supporting 2.4Ghz access point devices, there must be an Ethernet network interface card installed and configured for the system prior to installation. It is also required that any TCP/IP support packages for the operating system on the target machine be installed and tested as well.

Installation of the SoftServer

This procedure, which is common for all OS variants, uses a simple interface to install the required support packages on the target machine. The SoftServer product is typically shipped on 3.5 inch 1.44Mb media for these systems (unless otherwise requested).

Create a temporary work directory

To transfer the SoftServer software from the distribution media, follow the steps outlined below:

As superuser on the target machine, create a directory temporary directory (in our example: *build*) on the target machine.

```
mkdir /build
```

Change to the temporary (*build*) directory

```
cd /build
```

Proceed with the following installation instructions for the OS variant being installed.

Transfer the installation files

For SCO systems

Install disk 1 of the installation kit in the target machine's drive and *cpio* the files from the disk media to the temporary (*build*) directory using the following command:

```
cpio -icvBdu -I/dev/rdisk/f03h -M"Insert Disk %d"
```

Note: UNIX is case sensitive. Type the commands *exactly* as shown. The *-I* parameter specifies the device from which the files are to be copied from (in this example, the floppy */dev/rdisk/f03h*) and the *-M* parameter at the end of this command prompts for the next disk in the installation kit. Insert the next disk in the series as prompted during *cpio*.

SoftServer products use a resource under UNIX named *Streams*. In most variants of UNIX, the *Streams* system resource is dynamically allocated, i.e., while physical memory exists, the *Streams* resource is allocated as needed. However, SCO Release 4.2 does not have dynamic *Streams* allocation. Here, allocation must be *tuned* within the UNIX Kernel. In Connect hard NCU products, tuning is based on the number of supported RF terminals. The following table is a guide for system administrators tuning their *Streams* environment.

Note: SoftServer products also require one Pseudo TTY for each RF terminal.

Tunable values for number of users

Name	16 users	32 users	64 users	128 users	256+ users
NQUEUE	4096	4096	4096	4096	4096
NSTREAM	512	512	512	512	512
NSTREVENT	256	256	256	512	512
NBLK4	128	512	512	512	512
NBLK16	1048	2048	4096	8192	8192
NBLK64	1048	2048	4096	8192	8192
NBLK128	512	512	1024	2048	2048
NBLK256	256	256	512	1024	1024
NBLK512	128	128	256	512	1024
NBLK1024	64	128	128	128	512
NBLK2048	48	64	64	64	256
NBLK4096	4	8	32	32	128
STRMSGSZ	4096	4096	4096	4096	4096
STRLOFRAC	100	100	100	100	100
STRMEDFRAC	100	100	100	100	100
NINODE	200	200	400	800	1600

NS5INODE	200c	200	400	800	1000
NFILE	200	200	400	800	1600
NPROC	100	100	200	400	600
MAXUP	60	60	60	60	60
NREGION	300	300	400	600	1000
NCALL	500	500	500	500	500
NSPTTYS	40	40	80	140	256
NUMTIM	16	32	64	128	256
NUMTRW	16	32	64	128	256

After all files are transferred, continue with the *Start the Installation* section of this manual.

For AIX and HPUX systems

Install disk 1 of the installation kit in the target machine's drive and *cpio* the files from the disk media to the temporary (**build**) directory using the following command. (Note—If *media* is for AIX, the name **/dev/rfd0** is used. If *media* is for HPUX, the name **/dev/rfd** is used.):

```
cpio -icvBdu < media
```

Note: AIX is case sensitive. Enter the commands *exactly* as shown. Insert the next disk in the series as prompted during *cpio*. When the end of the media is reached, AIX *cpio* prompts:

```
cpio: end of diskette, insert the next diskette.  
Enter the device or filename when ready to continue.
```

```
—
```

Insert the next diskette in the drive and at the cursor, type:

```
/dev/media
```

and press **<Enter>**. The *cpio* process continues to extract the files from the distribution media.

When the operating system prompt appears, proceed to the *Start the Installation* of this manual and follow the installation steps.

Start the Installation

Once all files from the media are transferred to the target machine, start the build process by executing the install program with the following command typed *exactly* as shown:

```
./sbld.sh
```

This script installs a series of software packages. Follow the prompts accordingly.

For SCO and Other Systems

The first series of packages to be installed through the script is for the streams multiplexing interface drivers required for operation of the RF network control software. The install script displays:

```
Installing PN 610-0001-04 --- SMI Drivers
Installing Connect/RF SMI 5.0 for SCO S5R3
```

The next series of packages to be installed through the script is for the PTY drivers required for operation of the RF network control software. The install script displays:

```
Installing PN 610-0001-05 --- PTY256
Installing Connect/RF PTY-256 for SCO S5R3 4.20
```

After this package in the series is installed and all devices are created and/or updated, the system prompts for a kernel rebuild:

```
Do you want to rebuild the kernel now? [y, n]:
```

As noted in the table below, rebuilds may or may not be necessary. Check the table and respond with a **y** or **n**. The kernel is (or is not) rebuilt.

SoftNCU Version	Kernel Rebuild Required	Reboot Required
SCO	Yes	Yes
AIX	No	No
HPUX	Yes	Yes
NCR	Yes	Yes

Continue with the installation as follows.

For All Systems

The packages to be installed through the script are the base system packages required for operation of the RF network control software. The install script displays:

```
Installing PN 610-0001-01 --- Base_System

Installing Connect/RF Base System Release 5.0.0
```

Once the base system packages are extracted, the install package prompts for selection of a target system directory that the RF network control software is to be installed in. The installer can choose from the following options:

```
Connect/RF Directory
  1. /crf (Standard for Factory-built system)
  2. /usr/crf (Standard for Soft system)
  3. Other (User specified)
Selection:
```

A *Factory-built (Dedicated) System* is one that is only to be used for the RF software. A *Soft System* is one that has other functions in addition to serving as the RF SoftServer. If *Other* is selected, the installer is prompted to enter the path/directory. Connect recommends that option 2 (**/usr/crf**) be used, although the user may specify any target directory. The system responds as follows:

```
Installation directory is '/usr/crf'
Decompressing...
Dearchiving...
Installing /usr/crf
Copying Verification Database
Copying SPLIT
Creating diag subdirectory
Creating lock subdirectory
Creating hip subdirectory
Creating pipes subdirectory for Hotkey
Creating xfer subdirectory
Creating snaps subdirectory
Building Menu System

Building Host List
```

Now the process continues on to install the RF drivers and protocol managers for the particular RF network connectivity being installed on the system. The system displays installation of Spectrum One as follows:

```
Installing PN 610-0001-02 --- Spectrum_One

Installing Connect/RF Spectrum One Release 5.0.0
Installation directory is '/usr/crf'
Decompressing...
Dearchiving...
Installing /usr/crf
Copying Verification Database
Building Menu System
Building Host List
```

The system then installs Access Point RF network support as follows:

```
Installing PN 610-0001-03 --- Access_Point

    Installing Connect/RF Access Point Release 5.0.0
    Installation directory is '/usr/crf'
    Decompressing...
    Dearchiving...
    Installing /usr/crf
    Copying Verification Database
Building Menu System
Building Host List
```

The system installs VTERM terminal emulation support as follows:

```
Installing PN 610-0001-13 --- VTERM

Installing Connect/RF VTERM Release 5.0.0

Installation directory is '/usr/crf'
Decompressing...
Dearchiving...    Installing /usr/crf
Copying Verification Database
```

The installation script continues on with installation of the following packages:

```
Installing PN 610-0001-23 --- Formatter
Installing PN 610-0001-24 --- Scan_Editor
```

Once the installation of all desired packages is complete the system returns with:

```
Warning: System has not been authorized
Warning: Kernel has not been tuned
Warning: Ports not configured
Warning: Spectrum One not configured
#
```

Note: Any warning messages, such as those shown above, that appear in the installation process are normal. These warnings are corrected once the SoftServer software is properly configured.

This step completes the installation process for SoftServer. Now proceed with *Common Setup*.

Common Setup

Verification

After all required software packages have been installed, change to the directory in which the SoftServer software directory and execute **crfadmin**. A system control menu appears. Choose the *Utility* submenu, and then the Verification menu option. This utility detects un-calibrated and/or missing software components in all installed packages and reports them as such. Contact Connect support if any discrepancies reported through the verify process.

Authorization

At the *Utilities* menu, select *Authorize* to examine or update the authorized number of users and installed software packages. This menu option also permits resubmission of the authorization code when software and/or hardware is added or removed from the system.

```
Authorization
      Machine ID [2CF055995      ]
      Authorization Code [      ]
      New Authorization Code [      ]
      Users [0 ]
      Spectrum One [no ]
      Access Point [no ]
      VTERM [no ]
      3270 [no ]
      5250 [no ]
      Client Streaming [no ]
      Scan Editor [no ]
      Formatter [no ]
      <ESC>=QUIT
```

Figure 2-5 Sample Output of Authorize

Using the authorization form from on the next page, enter the machine ID displayed on this screen and fax it to Connect. Connect provides an authorization code by return fax allowing the software to run as purchased.

The authorization code is submitted at time of installation. An unauthorized system operates *RF-CHECK* for 7 days, allowing for completion of the installation and testing process. Emulations only run for 5 minutes at a time, requiring the user to stop and restart RF terminal sessions until the authorization procedure is completed. After the 7 day grace period, the system disables PowerNet access until the authorization procedure is completed.

1. The system which you have purchased requires an authorization code to be entered so that the software runs continuously. If this authorization code is **not** entered, the system runs for only 7 days. Then you must enter an authorization code before you can proceed.
2. Turn on the power to the PowerNet server and follow the instructions in the *PowerNet System Manual* to get to the *Utilities* menu then go to the sub-menu called *Authorize*.
3. On the *Authorization* screen, find the field called **Machine ID**. In the space provided on the preceding page, print clearly the ID number shown between the brackets (carefully showing *UPPER* and *lower* case!). (Note: The character string may not be long enough to fill all of the blanks.)
4. Fax this page to (630) 963-8919 between 9:00 AM and 5:00 PM (Central Time) Monday through Friday. We fill in the line **New Authorization Code** and fax it back to you.
5. When you receive our return fax, please enter onto your screen the New Authorization Code **exactly** as shown on our fax (i.e., all letters capitalized where needed, and dashes entered). Next, press the <Esc> key. The following appears on the screen:

```
Submit new authorization code (y/n)?
```

Answer *yes* by pressing the <y> key. Go to instruction 8.
6. If you entered an invalid authorization code, the following appears on the screen:

```
Invalid code, press ENTER to continue
```
7. After you press the <Enter> key, the cursor returns to the New Authorization Code field. Change the code previously entered. Be sure it matches the code **exactly as shown** on the fax (carefully entering *UPPER* and *lower* case!) from Connect. Then press the <Esc> key to resubmit, and follow the prompts.

Note: If problems continue, call us at (630)963-8800, and our technical support help desk will provide assistance. They may ask you for a dial-in access connection to provide dial-in assistance or instruct you to enter diagnostic commands.
8. When the code is accepted, the authorization code you entered now appears on the line labeled *Authorization Code* and the cursor returns to a blank New Authorization Code field. When these steps are completed, you have successfully entered the New Authorization Code into the system. Now press the <Esc> key to return to the *Utilities* menu.

Note: It is of the utmost importance to complete the authorization form prior to the final installation of any PowerNet system. Failure to authorize a PowerNet system results in failure of the system to operate for more than seven (7) days.

Common Setup

First, information about the system ports are entered at the prompts which appear. Next, you must enter configuration data about the RF system that was purchased. RF default values works in almost all systems and can be updated later. The *PowerNet System Manual* referenced previously provides information about the RF network.

Port Setup

The first set of prompts is for the *Port Setup Utility*. You must know the ports available to the RF software, their types, and the *pathname* for each one. The *Port Setup Form* used for this utility is discussed in the *PowerNet System Manual*.

Special Note:

The SoftServer products, by design, do not attempt to override a given systems administrator's system environment (including device ports). There is a need to determine the action for a system administrator to ensure that a *getty* is not running on the RF LAN ports for the SoftServers. This special note shows the steps required to verify that another process is not running on a given port.

The normal method of starting the SoftServer product is through the documented *crfadmin* script. The following is a manual process. From the root prompt execute the following command:

```
fuser /dev/tty06
```

This shows all processes that are connected to a given port. If there is more than one process, the customer's system administrator should disable that port through their system utilities. (This action is UNIX and system dependent and should be a trivial task for qualified system administrator.)

RF Setup Utility

For Spectrum One RF Networks

This utility presents an *RF Network Setup Form* which is explained in *Chapter 5* of the *PowerNet System Manual*. (See the heading, *RF Network Setup Form*). At this time, the entire form does not have to be completed, but at least one transceiver LAN and one cradle LAN must be configured. Settings can be changed later if the need arises, but the installation program must create at least one file for each RF LAN type. The *RF Network Setup Form* is shown in Figure 2-2.

```

Spectrum One Network Setup      Page 1

      LAN 0   LAN 1   LAN 2   LAN 3   LAN 4   LAN 5   LAN 6   LAN 7
Channel 1 [18]  [18]  [22]  [30]  [38]  [46]  [06]  [14]
Channel 2 [48]  [22]  [30]  [38]  [46]  [06]  [14]  [22]
Channel 3 [48]  [30]  [38]  [46]  [06]  [14]  [22]  [30]
Channel 4 [48]  [38]  [46]  [06]  [14]  [22]  [30]  [38]
Channel 5 [48]  [46]  [06]  [14]  [22]  [30]  [38]  [46]
Channel 6 [48]  [06]  [14]  [22]  [30]  [38]  [46]  [06]
      Type [TRAN] [CRAD] [TRAN] [TRAN] [TRAN] [TRAN] [TRAN] [TRAN]
      Speed [57.6] [38.4] [57.6] [57.6] [57.6] [57.6] [57.6] [57.6]

      Chip Seeds      Ports      Options
LAN 0 [689725285] [P1 ]      Log Level [1]
LAN 1 [689725285] [P2 ]      Log Lines [5000 ]
LAN 2 [689725285] [OFF]      SAC Interval [100 ]
LAN 3 [689725285] [OFF]      Total Addresses [447]
LAN 4 [689725285] [OFF]
LAN 5 [689725285] [OFF]
LAN 6 [689725285] [OFF]
LAN 7 [689725285] [OFF]

<ESC>=QUIT <SPACE>=CHANGE <ARROWS>=MOVE <CTRL><B>=PGUP <CTRL><F>=PGDN

```

Figure 2-2 RF Network Setup Form

RF Network Setup Form - Fields

The majority of the fields on this form should be left at their default settings. If you decide to complete the configuration now, see the reference listed above. The fields that must be configured are detailed below. At least one transceiver LAN (use LAN 0) and a cradle LAN (use LAN 1) must be configured.

The cursor is on LAN 0, Channel 1 when the form is displayed. Press the right or down <Arrow> to move from field to field.

AIX CAUTION: Make sure that the entries on this form match those in *SMIT*.

Channel Lists: [Text Field] Use default values or if they are changed, the transceiver and cradle LANs must have identical values.

Type: [Toggle Field] Use the <Tab> key to select *TRAN* (transceiver) for LAN 0 and *CRAD* for LAN1.

Speed: [Toggle Field] Use the <Tab> key to select either 57.6, 38.4, or 19.2 Kbaud. A transceiver LAN can operate at any of these settings but cradle LANs operate at 38.4 Kbaud.

HP CAUTION: HP-UX v9 can only support 19.2 Kbaud for serial ports. In this case, you cannot configure a cradle LAN. Please contact your Sales Representative for instructions about using a cradle with a PC, or configuring terminals with *TIP*.

Chip Seeds: [Toggle Field] Use default values.

Port: [Toggle Field] Select a port defined in the *Port Setup Form*. Use <Tab> to toggle through the selections.

Caution: Make sure that there are no other processes accessing the serial port being used here (for example *getty*).

Log Level: [Toggle Field] Use default values.

Log Lines: [Text Field] Use default values.

SAC Interval: [Text Field] Use default values.

Total Addresses: [Text Field] Enter the number of terminals that is used with the system. The number cannot be greater than the number of licensed users.

Press <Esc> to save the form after the RF LANs are configured.

RF Setup Utility

For Access Point RF Networks

The *Access Point Server Setup* (see Figure 2-3) consists of one page. When the form is first displayed, the cursor is positioned on the ON/OFF field of Status. The form fields, their type, text entry or toggle, valid entries or choices, and how to change them follows.

```

Access Point Server Setup

      Status [ON ]
      Adapter [sme0 ]
      Node Name [trn2001a ]
      IP Address [206.183.67.184 ]
      IP Port [1800]
      Serial Load Port [OFF ]
      Log Level [0]
      SAC Interval [0 ]

      Direct Interface
      Port      Host Name      Port      Host Name
      [  ] [      ] [  ] [      ]
      [  ] [      ] [  ] [      ]
      [  ] [      ] [  ] [      ]
      [  ] [      ] [  ] [      ]

      <ESC>=QUIT  <SPACE>=CHANGE  <ARROWS>=MOVE

```

Figure 2-3 AP Server Setup Form

Definitions of form fields follow:

Status [Toggle Field]

This factory set field allows the system administrator to enable or disable the access point connectivity to the PowerNet controller. *ON* enables this function while *OFF* disables the connection.

Adapter [Toggle Field]

The factory set field is used to select the specific adapter that PowerNet uses to converse with the attached access points. The values used for this toggle field depend on the connectivity hardware installed in the PowerNet server.

Node Name	[Toggle Field]	The Node Name field is used to determine the IP address of the hardware device to which the access point network becomes attached. The values for this field come from the TCP/IP node list.
IP Address	[Display Only]	The site specific IP Address is used to display the IP address of the node chosen in the previous input field. This value must match the Remote IP assignment set on the terminals.
IP Port	[Text Field]	The IP Port assignment must be entered by the system administrator and is used as the port address for communicating to the Remote devices on the access point network. The value of this entry must match the factory set Remote IP port assignment set on the terminals.
Serial Load Port	[Toggle Field]	The Serial Load Port assignment is used for loading terminal software to the remote devices and is indicated as P1, P2, ... (see <i>Chapter 3</i>). The selections in this field match the factory-configured ports shown in the <i>Port Setup</i> screen (see <i>Port Setup</i> in this chapter). This port is also used as the serial port to perform the initial IP address assignment for the Access Points (see <i>AP Init</i> in this chapter). OFF should be selected when Serial Load Port LANs are not implemented.
Log Level	[Toggle Field]	There are 10 levels that can be used for RF logs. The lowest, zero (0), gives system activity information. It may be set to a higher value, with 9 providing the most information. This may be useful for resolving system setup problems. Level 1 is the default setting. Production systems with high transaction rates should be set to zero (0) to minimize the impact of disk logging on system performance.
SAC Interval	[Text Field]	The SAC interval option controls the RF Network System Accounting facility which generates network load and volume data that can be analyzed with a spreadsheet program. The accounting interval default setting is 150 seconds (1.5 minutes). A setting of zero disables accounting.

Direct Interface Fields

The direct interface fields allow definition of an IP port number and directly associate it with a Host list entry. In this manner, a terminal can attach to the PowerNet server and its appropriate host list entry by virtue of opening a TCP/IP socket connection to the correct port number. This allows WHAP terminals to directly proceed to the specific host entry without having to display the entire host list first, based on the port number assigned in the PowerNet interface setup on the terminal.

These fields are also used to allow non-WHAP terminals to interface through the SoftServer into the PowerNet interface programs such as *steptcp*, *sabhost* and *tcpghost*. For example, setting port **6500** to interface to *sabhost* allows Symbol Spectrum 24 (port 6500) terminals running STEP to interface through PowerNet to the enabler host (*sabhost*) via a multiplexed serial connection.

Serial Port Parameters

The goal in establishing a Spectrum One remote from the SoftServer is to provide a reliable end-to-end asynchronous connection. The parameters provided by the serial port are as follows.

Baud Rate: 9600 – 57.6 (Requires Symbol transceiver firmware 2.14-04 or higher)

Bits: 8

Stop Bit: 1

Parity: None

Full Duplex

Binary Transparent

Latency: Not greater than 50Ms

Flow control: None

Physical Connection: 3 wire (Transmit, receive, ground; no other signals supplied or required.)

Host List Setup Utility

At this point installation continues with the *Host List Setup Utility*. For more information on *Handlers* please see the *PowerNet System Manual*.

The cursor is in the *Menu Name* field and the form has *VTERM*, *STEP-CHECK* and/or *TIP-CHECK* as entries, or it could be blank. Press the right <Arrow> key to proceed to the first blank *Menu Name* field. Type a name (for example *VTERM*). Press the right <Arrow> key to proceed to the *Handler* field. Press <Tab> to select *VTERM* as the handler. Then, press <Enter> to display the *Handler Setup Form* shown in Figure 2-4.

```

[VTERM      ]      VTERM Handler Setup - EXPRESS      Page 1

      Keyboard                      Alarm                      Formatter
      End Key [pf10  ]                      Mode [bell  ]                      Object [      ]
      Hot Key [noop  ]                      Volume [hi   ]                      Alt. Key [noop ]
      Auto Send Key [noop ]                      Duration [150 ]                      Dialog
      Key Click [on  ]                      Frequency [0  ]                      Object [UNIX  ]
Case Conversion [none ]                      Scan Duration [300 ]                      Timers
      Scanner                          Scan Frequency [0  ]                      Radio [120]
      Send Key [enter ]                      Allow Multiple [yes]                      Power [300]
      Scan Ahead [1  ]                      Printer                          Backlight [0  ]
      Display                          Type [none  ]
      Quadrant Mode [on  ]                      Init Object [      ]
      Lock Row [0  ]
      Lock Column [0  ]
      Scroll Mode [full]
      Wait Message [on  ]
Host Interface
      Emulation [vt100]
      Application [/usr/bin/telnet ]
      Arguments [IBM  ]

      <ESC>=QUIT <SPACE>=CHANGE <ARROWS>=MOVE <CTRL><B>=PGUP <CTRL><F>=PGDN

```

Figure 2-4 VTERM Handler Setup Form

The only fields of interest for the setup are *Emulation*, *Application*, and *Arguments* which are explained below. All other fields can be left with their defaults, although they must be configured when the entire system is set up later. Complete *VTERM* instructions are found in the *VTERM* manual.

Emulation: [Toggle Field] Use the <tab> key to toggle *VTERM* to perform one of the following emulations: *vt100*, *vt220*, *vt52*, or *hp700*.

Application: [Text Field] Enter the path and filename of the application which is used to establish a session either with the host, or a local session with PowerNet. The selections are listed in the following table in the *Application* column.

Session	Application	Arguments	Notes
Server	/bin/login		UNIX security
Server	/bin/sh	-c filename	File is a shell script.
TELNET	/usr/bin/telnet		
TELNET	/usr/bin/telnet	Host name	
RLOGIN	/usr/bin/rlogin	Host name	
LAT	/usr/bin/llogin	Host name	
DECnet	/usr/bin/dlogin	Host name	

Arguments: [Text Field] Enter the arguments (if any) that is passed to the application as per the table. When this is done, press <Esc>. Save the form by confirming the changes and return to the *Host List Setup Form*.

Press the right <Arrow> key again to proceed to the *ACTIVE* field. Use the <Tab> key to toggle the field to *yes*.

Press <Esc> to save the changes and then confirm them when prompted. This installation is now finished. Proceed with reading the *PowerNet System Manual*, and the *VTERM Manual* for details about operation and functionality of the Connect SoftServer product.

Appendix SoftServer Auto-Start

Introduction

The SoftServer products, by design, do not attempt to make themselves auto starting. The main reason is that the SoftServer is installed into an environment that is not known and the methods of making a process auto start varies widely between UNIX Variants and even between systems. The normal method of starting the SoftServer product is through the documented *crfadmin* script. This is then a manual process.

The following section details the steps required to make any SoftServer product start regardless of UNIX variant or system setup.

Procedure

There are only two steps required to start a SoftServer:

1. Add Connect working directory to current path
2. Execute *RFNET.sh* script with a “bootup” command line option.

These two items must be added to the auto-start directory of the system, to enable the SoftServer to auto-start. Following is a sample script for auto-start:

```
$CURRENT=`pwd`  
WORKDIR=`/bin/cat /etc/.CRF/WORKDIR` ; export WORKDIR  
cd $WORKDIR  
./RFNET.sh bootup  
cd $CURRENT
```

The logic of this script is as follows:

- LINE 1: This line saves the current working directory into CURRENT
- LINE 2: This line finds the installed location of the Connect software.
- LINE 3: This line changes directory to the working Connect directory
- LINE 4: This line starts the SoftServer
- LINE 5: This line restores the directory to it's original location

The final step is to include this into the startup logic of the target system. This is UNIX and system dependent and should be a trivial task for qualified system administrator.

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