



Remote Power Manager (RPM)

User's Manual



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NOTICE: This equipment has been tested and found to comply with the limits for a "Class A" digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

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Conventions Used In This Guide

This guide uses these conventions:

Bold italic print, as shown in this example, indicates field names, menu items, or values in the Computer Interface Card (CIC) software agent.

Bold print, as shown in this example, indicates filenames, directories, or items that you must type exactly as they appear.

Italic print words or letters in braces { } indicate values that you must supply. For example: *{drive}:\setup*

Italic print words or letters in brackets < > indicate keys to press. If two keys are separated by a + plus symbol, then the first key should be pressed and held down while pressing the second key. For example: *<alt+enter>*.

Note: Notes contrast from the text to emphasize their importance.

Warning: These messages alert you to specific procedures or practices; serious consequences may result including injury if you disregard them.

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Quick Install Procedure

This section will guide you through the quick installation of the RPM.

1. Install mounting brackets: page 4.
2. Install all input and output connections: pages 5 and 6.
3. Program you IP address (this is the minimum requirement to use the RPM): page 9.
For USB setup:
 - a) Insert Driver Setup Diskette in floppy drive.
 - b) Run Setup.exe from floppy drive.
 - c) Program IP address per Page 15.

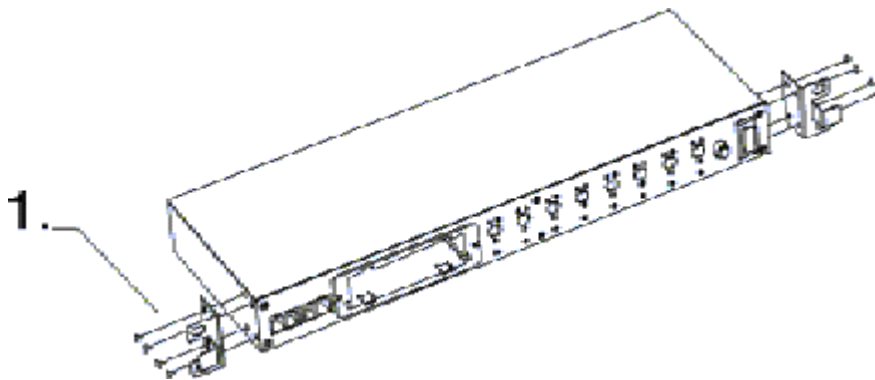
NOTE: Default user name is: admin.
NOTE: Default password is admin.

At this point the RPM is ready for normal operation. Review the (section Quick Install) pages 4-7 to become familiar with the general functions. Review the entire User's Manual in detail for more in-depth functions.

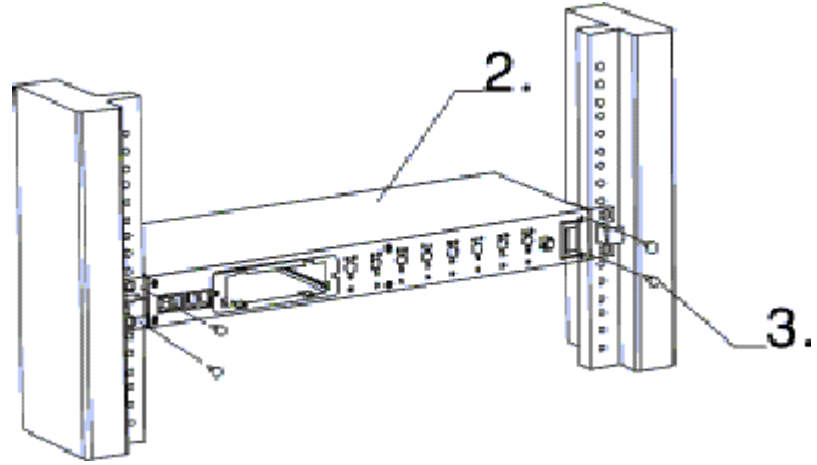
4. Set RPM's front control buttons for Internet/remote
5. Use browser to monitor and control.
6. Note: Smart phone default password must include # as last character
7. For Windows NT/2000 Server shutdown setup, use control panel / UPS configure (page 46).

The RPM comes with brackets for mounting in a standard 19-inch rack. To mount the RPM into a rack perform the following procedure:

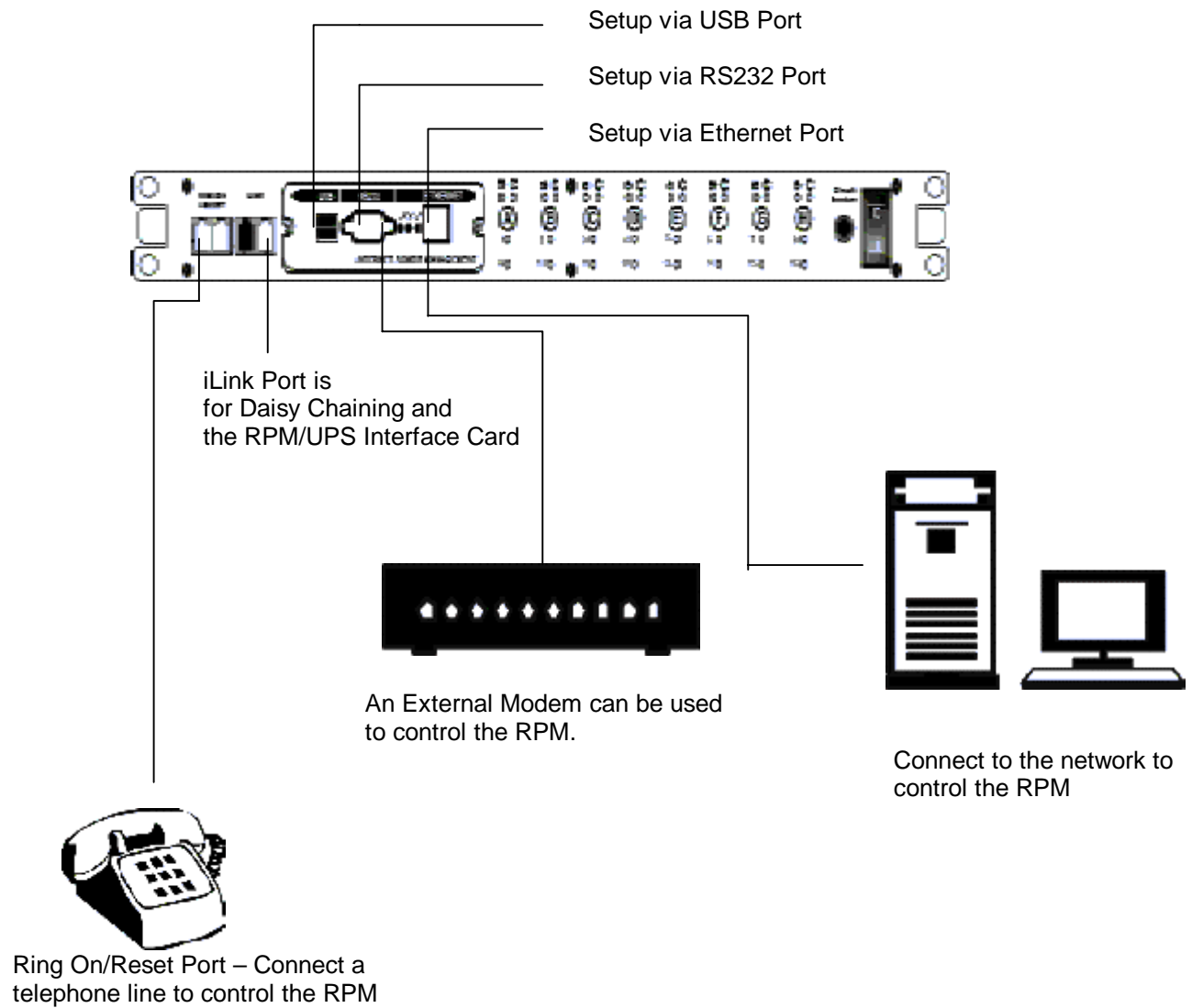
1. Attach the mounting brackets to the unit as shown, using the four retaining screws provided for each of the brackets.

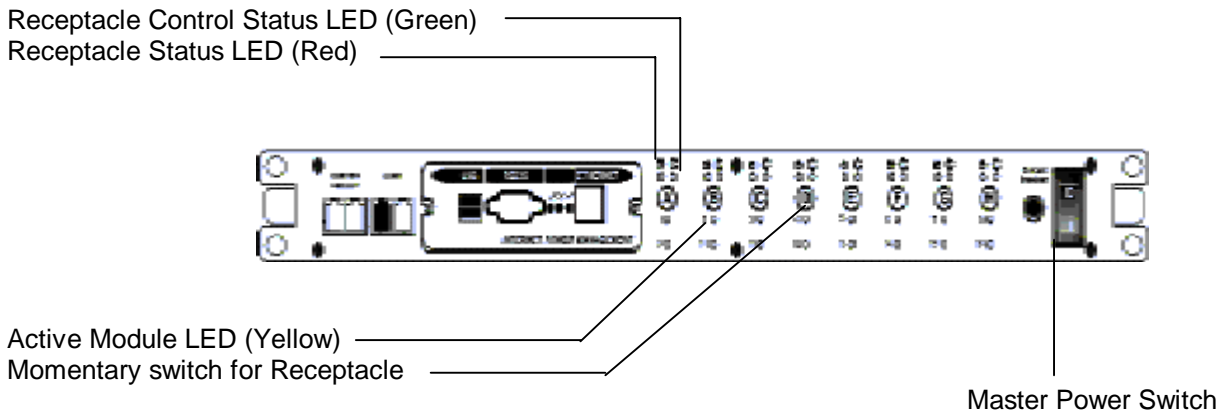


2. Choose a location for the brackets. A notched hole on the vertical rail denotes the middle of a U slot.
3. Align the mounting holes of brackets with the notched hole on the vertical rail and attach with the retaining screws.



RPM-Front Panel





Receptacle Status LED (Red): When the LED is illuminated the receptacle is on and providing AC Power. When the LED is off the receptacle is not providing AC Power.

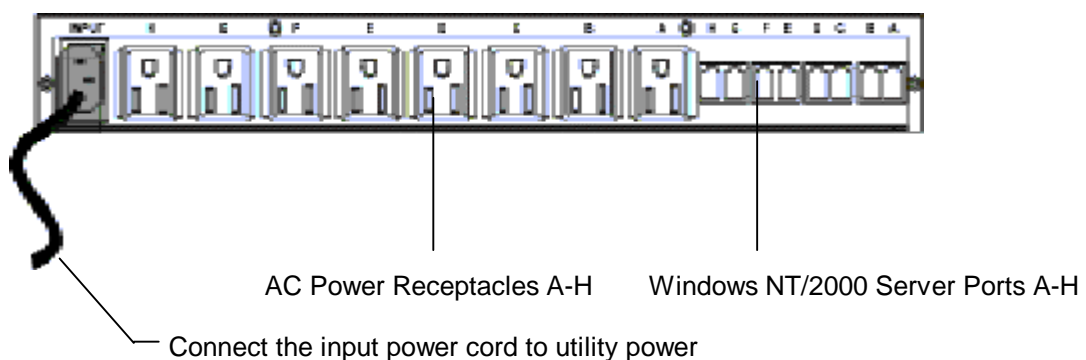
Receptacle Control Status LED (Green): When the control LED is illuminated, the momentary switch is disabled and the output receptacle is programmed for remote control. When the LED is off, the momentary switch is active and the receptacle may be turned on or off by pressing and releasing the switch. Pressing and holding the momentary switch for three seconds will change the state from remote to local control.

Active Module LED (Yellow): When illuminated this LED indicates which module or client is currently being accessed via remote control.

Momentary switch for receptacle control: Pressing and holding the momentary switch for three seconds will change the state from remote to local control. Pressing and holding the momentary switch for one second will change the state from on to off or from off to on.

RPM-Rear Panel

Windows NT/2000 Server Ports A-H: Provides a safe and logical shutdown for Windows NT/2000 Server. Port A controls receptacle A; Port B controls receptacle B, etc (optional). Connect the RJ11 to RS232 cable to the appropriate port (A-H) on the RPM and to the appropriate COM port on the server.



Program your RPM's IP address per USB, RS232 or Ethernet.

For USB setup procedure, see page 9.

NOTE: this method requires Windows 98 or higher.

For RS232 Serial Port setup procedure, see page 19.

For Ethernet / Network setup procedure, see page 27.



The Remote Power Manager (RPM) is a network-manageable, intelligent power control unit designed to provide control of power for up to eight electrical devices.

NOTE: If the RPM is turned off by the master power switch, you have to wait approximately thirty seconds before restarting the RPM to allow the RPM to internally reset.

RPM Features

Internet ready — Individually control each of the eight AC receptacles by using a Web Browser.

Remotely and individually reboot locked up servers.

If the network locks up, you can use the telephone to control the RPM to shutdown or to reboot locked up devices or servers.

Sequentially apply power to the equipment that is plugged into the RPM.

Multiple OS support—As long as there is Network Management software present.

Remote setup support— Once an IP address is assigned, the rest can be setup remotely through telnet commands.

USB port setup—In addition to the regular serial port setup, this adapter also has a USB setup feature for initial setup of this card. (Requires Windows 98 or higher)

Remote Control—Turns each of the AC receptacles on/off when the NMS sends the proper command.

Remote Software upgrade support - The Remote Power Manager supports Software upgrade through TFTP server remotely. A serial upgrade method is available too.

RPM Package

The standard RPM package contains a Remote Power Manager Unit with supporting hardware and software. The components of your package are:

1. Remote Power Manager Unit
2. Rack mount Brackets
3. AC Power Cord
4. USB Cable
5. DB9 Female-to-Female Serial Cable
6. RJ11 to RS232 Windows NT/2000 Server Cable (optional)
7. RJ11 Telephone Cable
8. 3.5" Diskette (includes USB device driver, USB setup software, TFTP Server files and the User's Manual)



Figure 1- Remote Power Manager Unit

Setup Procedure

This section describes the setup procedures of the RPM when you connect it to the network.

NOTE: The minimum requirement to operate the RPM is to set the IP address.

There are four different ways to setup the RPM.

1. Setup the IP Address via the USB port (software included). **Requires Windows 98 or higher.**
2. Setup the IP Address via the Serial port using Hyper Terminal. **Requires Hyper Terminal version 3.0 or higher.**
3. Setup the IP Address via the Ethernet Port by using the ARP command (first time only), then use the Web Configuration to finish the setup.
4. Setup the IP Address via the Ethernet Port by using the ARP command (first time only), then use the Telnet Configuration to finish the setup.

Setup via the USB Port (Requires Windows 98 or higher)

The following items must be obtained before attempting to setup the RPM: A valid IP Address, a USB Cable (provided), the USB Driver/USB setup file (enclosed diskette) and a PC with Windows 98 or higher.

1. Connect one end of the USB Cable to the USB Port on the computer.
2. Connect the other end of the USB Cable to the USB Port on the RPM.
3. Plug the RPM's power cord into the AC wall outlet.
4. Plug the computer's power cord into the RPM's output receptacles.
5. Turn on the RPM.
6. Turn the computer on and let it boot-up.
7. Insert the floppy diskette with the USB Driver/USB setup files into the appropriate drive.
8. Windows will display the following message (first time only):

New Hardware Found

USB Device

**Windows has found new hardware
and is locating the drivers for it.**



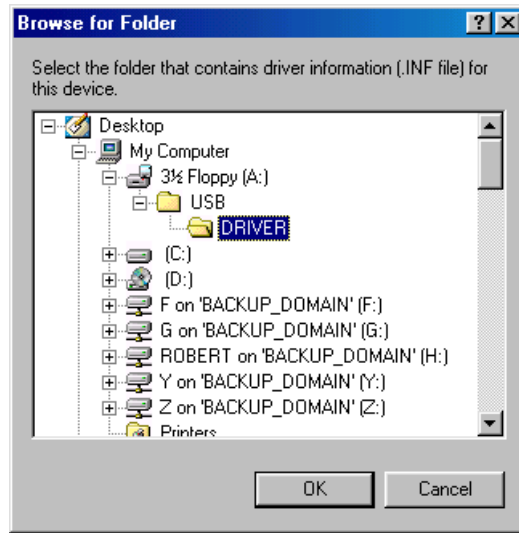
8. The Hardware wizard will guide you through installing the USB Driver. Click Next.



9. The Hardware wizard will search for the best USB Driver. Click Next.



10. Check, Specify a location. Click Browse.



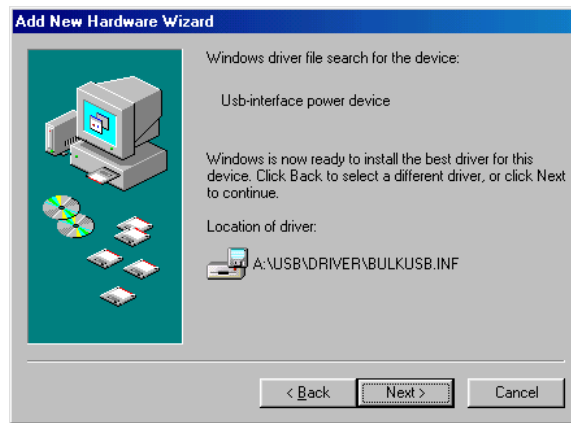
11. Open the appropriate 3.5" Floppy Drive. Open the USB folder. Open the Driver folder. Click OK.



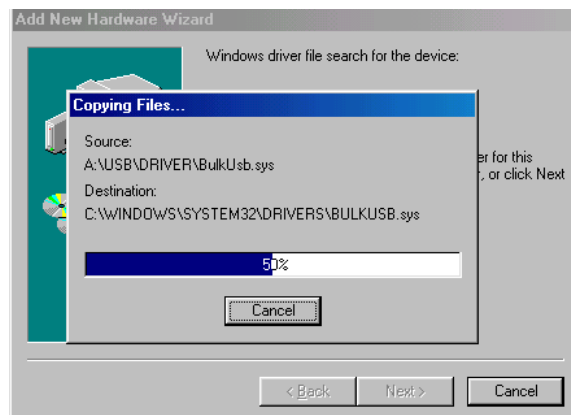
12. Windows will search for the new USB Driver. Click Next.



13. Windows has found the USB Driver for the USB device. Click Next.



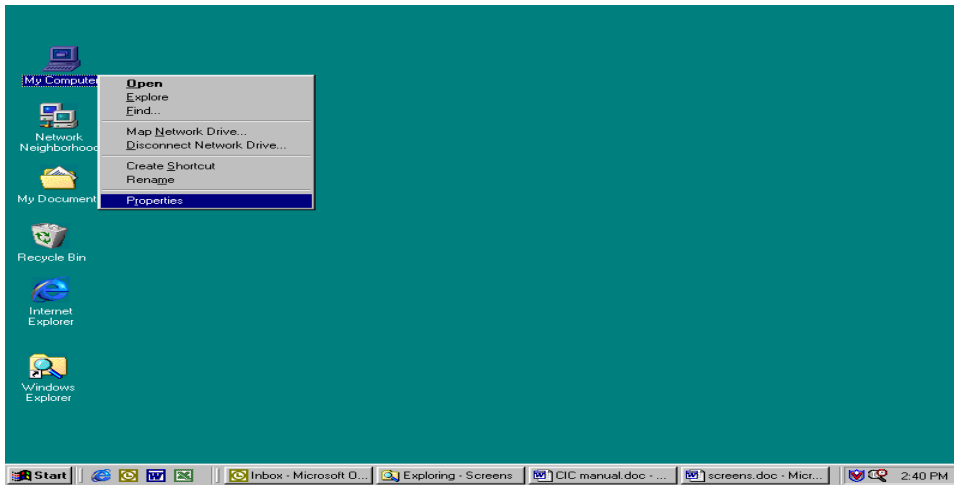
14. Windows has found the best Driver for this USB device. Click Next.



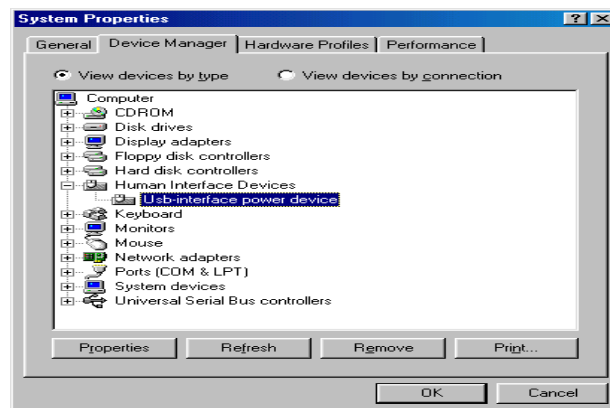
15. Windows is copying the USB Driver files to your "C:" drive. Click Next.



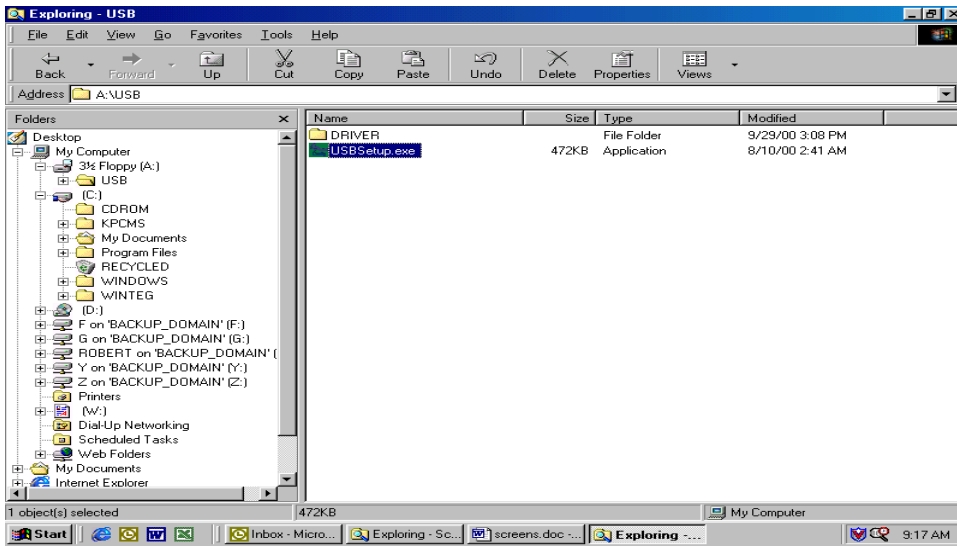
16. Windows is finished installing the USB Driver. Click Finish.



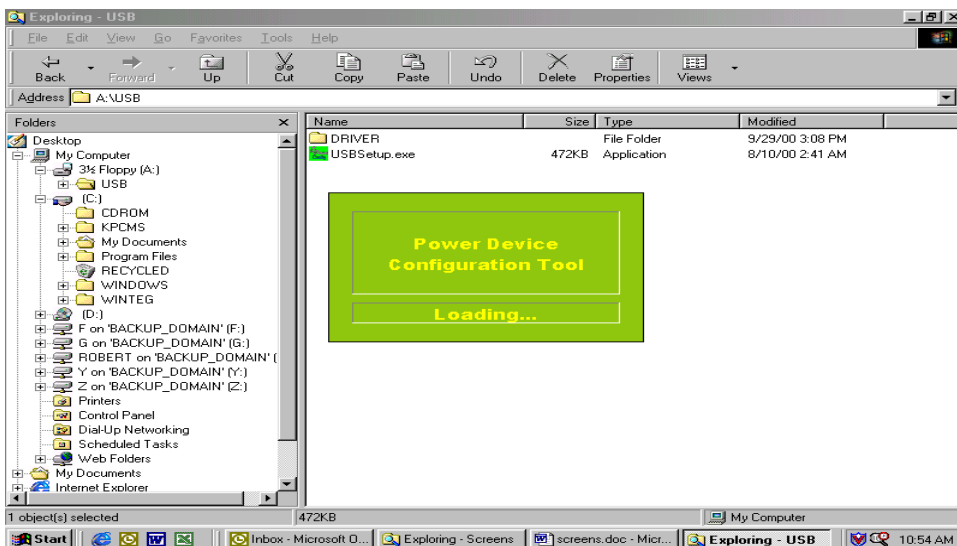
17. On the Desktop, right click “My Computer”. Open Properties.



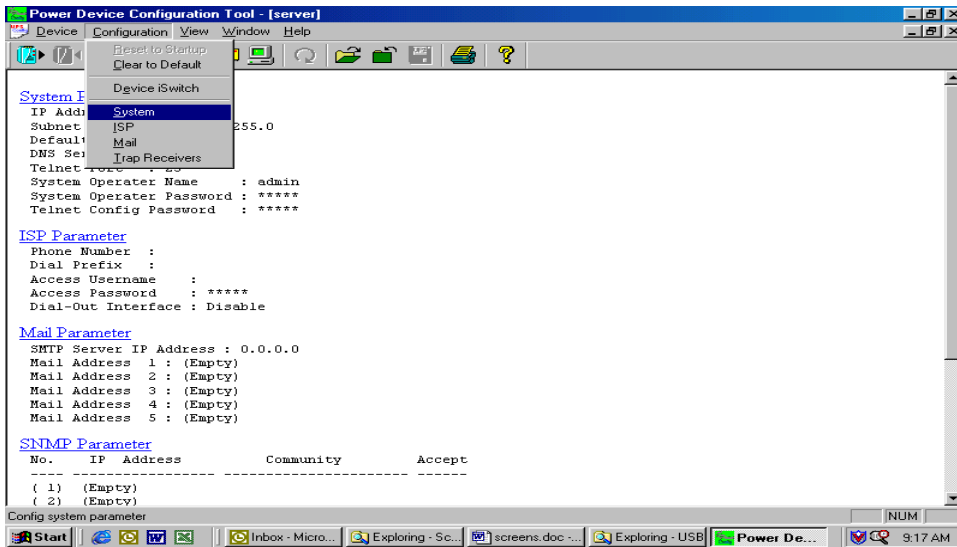
18. Open the Device Manager. Wait for approximately 30 seconds for the “Human Interface Device” to appear. Open the Human Interface Device. Click on “Usb-interface power device”. Click OK.



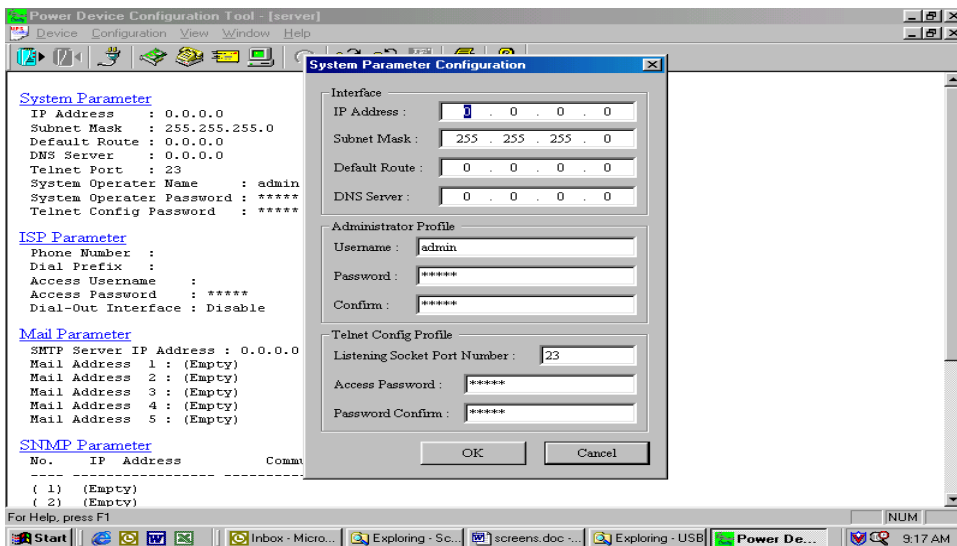
19. Open Windows Explorer. Open the appropriate 3.5" Floppy Drive. Open the USB folder. Open USBSetup.exe. **Note:** The USB setup icon must be green before you can run the USB setup program.



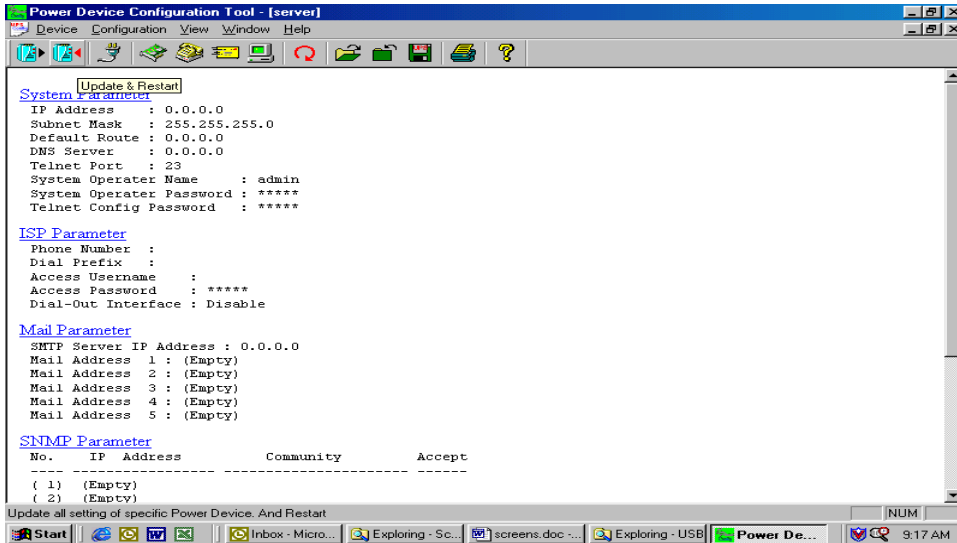
20. The Power Device Configuration tool is loading.



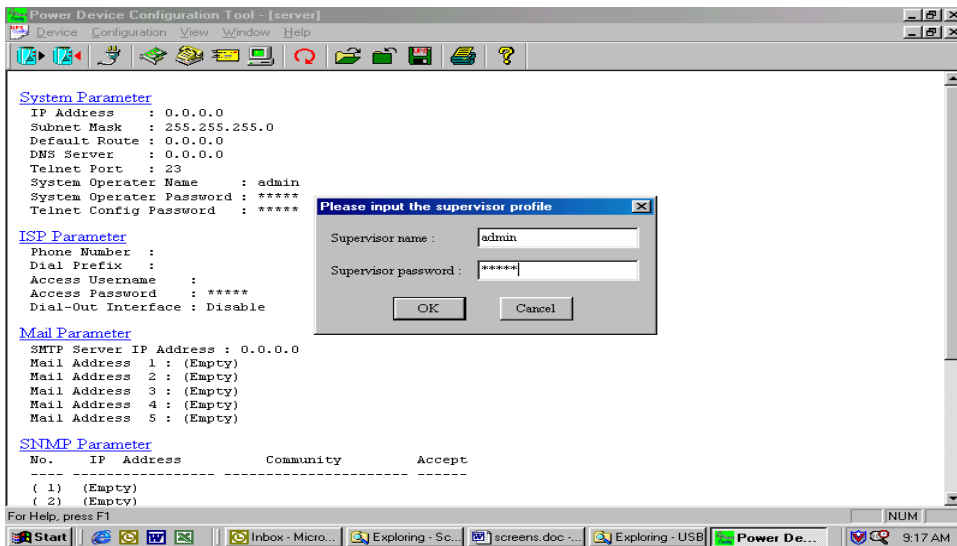
21. This is the Power Device Configuration Tool screen. On the Toolbar open Configuration. Then open System.



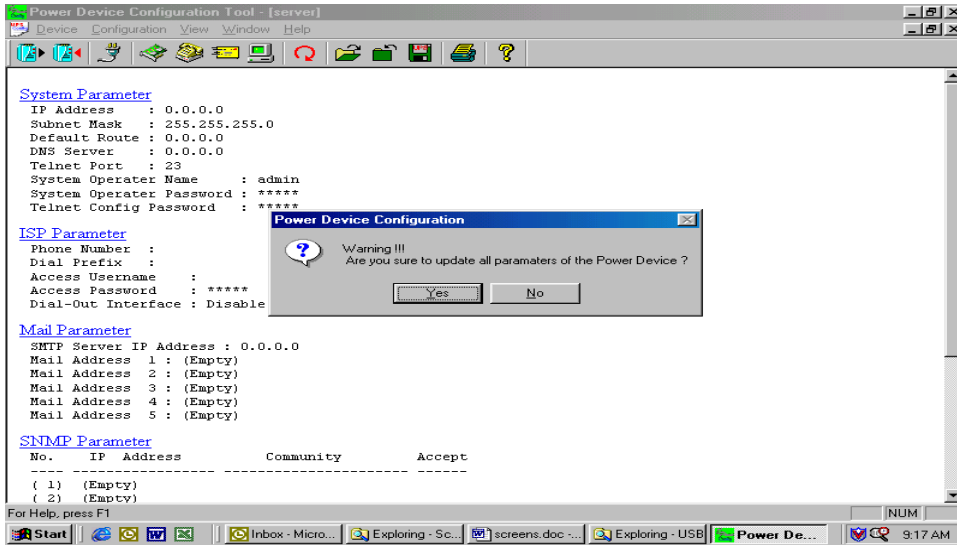
22. This is the System Parameter Configuration screen fill in all the information: the IP Address, the Subnet Mask, the Default Route (Gateway) and the DNS Server. Use the Tab key to move from one field to the next field. Then click OK.



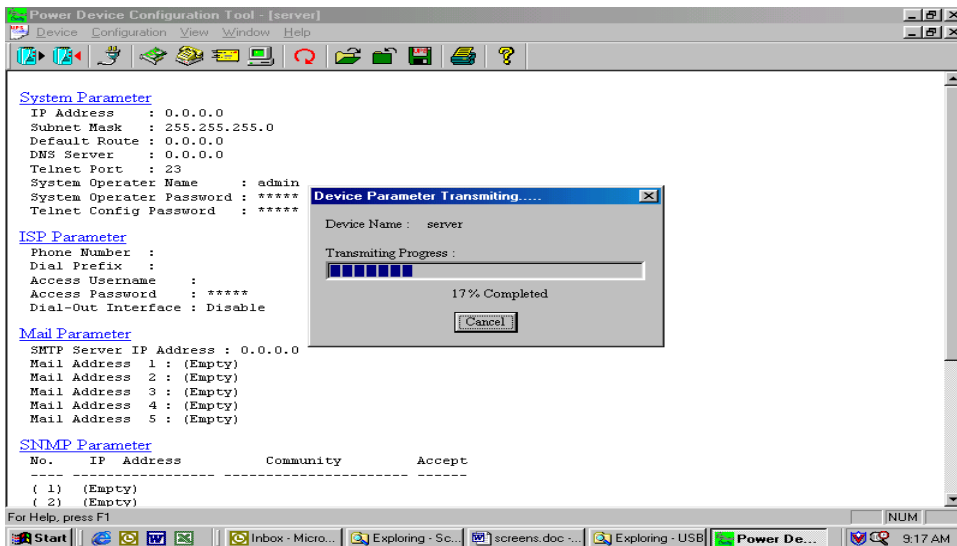
23. This is the Power Device Configuration Tool screen. After you have entered in all of the pertinent information, you have to **Update and Restart** to save all the information that was entered into the System Parameter Configuration screen. The Update and Restart icon (with the red arrow) is right beneath the “Device” drop down menu.



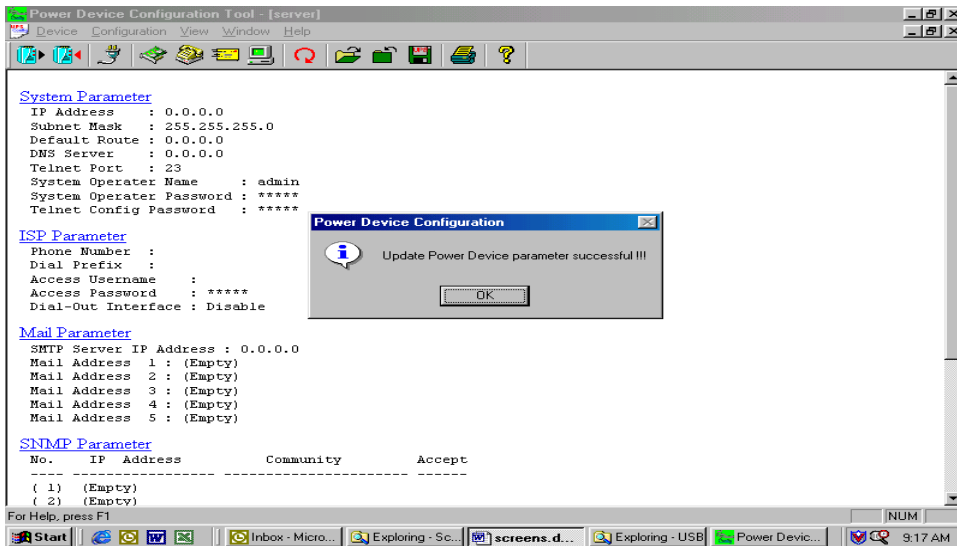
24. Enter the Supervisor Name and the Supervisor Password. The Default Supervisor Name and the Supervisor Password is **admin** (lower case). Then click OK.



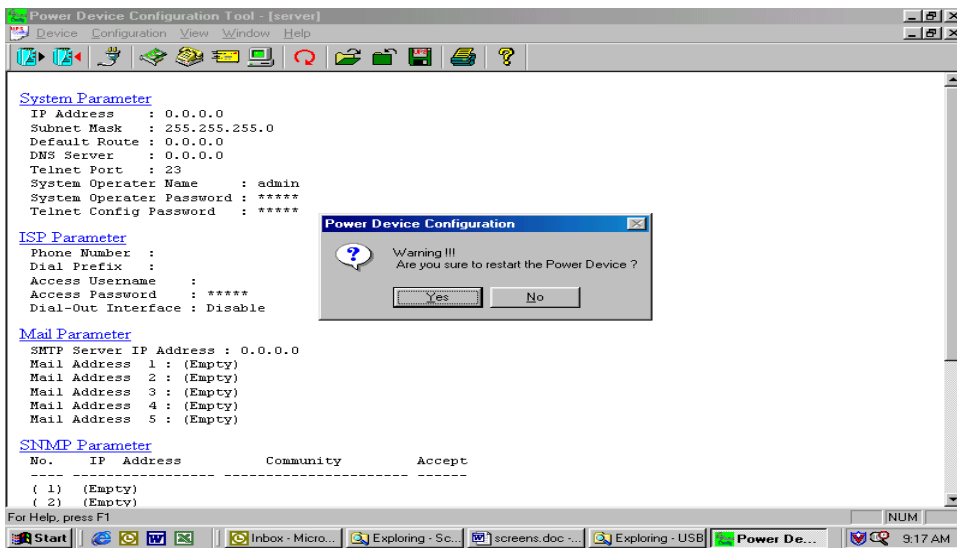
25. This is the Power Device Configuration screen. Click Yes to Update the Power Device



26. This is the Device Parameter Transmitting screen. The Power Device is being Updated.



27. The Power Device has been successfully updated. Click OK.



28. The Power Device has to be Restarted. Click Yes.

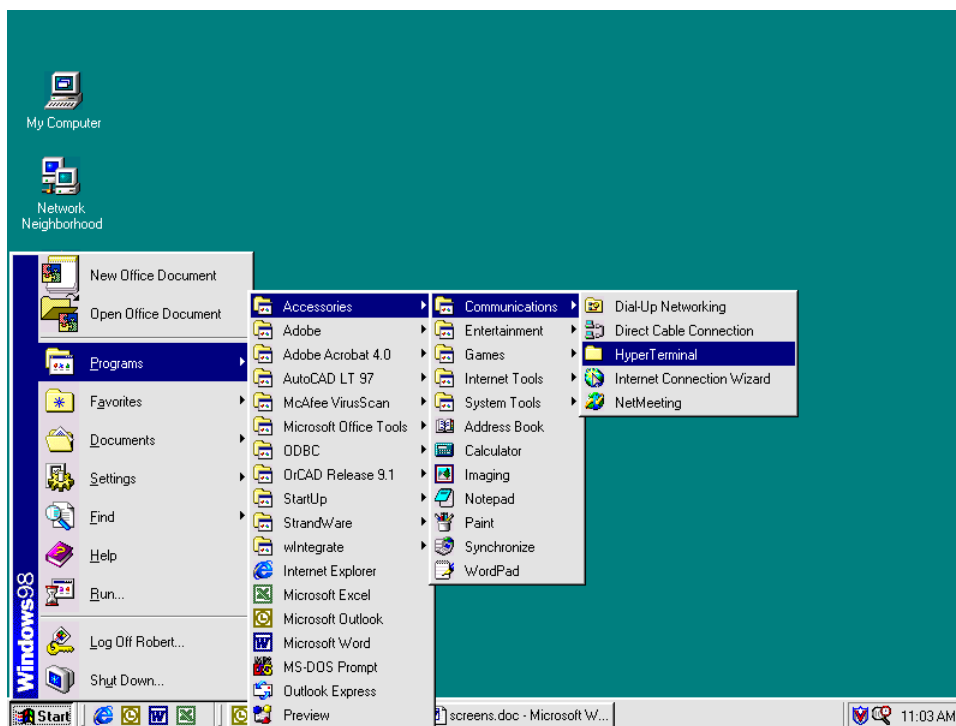
29. The USB Setup Procedure is complete. The RPM is ready for normal operation. Unplug the USB Cable from the RPM and from the computer. Plug the Ethernet Cable into the RPM and after about thirty seconds the Link LED will start blinking, now you can communicate with the RPM. The Ping command is supported at this time. Startup a Browser and type in the IP Address. The default password is **admin** (lower case). Go to the section in the User's Manual titled "Web-Based Configuration" it will guide you through the Web pages.

Setup via the Serial Port

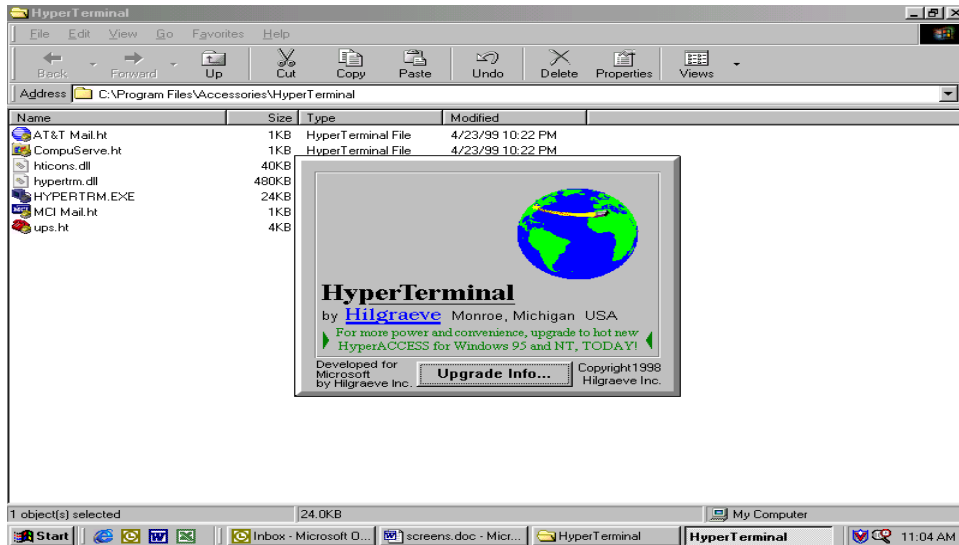
NOTE: When using Hyper Terminal use Version 3.0 or higher.

The following items must be obtained before attempting to setup the RPM: A valid IP Address, a DB9 female-to-female Serial Cable (provided). There are a wide variety of Terminal Emulation packages, but for the most part they should be very similar. The following setup procedure is using Hyper Terminal.

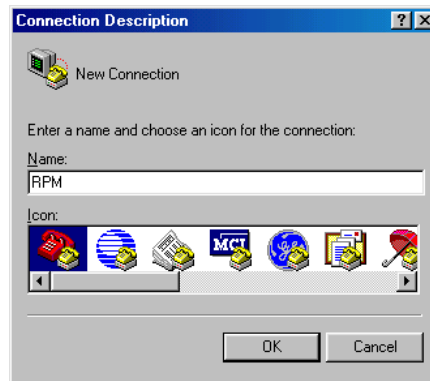
1. Connect one end of the DB9 female-to-female Cable to the Serial port on the computer.
2. Connect the other end of the DB9 female-to-female cable to the Serial port on the RPM.
3. Turn the computer on and let it boot-up.



4. From the Desktop open the Start menu. Pick Programs, Accessories, Communications and Hyper Terminal. Open Hyper Terminal (requires version 3.0 or higher).



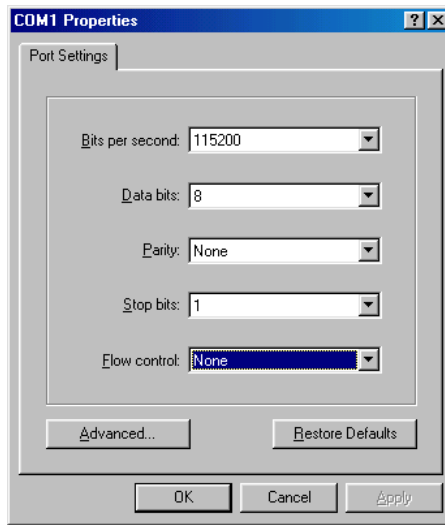
5. Open HYPERTRM.EXE.



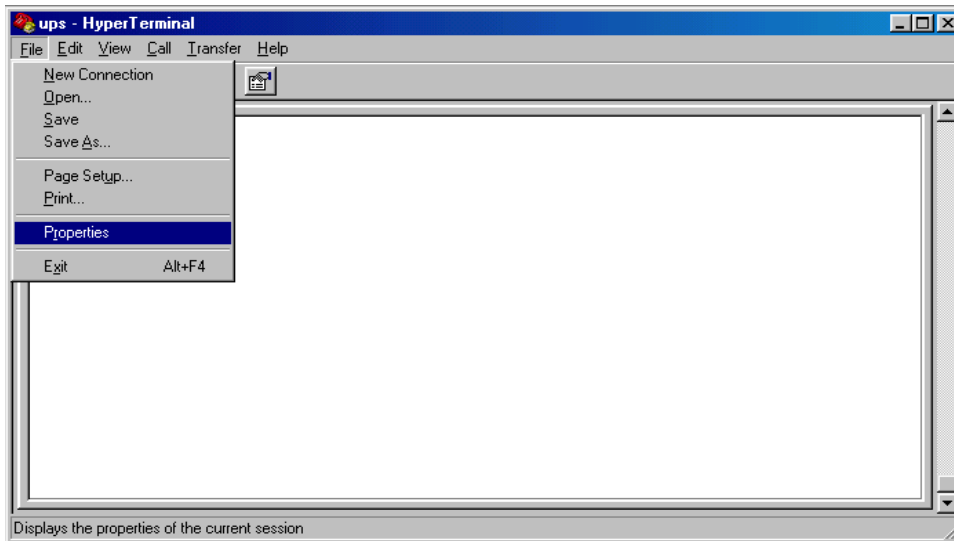
6. Enter a name (RPM). Click OK.



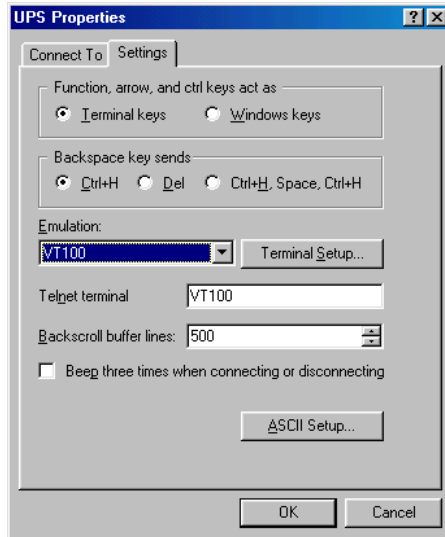
7. Connect using the appropriate Com port. Click OK



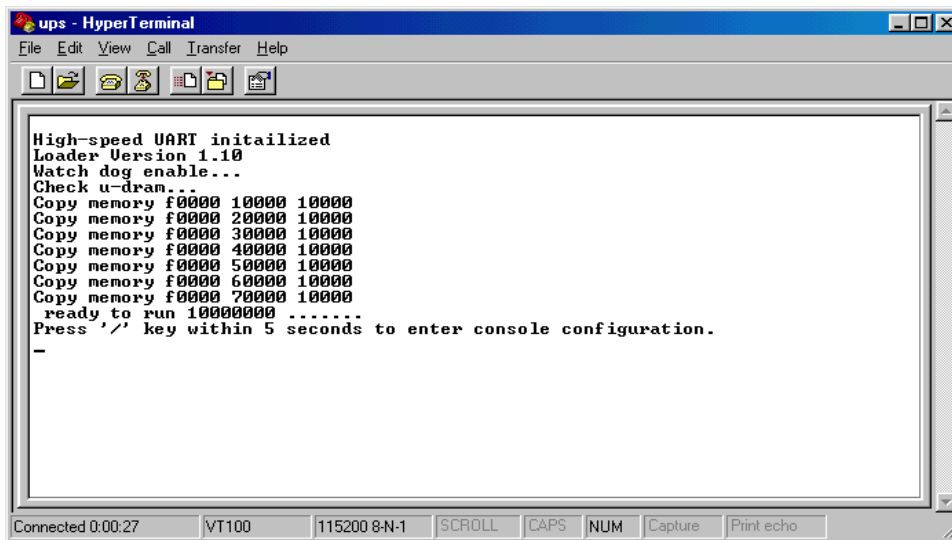
8. Configure the port settings. Bits per second: "115200", Data bits: "8", Parity: "None", Stop bits: "1", Flow control: "None". Click OK



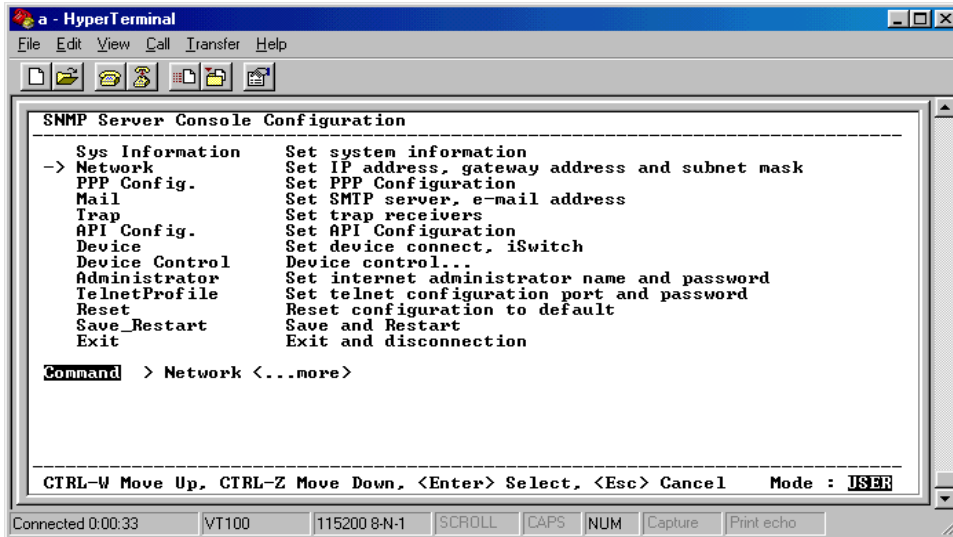
9. On the Toolbar open the File menu, and then open Properties.



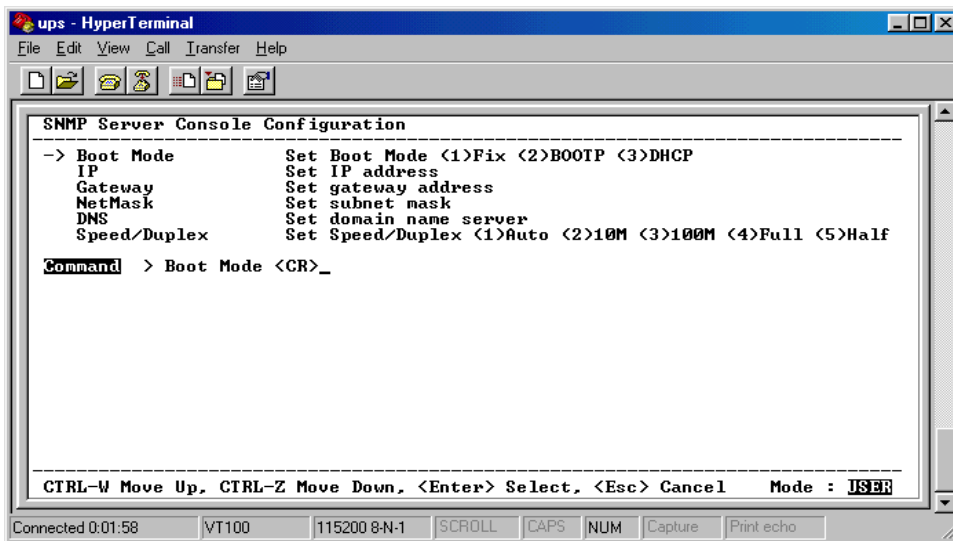
10. Open the Settings Tab. Function, arrow and ctrl keys act as: Terminal Keys, Backspace key sends: Ctrl+H, Emulation: VT100, Telnet terminal: VT100, Backscroll buffer lines: 500. Click OK.
11. Plug the RPM's power cord into the AC outlet and turn the RPM on.



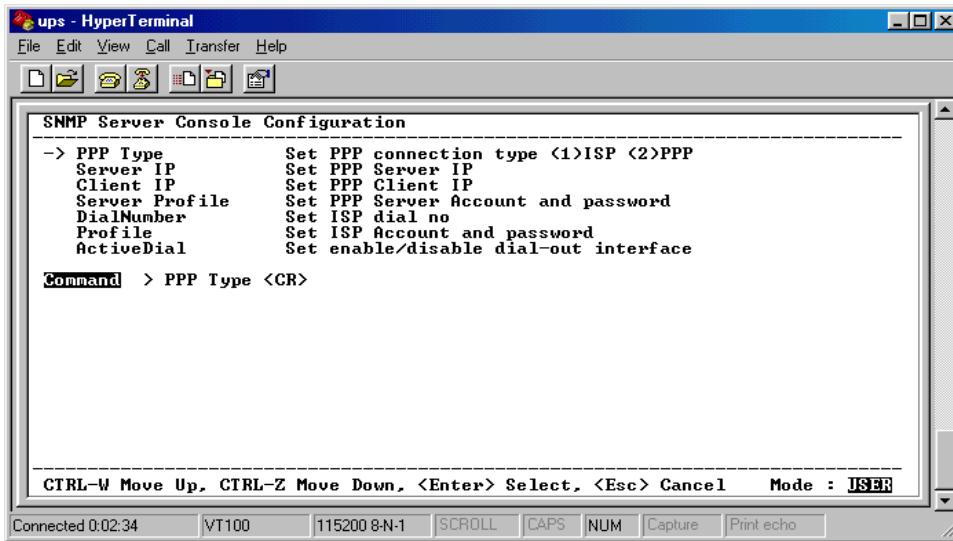
12. When the message "Press '/' key within 5 seconds to enter console configuration" appears press the forward slash key (/) within the 5 seconds or the RPM will time out and then you have to start over.
13. Next you will be asked for the User Password. The default password is **admin**. Enter the password, then hit enter.



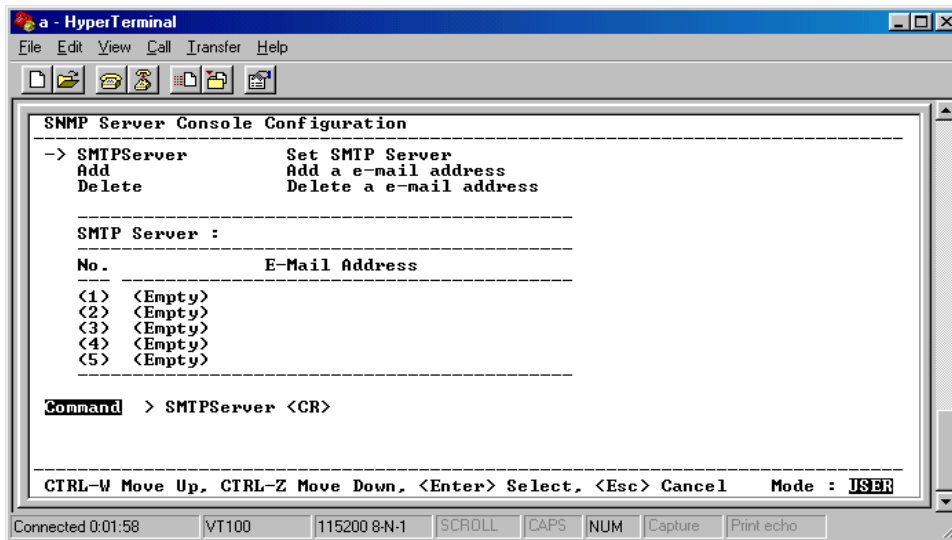
14. Ctrl-Z moves the cursor down and Ctrl-W moves the cursor up. Pick System, then hit enter.



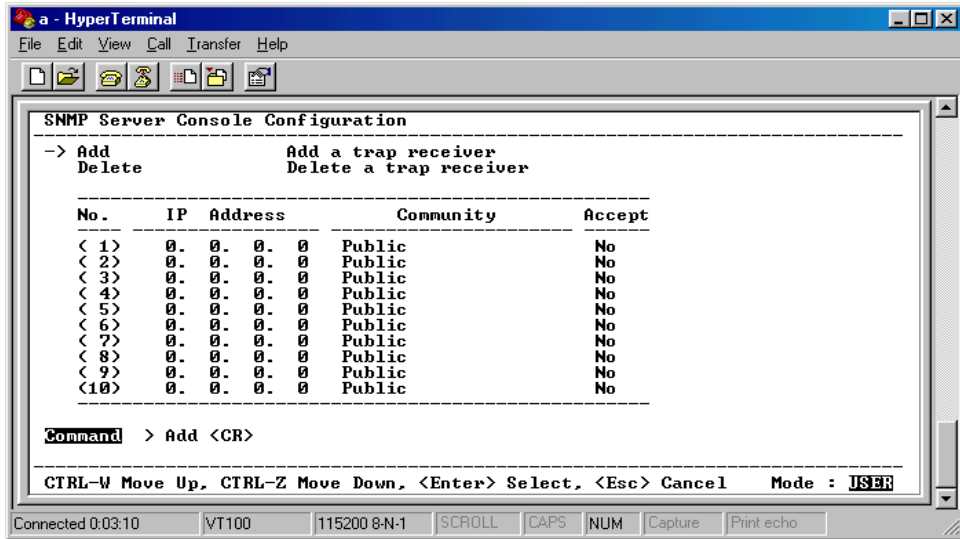
15. Enter in the IP Address (required), the Gateway Address, the Subnet Mask and the DNS. Hit the "Escape" key to return to the main menu.



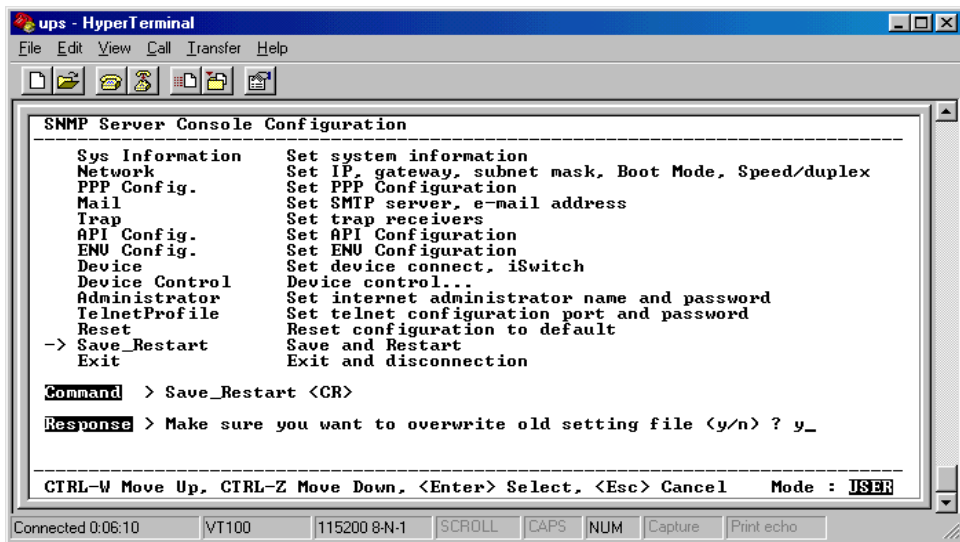
16. Enter in the PPP Type, Server IP, Client IP, Server Profile, Dial number, the ISP account/password and the enable/disable dial-out interface (not required). Hit the “Escape” key to return to the main menu.



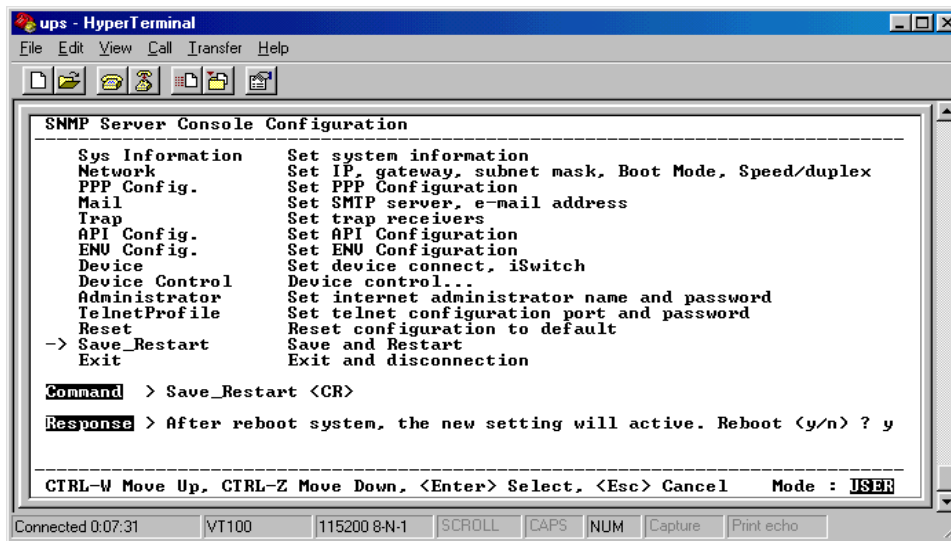
17. Arrow down to Mail and hit enter. Enter in the SMTP Server (not required). The user can add or delete email addresses. Hit the “Escape” key to return to the main menu.



18. Arrow down to Trap and hit enter. This screen allows the user to send Traps about the UPS to ten IP Addresses (not required). Also, you may determine the severity levels and what type of access, read only or read and write, to assign to a particular IP manager. Hit the "Escape" key to return to the main menu.



19. Once you have finished with the entire configuration, cursor down to Save_Restart and hit enter. Make sure you want to overwrite the old settings (y/n)? Hit the y key, then hit enter.

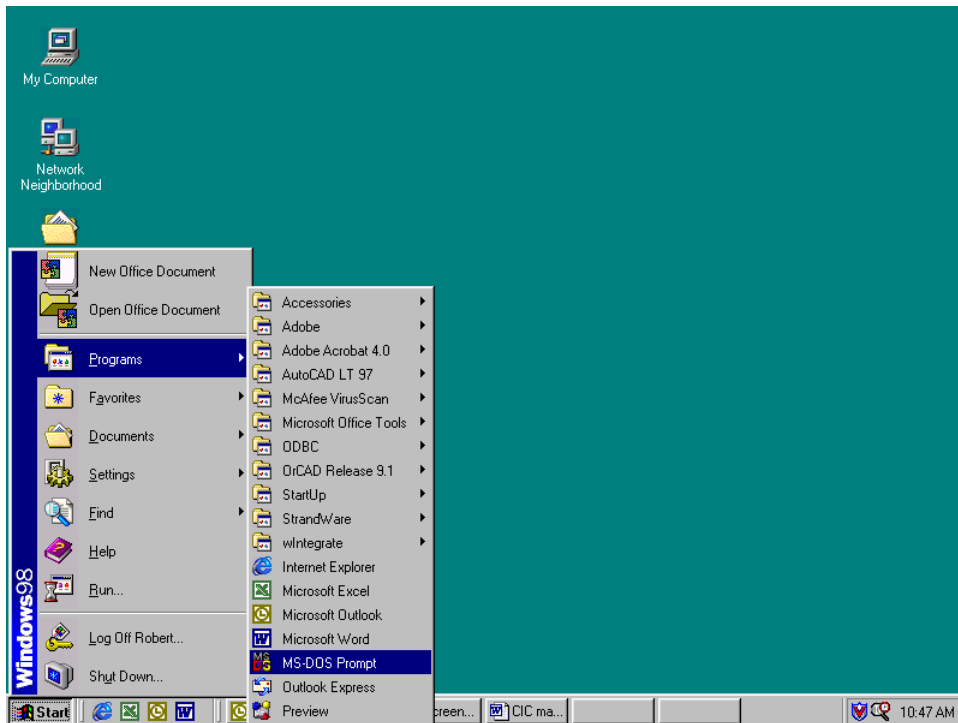


20. After rebooting the system, the new settings will be activated. Reboot (y/n)? Hit the y key then hit enter. Once the system has rebooted, cursor down to Exit then hit enter.
21. The Serial Setup Procedure is complete. The RPM is ready for normal operation. Unplug the DB9 female-to-female Serial Cable from the RPM and from the computer. Plug the Ethernet Cable into the RPM and after about thirty seconds the Link LED will start blinking, now you can communicate with the RPM. The Ping command is supported at this time. Startup a Browser and type in the IP Address. The default password is **admin** (lower case). Go to the section in the User's Manual titled "Web-Based Configuration" it will guide you through the Web pages.

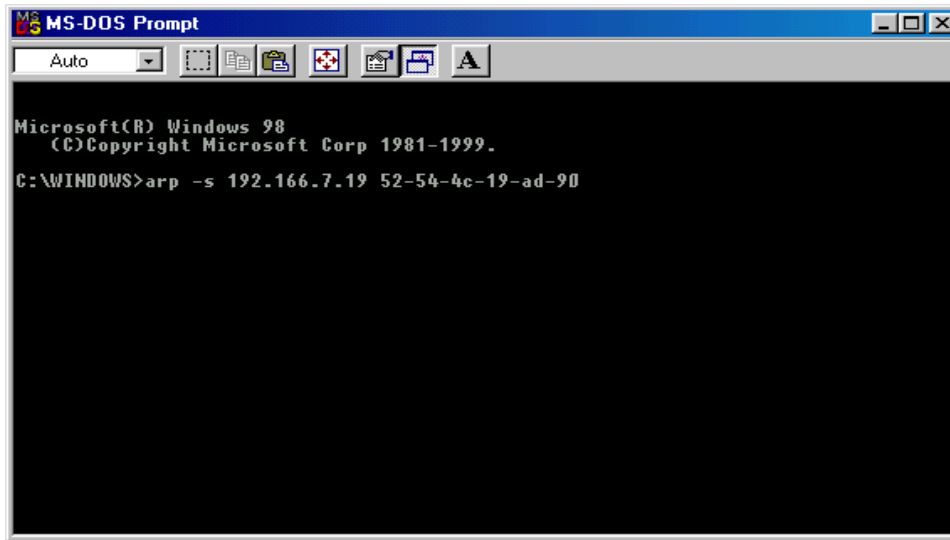
Setup via the Ethernet Port

The following items must be obtained before attempting to setup the RPM: A valid IP Address, a Computer on the network and an Ethernet cable connected to the network.

1. Connect the Ethernet cable to the RPM's Ethernet Port.
2. Turn the computer on and let it boot-up.
3. Plug the RPM's power cord into the AC outlet and turn the RPM on.
4. Wait for approximately thirty seconds for the Link LED to start blinking.

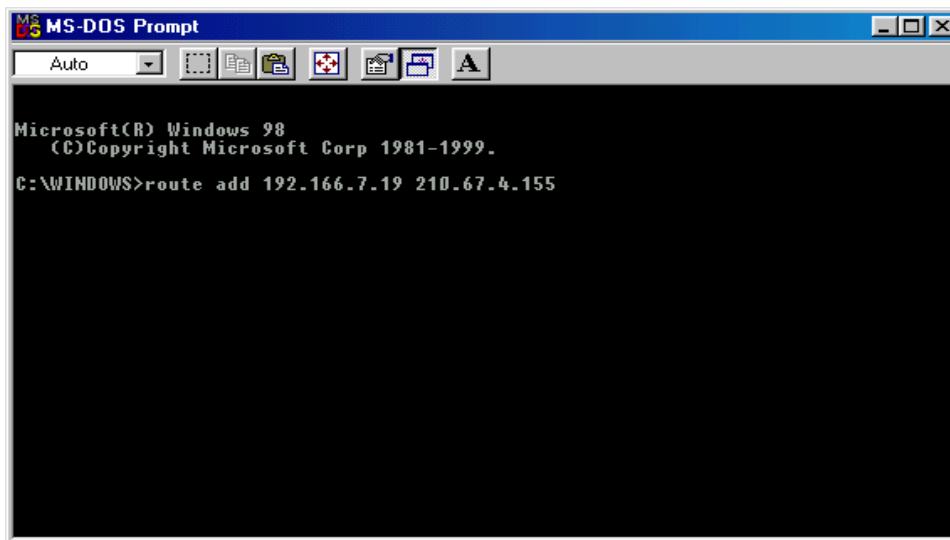


5. From the Desktop open the Start menu. Pick Programs and then open the MS-DOS Prompt.



```
MS-DOS Prompt
Auto
Microsoft(R) Windows 98
(C)Copyright Microsoft Corp 1981-1999.
C:\WINDOWS>arp -s 192.166.7.19 52-54-4c-19-ad-90
```

6. This is an example. At the MS-DOS Prompt type: `arp -s 192.166.7.19 52-54-4c-19-ad-90`. Then hit enter. The first string is the IP Address; the second string is the MAC Address (which can be found on the front of the RPM).



```
MS-DOS Prompt
Auto
Microsoft(R) Windows 98
(C)Copyright Microsoft Corp 1981-1999.
C:\WINDOWS>route add 192.166.7.19 210.67.4.155
```

7. At the MS-DOS prompt type: `route add 192.166.7.19 210.67.4.155`. Then hit enter. The first string is the IP Address and the second string is the Gateway Address.
NOTE: The PING Command is not supported at this time.
8. At the MS-DOS Prompt type `exit`. Then hit enter.
9. There are two options to finish setting up all of the parameters. Option #1 The Web-Based Configuration, Option #2 Telnet.
10. Option #1. Startup a Browser and type in the IP Address. The default name and password is **admin** (lower case). Go to the section in the User's Manual titled "Web-Based Configuration" it will guide you through the setup of all the parameters.
11. Option #2. Go to the section in the User's Manual titled "Telnet Configuration" it will guide you through the setup of all the parameters.

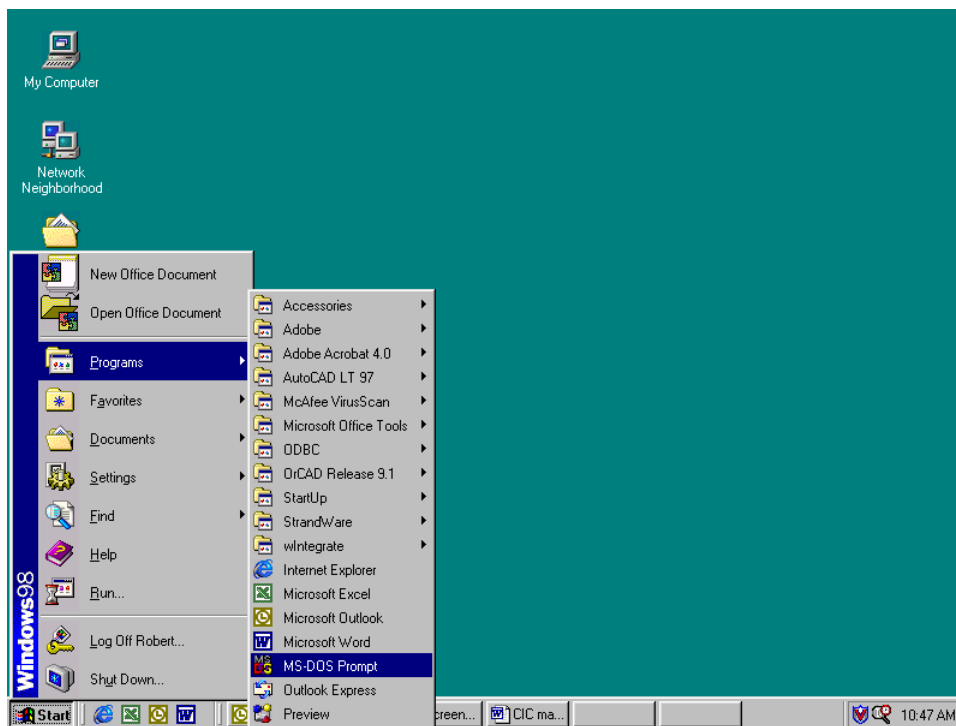
Telnet Configuration

This section will guide you through finishing the configuration of the RPM using Telnet.

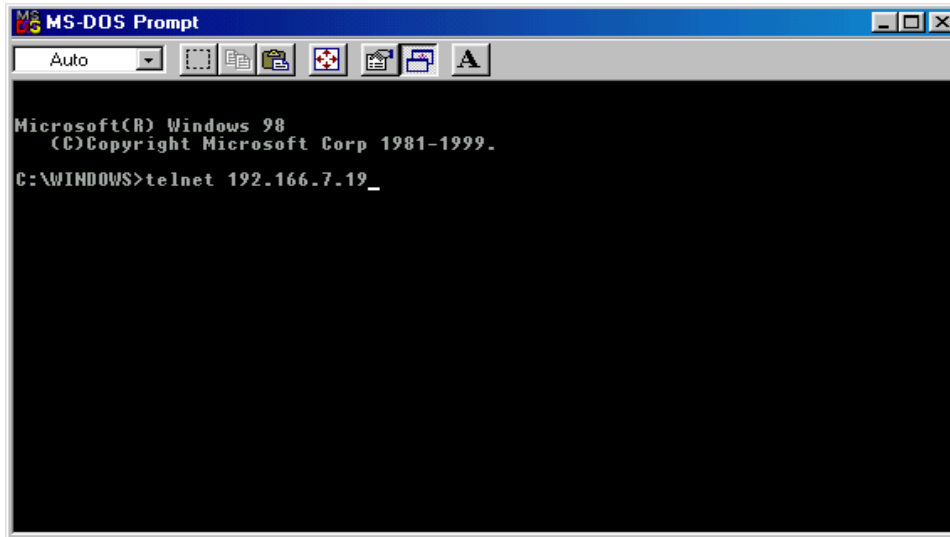
NOTE: You must complete the appropriate Setup Procedure before proceeding with the Telnet Configuration.

NOTE: You must have given the RPM an IP Address.

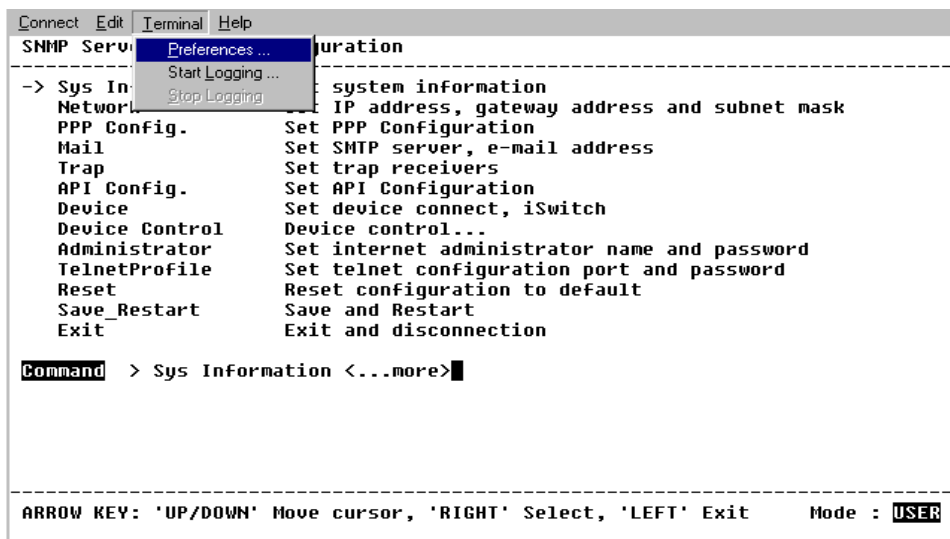
The Ethernet cable is connected to the RPM and the RPM is on.



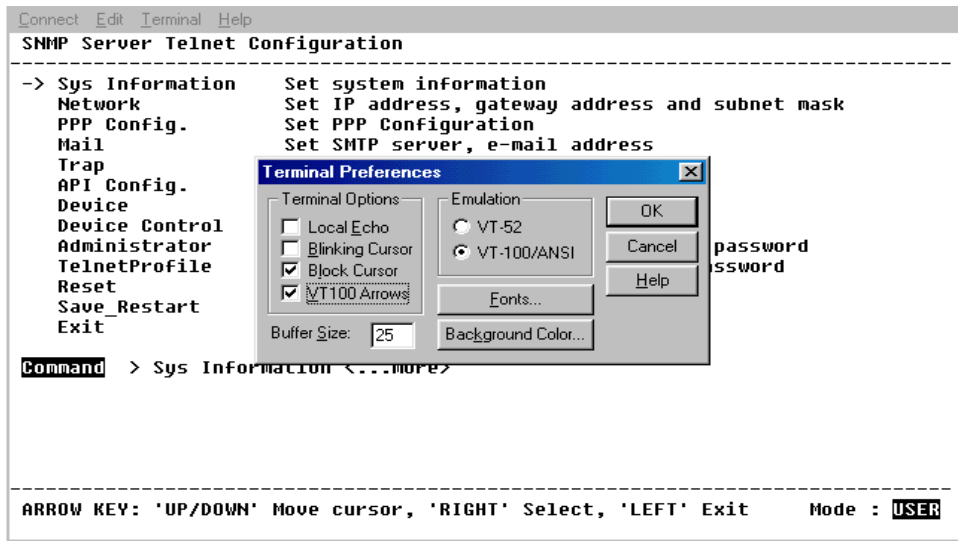
1. From the Desktop open the Start menu. Pick Programs and then open the MS-DOS Prompt.



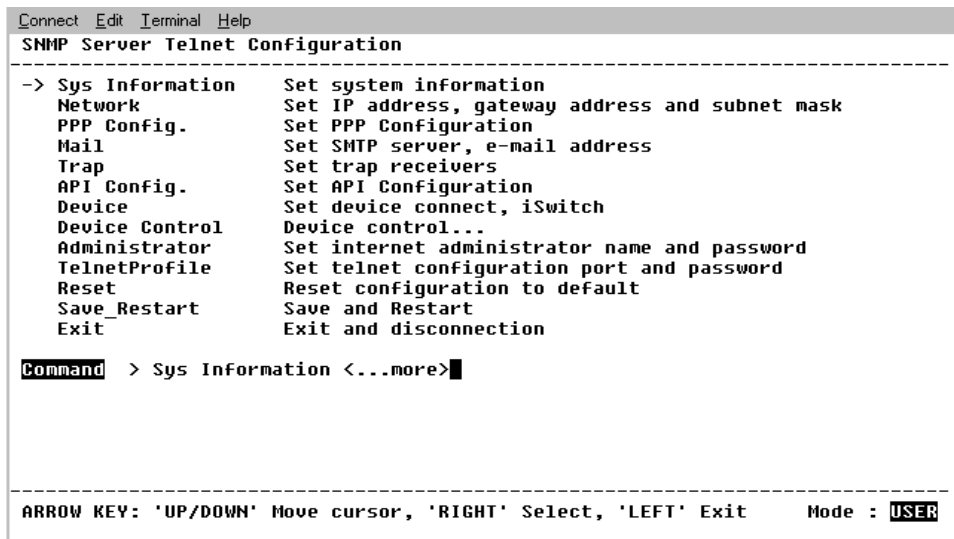
2. This is an example. At the MS-DOS Prompt type telnet 192.166.7.19 (IP Address). Then hit enter.
3. Next you will be asked for the User Password. The default password is **admin**. Enter the password, then hit enter.



4. Pick Terminal, then open Preferences.



5. Check VT100 Arrows. You can leave the Block Cursor checked or you can uncheck the Block Cursor depending on your preference. Then click OK.



6. Pick System, then hit enter.

```

Connect Edit Terminal Help
SNMP Server Telnet Configuration
-----
  Boot Mode          Set Boot Mode (1)Fix (2)BOOTP (3)DHCP
-> IP                Set IP address
  Gateway            Set gateway address
  NetMask             Set subnet mask
  DNS                 Set domain name server

Command > IP <CR>

-----
ARROW KEY: 'UP/DOWN' Move cursor, 'RIGHT' Select, 'LEFT' Exit    Mode : USER

```

- Pick IP, then hit enter. Input your IP Address (required), Gateway Address, Subnet Mask and the DNS. Then hit the left arrow key to exit to the main menu.

```

Connect Edit Terminal Help
SNMP Server Telnet Configuration
-----
  Sys Information    Set system information
  Network            Set IP address, gateway address and subnet mask
  PPP Config.        Set PPP Configuration
  Mail               Set SMTP server, e-mail address
  Trap               Set trap receivers
  API Config.        Set API Configuration
  Device             Set device connect, iSwitch
  Device Control     Device control...
  Administrator      Set internet administrator name and password
  TelnetProfile      Set telnet configuration port and password
  Reset              Reset configuration to default
-> Save_Restart      Save and Restart
  Exit               Exit and disconnection

Command > Save_Restart <CR>
Response > Make sure you want to overwrite old setting file (y/n) ? █

-----
ARROW KEY: 'UP/DOWN' Move cursor, 'RIGHT' Select, 'LEFT' Exit    Mode : USER

```

- Once you have finished with the entire configuration, arrow down to Save_Restart and hit enter. Make sure you want to overwrite the old settings (y/n)? Hit the y key, then hit enter.


```

Connect Edit Terminal Help
SNMP Server Telnet Configuration
-----
Sys Information      Set system information
Network             Set IP address, gateway address and subnet mask
PPP Config.         Set PPP Configuration
Mail                Set SMTP server, e-mail address
Trap                Set trap receivers
API Config.         Set API Configuration
Device              Set device connect, iSwitch
Device Control      Device control...
Administrator       Set internet administrator name and password
TelnetProfile       Set telnet configuration port and password
Reset               Reset configuration to default
-> Save_Restart     Save and Restart
Exit                Exit and disconnection

Command > Save_Restart <CR>

Response > After reboot system, the new setting will active. Reboot (y/n) ? █

-----
ARROW KEY: 'UP/DOWN' Move cursor, 'RIGHT' Select, 'LEFT' Exit      Mode : USER

```

9. After rebooting the system, the new settings will be activated. Reboot (y/n)? Hit the y key then hit enter.

```

Connect Edit Terminal Help
SNMP Server Telnet Configuration
-----
Sys Information      Set system information
Network             Set IP address, gateway address and subnet mask
PPP Config.         Set PPP Configuration
Mail                Set SMTP server, e-mail address
Trap                Set trap receivers
API Config.         Set API Configuration
Device              Set device connect, iSwitch
Device Control      Device control...
Administrator       Set internet administrator name and password
TelnetProfile       Set telnet configuration port and password
Reset               Reset configuration to default
-> Save_Restart     Save and Restart
Exit                Exit and disconnection

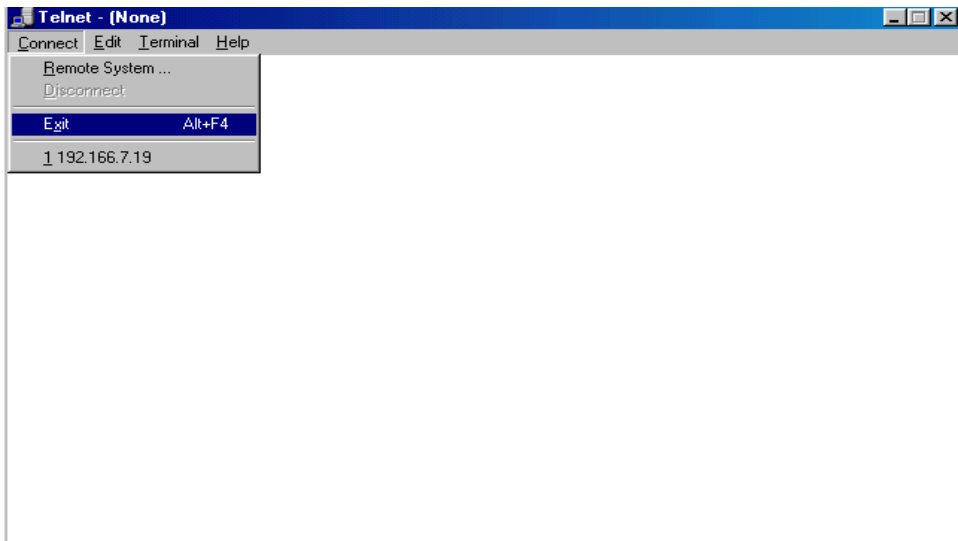
Command > Save_Restart <CR>

Message > Reboot system.....

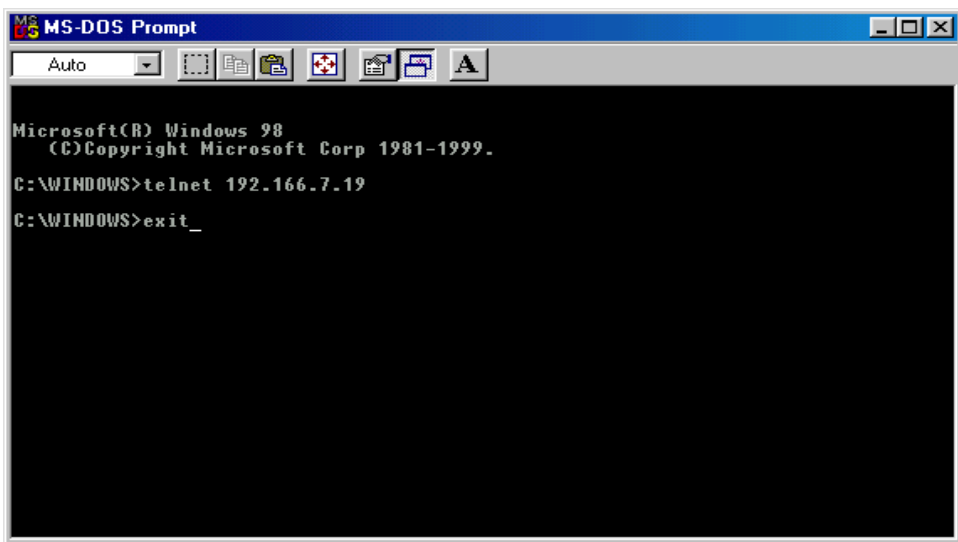
-----
ARROW KEY: 'UP/DOWN' Move cursor, 'RIGHT' Select, 'LEFT' Exit      Mode : USER

```

10. The RPM has rebooted to activate the new settings. Click OK. Arrow down to exit then hit enter.



11. On the Toolbar pick Connect, then open exit.



12. At the MS-DOS Prompt type exit, then hit enter.

13. The Telnet Configuration is complete. The RPM is ready for normal operation. After about thirty seconds the Link LED will start blinking, now you can communicate with the RPM. The Ping command is supported at this time. Startup a Browser and type in the IP Address. The default password is **admin** (lower case). Go to the section in the User's Manual titled "Web-Based Configuration" it will guide you through the Web pages.

Web-Based Configuration

This section will guide you through the Web-Based-Configuration and the Web Pages of the Remote Power Manager (RPM).

NOTE: You must complete the appropriate Setup Procedures before proceeding with the Web-Based-Configuration. The Ethernet cable is connected to the RPM and the RPM is on.

1. Startup a Web browser.
2. Type in your IP Address.
3. Next you will be asked for the User Name and Password. The default Name and Password is **admin**. Enter the password, then hit enter.

The screenshot shows a web-based configuration interface for a Power Device Management system. The interface is divided into a left sidebar and a main content area. The sidebar contains a menu for 'Server' and 'Client'. The 'Server' menu includes links for Sys. Information, Network, PPP Configuration, Date, Administrator, API Configuration, User Management, Software Upgrade, Save & Restart, and Logout. The 'Client' menu shows a dropdown menu with 'iSWITCH01' selected. Below the 'Client' menu, there is a section for 'iSWITCH' with links for Status, Configuration, Schedule, Event Action, and Event Logging. The main content area is titled 'System Information' and contains a form with the following fields: System Name, System Contact, System Location, System Description, and DHCP Name. The DHCP Name field is pre-filled with the value '00061800009F'. Below the form is a 'Save' button and a 'Back' button.

System Information	
System Name	System Name
System Contact	System Contact
System Location	System Location
System Description	System Description
DHCP Name	00061800009F

Save

Back

4. This is the screen where you can set the System Information parameters for the SNMP MIB2. After you have finished filling in all of the information, click Save.

Set Network

IP Address	192.166.7.19
Gateway Address	210.67.4.155
Subnet Mask	255.255.255.0
Domain Name Server	
Server ID	server
TFTP Server IP Address	
TFTP File Name	device.bin
SNMP Read Community	*****
SNMP Write Community	*****
BOOT Mode	FIX

[Back](#)

5. This is the screen where you can set the Network parameters. After you have finished filling in all of the information, click Save.

PPP Configuration	
<input type="checkbox"/> Enable PPP Function	
PPP Type	PPP
ISP Configuration	
ISP Dial Number	
ISP Account	
ISP Password	
Modem Configuration	
Baudrate	115200
Dial Prefix	Initialization String
	ATL1
Mail Configuration	
SMTP Server	
Returned Address	
Message Subject	ISP IP Address
Email Address	
PPP Mode(Dial in) Configuration	
PPP Server IP	169.254.1.1
PPP Client IP	169.254.1.4
PPP Administrator's Name	admin
PPP Administrator's Password	*****
<input type="button" value="Save"/> <input type="button" value="Disconnect Now"/>	
Back	

6. The PPP connection is useful if it is not possible to make a direct network connection to the RPM. An external modem is needed to connect to the front serial port of the RPM.

NOTE: The user must complete one of the Setup Procedures and fill in all of the information in the PPP Configuration before the Dial-up Function will work.

After dialing in the remote user must hang up after the third ring. Based on the information that the user puts into the PPP configuration, the RPM will automatically dial up to the designated ISP and send an email to the designated email address with the assigned IP address from the ISP. The user may browse and control the RPM with this dynamic IP address. When the user is ready to exit click the "Disconnect Now " button at the bottom of the screen.

7. This is the screen where you set the Date and Time. After you have finished filling in the information, click Save.

8. This is the screen where you can change the Administrator's Name and Password. After you have finished filling in the information, click Save.

NOTE: The Supervisor's name and password can be from 1 to 19 digits. The Supervisor's name and password is not limited to an alphanumeric character (i.e. a#1b\$2z%9).

NOTE: Be sure to write down your Supervisor's name/password and keep it in a safe place. If the user forgets the name/password the RPM will have to be Flash Upgraded before the user can access the RPM.

9. This screen allows the user to setup the Application Programming Interface. The Application Programming Interface can be accomplished by two methods, Windows API through the Ethernet connector or RS232 API through the RS232 connector (additional software is required for both methods). See the section API Function Library. After you have finished filling in the information, click Save.

User Name	Password	A	B	C	D	E	F	G	H
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. This is the screen where the administrator can give certain rights to certain users. After you have finished filling in the information, click Save.

Software Upgrade	
Current Version	2002AT 1.2.3
Device Connect Speed	9600
TFTP Server IP address	<input type="text"/>
File Name	device.bin <input type="text"/>
Do you want to continue with the software upgrade...	
YES	
Back	

11. This is the screen where you can upgrade to the latest version of software. See the section on **Software Upgrade Procedure**.

Save & Restart	
Save	Save and Restart
Back	

12. After filling in all of the information be sure to **Save and Restart** before exiting the program.

Logout
Logout
Back

13. This screen allows the user to Logout. If, any changes were made be sure to **Save & Restart** before exiting the program.

Power Management Device					
iSWITCH					
Click icon to turn on/off					
gr safe shutdown	ON		green safe shutdown	ON	
red immediately	ON		red safe shutdown	ON	
blue safe shutdown	ON		blue immediately	ON	
orange immediately	ON		orange immediately	ON	
All On					
All Off					

14. This screen allows the user to see the status of the RPM. The user can control each receptacle individually or all of them at the same time. The RPM has to be setup in the remote mode to control the receptacles via the Internet. The RPM can also be setup for the local mode. The user can control the receptacles by the momentary switches on the front panel.

iSWITCH Configuration					
ID Address Configuration		iSWITCH ¹			
Identification		iSWITCH			
Outlet	Name	Power Resume Delay	Ring On/Reset	Safe Shutdown/Reboot	
OutletA	gr	0001 sec	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> / <input type="checkbox"/>	0010 sec
OutletB	red	0002 sec	<input checked="" type="checkbox"/>	<input type="checkbox"/> / <input type="checkbox"/>	0300 sec
OutletC	blue	0003 sec	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> / <input type="checkbox"/>	0010 sec
OutletD	orange	0004 sec	<input checked="" type="checkbox"/>	<input type="checkbox"/> / <input type="checkbox"/>	0300 sec
OutletE	green	0005 sec	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> / <input type="checkbox"/>	0010 sec
OutletF	red	0006 sec	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> / <input type="checkbox"/>	0010 sec
OutletG	blue	0007 sec	<input checked="" type="checkbox"/>	<input type="checkbox"/> / <input type="checkbox"/>	0300 sec
OutletH	orange	0008 sec	<input checked="" type="checkbox"/>	<input type="checkbox"/> / <input type="checkbox"/>	0040 sec

15. Each outlet can be individually programmed to enable ring On/Off or reset. The power resume delay is convenient for sequential startup. The name of each outlet can be labeled to whatever you like it to be called (i.e. server1, DSL modem or webserver1). Since 16 RPMs can be daisy chained together to share one CIC, each unit can be individually named. The safe shutdown feature has a configurable delay time to safely shutdown the Windows NT/2000 server.

NOTE: The user must setup the Power Management Software in Windows NT/2000 Server (see page 46).

gr			
gr	red	blue	
	orange		
green	red	blue	
	orange		
Date	Action	Shutdown Time (HH:MM)	Restart Time (HH:MM)
MON	<input type="checkbox"/> Enable	00:00	00:00
TUE	<input type="checkbox"/> Enable	00:00	00:00
WED	<input type="checkbox"/> Enable	00:00	00:00
THU	<input type="checkbox"/> Enable	00:00	00:00
FRI	<input type="checkbox"/> Enable	00:00	00:00
SAT	<input type="checkbox"/> Enable	00:00	00:00
SUN	<input type="checkbox"/> Enable	00:00	00:00
Save			

16. This screen allows the User to schedule daily/weekly shutdowns and restarts of individual receptacles (be sure to check the appropriate box). The safe shutdown is dedicated to Microsoft Windows NT (4.0, 2000, workstation and server). Click on the corresponding outlet to enable the safe shutdown feature. The safe shutdown feature has a configurable delay time to safely shutdown the Windows NT/2000 server. Then click Save.

NOTE: The user must setup the Power Management Software in Windows NT/2000 Server (see page 46).

Event Action				
Event List				
<div style="border: 1px solid black; padding: 5px;"> Alarm iSwitch Outlet Fault Alarm iSwitch Restart Alarm iSwitch Lost </div>				
Configure				
PAGER	BROADCAST	LOGGING	TRAP	MAIL
Back				

17. This is the Event Action screen. The user chooses an event from the Event List. Then the user chooses one of the four ways to configure the event.

Pager	
Event:	Alarm iSwitch Outlet Fault
<input type="checkbox"/> Paging Enable	
Paging Message	
Alarm-Add	<input type="text"/>
Alarm-Remove	<input type="text"/>
Pager Number	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
<input type="button" value="OK"/>	
Back Home	

18. This is the Pager Configuration screen. Connect an external modem to the RS232 port of the RPM. When the chosen Event happens, the RPM will page the number. After dialing in the remote user must hang up after the third ring. Based on the information that the user puts into the PPP configuration, the RPM will automatically dial up to the designated ISP and send an email to the designated email address with the assigned IP address from the ISP. The user may browse and control the RPM with this dynamic IP address. When the user is ready to exit click the "Disconnect Now " button at the bottom of the screen. The user must check the Paging Enable Box.

NOTE: The user must complete the PPP Configuration for the Pager Function to work.

Broadcast	
Event :	Alarm iSwitch Outlet Fault
<input type="checkbox"/> Broadcast Enable	
<input type="checkbox"/> Broadcast Shutdown Message	
<input type="button" value="OK"/>	
Back Home	

19. This is the Broadcast Configuration screen. When the chosen Event happens, the RPM will broadcast the message. The user will have to install the Message Capturing Program to be able to capture the broadcasted messages. The Message Capturing Program (UpsClient.exe) is located on the disk with the User's Manual. The program has to be on before it will capture the messages. The user can install the program on their desktop.

NOTE: The user must check the appropriate broadcast box.

Logging

Event :

Event Logging Enable

[Back](#) [Home](#)

20. This is the Event Logging Configuration screen. When the chosen Event happens, the RPM will log the event in the Event Log.

NOTE: The user must check the Event Logging Enable box.

Trap

Event :

Trap Enable

Trap Receiver Configuration

Accept	IP Address	Community
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>

[Back](#) [Home](#)

21. This is the Trap Configuration screen. This screen allows the user to send SNMP Traps about the RPM to ten IP Addresses (managers). Also, you may determine the severity levels and what type of access (read only or read and write) to assign to a particular IP manager.

NOTE: The user must check the Trap Enable box and the Accept box.

NOTE: An NMS is required to send and get the SNMP Traps.

Mail	
Event :	Alarm iSwitch Outlet Fault
<input type="checkbox"/> Mail Enable	
Mail Configuration	
DNS Server	<input type="text"/>
SMTP Server	<input type="text"/>
Returned Address	<input type="text"/>
Message Subject	Alarm Event
Email Address	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
<input type="button" value="OK"/>	
Back	

22. This is the Email Configuration screen. This screen allows the user to send emails about the RPM to five different email addresses. Once all of the information is filled in, click OK. Be sure to **Save & Restart** before exiting the program.

NOTE: The user must check the Mail Enable box.

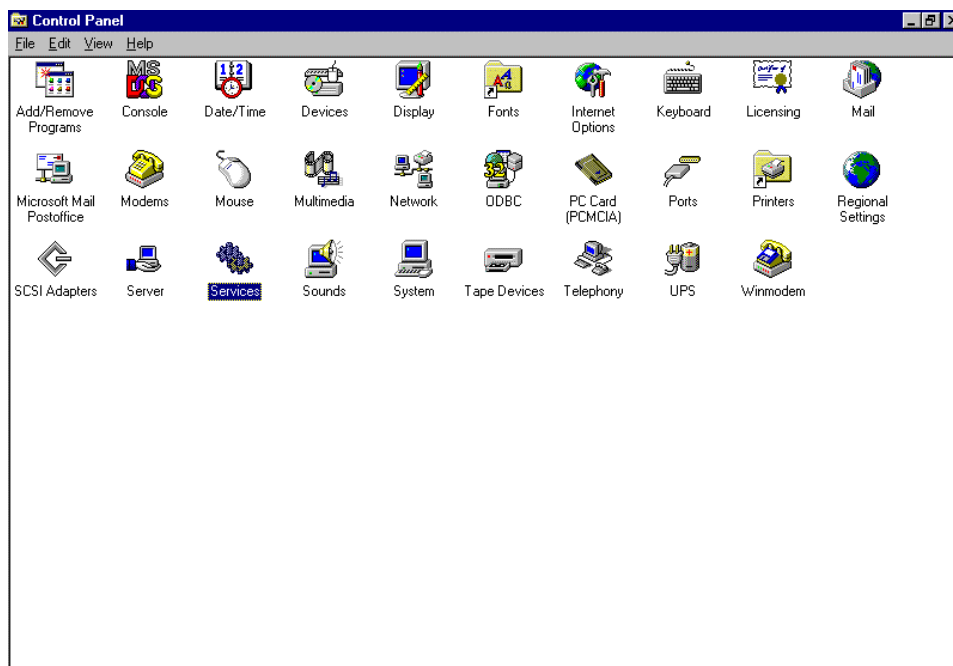
23. The Web-Based Configuration is complete. The RPM is ready for normal operation.

Windows NT/2000 Server Power Management Software Setup Procedure

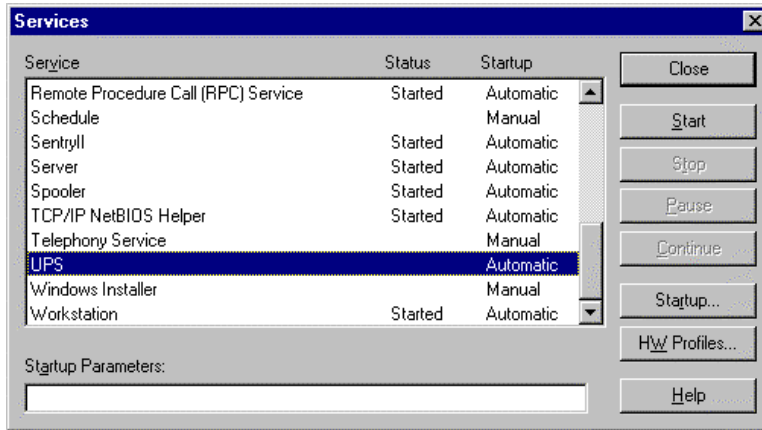
The RPM can be setup to perform a safe and logical shutdown of a Windows NT/2000 Server (see pages 41, 42). The Power Management Software in Windows NT/2000 Server must be configured correctly. Once the Power Management Software has been configured, the user can perform a safe and logical shutdown by turning off the appropriate output receptacle (see page 41).

NOTE: The RPM must have the NT cards installed to perform the safe and logical shutdown of Windows NT/2000 Server.

Windows NT Server Power Management Software Setup Procedure



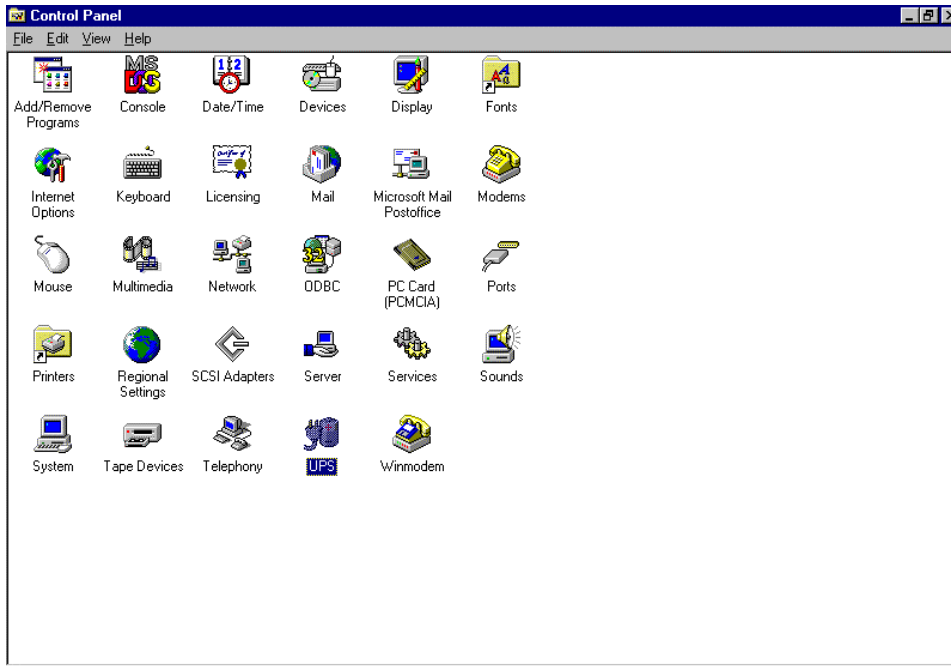
1. Open the Startup menu.
2. Open Settings and then the Control Panel.
3. Click on the Services icon.



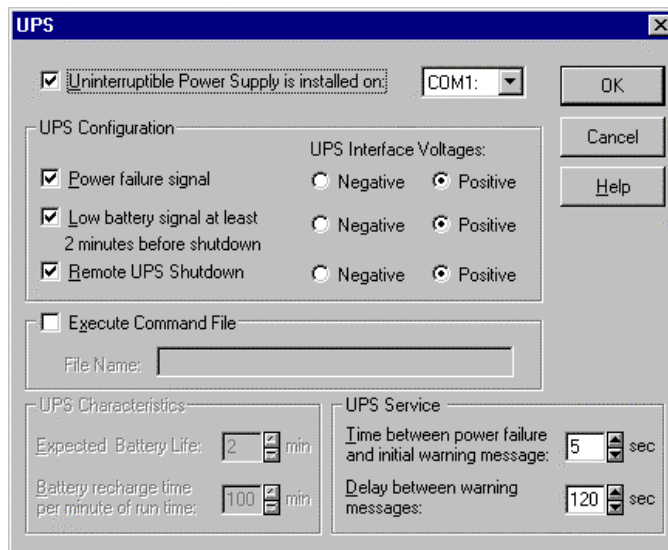
4. Double click on UPS.



5. Startup Type: Select Automatic and click OK, then click Close.

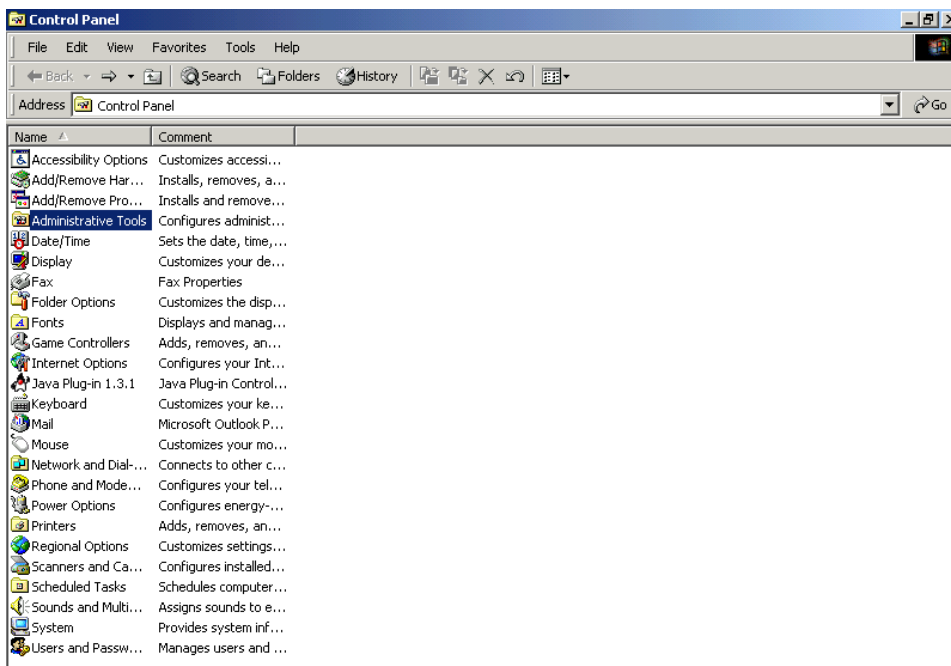


6. In the Control Panel. Select the UPS icon.

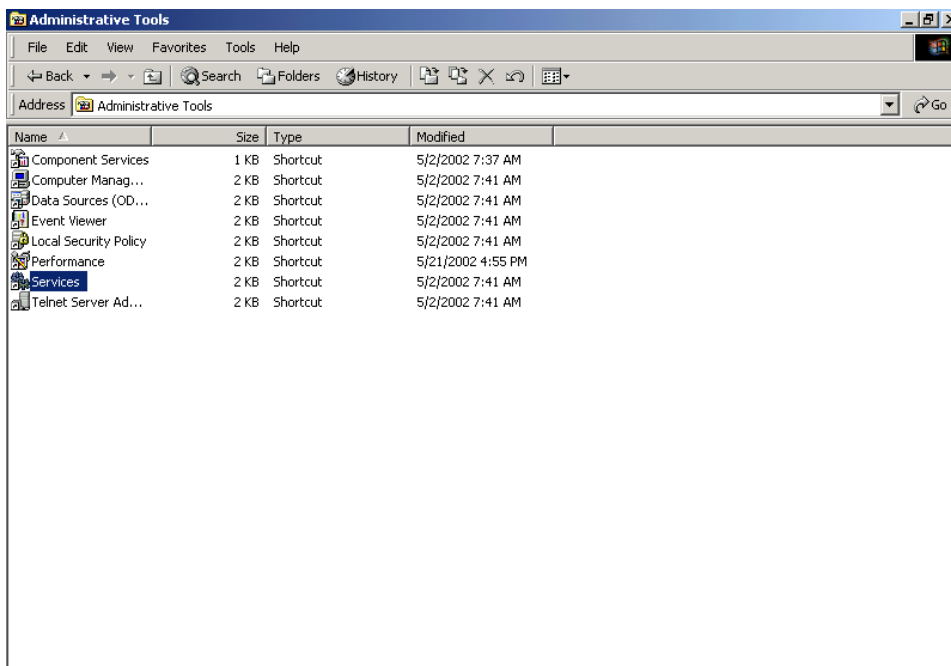


7. Check all the boxes as shown. Select the appropriate COM Port then, click OK. The Power management Software Procedure is complete. The RPM is ready for normal operation.
NOTE: The UPS Interface Voltages must be set to positive.

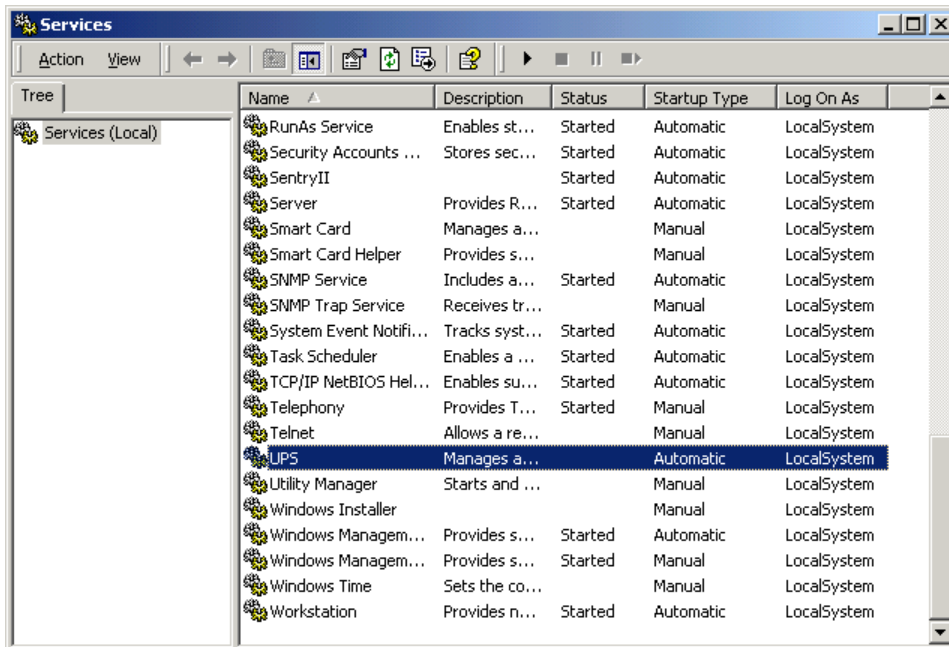
Windows 2000 Server Power Management Software Setup Procedure



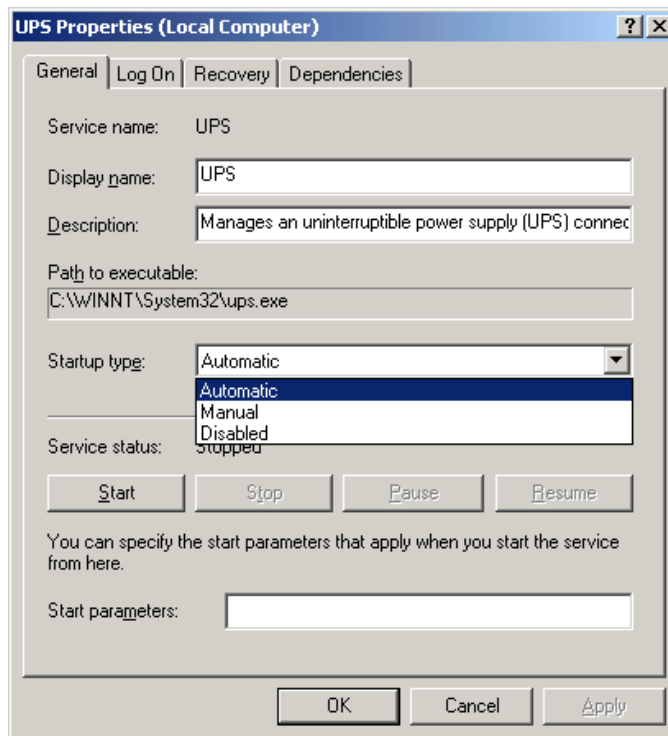
1. Open the Startup menu.
2. Open Settings and then the Control Panel.
3. Open Administrative Tools.



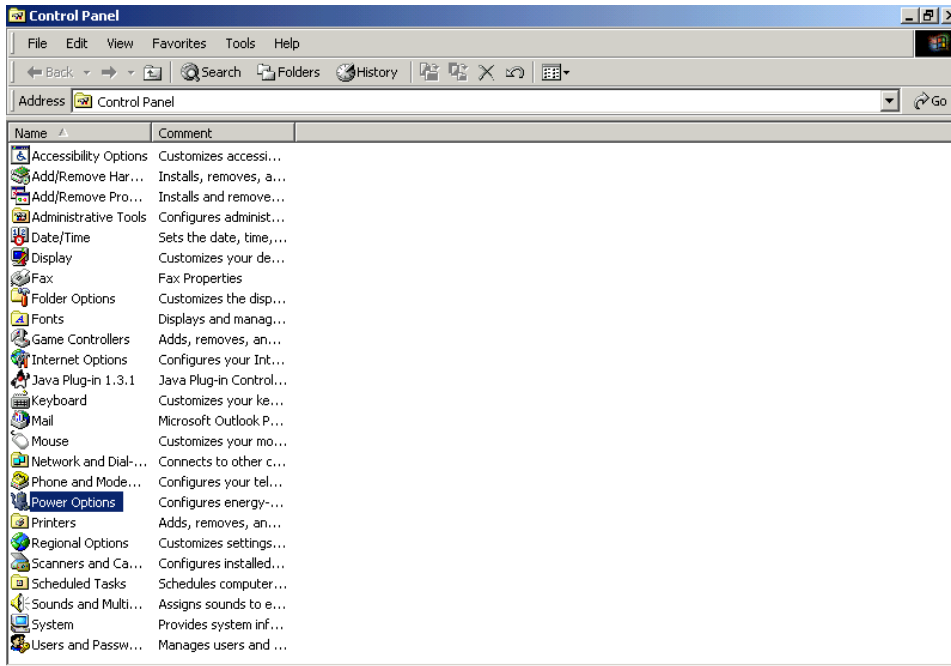
4. Open Services.



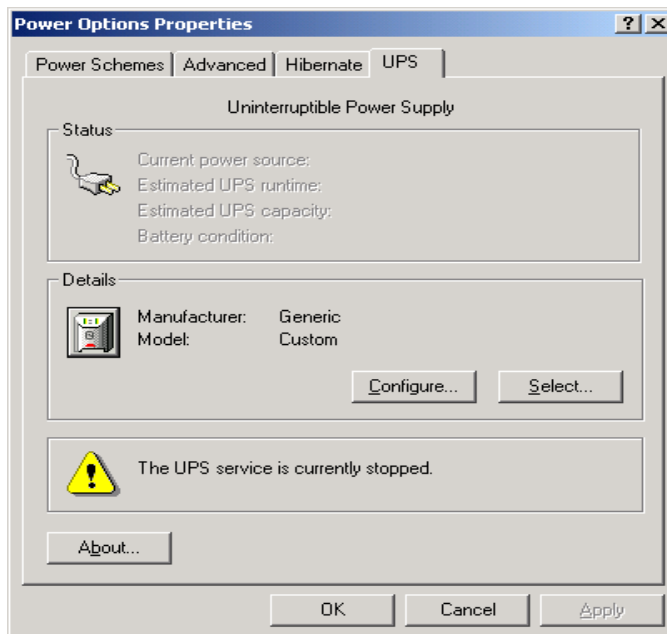
5. Open UPS.



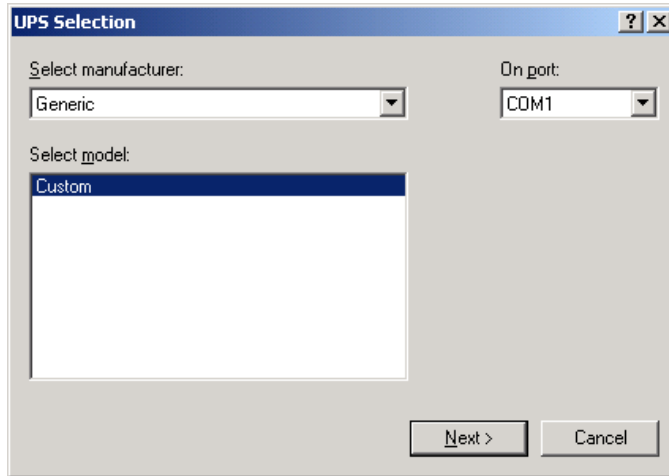
6. Select the General Tab. Startup Type: Select Automatic and click OK.



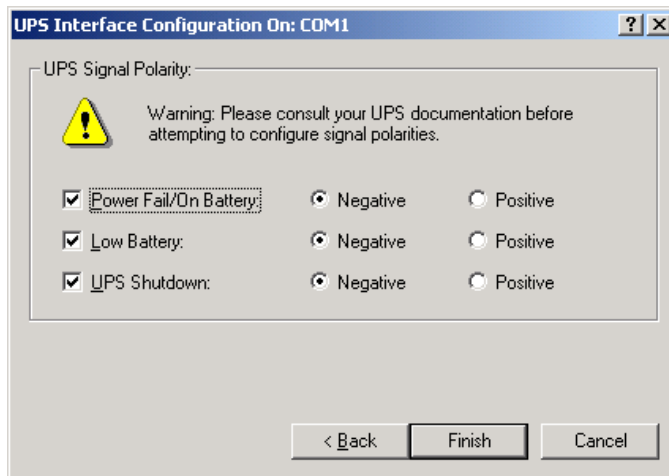
7. In the Control Panel. Select Power Options.



8. Select the UPS tab. Under Details, click Select.



- Under Select manufacturer, select Generic. Under Select model, select Custom. Select the appropriate COM Port then, click Next.



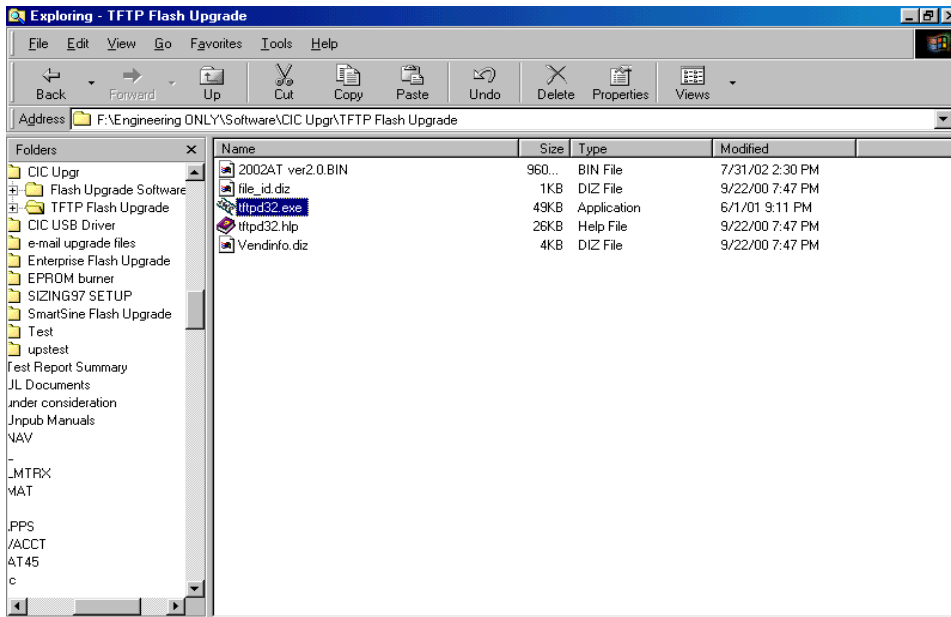
- Check all the boxes as shown then, click Finish. The Power management Software Procedure is complete. The RPM is ready for normal operation.

NOTE: The UPS Signal Polarity must be set to negative.

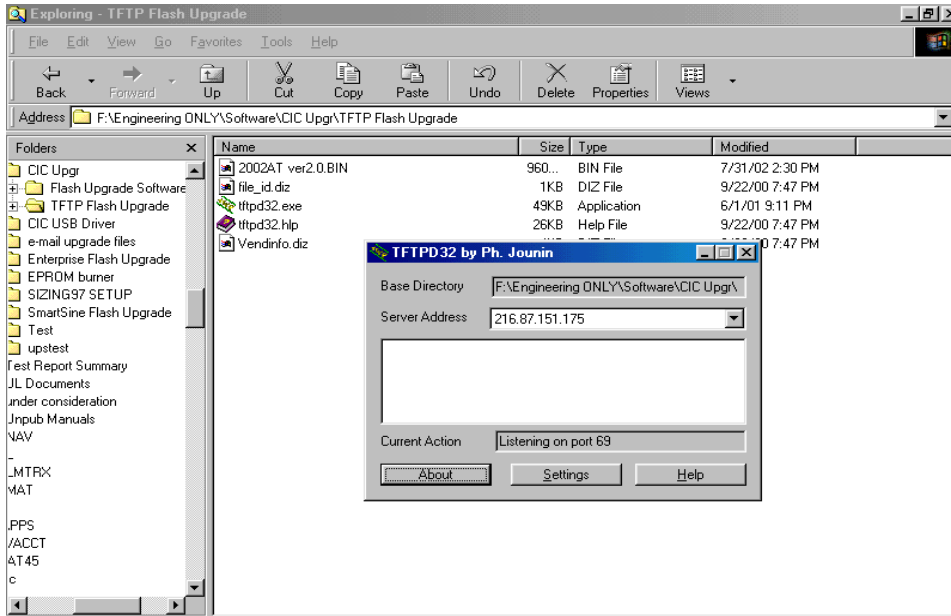
Software Upgrade Procedures

Software Upgrade via TFTP

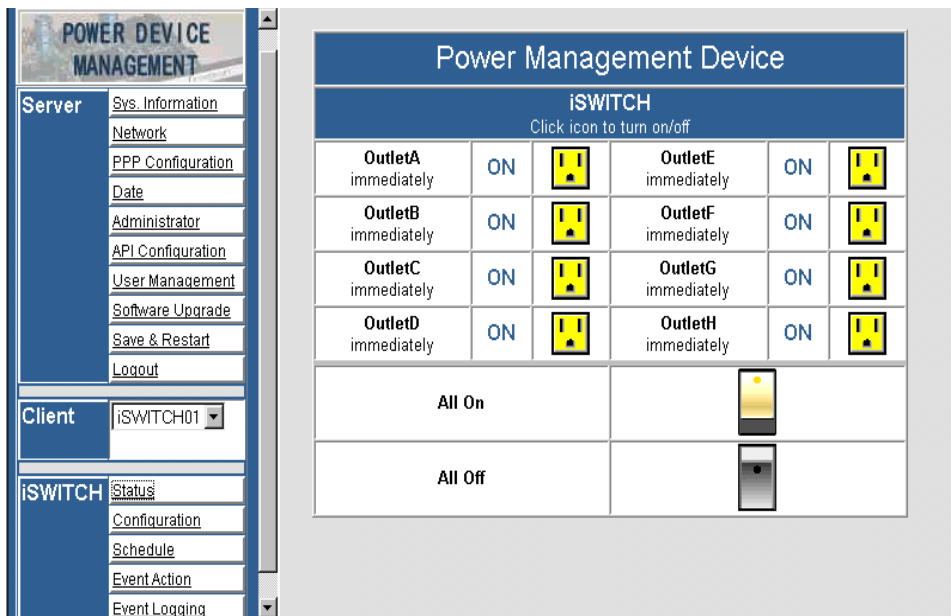
The user can remotely and conveniently, Flash Upgrade the RPM's Software via a TFTP Server. The following procedure will step the user through setting up the TFTP Server at the user's location and Flash upgrading the Software for the RPM.



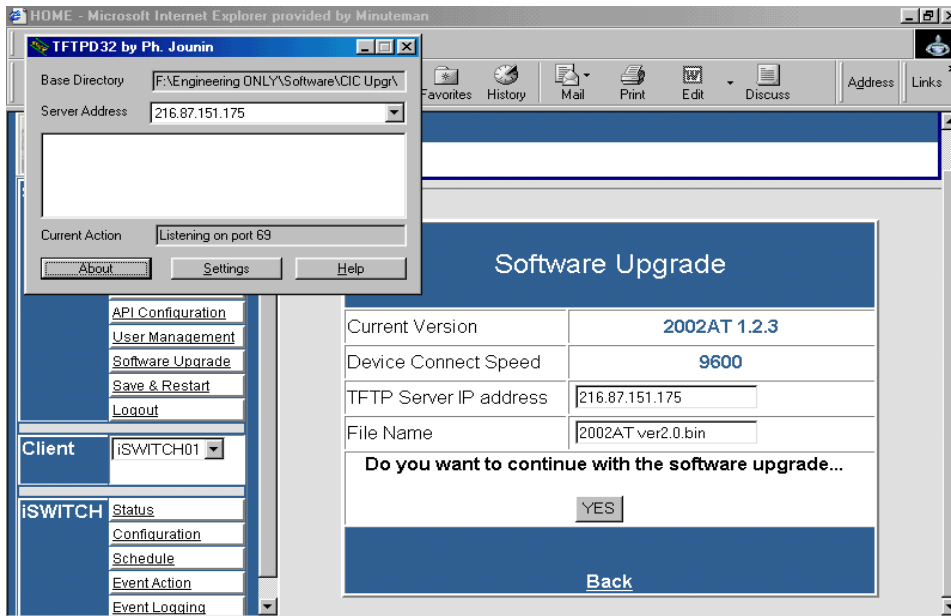
1. Create a folder (TFTP Software Upgrade). Copy the following files to the folder: 2002AT ver2.0.BIN (example), file_id.diz, tftp32.exe, tftp32.hlp, and Vendinfo.diz. The first file **.BIN** is the actual Software upgrade file, which is available for downloading from our web site. The last four files are on a 3.5" floppy disk included with the RPM.



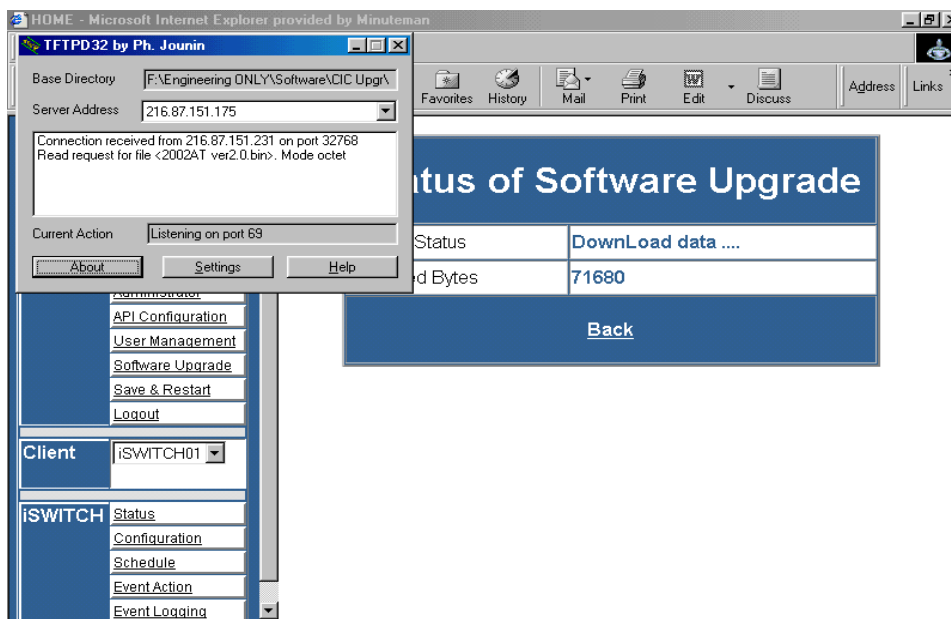
- Open the tftp32.exe file. The above screen will open. This is the TFTP Server's IP address.
NOTE: DO NOT close the tftp32.exe program until the Software Flash Upgrade is complete.



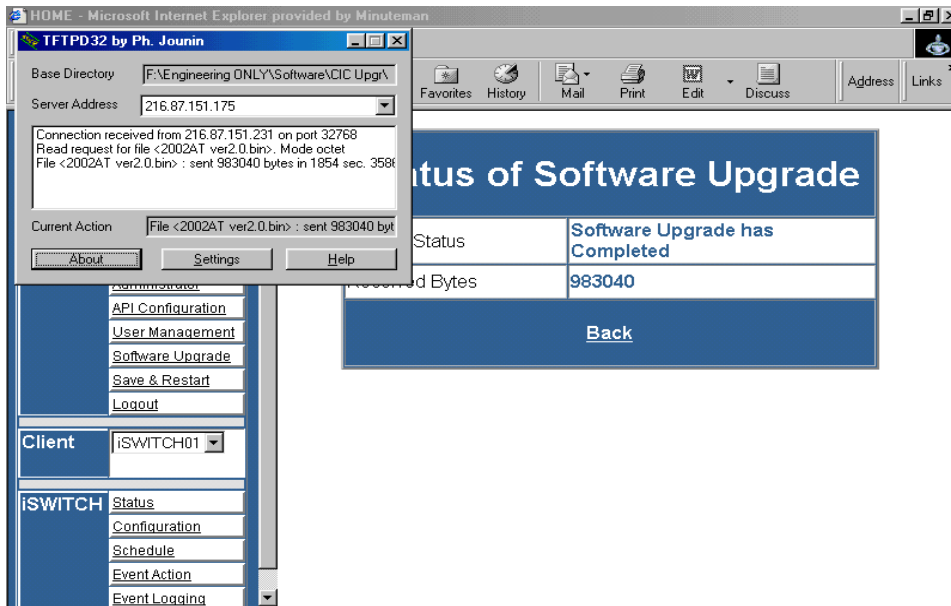
- Open a Web browser and input the IP address of the RPM that is going to be Flash Upgraded. Once the Web page is open, select "**Software Upgrade**".



4. Input the TFTP Server IP address and the Software Upgrade file name (.BIN), then click YES.



5. The TFTP Server is Flash Upgrading the RPM to the new version of Software. The Software Upgrade takes approximately thirty-five minutes to complete.



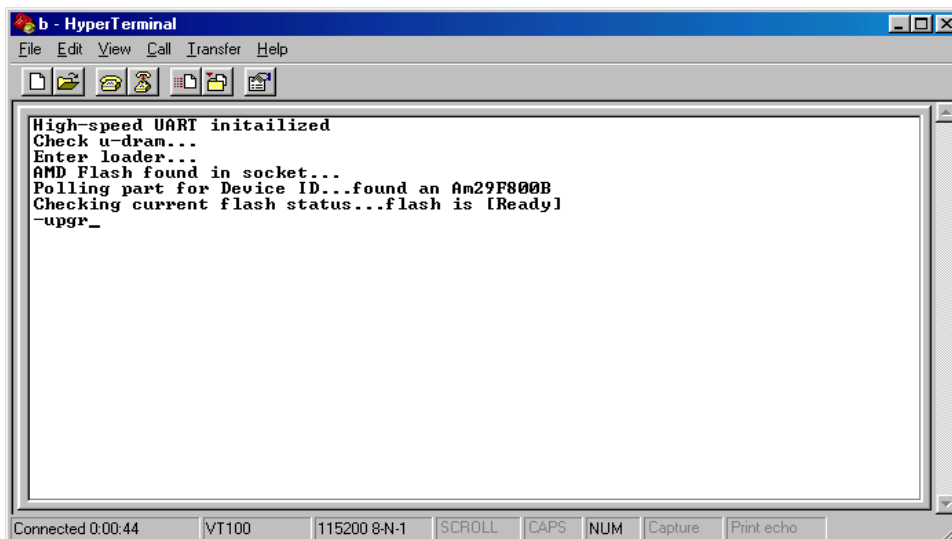
6. The transferring of the Software Upgrade file is complete. Close the tftp32.exe program. Open **“Save & Restart”**. The **“Save & Restart”** function must be performed to save all of the changes. The RPM is ready for normal operation.

Software Upgrade via Serial Port:

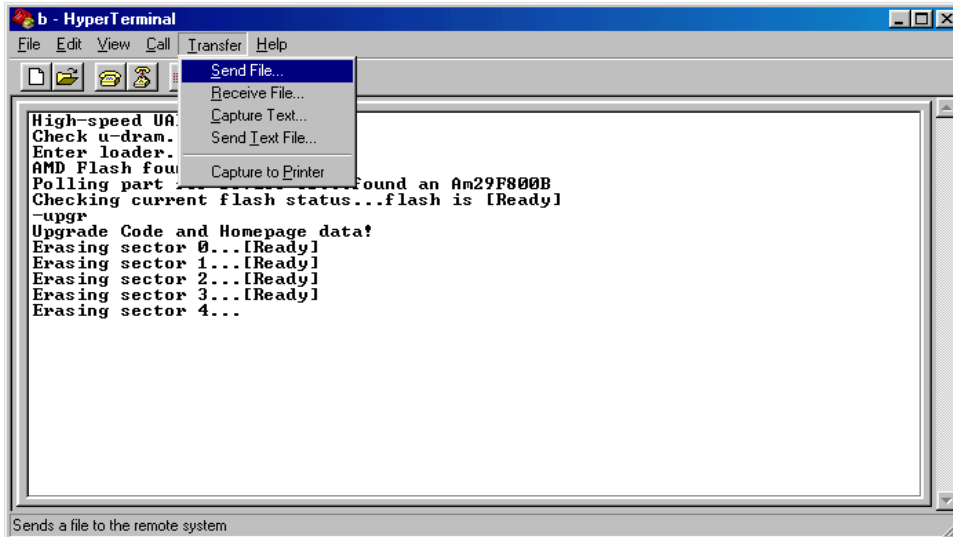
The following items must be obtained before attempting to upgrade the RPM: The Software upgrade file, a DB9 female-to-female Serial Cable (provided). There are a wide variety of Terminal Emulation packages, but for the most part they should be very similar. The following upgrade procedure is using Hyper Terminal.

NOTE: When using Hyper Terminal use Version 3.0 or higher.

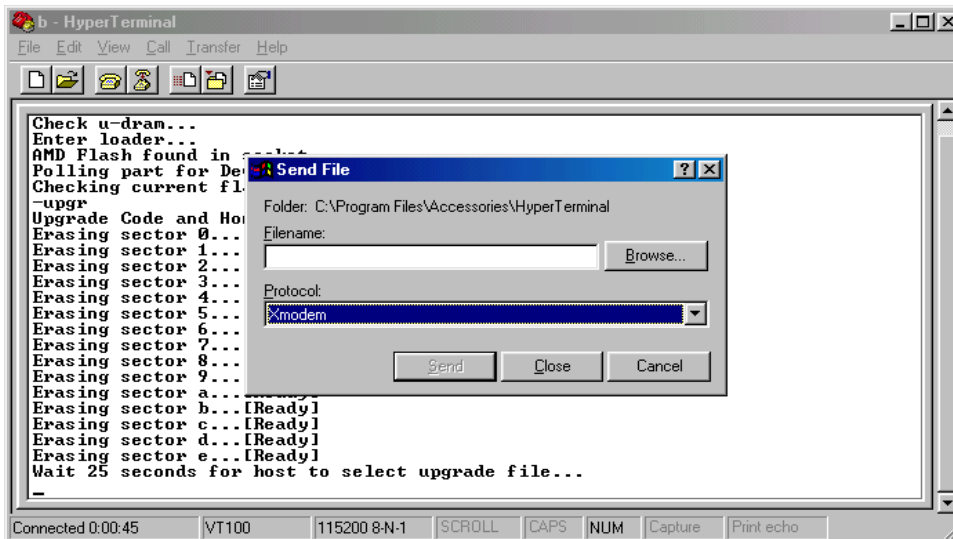
1. Go to the section titled “Setup via Serial Port” (page 19) and follow steps 1 through 10.
2. Plug the RPM’s power cord into the AC outlet and turn the RPM on.



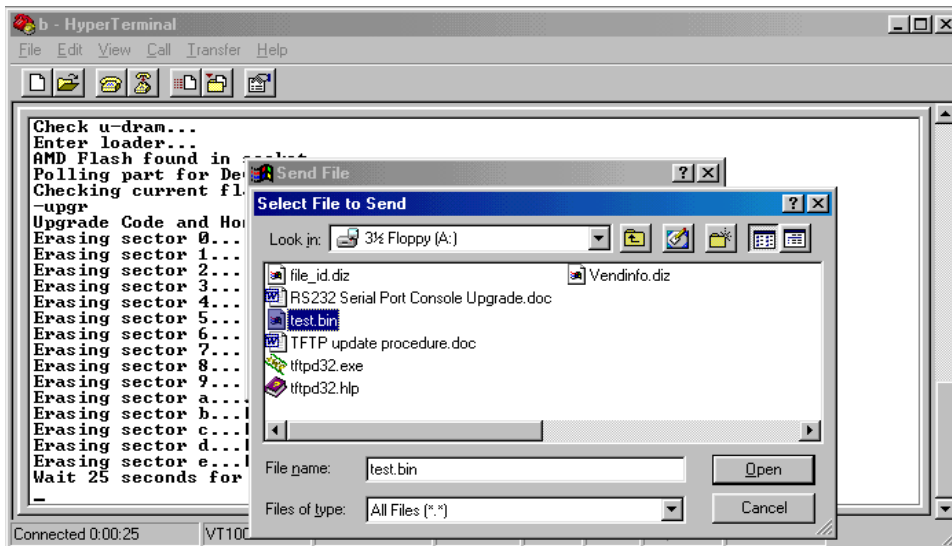
3. Once the message “Check u-dram” appears hit the “c” key. Then at the cursor type “upgr” for RPMs with MAC Addresses beginning with “52” and “upall for RPMs with MAC Addresses beginning with “00”, then hit enter. Once the User hits enter, you have approximately thirty seconds to complete the next four steps.



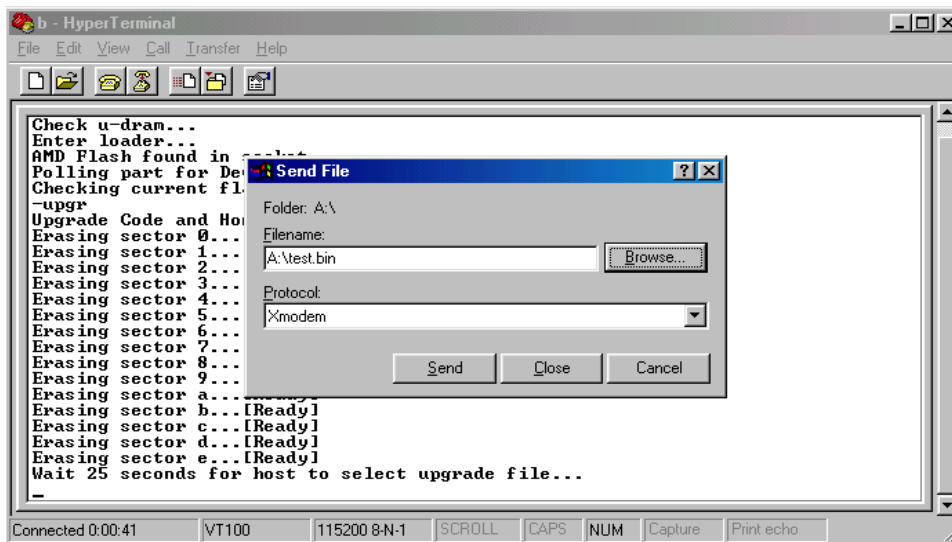
4. Go to the tool bar and select Transfer. Open Send File.



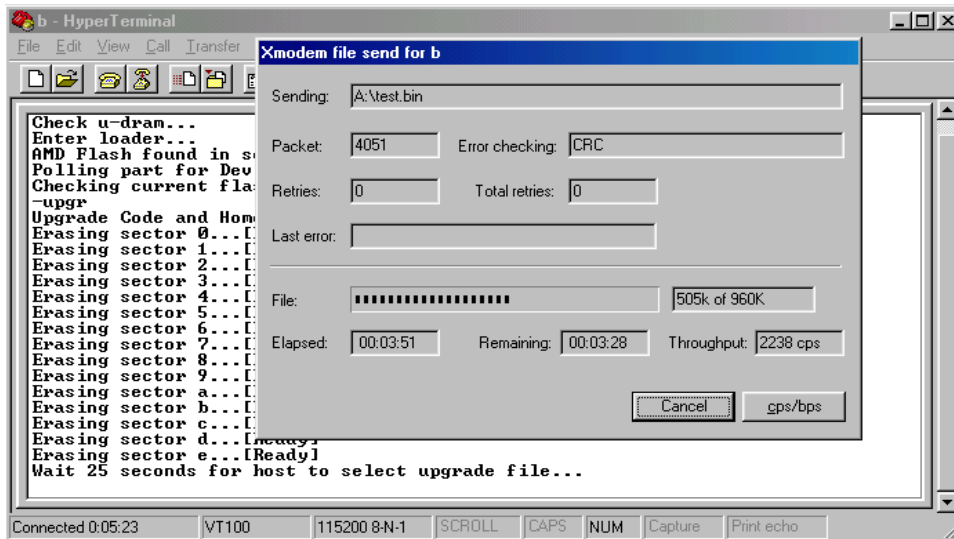
5. Select "X modem" under Protocol.



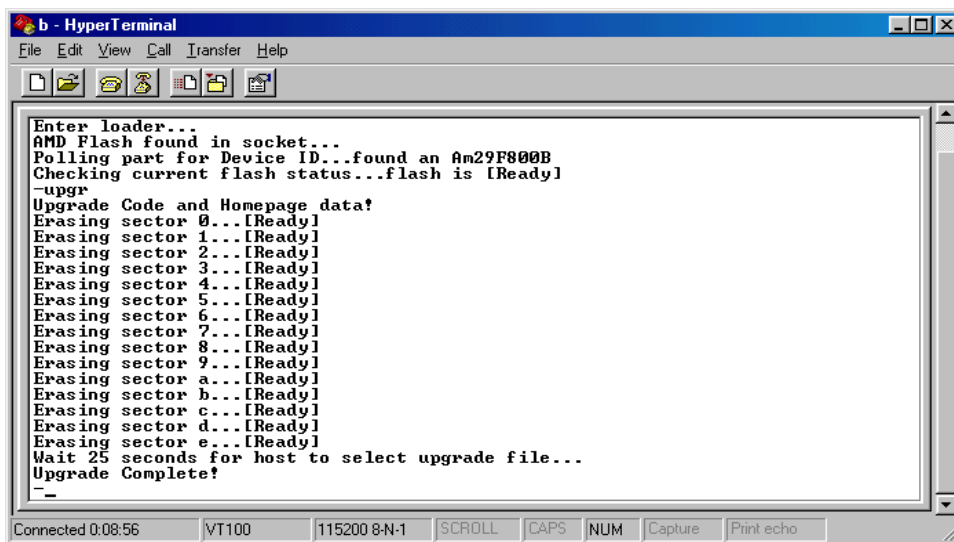
6. Click Browse. Look in the location where the Software upgrade file is located. Select the File name: ".bin" and click open.



7. Click Send.



8. The Software upgrade will take approximately eight minutes to complete.



9. The Software upgrade is complete.

NOTE: The user has to reconfigure all of the settings after the Software upgrade is complete, because all of the user's settings will default to the original default settings.

ISWPollID(String Auth)

Arguments:

Input : String

Output : Boolean

Description:

Get iSWITCH ID Address.

The first input parameter is authenny code. ISWPollID is a function call to get the iSWITCH device ID address. If more than one of the iSWITCH device you want to poll their ID then the return string will separated each ID number by “,”.

If this API execute successfully, you will get return code: true and you can use other function to get relative information. ex(1) iSWITCH05 iSWITCH06 getReturnValueSize() will get 2 getAllReturnValue() will get iSWITCH05•iSWITCH06; if over one set of parameter, we use ”,”delima point to getReturnValue(1) will get iSWITCH05 point to getReturnValue(2) will get iSWITCH06 getSuccessFlag will get true getErrorMsg will get Empty.

If this API executes fail, you can get return code: false ex (2) getReturnValueSize() will get 0 getAllReturnValue() will get Empty.

Application cannot execute getReturnValue() neither, and will generate error getSuccessFlag will get false. getErrorMsg will get error message string (depends on error situation). For Example (1): if you cannot connect to network, you will get the following error string" Error!!Connection Failure. Cannot Connect at Data Input (or Output) or Internet Error."

Sample code:

```
Boolean b=ISWPollID("admin")
```

Explain: b value refer to Description:

```
ISWStartSession (String Auth, String ID_Addr)
```

ISWOutletOff (String Auth, String Outlet)

Arguments:

Input: String

Output: Boolean

Description:

Outlet Output Off

ISWOutletOff The first input parameter is authenny code. The second input parameter is the outlet number which you want to Output Off, if application execute successfully then return: True else return: False. Refer to ISWStartSession() for relative response.

Sample code:

```
ISWOutletOff ("admin","5")
```

ISWStartSession (String Auth)

Arguments:

Input: (String, String)

Output: Boolean

Description:

ID Address session start

The first input parameter is authenny code; the second input parameter is authenny codeID_Addr is the device ID number that we want to control in this session.

ISWStartSession is a function call to set the device ID number that we want to control in this session. After we set the ID number then this function call will return a string to tell you whether we set it success or not. If this API execute successfully, you will get true ex (1) getReturnValueSize() will get 0 getAllReturnValue() will get Empty.

Application cannot execute getReturnValue() neither, and will generate error getSuccessFlag will get true getErrorMsg will get Empty. If this API executes fail, you can get return code: false. ex(2) getReturnValueSize() will get 0 getAllReturnValue() will get Empty.

Application cannot execute getReturnValue () neither, and will generate error
getSuccessFlag will get false getErrorMsg will get error message string (depends on error situation)

Sample code:

```
Boolean b=ISWStartSession ("admin","5")
```

ISWEndSession (String Auth)

Arguments:

Input: String

Output: Boolean

Description:

Session End

The first input parameter is authenny code. ISWEndSession disconnect the last ISWStartSession connection. If application execute successfully then return: True else return: False. Please refer to ISWStartSession() for relative response.

After you execute ISWStartSession, if you want to end this session, you have to run ISWEndSession(), otherwise all Command will execute for prior ISWStartSession's ID Address.

Sample code:

```
Boolean b=ISWEndSession ("admin")
```

ISWOutletOn (String Auth, String Outlet)

Arguments:

Input: String

Output: Boolean

Description:

Outlet output on.

The first input parameter is authenny code the second set parameter is the Outlet number which you want to Output On, if execute successfully then return: True else return: False. Refer to ISWStartSession() for relative response.

Sample code:

```
Boolean b=ISWOutletOn ("admin","1")
```

Hardware

In the API Configuration option, please enable the check box, and set the API Port, administrator name and password.

Software

Windows 98 & 2000:

Run the setup.exe file in the Window98 or 2000 folder.

Linux OS:

Pre-setup (1):

form <http://java.sun.com/products/jdk/1.2/jre/index.html> download

```
jre-1_2_2_008-linux-i386.tar.gz
```

```
cd /usr/local
```

```
tar zxvf jre-1_2_2_008-linux-i386.tar.gz
```

```
vi /etc/profile
```

```
#Add this Line on Path End :/usr/local/jre1.2.2/bin
```

- (1) mount /mnt/cdrom
- (2) cd /mnt/cdrom/Linux
- (3) cp *.* /YouWantDist
- (4) java RPMTTest

Solaris OS:

- (1) mount /cdrom
- (2) cd /cdrom/Solaris
- (3) cp *.* /YouWantDist
- (4) java RPMTTest

Telephone Access Interface

1. Dial up the RPM.
2. After three rings the RPM will respond by sending out three short beeps to the caller. Then the RPM waits for the user to enter the password.
3. The user enters an access password (default password is 123456789#).
4. The RPM will send out three short beeps to confirm a successful login, or one long beep to deny access.
5. Once logged in, the remote user can punch in 4-8 digits. The first two digits specify which RPM, the next digit specifies which output receptacle and the next digit specifies which command. The last four digits specify the amount of time:

Command format: **XXNA#**:

XX - 00—16 is the RPM's device number for a daisy chain, if there is no daisy chain, then any number is accepted.

N - outlet number: 1(A)—8(H), 9 controls all the outlets.

A - action type: 0=off, 1=on, 2=reset.

I.E. 0111# RPM01 turn on Outlet A.

I.E. 0120# RPM01 turn off Outlet B.

I.E. 0212# RPM02 reset outlet A.

I.E. 01113600# means turn A on after 3600 minutes.

I.E. 01103600# means turn A off after 3600 minutes.

I.E. 01123600# means reset A after 3600 minutes.

6. Use a combination of 0111XXXX# or 0112XXXX# to get a different delay time. XXXX max value is 9999, which is about 166 hours or 6.94 days.
7. Use the "*" key to cancel a command at any time.
8. The RPM will acknowledge the receipt of the commands by issuing 2 short beeps. A long beep indicates a failure or a non-recognizable command.
9. To change the password. The default password is 123456789#. The user has to enter the previous password in order to change their password.

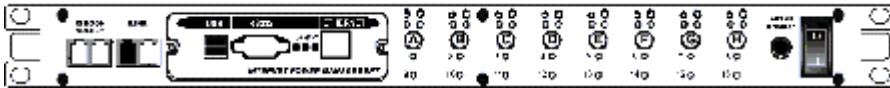
NOTE: The Password has to have a minimum of 7 digits and can have a maximum of 10 digits.

NOTE: Be sure to write your password down and keep it in a safe place. If the user forgets the password the smart phone card will have to be replaced.

10. The user enters 888minuteman# or whatever previous password. Then the RPM responds with three short beeps acknowledging access granted. The user then enters the new password as follows: 888XXXXXXXXXX#, and the RPM acknowledges with 2 short beeps. Then user inputs 888XXXXXXXXXX# the second time to re-confirm the new password. The RPM acknowledges with 4 short beeps, indicating that the password has been changed.
11. Hang up to close any access.
12. The RPM is in a waiting loop to receive the command string. Each command string should be entered within 20 seconds. After 180 seconds without any user input, the RPM will logout the user.
13. The 9 command set is for the administrator:
 - 0190# to turn every port off.
 - 0191# to turn every port on.
 - 0192# to reset every port with a delay of 8 minutes, which will allow safe shutdowns. The delay can be changed by command 888911XXXX#, where XXXX can range from 1 to 9999 minutes.

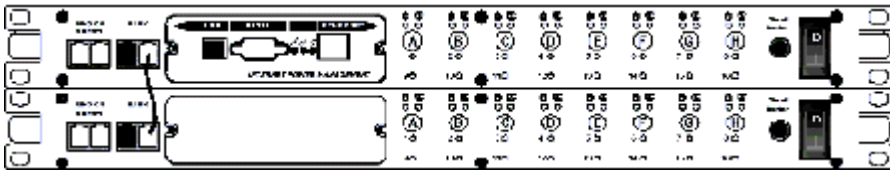
The Remote Power Manager (RPM) can be Daisy Chained up to a maximum of sixteen units. Each RPM in the Daisy Chain must have its own unique identification number. The default ID# is "0 ". The first RPM must have the Internet Power Management Card install and must be configured before you can begin Daisy Chaining any additional RPMs. Only the first RPM requires the Internet Power Management Card. All of the other RPMs in the Daisy Chain do not require that the Internet Power Management Card be installed. Follow the procedure below to Daisy Chain the RPMs:

Figure 1 - First RPM



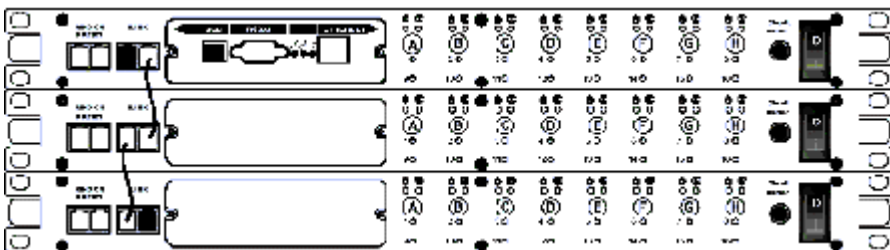
1. Make sure that the Terminator is plugged into the first RPM's iLink port (see Figure 1).
2. Plug the first RPM's power cord into utility power.
3. Turn the master power switch on.
4. Setup the RPM (see Setup Procedure page 9).
5. Configure the first RPM's ID number (each RPM must have it's own unique ID#, the default ID# is "0").

Figure 2 - First and second RPM



6. Make sure that the second RPM has the Terminator plugged into the iLink port (see Figure 2).
7. Connect the first and second RPM together with the iLink cable.
8. Plug the second RPM's power cord into utility power.
9. Turn the master power switch on.
10. Configure the second RPM's ID number (each RPM must have it's own unique ID#, the default ID# is "0").
11. If there are only two RPMs required for this application, then this completes the Daisy Chaining procedure and the RPMs are ready for use.
12. If your application requires additional RPMs, then continue on with the Daisy Chaining procedure.

Figure 3 - First, second and third RPM



13. Make sure that the third RPM has the Terminator plugged into the iLink port (see Figure 3).
14. Remove the Terminator from the second RPM.
15. Connect the second and third RPM together with the iLink cable.

16. Plug the third RPM's power cord into utility power.
17. Turn the master power switch on.
18. Configure the third RPM's ID number (each RPM must have its own unique ID#, the default ID# is "0").
19. If there are only three RPMs required for this application, then this completes the Daisy Chaining procedure and the RPMs are ready for use.
20. If your application requires additional RPMs (maximum of sixteen), then repeat steps 13-19 of the Daisy Chaining procedure.

Troubleshooting

Problem: The TES (Terminal Emulation Software) does not display anything.

Solution: Make sure the TES's communication parameters are correct. They should be 115200-baud rate, no parity, 8-data bits, and 1 stop bit. The cable is a DB9 Female-to-Female serial cable.

Problem: The NMS cannot ping the Remote Power Manager (RPM).

Solution: Make sure the network connection to the Remote Power Manager (RPM) is good.

Solution: Make sure the cable is in good condition.

Solution: Make sure to set the Community String. Name the community with any lowercase name.

Solution: Make sure to set the Manager Table.

Solution: Make sure the Gateway is correct.

Solution: Make sure to Save and Restart after the Setup Procedure.

Problem: My NT server shutdown.

Solution: Verify that the NT server is not setup to have a scheduled shutdown.

Solution: Verify that the RJ-11 NT server cable, on the RPM and the NT server, is properly secured.

Problem: All the LEDs are off and all of the output receptacles are dead.

Solution: Turn the master power switch ON.

Solution: Reset the AC circuit breaker.

Problem: The RPM will not communicate and all of the LEDs on the Internet Power Management card are ON.

Solution: There has been a collision of the packets. The RPM needs to be reset. Turn the RPM off and wait for approximately one minute, then turn the RPM back ON.

Problem: All the LEDs are off and all of the output receptacles are on.

Solution: The RPM needs to be reset. Turn the RPM off and wait for approximately one minute, then turn the RPM back ON.

Problem: The user cannot change from one Web Page to the next.

Solution: There has been a collision of the packets. The RPM needs to be reset. Turn the RPM off and wait for approximately one minute, then turn the RPM back ON.

Problem: I forgot my password for the Smart Phone.

Solution: The Smart Phone Card will have to be replaced.

Problem: I forgot my Supervisor's name/password.

Solution: The RPM will have to be Flash Upgraded.

This section discusses: Communities, Gateways, IP Addresses, and Subnet masking.

Communities

A community is a string of printable ASCII characters that identifies a user group with the same access privileges. For example, a common community name is "public."

For security purposes, the SNMP agent validates requests before responding. The agent can be configured so that only trap managers that are members of a community can send requests and receive responses from a particular community. This prevents unauthorized managers from viewing or changing the configuration of a device.

Gateways

Gateway, also referred to as a router, is any computer with two or more network adapters connecting to different physical networks. Gateways allow for transmission of IP packets among networks on an Internet.

IP Addresses

Every device on an Internet must be assigned a unique IP (Internet Protocol) address. An IP address is a 32-bit value comprised of a network ID and a host ID. The network ID identifies the logical network to which a particular device belongs. The host ID identifies the particular device within the logical network. IP addresses distinguish devices on an Internet from one another so that IP packets are properly transmitted.

IP addresses appear in dotted decimal (rather than in binary) notation. Dotted decimal notation divides the 32-bit value into four 8-bit groups, or octets, and separates each octet with a period. For example, 199.217.132.1 is an IP address in dotted decimal notation.

To accommodate networks of different sizes, the IP address has three divisions—Classes A for large, B for medium and C for small. The difference among the network classes is the number of octets reserved for the network ID and the number of octets reserved for the host ID.

Class	Value of First Octet	Network ID	Host ID	Number of Hosts
A	1-126	First octet	Last three octets	16,387,064
B	128-191	First two octets	Last two octets	64,516
C	192-223	First three octets	Last octet	254

Any value between 0 and 255 is valid as a host ID octet except for those values the InterNIC reserves for other purposes.

Value	Purpose
0, 255	Subnet masking
127	Loopback testing and interprocess communication on local devices
224-254	IGMP multicast and other special protocols

Subnetting and Subnet Masks

Subnetting divides a network address into sub-network addresses to accommodate more than one physical network on a logical network.

For example: A Class B company has 100 LANs (Local Area Networks) with 100 to 200 nodes on each LAN. To classify the nodes by its LANs on one main network, this company segments the network address into 100 sub-network addresses. If the Class B network address is 150.1.x.x, the address can be segmented further from 150.1.1.x through 150.1.100.x.

A subnet mask is a 32-bit value that distinguishes the network ID from the host ID for different sub-networks on the same logical network. Like IP addresses, subnet masks consist of four octets in dotted decimal notation. You can use subnet masks to route and filter the transmission of IP packets among your sub-networks. The value "255" is assigned to octets that belong to the network ID, and the value "0" is assigned to octets that belong to the host ID.

For the example above, if you want all the devices on the sub-networks to receive each other's IP packets, set the subnet mask to 255.255.0.0. If you want the devices on a single sub-network only to receive IP packets from other devices on its own sub-network, set the subnet mask to 255.255.255.0 for the devices on that sub-network.

Subnet Mask	Routing and Filtering
0.0.0.0	IP packets are transmitted to all devices.
255.0.0.0	IP packets are only transmitted to devices that are IP that's first octet matches the sender's IP address's first octet.
255.255.0.0	IP packets are only transmitted to devices that are IP that's first two octets match the sender's IP address's first two octets.
255.255.255.0	IP packets are only transmitted to devices that are IP that's first three octets match the sender's IP address's first three octets.

Glossary

The Glossary section defines the terms used in the Computer Interface Card (CIC) -MP environment.

Agent	Implemented SNMP applications in network elements (hosts). Agents perform the network management's functions as requested by the network administrator from an NMS.
Dry Closure Input	Non-powered contact type inputs—switch, relay contact, open-collector.
Dry Closure Output	Form C dry-contact outputs, which are common, normally open, or normally closed.
Ethernet	Local Area Network technology, originally developed by the Xerox Corporation, can link up to 1,024 nodes in a bus network. Ethernet provides raw data transfer in a rate of 10 megabits/sec. with actual throughputs in 2 to 3 megabits/sec. using a baseband (single-channel) communication technique. Ethernet uses carrier sense multiple access collision detection (CSMA/CD) that prevents network failures when two devices attempt to access the network at the same time. LAN hardware manufactures use Ethernet protocol; their products may not be compatible.
Gateway	A computer that attaches to a number of networks and routes packets between them. The packets can be different protocols at the higher levels.
IP	<i>Internet Protocol</i> —The TCP/IP standard protocol defines the IP datagram as the unit of information passed across a network.
IP Address	<i>Internet Protocol Address</i> —A 32-bit address assigned to hosts participating in a TCP/IP network. The IP address consists of network and host portions. It is assigned to an interconnection of a host to a physical network.
MAC	<i>Medium Access Control</i> —The network layer between the physical and the data link layers. Specifically, the physical (hardware) address exists in this layer.
MIB	<i>Management Information Base</i> —The database, i.e., set of variables maintained by a gateway running SNMP.
NC	<i>Normally Closed</i> —Refers to a contact switch that is normally closed.
NIC	<i>Network Interface Controller</i> —The hardware interface to the physical connection to the network.
NMS	<i>Network Management Station</i>
NO	<i>Normally Open</i> —Refers to a contact switch that is normally open.
OID	<i>Object Identifier</i> —The variables defined in a MIB.
Personality	The current device specific software uploaded to the Computer Interface Card (CIC).
Router	A computer that manages traffic between different network segments or different network topologies. It directs the destination IP address. The network media can be different, but the higher-level protocols must be the same.
RS-232	A specification for serial communication between data communication equipment and computers.
SNMP	<i>Simple Network Management Protocol</i> —A standard protocol used to monitor IP hosts, networks, and gateways. SNMP defines a set of simple operations that can be performed on the OIDs of the MIBs managed by the monitored Agents. It employs the UDP/IP transport layer to move its object between the Agents and the NMS.
Sub-Agent	A software module that manages specific MIB sub-groups for an Agent. They communicate with the Agent using a SMUX (multiplexer).
TCP/IP	<i>Transmission Control Protocol/Internet Protocol</i> —A protocol suite used by more than 15 million users with a UNIX association and widely used to link computers of different kinds.
TES	<i>Terminal Emulation Software</i> —Communications program to transform a personal computer into a terminal for the purpose of data communications.
TFTP Server	<i>Trivial File Transfer Protocol Server</i> —A host to provide services according to TFTP; a TCP/IP standard protocol for file transfer with minimal capability and overhead depending on UDP for its datagram delivery service.
UDP/IP	<i>User Datagram Protocol/Internet Protocol</i> —A TCP/IP standard protocol. It enables transfer of information between applications running on different host. It is referred to as an unreliable, connectionless datagram delivery service.
UPS	<i>Uninterruptible Power Supply</i> —A device that supplies power to your system with rechargeable batteries if there is an AC power failure.

Obtaining Technical Assistance

1. Use the **TROUBLESHOOTING** section to eliminate obvious causes.
2. Verify there are no circuit breakers tripped. A tripped circuit breaker is the most common problem.
3. Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem call or fax MINUTEMAN Technical Support at the following numbers; Voice phone (972) 446-7363, FAX line (972) 446-9011 or visit our Web site at www.minutemanups.com the "Discussion Board". Please have the following information available BEFORE calling the Technical Support Department.
 - A. Your Name and address.
 - B. Where and when the unit was purchased.
 - C. All of the model information of the RPM.
 - D. Any information on the failure, including LEDs that may or may not be illuminated.
 - E. A description of the protected equipment, including model numbers if possible.
 - F. A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization Number (RMA #).
 - G. If the RPM is under warranty, the repairs will be done at no charge. If not, there will be a charge for repair.
4. Pack the RPM in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a new set. It is important to pack the RPM properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.
 - A. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
5. Mark the RMA # on the outside of all packages. The factory cannot accept any package without the RMA # marked on the outside.
6. Return the UPS by insured, prepaid carrier to:

Para Systems Inc.
MINUTEMAN
1455 LeMay Drive
Carrollton, TX. 75007
ATTN: RMA # _____

LIMITED PRODUCT WARRANTY

Para Systems Inc. (Para Systems) warrants this equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of three years from the date of original purchase by the end user. For equipment sites within the United States and Canada, this warranty covers repair or replacement of defective equipment at the discretion of Para Systems. Repair will be from the nearest authorized service center. Replacement parts and warranty labor will be borne by Para Systems. For equipment located outside of the United States and Canada, Para Systems only covers faulty parts. Para Systems products repaired or replaced pursuant to this warranty shall be warranted for the remaining portion of the warranty that applies to the original product. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

The warranty shall be void if (a) the equipment is damaged by the customer, is improperly used, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; (b) the equipment is repaired or modified by anyone other than Para Systems or Para Systems-approved personnel; or (c) has been used in a manner contrary to the product's operating manual or other written instructions.

Any technical advice furnished before or after delivery in regard to use or application of Para Systems's equipment is furnished without charge and on the basis that it represents Para Systems's best judgment under the circumstances, but it is used at the recipient's sole risk.

EXCEPT AS PROVIDED HEREIN, PARA SYSTEMS MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation of implied warranties; therefore, the aforesaid limitation(s) may not apply to the purchaser.

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Longer term and F.O.B. job site warranties are available at extra cost. Contact Para Systems (1-972-446-7363) for details.