



Computer Interface Card (CIC)
(Web-based monitoring SNMP card)
SNMP-C04

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.

This digital apparatus does not exceed the "Class A" limits for radio noise emissions from digital apparatus set out in the Radio interference regulations of the Canadian Department of Communications.

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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*

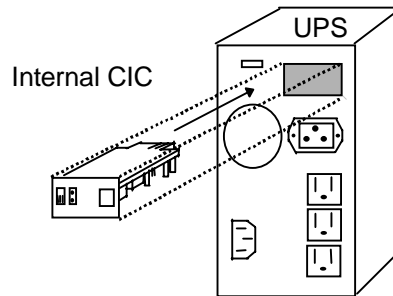
Italic print words or letters in brackets < > indicate keys to press. If two keys are separated by a + plus symbol, then the first key should be pressed and held down while pressing the second key. For example: *<alt+enter>*.

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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A UPS can be configured with an internal Computer Interface Card (CIC); this CIC is then connected to the network. The CIC contains a MIB agent. The agent communicates both solicited and unsolicited messages to the Network Management Station (NMS). Unsolicited messages are defined by the MIB and are built into the agent for critical items such as AC power failure and low battery detection. The agent recognizes these critical events and immediately forwards them to the Network Management Station. The network manager will immediately notice the alarm and the flashing icon of the CIC. By clicking on the icon, you will be able to see the alarm messages. If nobody is present, the Network Management Station will shutdown the programs, the OS server and eventually the UPS safely. Your Computer Interface Card (CIC) monitors one UPS using a Network Management Station. The complete SNMP-C05 package includes: Hardware, software, a UPS Management Information Base (MIB) and a User's Manual.



Computer Interface Card (CIC) Features

The Computer Interface Card (CIC) connects directly to your UPS. It runs an embedded Simple Network Management Protocol (SNMP) software agent. This agent responds to SNMP GETS and SETS and also forwards traps to designated recipients when critical conditions occur within the UPS, such as the UPS going on battery backup mode during a power failure.

The Computer Interface Card (CIC) features:

- **Internet ready** — It supports both SNMP and HTTP protocols and user can use SNMP manager or Web browser to monitor the UPS through a network.
- **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.
- **Remote monitoring**—Monitors the status of one UPS from a remote workstation (Web browser or NMS).
- **Remote Control**—Turns the UPS off (or a battery test) when the NMS sends the proper command.
- **NMS To Receive UPS Alarms**—These traps (unsolicited messages) inform the user about the power condition of the connected UPS.
- **Works with all major NMS on Ethernet**—Computer Interface Card (CIC) works with the most widely used Network Management Systems: HP Open View, Sun NetManager, IBM NetView, and many more.
- **Remote Software upgrade support** - The Computer Interface Card (CIC) supports software upgrade through serial connection and TFTP server remotely.

Computer Interface Card (CIC) SNMP-C05 Package

The contents of your package are:

✓ Computer Interface Card (CIC)
✓ DB9 Female to Female Serial Cable
✓ 3.5" Floppy Diskette
✓ Two Retaining Screws

The 3.5" Floppy Diskette contains a UPS MIB file, TFTP Server files, and the User's Manual. Copy the MIB file to the appropriate NMS MIB directory for the UPS connected to your Computer Interface Card (CIC).



Figure 1- Computer Interface Card (CIC)

Figure 1 shows the CIC's Status LEDs, Serial port and Ethernet port.

Status LEDs – Three LED indicators: The first LED (red) indicates power. The second LED (green) indicates connections, and it flashes when receiving or sending data. The third LED (yellow) indicates collisions of network packets.

Serial port – The serial port on the front is designed for initial setup of the card. An RS232 serial cable is required for serial setup (provided).

Ethernet port—Computer Interface Card (CIC) provides an unshielded twisted pair or UTP (RJ-45) connector for 10/100Base-T networks. Once connected, it is possible to use the ARP command to set IP address through the network interface.

Installation

This section describes the installation of the Computer Interface Card (CIC) when you connect it to the UPS.

Internal CIC

1. Turn off all the equipment that is plugged into the UPS.
2. Turn off the UPS and unplug the UPS's power cord from the AC outlet.
3. Remove the two retaining screws from the option slot's cover plate (rear panel of the UPS).
4. Remove the option slot's cover plate (rear panel of the UPS).
5. Insert the CIC into the option slot.
6. Install the two retaining screws (provided with the CIC package).
7. Now the CIC is ready to be Setup (see the appropriate Setup Procedure).

This section will guide you through the Setup Procedures of the Computer Interface Card (CIC).

NOTE: The minimum requirement to operate the Computer Interface Card (CIC) is to setup the IP Address.

There are three different ways to setup the CIC.

1. Setup the IP Address via the Serial port using Hyper Terminal. **Requires Hyper Terminal version 3.0 or higher.**
2. 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.
3. 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.

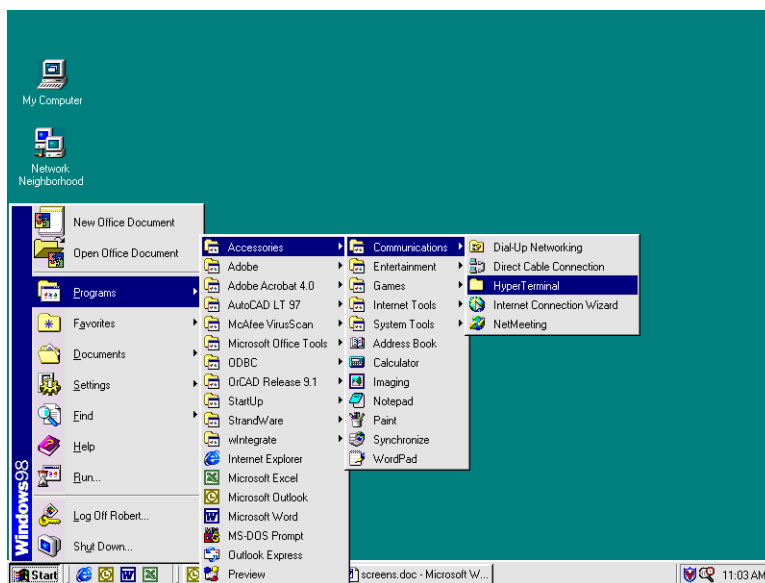
Setup via the Serial Port

NOTE: You must complete the Installation Procedure before proceeding with this Setup Procedure.

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

The following items must be obtained before attempting to setup the CIC: 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.

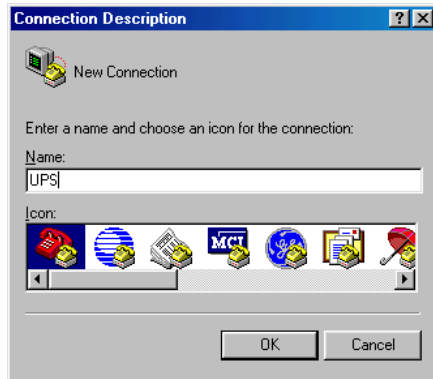
1. Connect one end of the DB9 female-to-female Cable to the Serial port on the computer.
2. Connect the other end of the DB9 female-to-female cable to the Serial port on the CIC.
3. Turn the computer on and let it boot-up.



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



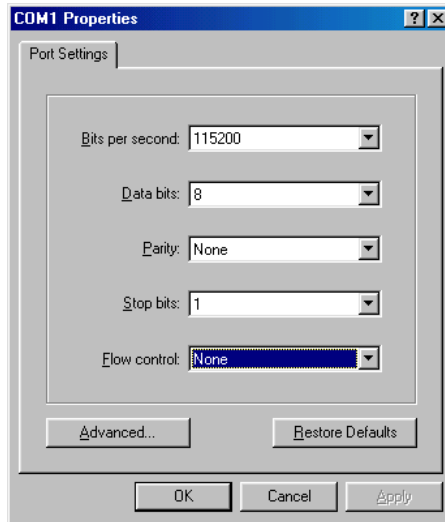
5. Open HYPERTERM.EXE.



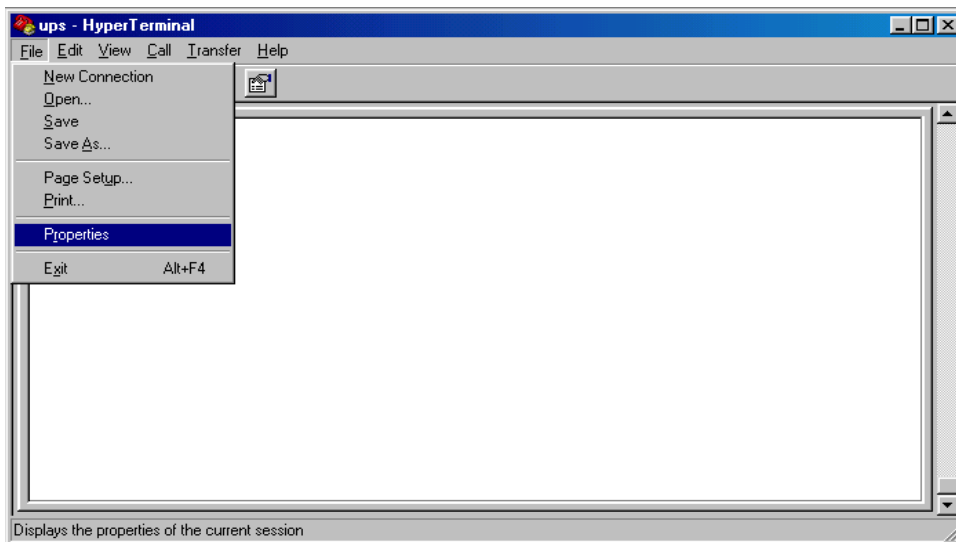
6. Enter a name (UPS). Click OK.



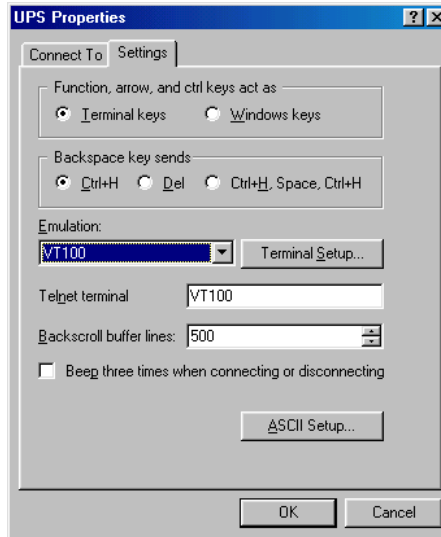
7. Connect using the appropriate Com port. Click OK



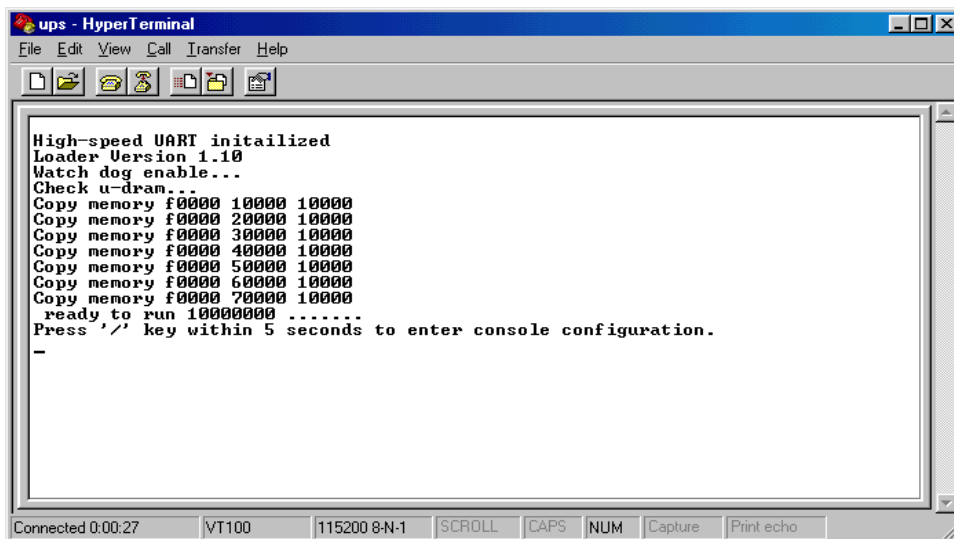
8. Configure the port settings. Bits per second: "115200", Data bits: "8", Parity: "None", Stop bits: "1", Flow control: "None". Click OK



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 UPS's power cord into the AC outlet and turn the UPS 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 CIC 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.

```

a - HyperTerminal
File Edit View Call Transfer Help
-----
SNMP Server Console 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 > Network <...more>

-----
CTRL-W Move Up, CTRL-Z Move Down, <Enter> Select, <Esc> Cancel  Mode : USER
-----
Connected 0:00:33  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo

```

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

```

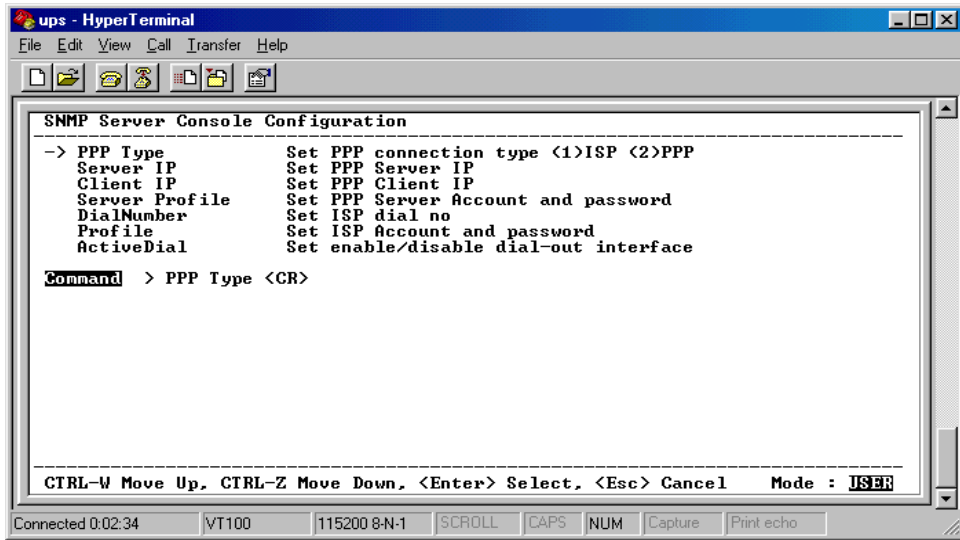
ups - HyperTerminal
File Edit View Call Transfer Help
-----
SNMP Server Console Configuration
-----
-> Boot Mode           Set Boot Mode <1>Fix <2>BOOTIP <3>DHCP
   IP                 Set IP address
   Gateway            Set gateway address
   NetMask            Set subnet mask
   DNS                Set domain name server
   Speed/Duplex       Set Speed/Duplex <1>Auto <2>10M <3>100M <4>Full <5>Half

Command > Boot Mode <CR>_

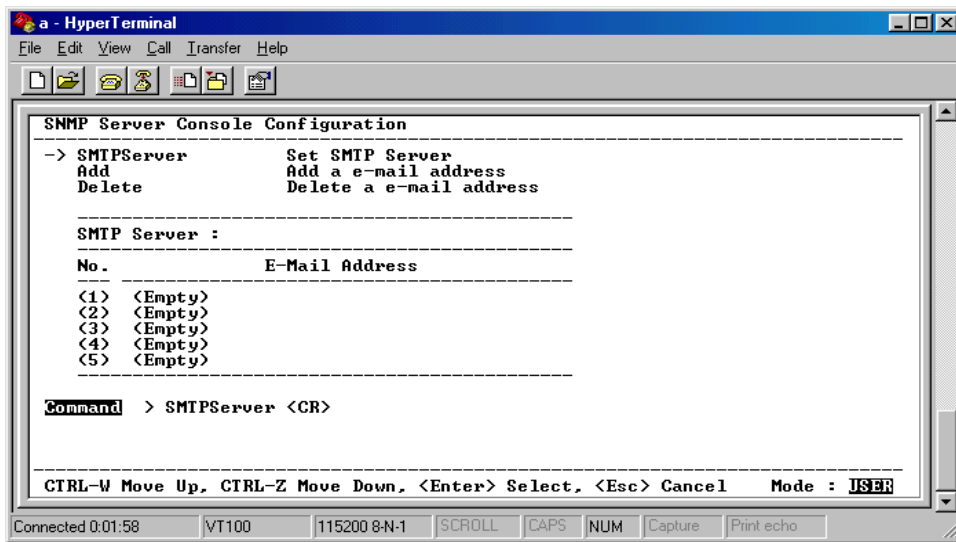
-----
CTRL-W Move Up, CTRL-Z Move Down, <Enter> Select, <Esc> Cancel  Mode : USER
-----
Connected 0:01:58  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo

```

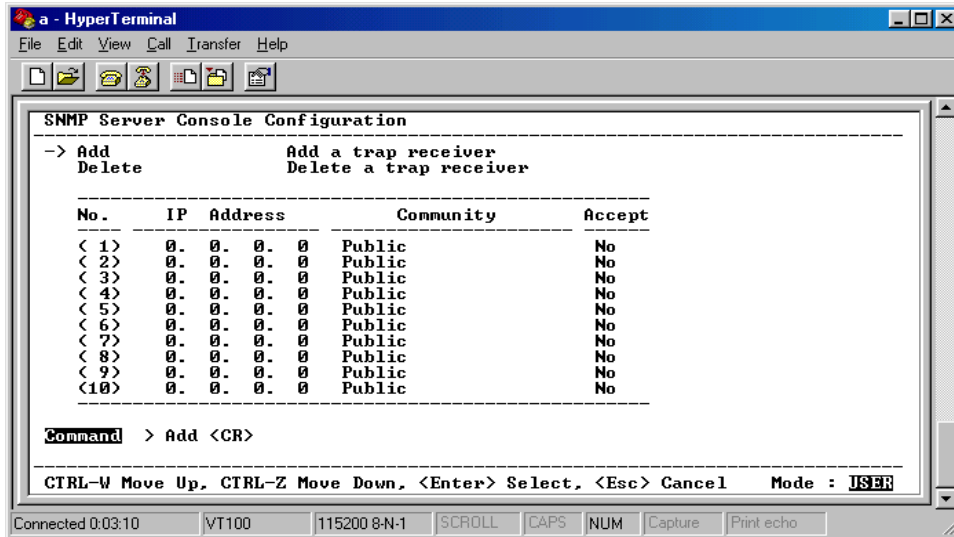
15. Pick IP, then hit enter. Enter in the IP Address (required), the Gateway Address, the Subnet Mask and the DNS. Hit the "Escape" key to return to the main menu.



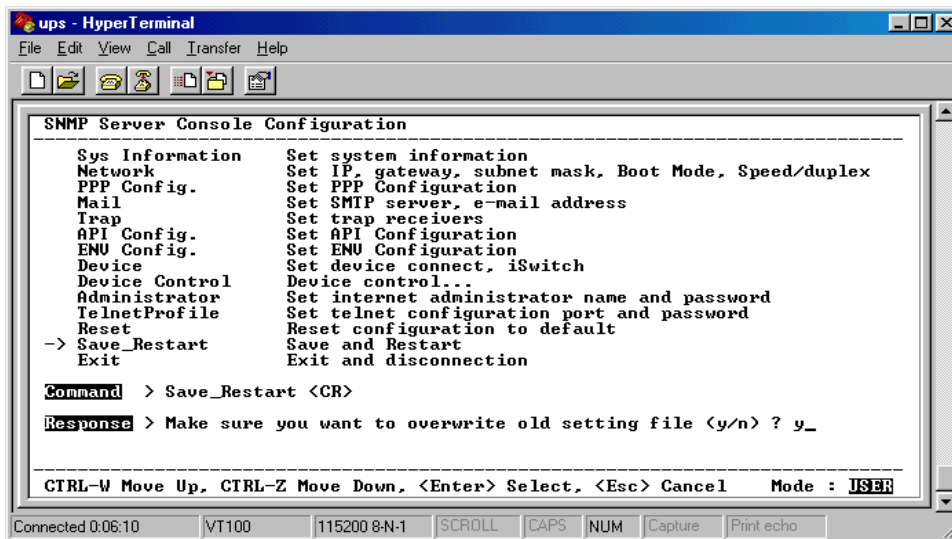
16. Enter in the PPP Type, Server IP, Client IP, Server Profile, Dial number, the ISP account/password and the enable/disable dial-out interface (not required). Hit the “Escape” key to return to the main menu.



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.

```

ups - HyperTerminal
File Edit View Call Transfer Help

SNMP Server Console Configuration
-----
Sys Information      Set system information
Network             Set IP, gateway, subnet mask, Boot Mode, Speed/duplex
PPP Config.         Set PPP Configuration
Mail                Set SMTP server, e-mail address
Trap                Set trap receivers
API Config.         Set API Configuration
ENU Config.         Set ENU 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) ? y

-----
CTRL-W Move Up, CTRL-Z Move Down, <Enter> Select, <Esc> Cancel   Mode : USER

Connected 0:07:31  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo

```

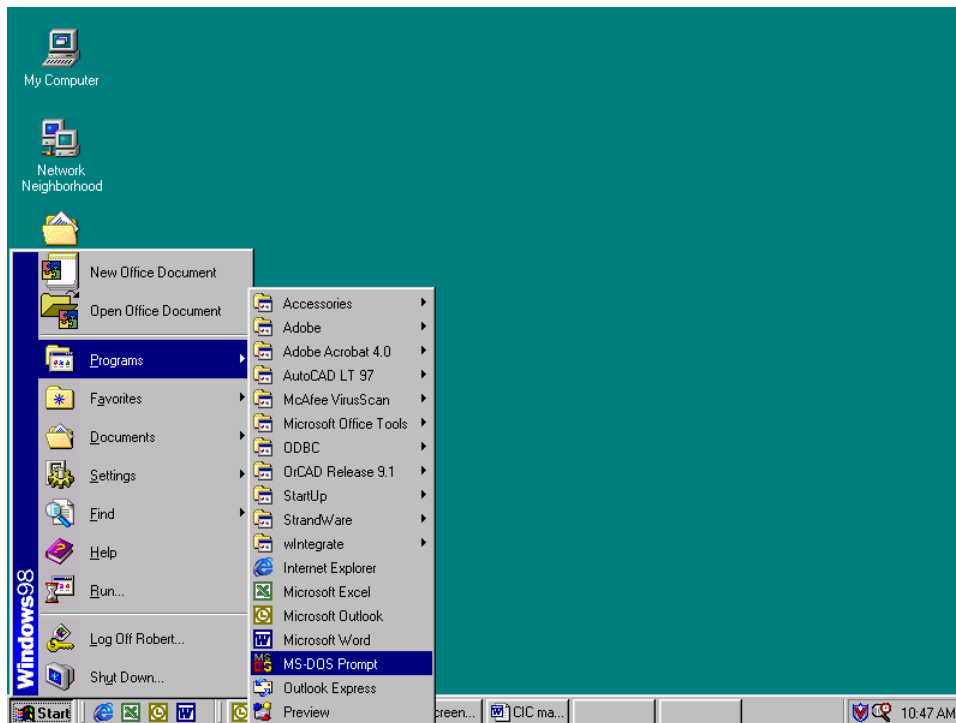
20. After rebooting the system, the new settings will be activated. Reboot (y/n)? Hit the “y” key then hit enter. Once the system has rebooted, cursor down to Exit then hit enter.
21. The Serial Setup Procedure is complete. The CIC is fully operational. Unplug the DB9 female-to-female Serial Cable from the CIC and from the computer. Plug the Ethernet Cable into the CIC and after about thirty seconds the Link LED will start blinking, now you can communicate with the CIC. 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

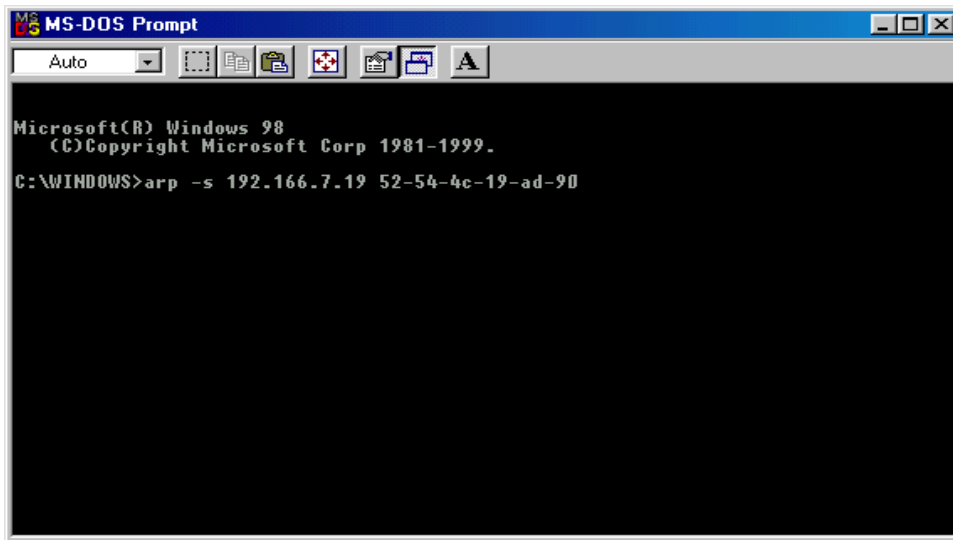
NOTE: You must complete the appropriate Installation Procedure before proceeding with this Setup Procedure.

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

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

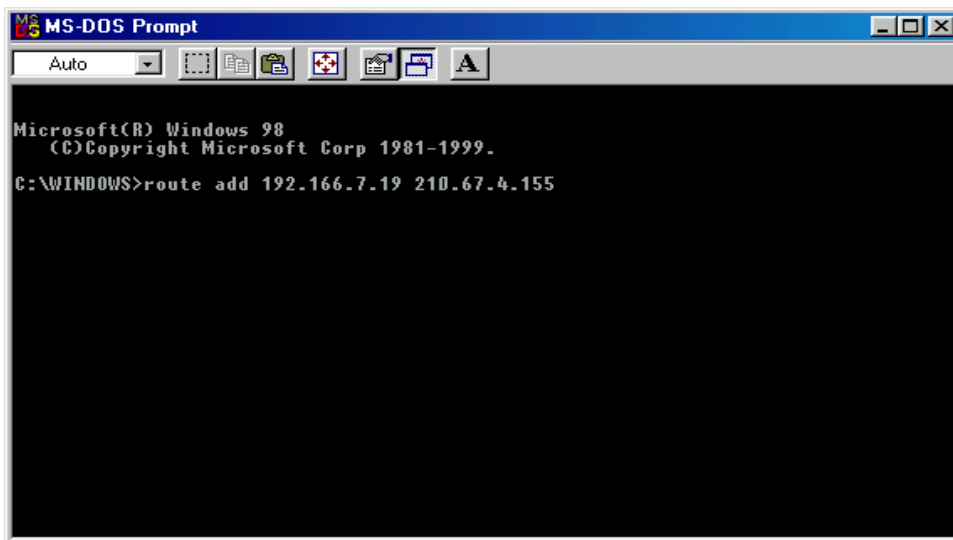


5. From the Desktop open the Start menu. Pick Programs and then open the MS-DOS Prompt.



```
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 CIC).



```
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.

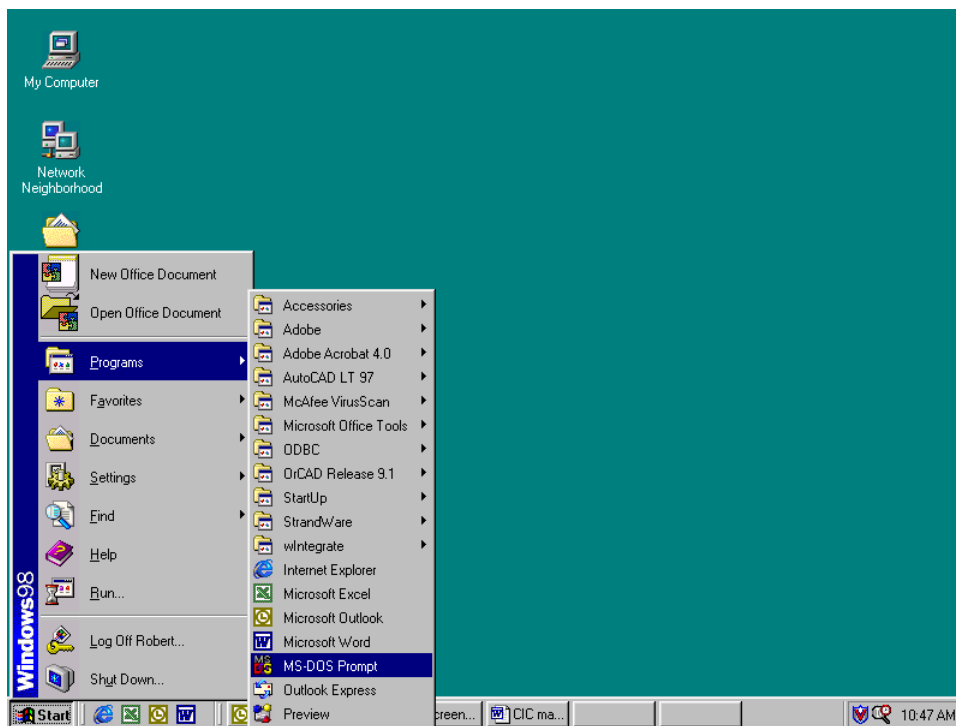
Telnet Configuration

This section will guide you through finishing the configuration of the Computer Interface Card (CIC) using Telnet.

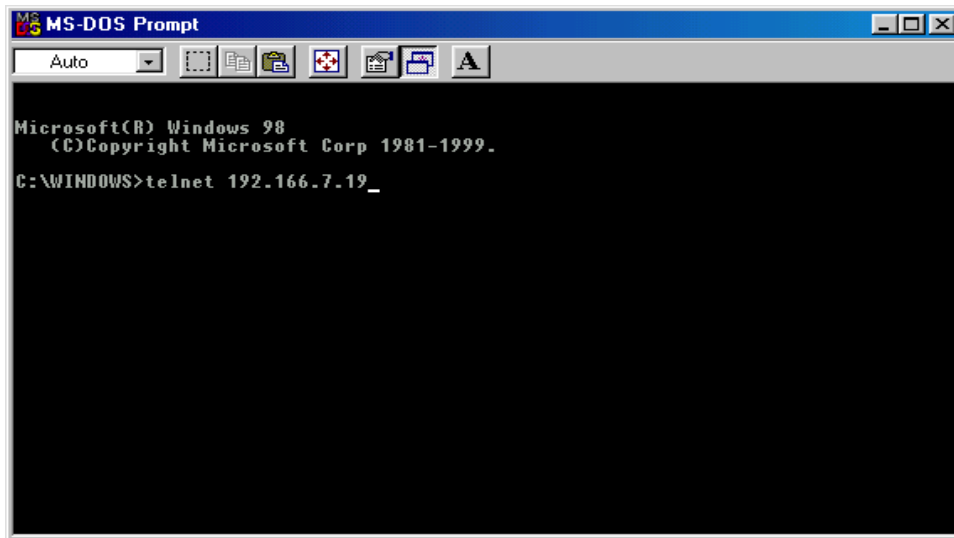
NOTE: You must complete the appropriate Installation Procedure before proceeding with the Telnet Configuration.

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

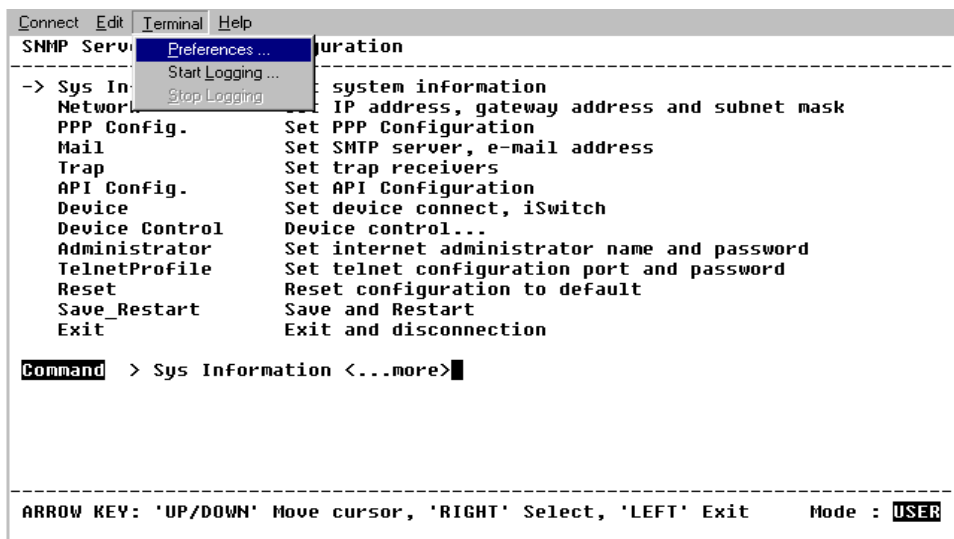
The Ethernet cable is connected to the CIC and the UPS is on.



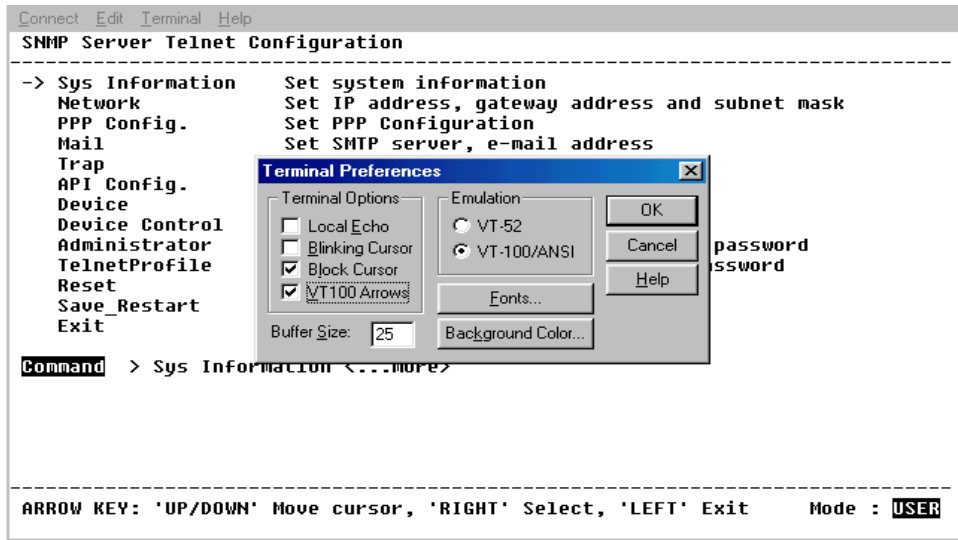
1. From the Desktop open the Start menu. Pick Programs and then open the MS-DOS Prompt.



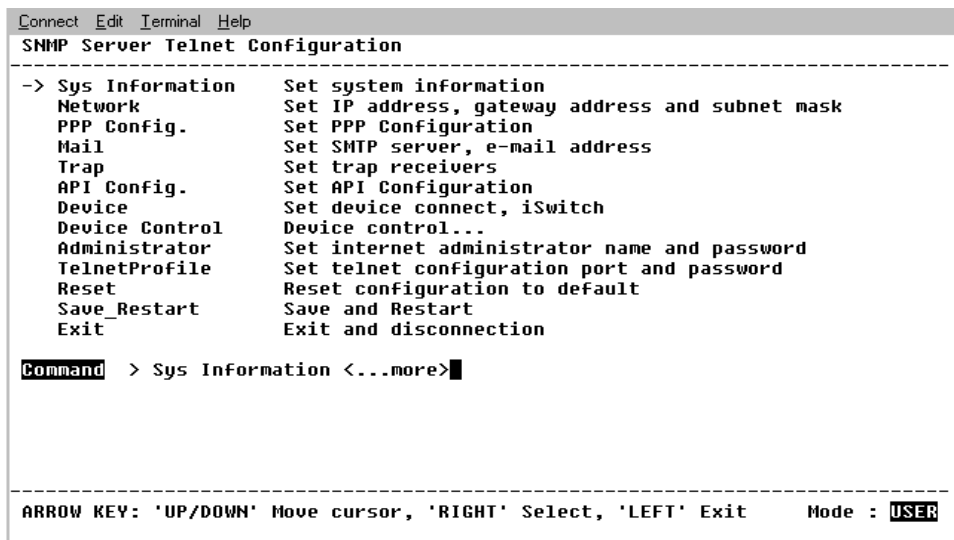
2. This is an example. At the MS-DOS Prompt type telnet 192.166.7.19 (IP Address). Then hit enter.
3. Next you will be asked for the User Password. The default password is **admin**. Enter the password, then hit enter.



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 Network, 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
```

7. 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
```

8. 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

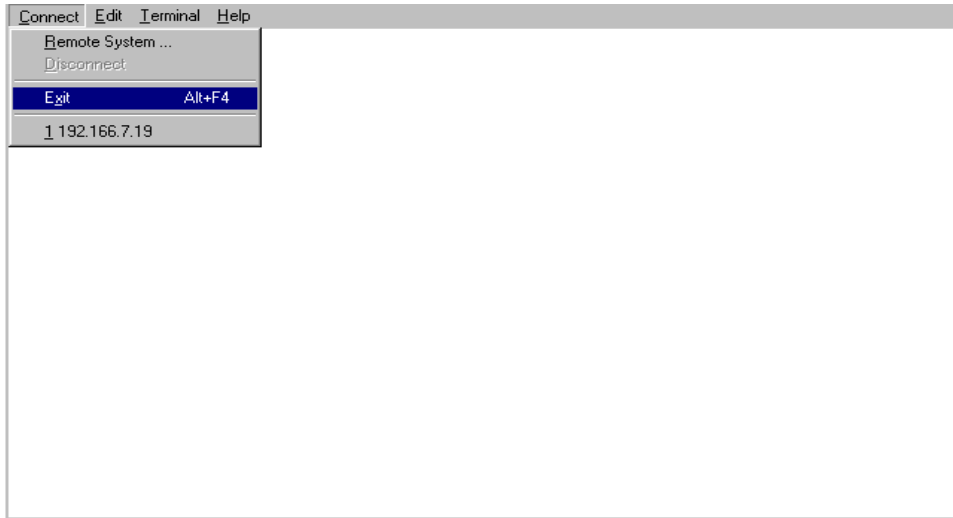
Command > Save_Restart <CR>

Message > Reboot system.....

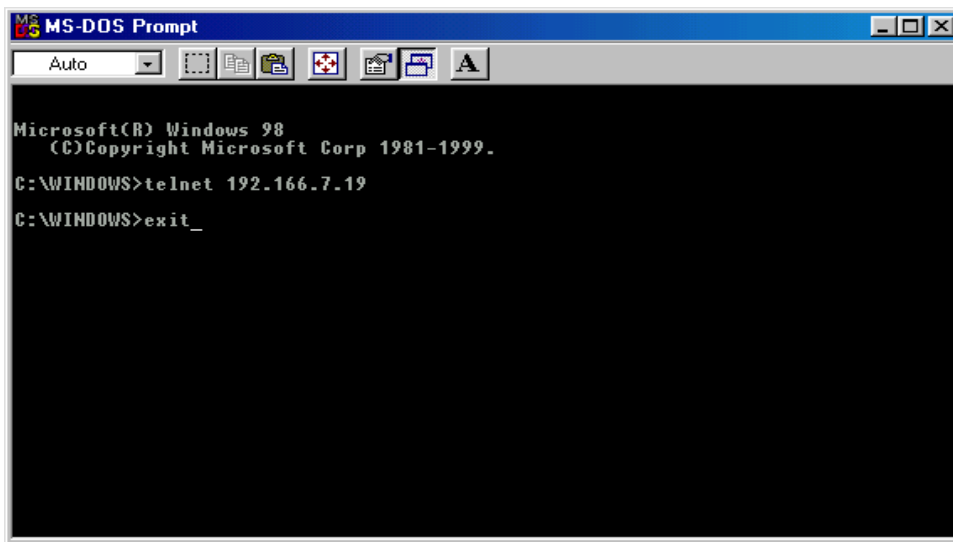
-----
ARROW KEY: 'UP/DOWN' Move cursor, 'RIGHT' Select, 'LEFT' Exit      Mode : USER

```

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



11. On the Toolbar pick Connect, then arrow down to exit and hit enter.



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

13. The Telnet Configuration is complete. The CIC is fully operational. After about thirty seconds the Link LED will start blinking, now you can communicate with the CIC. 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 Computer Interface Card (CIC).

NOTE: You must complete the appropriate Installation and Setup Procedures before proceeding with the Web-Based-Configuration.

The Ethernet cable is connected to the CIC and the UPS is on.

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

The screenshot displays the 'Minuteman MCP 2000' web-based configuration interface. On the left is a navigation menu under 'POWER DEVICE MANAGEMENT' with sections for 'Server', 'Client', and 'UPS'. The 'Server' section includes links for 'Svs. Information', 'Network', 'PPP Configuration', 'Date', 'Administrator', 'Software Upgrade', 'Save & Restart', and 'Logout'. The 'Client' section has a dropdown menu for 'UPS'. The 'UPS' section includes links for 'Meter', 'Identification', 'Configuration', 'Input', 'Output', 'Battery', 'Alarm', and 'Control'. The main content area is titled 'System Information' and contains five input fields: 'System Name', 'System Contact', 'System Location', 'System Description', and 'DHCP Name' (with the value '0006180005D8'). A 'Save' button is located below the fields, and a 'Back' button is at the bottom of the main area.

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 CIC. An external modem is needed to connect to the front serial port of the CIC.

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 CIC 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 CIC 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 CIC will have to be Flash Upgraded before the user can access the CIC.

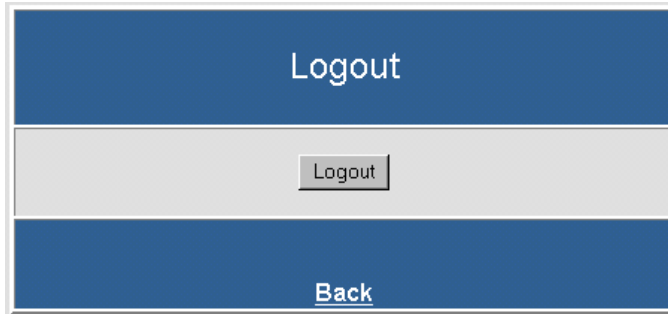
Software Upgrade	
Current Version	2002MC ver1.0
Device Connect Speed	9600
TFTP Server IP address	<input type="text"/>
File Name	<input type="text" value="device.bin"/>
Do you want to continue with the software upgrade...	
<input type="button" value="YES"/>	
Back	

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

NOTE: Make sure that the firmware file (for example: device.bin) is located in the default directory of the TFTP server.

Save & Restart	
<input type="button" value="Save"/>	<input type="button" value="Save and Restart"/>
Back	

10. When the configuration of the CIC is complete be sure to **Save and Restart** before exiting the program.



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

Meter	
Input Voltage (V)	116.8
Output Voltage (V)	119.8
Estimated Charge (%)	98
Input Frequency (Hz)	60.0
Output Frequency (Hz)	59.9
Output Source	Normal
Output Load (%)	50
Output Power (W)	714
Back	

12. This screen informs the user the status of the UPS.

Identification	
Manufacturer	Minuteman
Model	MCP 2000
Software Version	2.03
Identification	Default id
Back Home	

13. This screen identifies the UPS and the Software version of the UPS.

Configuration	
Nominal Input Voltage (V)	110
Nominal Input Frequency (Hz)	60.0
Nominal Output Voltage (V)	120
Nominal Output Frequency (Hz)	60.0
Nominal Volt-Amp Rating	2000
Nominal Output Power (W)	1400
Nominal Low Battery Time (Min)	7
Audible Alarm	Enabled
Low Voltage Transfer Point	80
Battery Installed Date (MM/DD/YYYY)	04/10/2002
Nominal Battery Life (Day)	1825
Shutdown Type	UPS output only
Auto Restart	Automatic Restart

Logging Configuration	
<input checked="" type="checkbox"/> Data Logging Enable	Select Data
Logging Interval	<input type="text" value="1"/> Minutes
<input type="button" value="OK"/>	

Set UPS Meter Refresh Interval	
Refresh Interval	<input type="text" value="15"/> seconds
<input type="button" value="OK"/>	

Back Home

14. This is the screen where you can configure the Data Logging intervals and the refresh rate of the Meter screen. After you have finished filling in the information, click OK.

Input	
Input Line Bads	1
Input Num Lines	1
Input Frequency (Hz)	59.9
Input Voltage (V)	116.6
Back Home	

15. This screen displays the status of the input power to the UPS.

Output	
Output Source	Normal
Output Frequency (Hz)	59.9
Output Num Lines	1
Output Voltage (V)	119.8
Output Current (A)	6.0
Output Power (W)	714
Output Load (%)	50

16. This screen displays the status of the output power of the UPS.

Battery	
Battery Condition	Good
Battery Status	OK
Battery Charge	Floating
Seconds on Battery (Seconds)	0
Estimated Charge (%)	94
Battery Voltage (V)	82.4

17. This screen displays the status of the Batteries in the UPS.

Alarm	
Alarm Input Bad	Normal
Alarm Overload	Not Overloaded
Alarm Output Off	Output ON
Alarm Charger Failure	Normal
Alarm General Fault	Normal
Alarm Shutdown Pending	No Shutdown Pending
Test Results Summary	Test Passed

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18. This screen displays the Alarm state of the UPS.

UPS Control

Enable/Disable Auto Restart ▲
 Startup After Delay
 Shutdown After Delay
 Cancel Shutdown
 Reboot With Duration ▼

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19. This screen allows the User to Control the shutdown and restarting of the UPS. The UPS Control screen, list the commands that can be executed manually. Then click OK.

Set General Schedule

Day	Action	Shutdown Time (HH:MM)	Restart Time (HH:MM)
MON	Disable	00:00	00:00
TUE	Disable	00:00	00:00
WED	Disable	00:00	00:00
THU	Disable	00:00	00:00
FRI	Disable	00:00	00:00
SAT	Disable	00:00	00:00
SUN	Disable	00:00	00:00

OK

Back Home

20. This screen allows the User to schedule daily shutdowns and restarts of the UPS. Then click OK. The Computer Interface Card (CIC) will NOT issue the shutdown command to the connected UPS during AC Fail, UPS Battery Low, and UPS Fault conditions. It only notifies users or system administrator of the event. Network node management software like HP OpenView will need to be customized with certain thresholds whether or not to shutdown the Operating System.

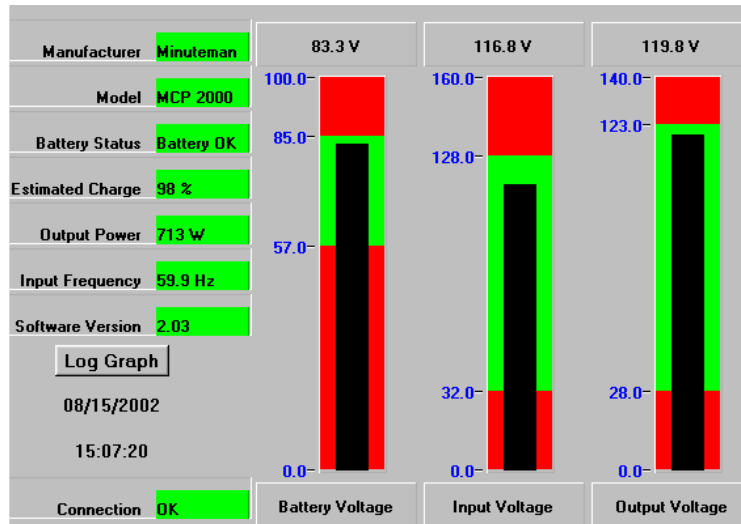
Set Specific Schedule

NO.	Action	DATE (MM/DD/YYYY)	Shutdown Time (HH:MM)	Restart Time (HH:MM)
1	Disable	09/01/1998	00:00	00:00
2	Disable	09/01/1998	00:00	00:00
3	Disable	09/01/1998	00:00	00:00
4	Disable	09/01/1998	00:00	00:00
5	Disable	09/01/1998	00:00	00:00
6	Disable	09/01/1998	00:00	00:00
7	Disable	09/01/1998	00:00	00:00

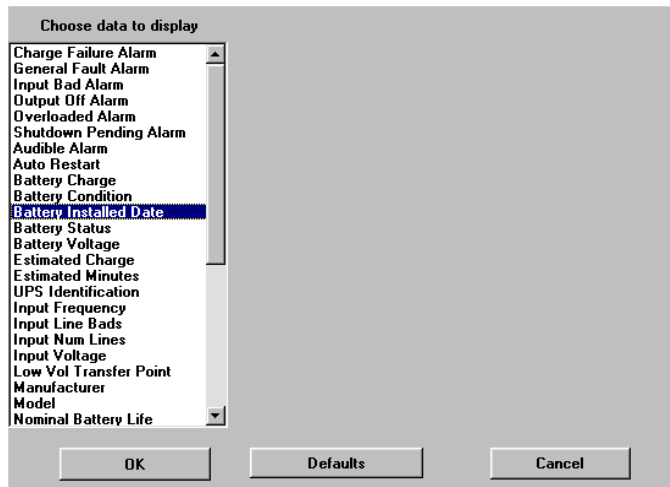
OK

Back Home

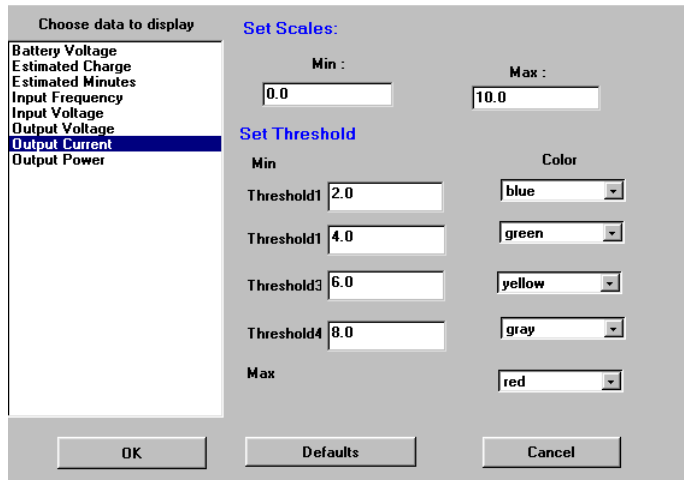
21. This screen allows the User to schedule daily, weekly, monthly and yearly shutdowns/restarts of the UPS. Then click OK. The Computer Interface Card (CIC) will NOT issue the shutdown command to the connected UPS during AC Fail, UPS Battery Low, and UPS Fault conditions. It only notifies users or system administrator of the event. Network node management software like HP OpenView will need to be customized with certain thresholds whether or not to shutdown the Operating System.



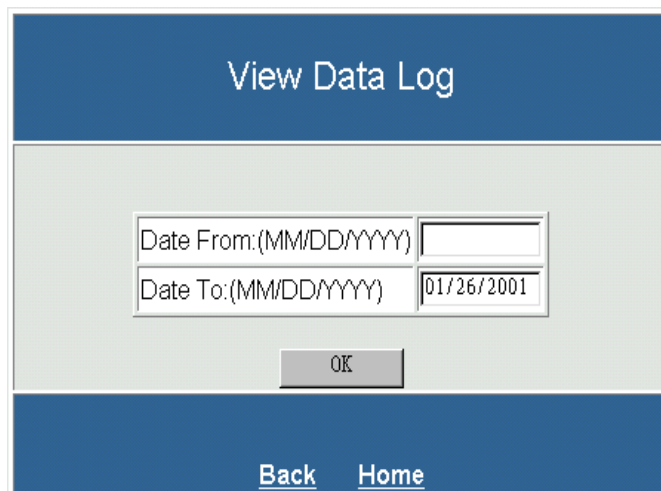
22. This is the View Graphic screen. This screen provides the user with a wide variety of information about the status of the UPS. The user can choose the data that they want displayed.



23. On the left hand side of the View Graphic screen, there are seven fields with data displayed. The user can change any one of these fields, to display the data that they choose, by clicking on one of the fields. Then this screen will appear. Once the selection has been made, click OK.



24. On the right hand side of the View Graphic screen, there are three bar graphs. The user can change any one of the Bar graphs, to display the data that they choose, by click on one of the bar graphs. Then this screen will appear. The user can pick any one of these topics from this screen to be displayed. Once the selection has been made, click OK.



25. This is the View Data Log screen. The user inputs a start date and an end date to view data in the Data log. Then click OK.

NOTE: The user has to enable the Data log in the Configuration screen (see page 28).

26. This is the View Event Log screen. The user inputs a start date and an end date to view an event in the Event log. Then click OK.

NOTE: The user has to enable the Event log in the Event Action screen.

27. This is the Event Action screen. The user chooses an event from the Event List. Then the user chooses one of the five ways to configure the event (ISWITCH is used in conjunction with the RPM/UPS Interface Card).

Pager	
Event:	Alarm On Battery
<input checked="" 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	

28. This is the Pager Configuration screen. Connect an external modem to the RS232 port of the CIC. When the chosen Event happens, the CIC 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 CIC 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 CIC 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 On Battery
<input checked="" type="checkbox"/> Broadcast Enable	
<input checked="" type="checkbox"/> Broadcast Shutdown Message	
<input type="button" value="OK"/>	
Back Home	

29. This is the Broadcast Configuration screen. When the chosen Event happens, the CIC 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 CD 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

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30. This is the Event Logging Configuration screen. When the chosen Event happens, the CIC will log the event in the Event Log (see View Event Log pg.34).

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"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text" value="public"/>

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31. This is the Trap Configuration screen. This screen allows the user to send SNMP Traps about the UPS 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.

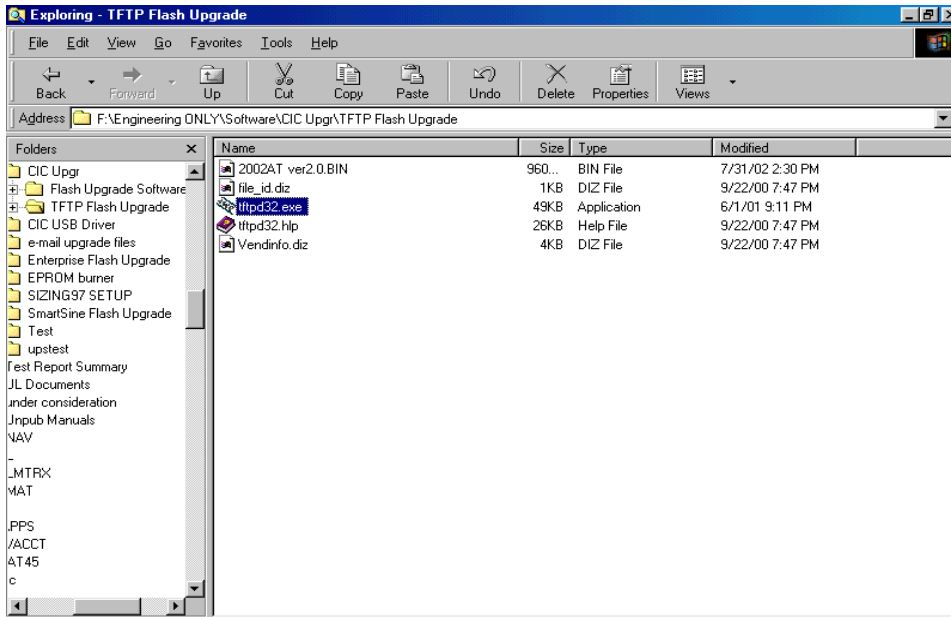
Mail	
Event :	Alarm On Battery
<input checked="" type="checkbox"/> Mail Enable	
Mail Configuration	
DNS Server	<input type="text"/>
SMTP Server	<input type="text"/>
Returned Address	<input type="text"/>
Message Subject	Alarm Event
Email Address	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
OK	
Back	

32. This is the Email Configuration screen. This screen allows the user to send emails about the UPS to five different email addresses. Once all of the information is filled in, click OK. Be sure to **Save and Restart** before exiting the program.
NOTE: The user must check the Mail Enable box.
33. The Web-Based Configuration is complete. The CIC is fully operational. To completely finish the Setup and Configuration procedures the User must configure the NMS (see Configuring the NMS). Be sure to **Save and Restart** before exiting the program.

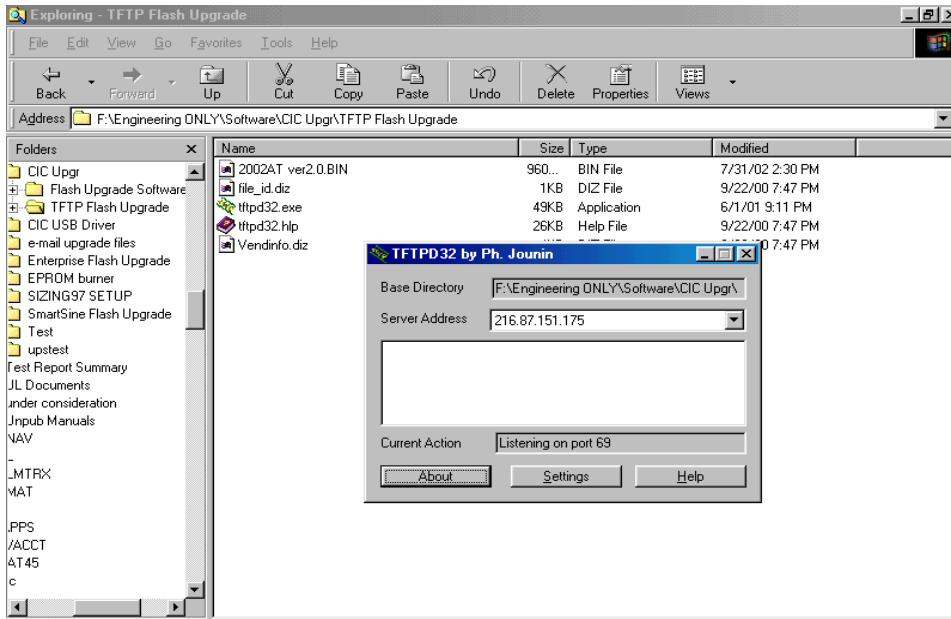
Software Upgrade Procedures

Software Upgrade via TFTP

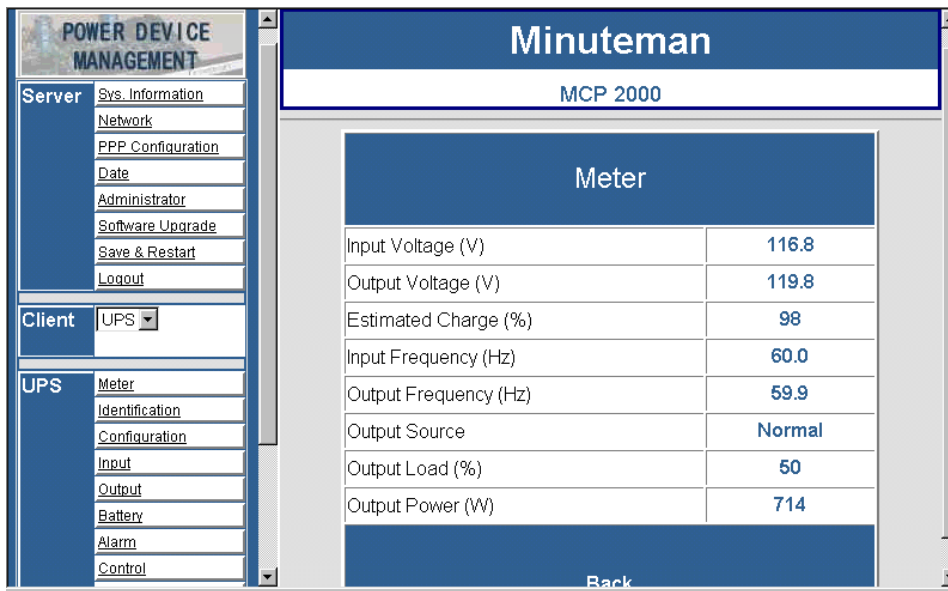
The user can remotely and conveniently, Flash Upgrade the CIC card's Software via a TFTP Server. The following procedure will step the user through setting up the TFTP Server at the user's location and Flash upgrading the Software for the CIC.



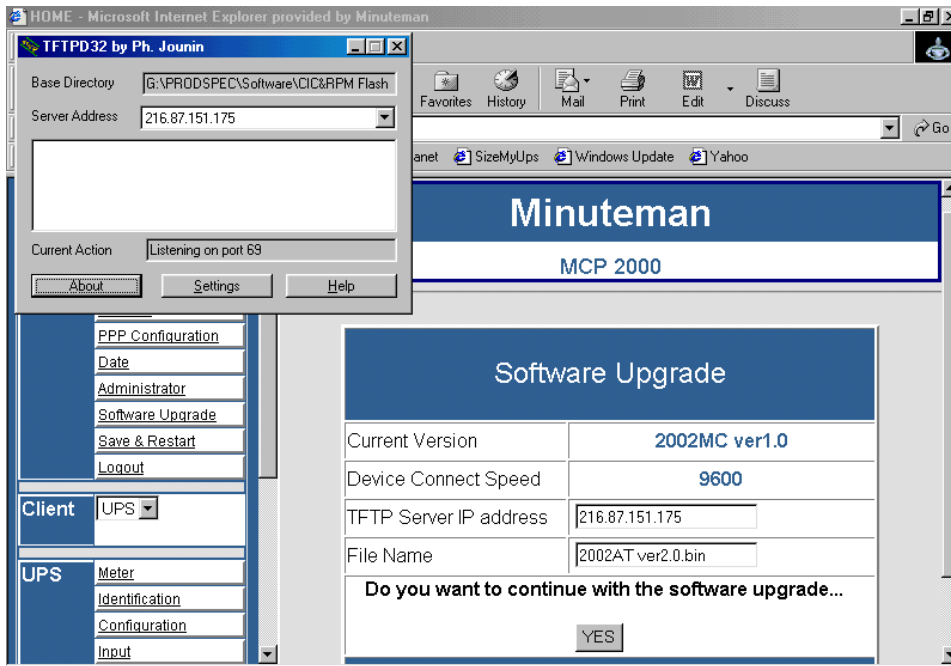
1. Create a folder (TFTP Software Upgrade). Copy the following files to the folder: 2002AT ver2.0.BIN (example), file_id.diz, tftp32.exe, tftp32.hlp, and Vendinfo.diz. The first file **.BIN** is the actual Software upgrade file, which is available for downloading from our web site. The last four files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



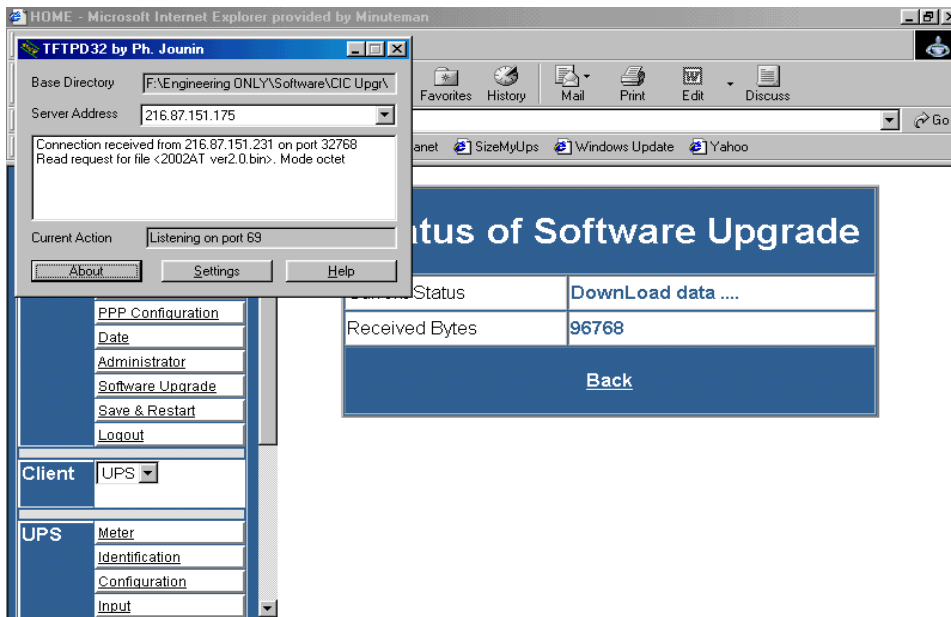
- Open the tftp32.exe file. The above screen will open. This is the TFTP Server's IP address.
NOTE: DO NOT close the tftp32.exe program until the Software Flash Upgrade is complete.



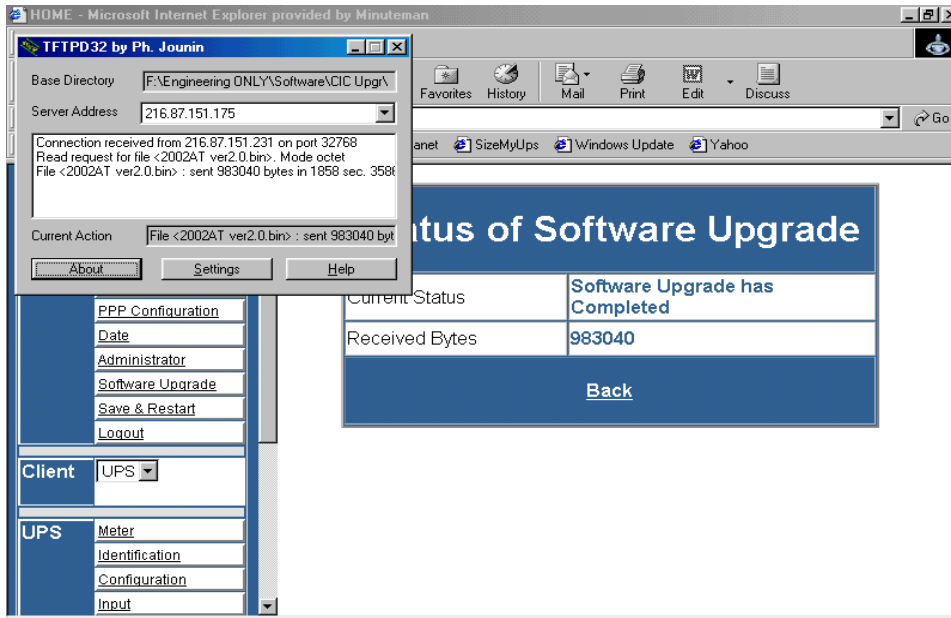
- Open a Web browser and input the IP address of the CIC that is going to be Flash Upgraded. Once the Web page is open, select "**Software Upgrade**".



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 CIC to the new version of Software. The Software Upgrade takes approximately thirty-five minutes to complete.



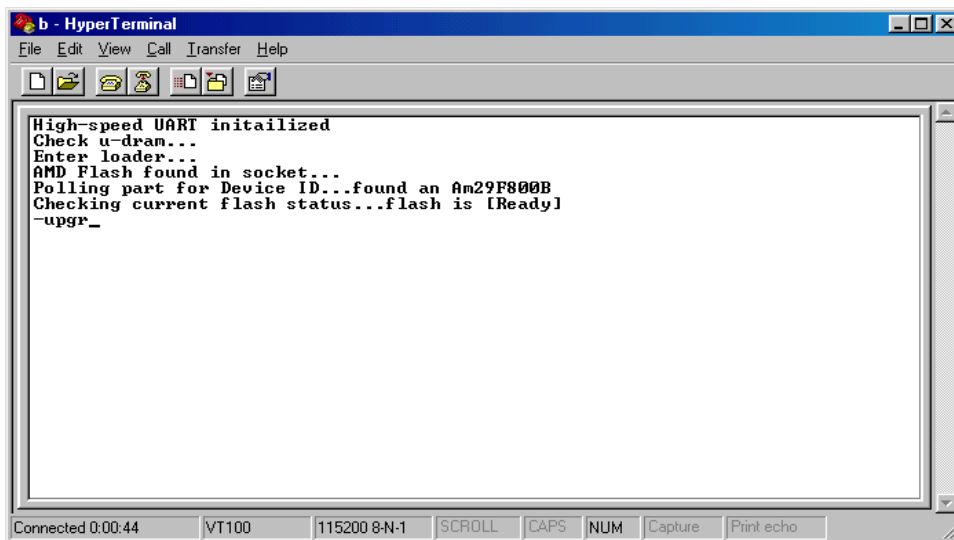
6. The transferring of the Software Upgrade file is complete. Close the tftp32.exe program. Open **“Save & Restart”**. The **“Save & Restart”** function must be performed to save all of the changes. The CIC is ready for normal operation.

Software Upgrade via Serial Port:

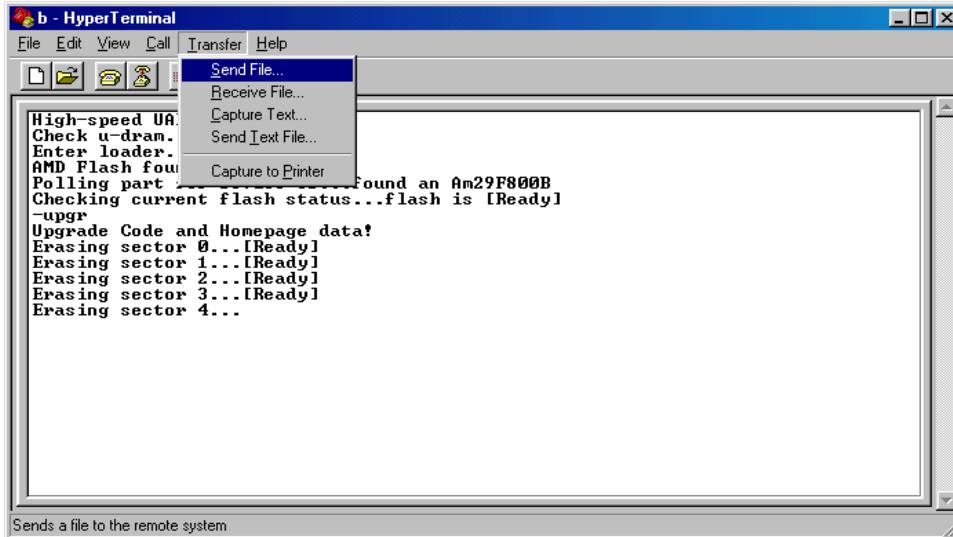
The following items must be obtained before attempting to upgrade the CIC: The Software upgrade file (contact Minuteman Tech Support), a DB9 female-to-female Serial Cable (provided). There are a wide variety of Terminal Emulation packages, but for the most part they should be very similar. The following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

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

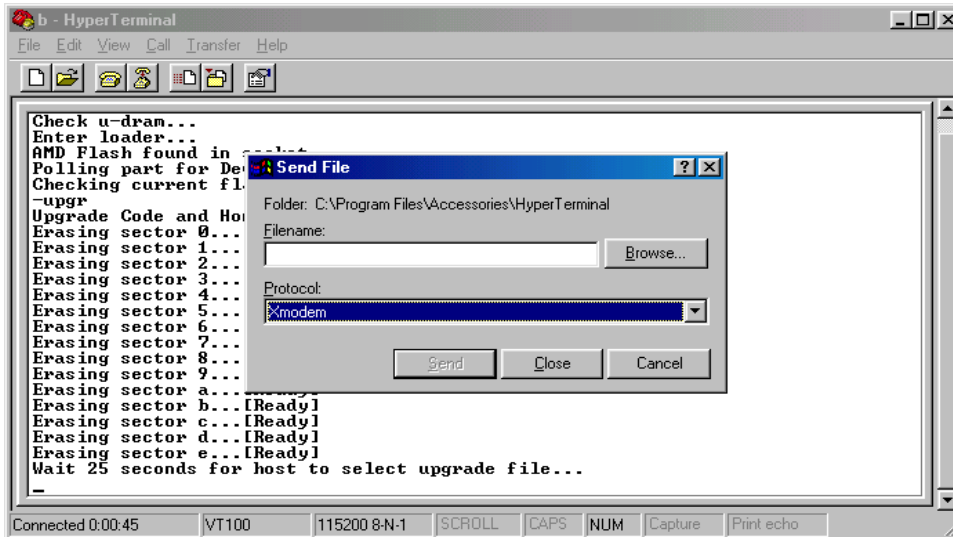
1. Go to the section titled “Setup via Serial Port” (page 6) and follow steps 1 through 10. Then proceed with step #2.
2. With the Hyper Terminal program still open, Plug the UPS’s power cord into the AC outlet and turn the UPS on.



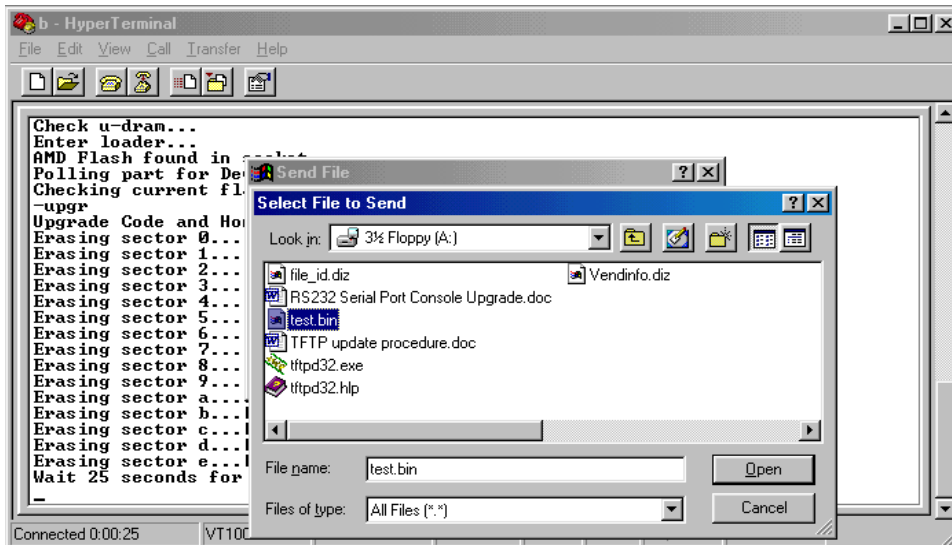
3. Once the message “Check u-dram” appears hit the “c” key. Then at the cursor type “upgr” for cards with MAC Addresses beginning with “52” and “upall” for cards with MAC Addresses beginning with “00”, then hit enter. Once the user hits enter, you have approximately thirty seconds to complete the next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



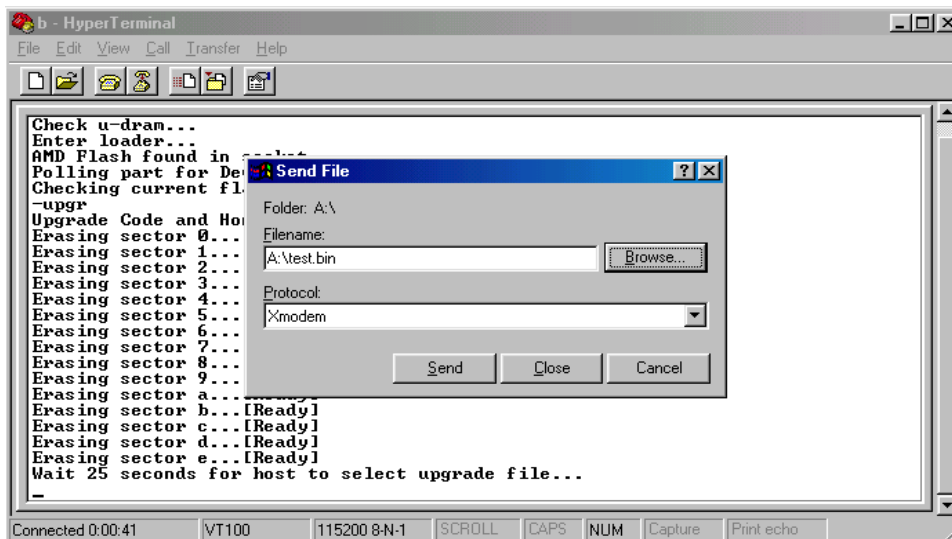
4. Go to the tool bar and select Transfer. Open Send File.



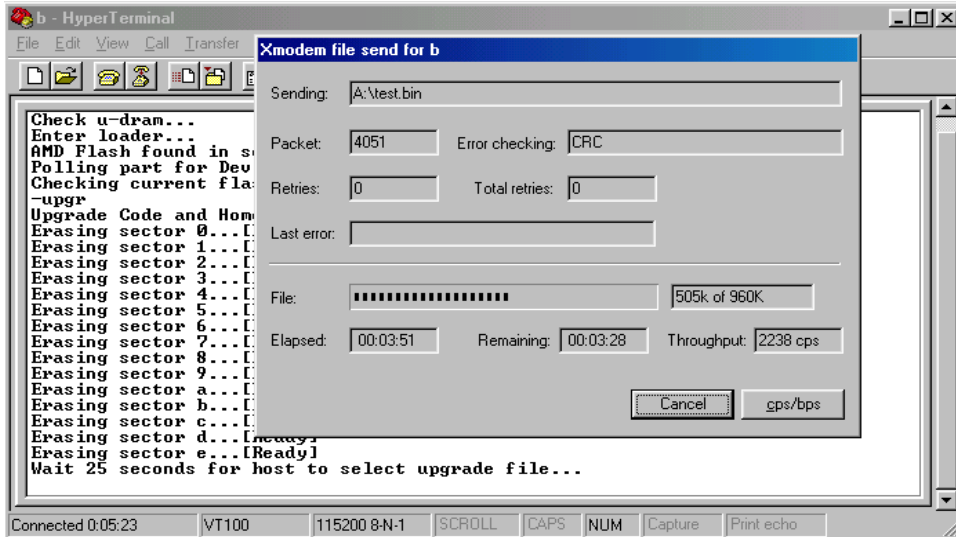
5. Select "X modem" under Protocol.



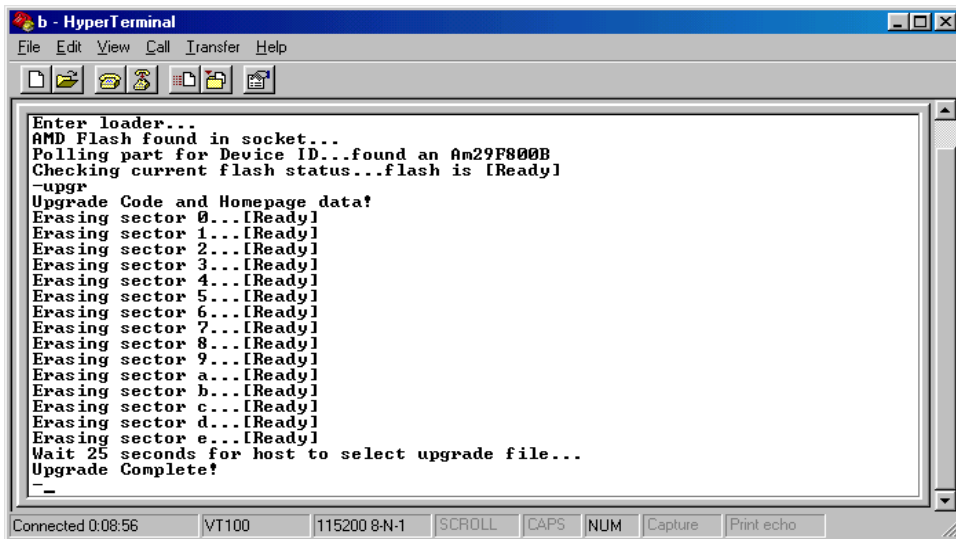
6. Click Browse. Look in the location where the Software upgrade software is located. Select the File name: “.bin” and click open.



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 factory default settings.

To complete the Computer Interface Card (CIC) installation and configuration process, you must compile the necessary MIBs to configure the NMS.

Most NMS with a MIB compiler can manage the Computer Interface Card (CIC) adapter. For instructions on how to compile MIBs for the most popular NMS—HP's OpenView Network Node Manager, and SunConnect's SunNet Manager; see the corresponding heading below.

General Network Management Stations

Follow these general procedures to configure an NMS:

1. Compile the device MIBs.
2. Add the Computer Interface Card (CIC) object to the *Management Map*.
3. Ping the Computer Interface Card (CIC).

HP OpenView Network Node Manager for HP-UX

Compile the Device MIB

1. Copy the UPS MIB file from the TAR formatted diskette into the subdirectory `/usr/OV/snmp_mibs`.
2. From the main menu, select **Options**
3. Load/Unload **MIBs: SNMP...**
4. Select **Load**.
5. Select the MIB file copied earlier.
6. Select **OK**.

Add the Computer Interface Card (CIC) Object to the Management Map

1. Select the submap then **Edit: Add Object**.
2. Select the group computer.
3. With the middle (or opposite) mouse button, drag the generic symbol subclass device to the submap.
4. Enter a name for the object in the Selection and Label fields of the *Add Object* box.
5. Highlight **IP Map** from *Object Attributes* group.
6. Select Set Object Attributes button.
7. Enter Host name and IP address of Computer Interface Card (CIC) adapter.
8. Enter **OK**.
9. Enter **OK** at *Add Object* menu.
10. Enter **OK** at *Add Object:palette*.

Poll the Device OIDs

1. From the main menu, select **Monitor: MIB** values then **Browse MIB: SNMP**.
2. Move around the MIBs to view the UPS device information.

Set the Device OIDs

1. From the main menu, select **Monitor: MIB** values then **Browse MIB: SNMP**.
2. Select a MIB variable you want to alter by clicking on it.
3. Enter the new value then click on **Set**.
4. Click on **Start Query** to view the changes.

Ping the Computer Interface Card (CIC)

1. Change active Window to **Shell**.
2. Type ping <IP address> and press <enter>.

Access the UPS MIB variables

Keep in mind that all parameters may not be supported by every UPS system. The following list is an example of some of the parameters. Be sure to review the MIB file contained on the floppy disk.

Battery Status

```
upsBattery.upsBatteryStatus.0 : batteryNormal
upsBattery.upsEstimatedMinutesRemaining.0 : 0
upsBattery.upsEstimatedChargeRemaining
```

Input/Output Status

```
upsInput.upsInputTable.upsInputEntry.upsInputFrequency.
upsInput.upsInputTable.upsInputEntry.upsInputVoltage upsOutput.upsOutputSource
upsOutput.upsOutputTable.upsOutputEntry.upsOutputVoltage
```

UPS Control and Configuration

```
upsTest.upsTestResultsSummary.0 : donePass
upsControl.upsShutdownType.0 : system
upsControl.upsShutdownAfterDelay.0 : -1
upsControl.upsStartupAfterDelay.0 : -1
upsControl.upsRebootWithDuration.0 : -1
upsControl.upsAutoRestart.0 : on
upsConfig.upsConfigInputVoltage.0 : 120
upsConfig.upsConfigInputFreq.0 : 600
upsConfig.upsConfigOutputVoltage.0 : 120
upsConfig.upsConfigOutputFreq.0 : 600
upsConfig.upsConfigOutputVA.0 : 700
upsConfig.upsConfigOutputPower.0 : 450
upsConfig.upsConfigLowBattTime.0 : 2
upsConfig.upsConfigAudibleStatus.0 : enabled
upsConfig.upsConfigLowVoltageTransferPoint.0 : 92
upsConfig.upsConfigHighVoltageTransferPoint.0 : 145
```

UPS Identifications

```
upsIdent.upsIdentManufacturer
upsIdent.upsIdentModel
upsIdent.upsIdentUPSSoftwareVersion
upsIdent.upsIdentAgentSoftwareVersion
upsIdent.upsIdentName
```

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.

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 null serial cable.
- Problem:** The NMS cannot ping the Computer Interface Card (CIC).
Solution: Make sure the network connection to the Computer Interface Card (CIC) 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. A UPS monitors a designated community.
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:** The internal CIC will not communicate and the LEDs are not illuminated.
Solution: Make sure the UPS is turned ON.
Solution: Make sure this is not a scheduled shutdown.
- Problem:** The external CIC will not communicate and the LEDs are not illuminated.
Solution: Make sure the UPS is turned ON.
Solution: Make sure that the external power adaptor is plugged into the UPS.
Solution: The power adaptor could be bad. Contact Tech Support.
Solution: Make sure this is not a scheduled shutdown.
- Problem:** The CIC will not communicate and all of the LEDs are ON.
Solution: There has been a collision of the packets. The CIC needs to be reset. Turn the UPS off and unplug the UPS’s power cord from the AC outlet. Wait until all the LEDs on the CIC go off, then plug the UPS’s power cord back into the AC outlet and turn the UPS ON.
- Problem:** The user cannot change from one Web Page to the next.
Solution: There has been a collision of the packets. The CIC needs to be reset. Turn the CIC off and wait for approximately one minute, then turn the CIC back ON.
- Problem:** I forgot my Supervisor’s name/password.
Solution: The CIC will have to be Flash Upgraded.

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

For Technical Support on the Web, please visit the Support section of our Web site
Or visit our online Discussion Forum at www.minutemanups.com

In order to diagnose the problem you are having, our technicians need the following information from you.

Installation Site:

Company Name: _____

Address: _____

City: _____ State: _____ ZIP code: _____

Contact Person's Name: _____

Phone Number: _____

If you are a consultant,

Consultant Name: _____

Phone Number: _____ Fax Number: _____

Computer System:

Operating System and version: _____

System Manufacturer: _____

System Model Number: _____

NMS name and revision number: _____

UPS:

Model Name/Number: _____

Serial Number: _____

Type of CIC (internal or external): _____

What are the symptoms?

Technical Support

Please have the information listed above ready when you contact us. You can reach us by calling:

Phone: 1-972-446-7363

Fax: 1-972-446-9011

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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.

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