How to define and use a PROMPT workstation and printer under Linux

How to Use PROMPT from a Windows PC Workstation in a LAN or WAN begins on page 5

Workstation definition:

1. The foundation for a workstation PC or dumb terminal in PROMPT is the Sysgyn that defines the devices to be used by PROMPT. PROMPT comes with twenty workstations and twelve printers already defined in the Sysgyn. These workstations and printers must be defined to Linux and cross-referenced to the names defined in the PROMPT Sysgyn.

2. There are two cross-reference files used to define the PROMPT workstations and printers to Linux. They are located in the /edx directory and named termxref.sys and edxsport.sys. The twenty workstations defined in the PROMPT Sysgyn are already defined in termxref.sys assuming they will be workstation pc's. The twelve PROMPT printer names are included in the termxref.sys file and all but the system printer to be attached to the server as a parallel printer are commented out with a # meaning they must be defined by the user identification of the Linux /dev name.

3. Termxref.sys requires a definition for both workstation and printer devices defined in the PROMPT Sysgyn whereas edxsport.sys only defines workstation pc's to be in the local or wide area network. Here are some examples of definitions found in these files.

   Termxref.sys

PROMPT Sysgyn Definition	**Linux** Device in /dev	
$SYSLOGA	/dev/ttyS0:	example of a dumb terminal attached to com1
$SYSLOGB	/dev/edxtty001:	example of a PC workstation in LAN or WAN
$SYSPRTR	/dev/lp0	example of a printer attached to LPT1 of server

   Edxsport.sys

Linux Device In /dev	Definition of port to use
/dev/edxtty001:	
	port = 7001

4. The PROMPT terminal manager has a control file located from the PROMPT Master Menu by choosing options PD, then JLS, the T. Below is an example of an entry to this file that defines terminals assigned to PROMPT users.
   Terminal name: ($SYSLOGB)

Display Supervisor Menu? (N)
Allow Terminal Stop/Disable? (N)
Allow System/Global Attention? (Y)
Allow Concurrent User ID Usage? (Y)
Is this a Switched (Dial-in)) Line? (N)

Program Names Suffix: ( )
Hardcopy Device Name: ($SYSPRTR)
Comments: (7001 Jane)

5. Alpha Com, Linux Spooler or other external definitions.
   Looking from the outside into PROMPT, Alpha Com must be defined (see How To Use PROMPT from a Windows PC Workstation in a LAN or WAN).

6. The VGA workstation on the server is a special direct attached device and can be used as a workstation if desired. It is also pre-defined in the termxref.sys file and this definition must not be altered. If used as a workstation and auto-start is desired it must be defined to the PROMPT Terminal manager as #SYSLOG. This device would never be defined to edxsport.sys as it is only local to the server.

7. Help with configuring a serial port under Linux Red Hat 9
   a) To see what serial ports Linux has recognized do this:

      dmesg | fgrep tty

   b) To see the characteristics of each do this using the actual ttySn:

      setserial -a /dev/ttyS0

   c) To change one or more of the characteristics at start up do this:
      Add an entry to rc.local in /etc such as the example shown below:

      setserial /dev/ttyS4 baud_base 115200

8. We have successfully used two Star Tech PCI 2S550 serial cards in a system providing a total of 5 serial ports for dummy terminals and/or printers that saves the cost of a Digi Board..

Red Hat Version 9 of Linux requires this effort to configure the PCI 2S550.

(a) List the resources assigned to the PCI card using this command

more /proc/pci

Result will look something like this:

Bus 0, Device 0, function 0:
Serial controller:NetMos Technology 222N-2 I/O Card
(2S+1P) (rev 1)

IRQ 21
Master Capable. Latency=32
I/O at 0xa400 [0xa407]
I/O at 0xa000 [0xa007]
I/O at 0x9c00 [0x9c07]
I/O at 0xd000 [0xd001]
I/O at 0x9800 [0x9807]
I/O at 0x9400 [0x9407]
I/O at 0x9000 [0x900f]

(b) It is important to understand that the first I/O at 0xa400 will be the first serial card port address (for example /dev/ttyS6) and the second I/O at 0xa000 will be the second serial card port address (for example /dev/ttyS7). Red Hat Linux will already have these ports established, you simply have to cross-reference the IRQ and related data to the /dev port address.

(c) This cross-reference is accomplished using the following commands in /etc/rc.local to configure the serial ports and reestablish this configuration when the system is rebooted:

setserial /dev/ttyS6 port 0xa400 uart 16550 irq 21 baud_base 115200
setserial /dev/ttyS7 port 0xa000 uart 16550 irq 21 baud_base 115200

9. **Serial printers using Red Hat version 9 of Linux**
Using Cups in Version 9 of Linux requires rtscts and ready busy instead of xon-xoff and DRT for serial printing flow control.

Cable pin outs for serial printers are explained on the next page.

At the serial port on the server, or Digi board the DB9 and DB25 Female to RJ45 connectors are pinned as follows:

DB9F to RJ45 at computer serial port			DB25F to RJ45 at computer or Digi		
Wire Color	To pin	Signal	Wire Color	To Pin	Signal
Blue	1	CD	Black	2	TD
Orange	2	RD	Orange	3	RD
Black	3	TD	Brown	4	RTS
Red	4	DTR	White	5	CTS
Green	5	GND	Yellow	6	DSR
Yellow	6	DSR	Green	7	GND
Brown	7	RTS	Blue	8	CD
White	8	CTS	Red	20	DTR

At the printer end the DB25M to RJ45 connectors are pinned as follows

DB25 to RJ45 at Printer		
Color	Pin	Signal
Blue	20*	DTR
Orange	2	TXD
Black	3	RTX
Red	6 & 8	DSR,CD
Green	7	GND
Yellow	20*	DTR
Brown	5	CTS
White	4	RTS

Next this command goes in rc.local in /etc to turn on rts/cts

stty -F /dev/ttyS1 crtscts

To check the port do this: stty –a < /dev/ttyS1

Remember the Okidata printer settings are protocol is Ready/Busy and Busy Line is RTS.

10. **Setup SSH file transfer from Linux server to a Windows desktop PC**

To get software to set up a file transfer from a Windows box to the Linux server using a secure shell go to **filezilla.sourceforge.net** and download Filezilla latest version.exe. In the setup use the icon just under file and set up SFTP using SSH2.

How to Use PROMPT from a Windows PC Workstation in a LAN or WAN

Requirements
A PC connected to a local area network with a PROMPT Linux server installed, or a PC on the Internet, using the Windows Operating System versions 9x/ME/NT/2K/XP.

Download and install the Alphacom terminal emulation software from www.omnicomtech.com. After setup, using "Help" register the software as follows:
The Serial # is: _____ The Activation Key is: _____

Setup instructions

1. Use the parameters defined below to setup the Alphacom software.

2. After you launch Alphacom click on **File**

3. Click **New Session** and you will get a drop down box
   Chose **TCP/IP Telnet Connection** and click **ok**

4. Click **Configure** then **Communications** and you will get a **Telnet** drop down box:
   Enter the Host Name: 192.168.1.2 local area network example
   999.999.99 meaning the DSN address
   Click **Advanced** and enter the following:
   Telnet Port: 7001 (Varies per user)
   Terminal Type: ibm3151
   Auto-activity, etc : 5 (must be 0 inside the LAN, 5 for remote access)

Note: You have to be closed out of PROMPT at the office to use the same session at home, otherwise set up separate sessions.

5. Click **ok** to accept Advanced, then click **ok** to accept Telnet

6. Again, click **Configure** then **Terminal** and you will get a **Terminal settings** drop down box. Enter or select these parameters:
   Emulation: IBM3151
   Check Mark these features: Autowrap, Display Errors, Scroll bars

7. Click **Advanced** and enter or select the following:
   International Character Set: United States
   Scrollback buffer lines: 0
   Screen Columns: 80
   Screen Rolls: 24

8. Click **ok** to accept Advanced, then click **ok** to accept Terminal Settings.

9. Click **Configure** then **Color** and use these settings or do your own:
   Color Map: Standard
   Check Mark – Map colors to character attributes

Normal Color:	Default	On:	Dark Blue
Reverse Color:	Default	On:	Default
Bold Color:	Yellow	On:	Dark Blue
Underline Color:	Default	On:	Default
Blink Color:	Default	On:	Default
Dim Color:	Default	On:	Default

10. Click **ok** to accept **Color** and the settings are complete.

11. To save the setup, click on the red X on the top right of the Alphacom page. Click Yes to save changes, We like to use the name "Prompt" and save the file to desktop.

12. To log in click **Sessions** then click **Connect** and you should see:
    Attempting connections to 999.999.9.9 port 9999
    Connected
    The PROMPT User ID and Password Screen Should Appear.
    If not press **enter** and it will appear.

Printer setup:
To use your PC printer it must be defined to the Red Hat 9 Linux spooler as explained below:

Linux definitions:
1. Go to Root and enter **printconf-tui**
2. Select **New** to define a new printer
3. Enter **Queue name** – Use **sys** for your main reports system printer, and for example a Okidata remote printer could be okirp, an okidata local printer could be okilp.
4. Select **Unix Print Queue - LPD** unless it is a local printer direct attached to the server that would be **Local Printer Device – Local**
5. Select, or use custom to enter the device. A printer direct attached to LP0, LP1, etc can be selected, however serial printers, for example on /dev/ttyS3 have to be entered using custom.
6. Enter the server IP address – for example **192.168.1.10** (An example for a local PC)
7. Enter the Queue: This is the name to be used with Alphacom terminal emulation software when LPD is defined: For example: **okijan** (Jan's printer)
8. Select a driver. Use **Raw Print Queue**.
9. For the Test Print use **ASCII Text Test Page**.

Windows Workstation PC Definitions:

1. Configure the printer as a local printer to the desktop PC

2. With Alphacom in memory, look to the lower right of the Windows status bar across the bottom of the desktop PC for an Alphacom printer icon. Double click it and then click **add printer**.
   Printer name: okijan (following our example above
   Spooler name: (select from the drop down your default printer)
   X Add form feed (Check it)
   X Convert NL to CRNL (Check it)

3. In the Alphacom terminal emulation software select utilities and click **LPD** Select the spool directory of the printer you desire to use for PROMPT. Check all of these boxes:
   X Startup on boot
   X Clear temporary files on startup
   X Clear temporary files on print

PROMPT Definitions:

1. A PROMPT Printer must be defined in the Sysgen and we will use PRINTER2 in our example. (If laser jet make page size 62 in sysgyn and bottom of page 60 unless the printer setup allows a 66 line definition)

2. Make an entry for this printer in termxref.sys under # Send print output ot Linux spooler. A couple of setup examples are:
   $SYSPRTR | lpr –Psys: (Example for system printer)
   PRINTER3 | lpr –Pokijan: (Example for Jan's printer)

3. You might desire to make the $SYSPRTR the default printer for one or more terminals defined to PROMPT. Go to **PD**, **JLS** and **T** to modify hardcopy device that means default printer for each workstation.

Red Hat 9 Linux spooler commands

From **Alt F3** at the $ Prompt you can use these spooler commands:
lpq (list printer que) gives a list of job numbers in the que
lpstat (list printer status) Shows the status of jobs in the spooler
lprm 999 (remove member job 999 from the spooler)

Installation notes can be documented below for future reference:
Network address Who Linux printer PROMPT Terminals - Ports