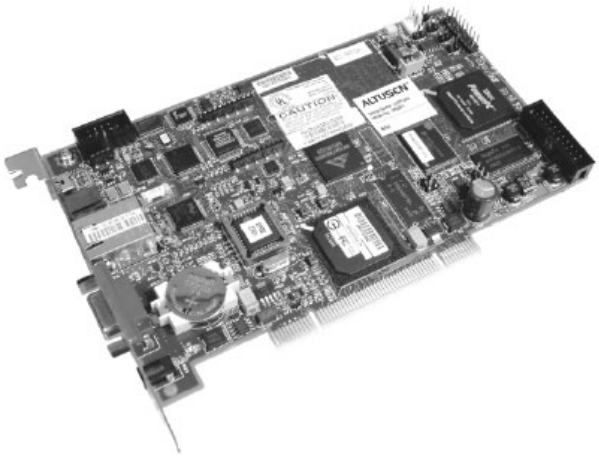
ALTUSCN™

Enterprise KVM Solutions by ATEN

pcIPcard™

IP9001

User Manual



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2005-06-09

FCC Information

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and receiver;
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected;
- Consult the dealer or an experienced radio/television technician for help.

Package Contents

Standard Components

The standard IP9001 package consists of:

- 1 IP9001 Card
- 1 USB Cable
- 1 Custom Made Feature Connector Cable
- 1 Power Cord
- 1 AC Adapter
- 1 Software CD
- 1 User Manual
- 1 Quick start guide
- 1 Warranty registration card

Optional Components

The following components do not come with your IP9001 card. You must order these components separately.

- internal modem daughterboard
- internal battery backup with battery clip

Note: The optional modem is NOT designed for Console Redirection. While it is possible to do Console Redirection with it, the performance is extremely slow and debilitating to system operations.

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the IP9001 installation.

Contents

Conventions

This manual uses the following conventions:

`Courier`	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be *chorded*, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
◆	Bullet lists provide information
>	Indicates selecting an option on a menu. For example, Start > Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Getting Help

For additional help, advice, and information, ALTUSEN provides several support options. If you need to contact ALTUSEN technical support with a problem, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.
- Your computer configuration, including operating system, revision level, expansion cards, and software.
- Any error messages displayed at the time the error occurred.
- The sequence of operations that led up to the error.
- Any other information you feel may be of help.

ALTUSEN Technical Support

North America Technical Phone Support	Registered ALTUSEN product owners are entitled to telephone technical support. Call the ALTUSEN Technical Support Center: 949-453-8885.
International Technical Phone Support	1. Contact your local dealer. 2. Call the ALTUSEN Technical Support Center: (886-2) 8692-6959.
Email Support	Email your questions and concerns to: support@altusen.com
Online Troubleshooting	The ALTUSEN support website: http://www.altusen.com/support provides online troubeshooting that describes the most commonly encountered problems and offers possible solutions to them.
Online Documentation	User Manuals are available electronically at the ALTUSEN support website: http://www.altusen.com/support
Software Updates	Download the latest drivers and firmware for your product from the ALTUSEN support website: http://www.altusen.com/support

Product Information

For information about all of ALTUSEN's products and how they can help you connect without limits, visit ALTUSEN on the web.

ALTUSEN Authorized Resellers

ALTUSEN provides the following ways to find an authorized reseller in your area:

- In the United States of America, call: 866-ALTUSEN (258-8736)
- In Canada and South America, call: 949-453-8885
- In all other locations, call: 886-2-8692-6789
- Visit ALTUSEN on the web at http://www.altusen.com for a list of locations and telephone numbers

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Notes:

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Chapter 1.

Introduction

Features

Feature	Description
Key Feature	◆ 100% out-of-band ◆ 100% operating system independent
Soft Processor	◆ plugs into a mission critical server ◆ half-sized PCI form factor plugs into any PCI slot
Remote Client	◆ industry standard Internet browser (any JavaScript 1.2 capable) ◆ manage the server from anywhere in the world ◆ SSL v3 for secure connection
Processor System On Chip (SOC)	◆ 32-Bit 266 MHz ~ 400 MIPS MMU ◆ 16 K I-cache ◆ 16 K D-cache
Memory	◆ 32 megabyte PC-133 MHz SDRAM standard (soldered on PCB, you cannot upgrade or remove)
Flash	◆ 16 bit, 16 megabyte flash ROM (soldered on PCB, you cannot upgrade or remove)
Ethernet LAN	◆ integrated SOC 10/100 MAC ◆ external level one 10/100 BASE-TX Ethernet
On-Board Modem + DAA (Optional)	◆ 56K socket modem (not designed to support Console Redirection)
I2C Controller Hardware Monitor (OEM version feature)	◆ ambient temperature monitoring ◆ PCI voltage monitoring ◆ card internal voltage monitoring ◆ battery voltage monitoring ◆ RTC ◆ external RTC for time stamp of events
Power Supply	◆ switching logic between optional 6 V wall adapter, 5 V PCI, 3.3 V PCI, and optional on-board battery
Battery Backup (Optional)	◆ 900 mAh LION battery provides 30 minutes of battery backup in case of host system or optional wall adapter power failure
Form Factor	◆ half-size standard PCI card

Feature	Description
Environmental Specifications	◆ storage temperature: -20 degrees to 80 degrees C ◆ relative humidity: 5 to 80 percent non-condensing @ 40 degrees ◆ operating temperature: 0 to 45 degrees C ◆ vibration: 2.5G acceleration over 2000 Hz sine wave, 2oct/mian sine sweep ◆ shock: 20G; 11 msec duration, half-sine shock sweep
Monitoring	◆ IPMI 1.5 compliant (OEM version feature) ◆ I2C sensors (OEM version feature) ◆ SDR and Soft Processor (SP) file support for easy customization (OEM version feature) ◆ OEM specific
Communication	◆ 10/100 megabit Ethernet LAN ◆ 56K modem (optional); not designed to support console redirection ◆ TCP/IP ◆ DHCP enabled ◆ SNMP ◆ web based interface
USB Device Controller for Mouse/Keyboard	◆ USB 1.1 device controller
USB Device Controller for CD-ROM	◆ USB 2.0 device controller
USB Device Controller for FDD	◆ USB 1.1 device controller
USB Hub	◆ USB 2.0 hub
Serial Ports X 3	◆ debug port ◆ RS485 ◆ one external
Debug Support	◆ Jtag ICE
Alert Notification	◆ SNMP trap up to eight destinations ◆ numeric and alphanumeric paging (when optional modem is installed) ◆ email notification
Console Redirection	◆ via 10/100 megabit Ethernet LAN ◆ up to three multiple redirection sessions ◆ up to 15 screens per second high speed redirection hardware engine ◆ no overhead on the host system, complete operating sytem independence ◆ redirect BIOS screens and setup screens ◆ seamless text and graphics transition

Feature	Description
Security	◆ SSL (Secured Socket Layer) 3.0 (Pass-phrase encrypted certificates are not supported) ◆ DAA (Digestive Authentication Access) ◆ MD-5
Virtual Boot	◆ USB 2.0 CD-ROM ◆ USB floppy ◆ supports boot to image ◆ allows remote operating system boot up and installation **Note:** For information on how to create a bootable CD, visit nero.com or roxio.com. You can do a search on how to create a bootable CD using their products. You can also consult your CD writer's documentation.
Host Side Operating System Support	◆ Windows 2000/2003/XP and above ◆ RedHat 8.0 and above
OEM Development Kit *Platform Management Configuration Program* (PMCP)	available

[redacted]

Notes:

Chapter 2.

Installation

Before you Begin

Avoid Electro-Static Discharge (ESD)

Electrostatic discharge (ESD) can damage the IP9001 card and other system components. Keep your IP9001 card in its antistatic bag until it is ready to be installed. Avoid contact with any component or connector on any adapter card, printed circuit board, or memory module. Handle these components by the mounting bracket.

Perform all unpacking and installation procedures on a ground connected antistatic mat. Wear an antistatic wristband grounded at the same point as the antistatic mat. You can also use a sheet of conductive aluminum foil grounded through a one megaohm resistor instead of the antistatic mat. Similarly, a strip of conductive aluminum foil wrapped around the wrist and grounded through a one megaohm resistor serves the same purpose as a wristband.

Installation Overview

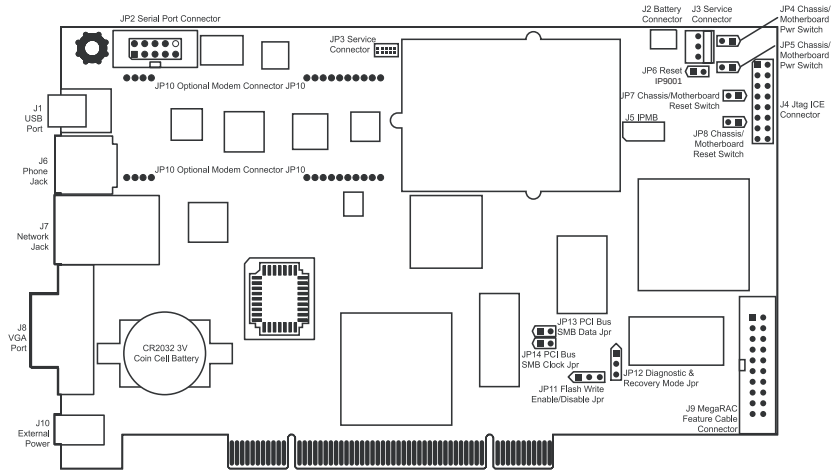
Installation of the IP9001 card takes the following steps:

Step	Action
1	Unpack the IP9001 card (*and check jumper settings*)
2	Install the optional battery and battery clip
3	Install the optional modem daughterboard
4	Plug the IP9001 card into the host system and attach internal cables
5	Connect external cables
6	Confirm the motherboard's BIOS settings
7	Install the operating system and IP9001 card's drivers
8	Install all IP9001 Windows Software Components
9	Setup your client system's Internet browser
10	Connect to the IP9001 from a client system
11	Load the IP9001 SDR and Soft Processor (SP) File for your motherboard or server board model (OEM version feature)

The following sections describe how to perform these steps.

1. Unpack the IP9001 card (*and check jumper settings*)

Card Layout Diagram



MAC Address

Each IP9001 card has a unique MAC address. The MAC address is the only way to distinguish one IP9001 card from another when you run programs such as Remote Recovery Application (RRA) and RacTrendsSeek Locator. For reference, you can write your IP9001 card's MAC address in the table below or in Appendix H, MAC Address Map. Use the first line in the table as an example.

MAC Address	Location	Description
00-40-D9-02-9B-3C	Server Room, Rack 3-4	RH 9.0, Mail Server

Check the Jumpers

Check that the card's jumpers match the description in the following table:

Jumper	Setting
JP4	Pins 1 and 2: Open
JP5	Pins 1 and 2: Open
JP6	Pins 1 and 2: Open
JP7	Pins 1 and 2: Open
JP8	Pins 1 and 2: Open
JP11	Pins 1 and 2: Shorted
JP12	Pins 1, 2, and 3: Open
JP13	If your host system's motherboard supports 12C on the PCI slots, Short pins 1 and 2. If not, see that pins 1 and 2 are Open.
JP14	If your host system's motherboard supports 12C on the PCI slots, Short pins 1 and 2. If not, see that pins 1 and 2 are Open.

JP4 and JP5 - Chassis/Motherboard Power Switch:

Verify that there is no jumper on JP4 and JP5. These two headers are to be used with a cable, not a jumper.

JP6 - IP9001 Reset Button:

You can temporarily short this jumper to reset your IP9001 card. For normal operations, verify that there is no jumper on JP6.

Pin	Description
1	Ground
2	Reset #

JP7 and JP8 - Chassis/Motherboard Reset Switch:

Verify that there is no jumper on JP7 and JP8. These two headers are to be used with a cable, not a jumper.

JP11 - Flash Write Enable/Disable:

You can write-protect your IP9001 card's firmware so that it cannot be flashed. By default, pins one and two are shorted so that you can flash the firmware.

Pin	Description
1	VCC3
2	Write protect enable
3	Ground

Pin	Description
1-2	Flash write enable
2-3	Flash write disable

JP12 - Recovery Mode:

This jumper is primarily used to recover a failed flash attempt. By shorting pins two and three, you can place your IP9001 card into *Recovery Mode*. See Appendix C, *Remote Recovery Application* (RRA) for more information on how to recover your IP9001 card. By default, pins one, two and three are open.

Pin	Description
1	NA
2	Ground
3	GP I/O PA10

JP13 and JP14 - PCI Bus SMB Data and Clock Jumper:

These two headers allow your IP9001 card to read I2C bus information. If your hosts system's motherboard has support for I2C on the PCI slots, place a jumper on these two headers. By default they are open.

Note: 1. Most PCI slots have a "floating" I2C bus. A floating I2C bus means that there is no physical connection between the two I2C pins on the PCI slot and the motherboard's I2C bus. Shorting JP13 and JP14 would be useless in this case.

2. JP13 and JP14 can be used in place of the IP9001 Feature Cable to gather I2C bus information from the motherboard.

3. Only the OEM version can utilize the hardware health monitoring capabilities of the IP9001 card. The hardware health monitoring function requires an OEM specific cable and *Sensor Definition Kit* (SDK/SDR) file, and a *Soft Processor* (SP) file.

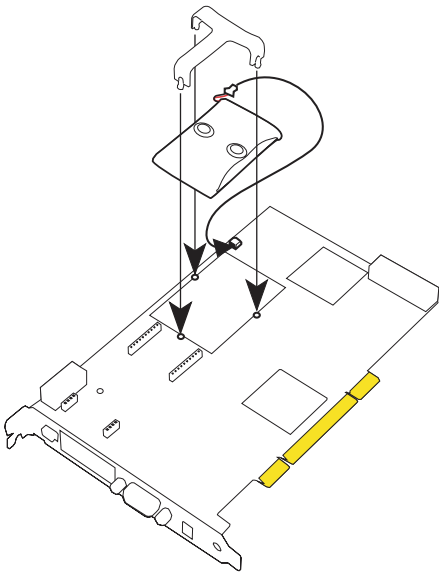
2. Install the Optional Battery and Battery Clip

The IP9001 on-board battery backup is an optional component. When the optional battery is installed, your IP9001 card can stay powered on for 30 minutes without any external power from the host system or AC adapter.

BBU (Battery Backup Unit) Installation

To install the Battery Backup Unit, refer to the diagram below and do the following:

1. Plug the battery cable into the Battery connector (J2).
2. Place the battery pack in between the three mounting holes.
3. Align and snap the plastic battery clip into the three mounting holes over the battery pack.



Charging the Battery Pack

Warning: Risk of explosion if battery type used is incorrect. ONLY use battery part number BAT-LIION-3.6-01.

The optional battery pack is shipped uncharged. The IP9001 card automatically starts to charge the battery after you install it. You must charge the battery pack before it can be used to provide backup power to the IP9001 card. The minimum time that the battery must be charged is six hours. To order extra batteries, contact your dealer.

Part No.	Description	Weight
BAT-LIION-3.6-01	Battery, Li-Ion, 3.6 V, 855/900 mAh on-board battery pack with mounting brackets	33 g

If you keep a stock of extra IP9001 batteries, store them at room temperature.

Note: 1. Li-Ion has no memory effect. Lithium-ion cells offer extended cycle life when cycled at low depth of discharge.

2. The recoverable capacity of cells stored for over one year at room temperature and fully charged is 94%. The retained capacity of these same cells is 87%. This means the self-discharge rate for a fully charged cell is approximately 150 mAh per year or 427 uAh per day. The self-discharge rate for cells is non-linear. A partially charged cell has a self-discharge rate of about 80 uAh per day.

Changing the Battery Pack

The optional IP9001 battery pack must be replaced every 400 cycles. Cells retain 80% of their original capacity after 400 cycles. A cycle is defined as a full charge (4.2V) followed by a full discharge (2.8V). Keep in mind that cycling or storing the cells at elevated temperatures can reduce the cell capacity and cycle life. Cells discharged and stored at low temperatures can extend the shelf life of the batteries.

To replace the battery pack:

1. Bring down the operating system properly. Turn the computer power off. Remove the computer cover. Remove the IP9001 card.
2. Disconnect the battery pack cable from jumper J2. Remove the plastic battery clip and then replace the Battery Backup Unit.
3. Install a new battery pack and connect the new battery pack to jumper J2. Align and snap the plastic battery clip into the three mounting holes over the battery pack.
4. Reinstall the IP9001 card in the host system.

Battery Disposal

Warning: Do not dispose of the IP9001 optional battery pack by fire. Do not mutilate the battery pack. Do not damage it in any way. Toxic chemicals can be released if it is damaged. Do not short-circuit the battery pack.

The material in the battery pack contains heavy metals that can contaminate the environment. Many jurisdictions have laws that prohibit the disposal of some rechargeable batteries in public landfills. These batteries must be sent to a specific location for proper disposal.

You must comply with all applicable battery disposal and hazardous material handling laws and regulations in the country or other jurisdiction where you are using an optional battery pack on the IP9001 card.

3. Install the Optional Modem Daughterboard

The IP9001 modem daughterboard is an optional component. Locate JP10 on the IP9001 card. It has a series of pinholes that allow you to insert the modem daughterboard. Match the modem daughterboard and the pin holes so that the pins align properly. Insert the modem daughterboard by sliding it straight down into the IP9001 card. See Appendix F: *Modem Daughterboard* for more information.

Note: 1. The optional modem is NOT designed for Console Redirection. Although you can still perform Console Redirection, it is debilitating and extremely slow.

4. Plug the IP9001 Card into the Host System and Attach Internal Cables

Plug the IP9001 into any available PCI slot on the host system and attach the internal cables as described in the following sections.

J3 - Service Connector

This jumper is used exclusively to service the IP9001 card. J3 is not described in this document.

J4 - JTAG ICE Connector

The JTAG (Joint Test Action Group ICE (In-Circuit Emulator) header is used to debug and service the IP9001 card. J4 is not described in this document.

J5 - IPMB (Intelligent Platform Management Bus)

If your motherboard has an IPMB connector, you can connect a cable from J5 on the IP9001 card to the IPMB connector on your motherboard. The pin description is shown in the table below:

Pin	Description
1	Positive Signal
2	Ground
3	Negative Signal

IPMB (Intelligent Platform Management Bus)

The IPMI specification was developed by Intel, Dell, Hewlett-Packard, and NEC to provide a standard interface to be used for monitoring server items such as temperature, voltage, fans, power supplies, and chassis. IPMI is comprised of three specifications Intelligent Platform Management Interface (IPMI), Intelligent Platform Management Bus (IPMB) and Intelligent Chassis Management Bus (ICMB). The IPMI specification defines the interface between management software and chassis management hardware. The IPMB specification defines the internal Intelligent Platform Management Bus. The ICMB specification defines an external bus for connecting additional IPMI enabled systems.

The electrical interconnect for system management is based on the inter-IC (I2C) bus. This bus is a two wire serial interface (clock, data) driven by open-collector drivers. Devices arbitrate for the bus based on a collision detection mechanism. The I2C data and I2C clock signals are referred to as an IPMB.

The IPMB connector can be used to read IPMI information from the motherboard's System Management Controller. The format and definition of the IPMI information must be based on the IPMI v1.5 Specification.

The IPMI specification was architected around the server motherboard environment. In a typical motherboard, the Management Controller connects to a variety of dumb sensors located on the motherboard and within the chassis. The command set contains commands tailored to this environment and are intended to handle sensors, data repositories, event logs and watchdog timers.

J9 - IP9001 Feature Connector

This feature connector is primarily used for operating the host system's motherboard power and reset switch. It can also be used to gather I2C bus information from the motherboard.. The pin description is shown in the table below:

Pin	Description	Pin	Description
1	Not Connected	11	Reset_Host #
2	I2C Clock	12	Ground
3	Not Connected	13	Ground
4	Not Connected	14	Not Connected
5	Power_Off #	15	Not Connected
6	I2C Data	16	Ground
7	Not Connected	17	Not Connected
8	Not Connected	18	Not Connected
9	Not Connected	19	Not Connected
10	Not Connected	20	Ground

Note: 1. JP13 and JP14 can be used in place of the IP9001 Feature Cable to gather I2C bus information from the motherboard.

2. JP4 and JP5 can be used in place of the IP9001 Feature Cable to power on, power off, and power cycle the motherboard.

3. JP7 and JP8 can be used in place of the IP9001 Feature Cable to reset the motherboard.

4. Only the OEM version can utilize the hardware health monitoring capabilities of IP9001 card. The hardware health monitoring function requires an OEM specific cable and Sensor Definition Kit (SDK/SDR) file, and Soft Processor (SP) file.

5. IPMI support is an OEM version feature.

6. This cable must be custom made for your specific configuration.

JP2 - Serial Port Connector

You can connect an external 9 pin serial port connector to this header. This header is primarily used to text redirect over the serial port.

JP3 - Service Connector

This jumper is used exclusively for servicing the IP9001 card. JP3 is not described in this document.

JP4 and JP5 - Chassis/Motherboard Power Switch

JP4 and JP5 can be used in place of the IP9001 Feature Cable to power on, power off, and power cycle the motherboard.

Connect a two pin cable from the motherboard's Power (Soft On/Off) header to JP4 on your IP9001 card. Connect the chassis power switch to JP5 on your IP9001 card.

JP6 - IP9001 Reset Button

You can short this jumper to reset your IP9001 card.

Pin	Description
1	Ground
2	Reset #

JP7 and JP8 - Chassis/Motherboard Reset Switch

JP7 and JP8 can be used in place of the IP9001 Feature Cable to reset the motherboard.

Connect a two pin cable from the motherboard's reset header to JP7 on your IP9001 card. Connect the chassis reset switch to JP8 on your IP9001 card.

Note: JP7 and JP8 can be used instead of the IP9001 Feature Cable to reset the motherboard.

5. Connect External Cables

1. Connect the USB cable from the back of the IP9001 card to the motherboard's USB port.
2. Connect your VGA monitor to your IP9001 card.
3. Connect the RJ45 LAN cable from your local network to your IP9001 card.
4. Connect your phone cord from the back of the IP9001 card to the telephone wall outlet. (Only if the optional modem daughterboard is installed.)
5. Connect your AC adapter.

6. Confirm the Motherboard's BIOS Settings

1. Power on the motherboard and enter the BIOS.
2. Use the following table to confirm that your motherboard's BIOS settings are correct.

BIOS Section	Setting
Boot Options> Removable Devices	Virtual Floppy or USB Boot Device
Boot Options> ATAPI CDROM	Virtual CDROM or USB Boot Device
Advanced> PCIPnP> Configuration> Legacy USB Support	Enable

3. Save the BIOS settings and restart the computer.

Note: 1. Make sure that your motherboard BIOS supports Legacy USB devices, USB Boot or Boot to USB.

2. On some motherboards and server boards, depress the <CTRL>, <ALT>, and <ESC> keys simultaneously to enter the BIOS. On others use the <F2> keys. See your server's documentation for more information on entering the BIOS setup.

7. Install the Operating System and IP9001 Drivers

1. Install the operating system (if applicable) on the host system.
2. (**Windows 2000/2003/XP only**) When prompted for the Virtual Floppy drivers, install the IP9001 card's Virtual Floppy drivers located in the *INF* folder on the IP9001 CD.
3. (**Windows 2000/2003/XP only**) When prompted for the virtual CD-ROM drivers, install the Windows default CD-ROM drivers.

   Note: Do not use **virtfl.inf** when prompted to install the virtual CD-ROM drivers. The Virtual CD-ROM device does not require any special drivers. You can select the default option Microsoft Windows provides.

Installing Virtual Floppy Drivers on Microsoft® Windows

Microsoft® Windows 2000/2003/XP operating systems need an .INF file to handle Virtual Floppy device provided by the IP9001 card.

Note: The .INF installation procedure only needs to be done once on the host system. Once the Virtual Floppy is properly loaded, you can perform floppy redirection without going through any extra steps.

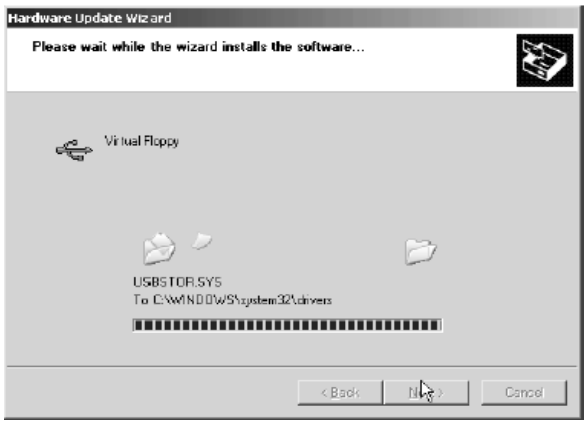
The first time you run windows after installing the card, the *Found New Hardware Wizard* comes up:

1. Select *Install from a specific location*, then click **Next**.
2. Select the *virtfl.inf* file, located in the *INF* directory on the IP9001 CD. If prompted with the *Windows Logo* dialog box, click **Continue Anyway**.

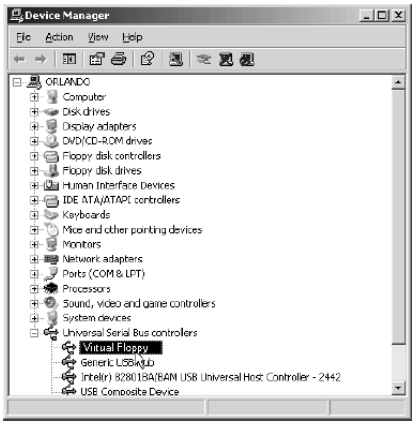
Note: Do **NOT** use the default file that the Microsoft® Windows operating system

presents when it is searching for the Virtual Floppy driver. Ensure that the Microsoft® Windows operating system is asking for the the virtual floppy driver on the IP9001 CD before allowing the installation of the .INF file to continue.

As the *Hardware Update Wizard* loads the virtual floppy driver from the IP9001 CD, the installation progress status is displayed.



3. Once the file is loaded, click **Finish** to complete the installation. (Windows may require a reboot of the host system after the installation of the virtual floppy driver.)
4. Check in the Device Manager to be sure the driver was properly installed.



8. Install the Windows Software Components

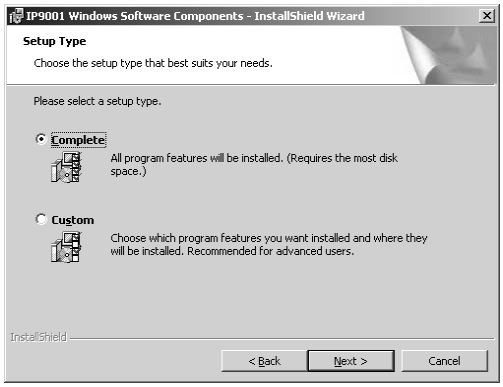
The *Windows Software Components* comprise a collection of host-side and remote access programs. Their functions are briefly explained in the following table:

Program	Description
ConfigApp	Allows you to configure the IP9001 card either from the host system or from a client system.
WinCuri	A command prompt-based program to configure the IP9001 card. It allows you all the functionality of both the Internet browser-based *Remote Access Companion* for the IP9001, and the *ConfigApp* program.
HostHeartbeat	HostHeartbeat is installed as a service in Windows. It tells whether or not the operating system on the host system is functioning. It can also detect whether the operating system was shutdown normally or not.
Floppy Image Creator	Used to create bootable floppy image files that you can use to boot the IP9001 card from.
Remote Recovery Application (RRA)	A recovery tool that can be executed from a remote client system located on the same network as the IP9001 card. You can use it to recover a failed flash attempt. **Note:** 1. You must physically set the IP9001 card you want to recover into *Recovery Mode* by shorting pins 2 and 3 of jumper JP12. 2. The IP9001 card must be write enabled before you can flash an image to it. Shorting pins 1 and 2 on jumper JP11 write enables the card. 3. Since the firmware upgrade process is a critical operation, make sure that the chances of a power or connectivity loss are minimal when performing this operation.
RacTrendsSeek Locator (RM Seek)	In order to completely configure your IP9001 card, you must access it from another system on the same network by means of its IP address. If you have installed the IP9001 on a network that uses DHCP, you can search the network for the IP9001 card. To locate and find out its IP address, you can use *RacTrendsSeek Locator*.

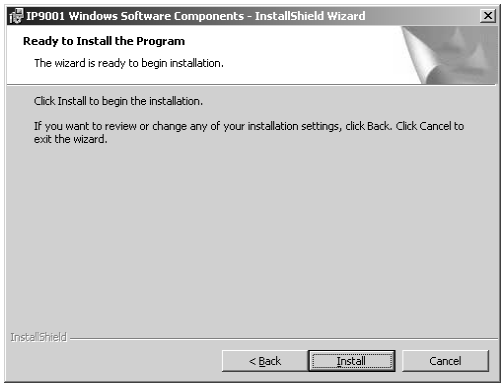
To install the *Windows Software Components*, do the following:

1. Insert the IP9001 CD into the host system (the one with the IP9001 card); and navigate to the CDROM\ServerAgents\Win32 folder; and double click **Setup.exe**. The *Installshield Wizard* comes up.
2. When the confirmation window comes up, click **Next**, to move on:

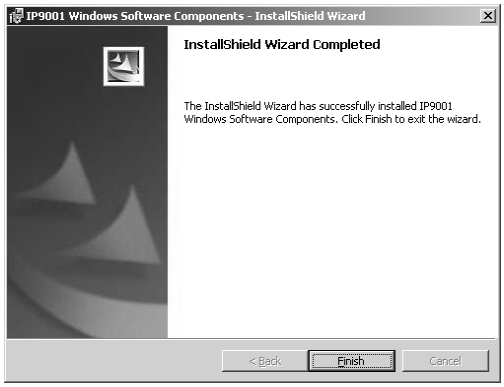
3. If the *Customer Information* dialog box comes up, enter your name and the name of your organization in the appropriate fields.
4. When the *Setup Type* window opens, select *Complete*, then click **Next**:



5. When the *Install Program* window opens, click **Install**:



6. When the installation is complete, click **Finish** to complete the procedure:



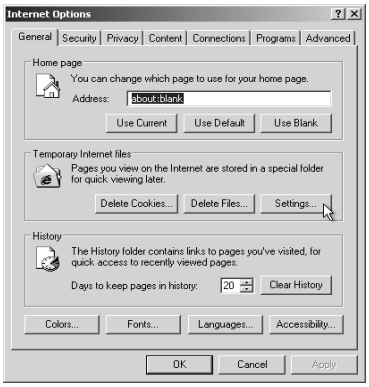
7. Repeat steps 1 - 6 for any local network computers you wish to use to access the host system.

9. Setup Your Client Internet Browser

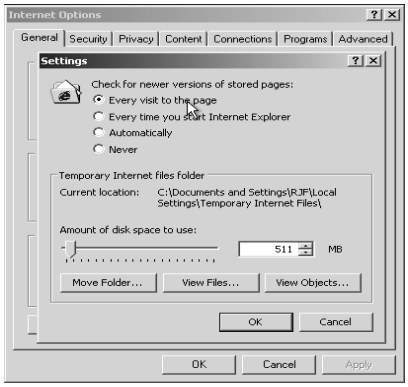
Before you can redirect the host system's console or view the Crash screen, you must first set up your Internet browser on the client system. To do so, follow the steps, below:

1. Open your Internet Explorer browser. From the menu, select *Tools*, then select *Internet Options*:

2. When the Intenet Options window opens, click **Settings**:

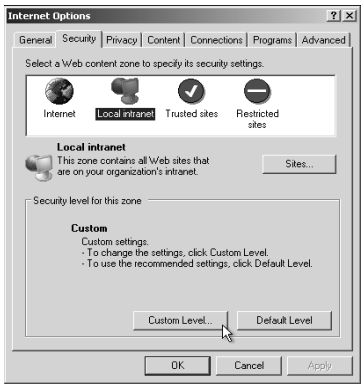


3. In the *Settings* window, select *Every visit to the page* or *Automatically*; then click **OK** to apply the change and to go back to the *Internet Options* dialog box:



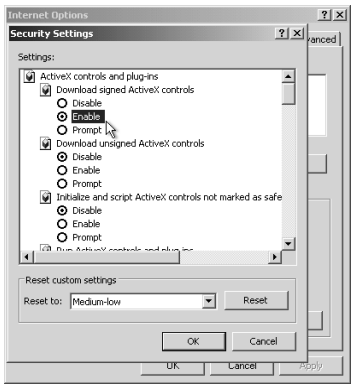
Note: Other settings can cause old data to be displayed when performing operations on the IP9001.

4. To setup Internet Explorer to allow downloading and running of signed ActiveX controls, in the *Internet Options* dialog box, select the *Security* tab; then click **Custom Level**:

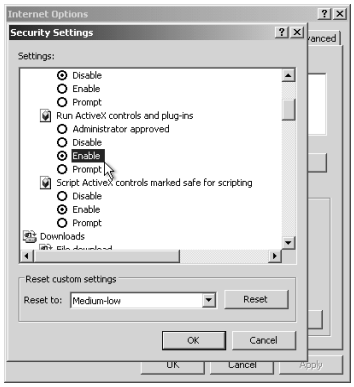


Note: The default security setting for Microsoft Windows 2003 servers is *High*. This disables many components necessary for the IP9001 GUI. Therefore, you should set the security settings for a remote client running Windows 2003 server to *Medium*, or *Low*.

5. In the *Security Settings* dialog box, in the *Download signed ActiveX controls* section select *Enable*:

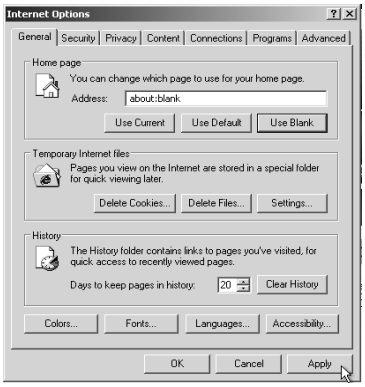


6. Scroll down to the *Run ActiveX controls and plug-ins* section. Select *Enable*; then click **OK**:



7. When the *Warning!* dialog box comes up, click **Yes** to accept the changes and go back to the *Internet Options* dialog.

8. Click **Apply**, then click **OK** to complete the changes:



Note: 1. You must restart Internet Explorer before the changes take effect.

2. *Remote Console* cannot run with any other security settings in Internet Explorer.

10. Connecting From a Client System

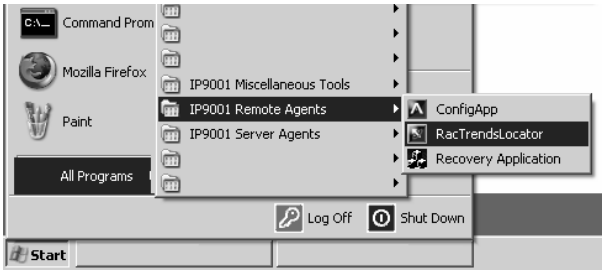
In order to connect to the IP9001 card, you must access the IP9001 from another system on the same network (referred to in this manual as the *client system*). To do this, you must know the IP9001 card's IP address. If you have installed the card on a network that uses DHCP, you can search the network for the IP9001 card. To locate and find out its IP address, you must run *RacTrendsSeek Locator*.

Note: 1. To get or set the IP address on the IP9001 card in a Windows 2003/2000/XP environment, you can also run the *ConfigApp* program on the host system. See Appendix B, *ConfigApp* for more information on how to use this program.

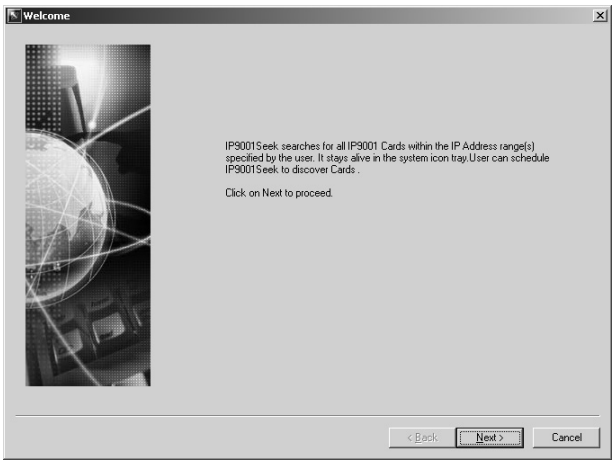
2. Make sure that you have already installed the IP9001 *Windows Software Components* on the system that you want to use to locate the IP9001 card.

To connect to the IP9001 from a remote client system, do the following:

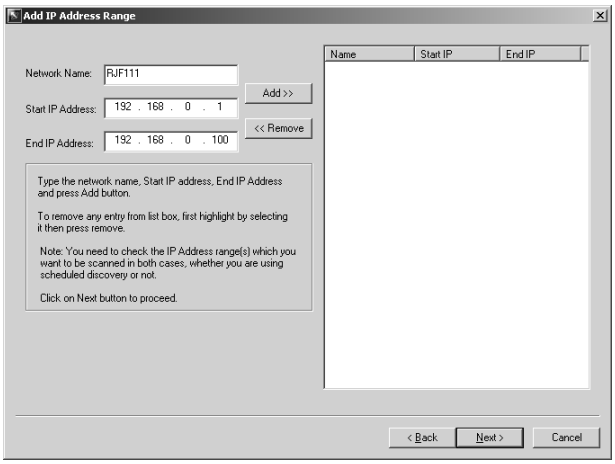
1. Run the *RacTrendsSeek Locator* program entry on your remote client system:



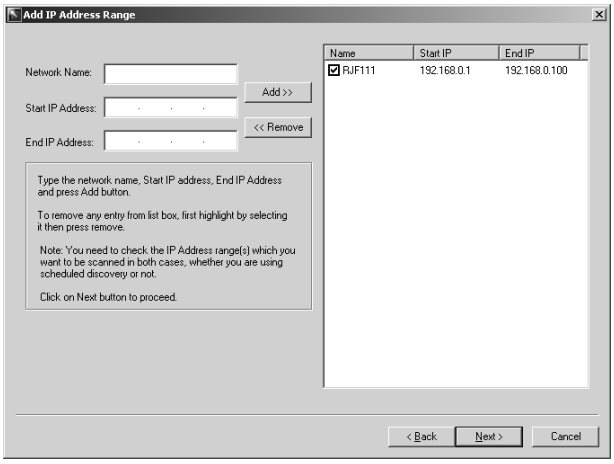
2. When the opening screen comes up, click **Next**:



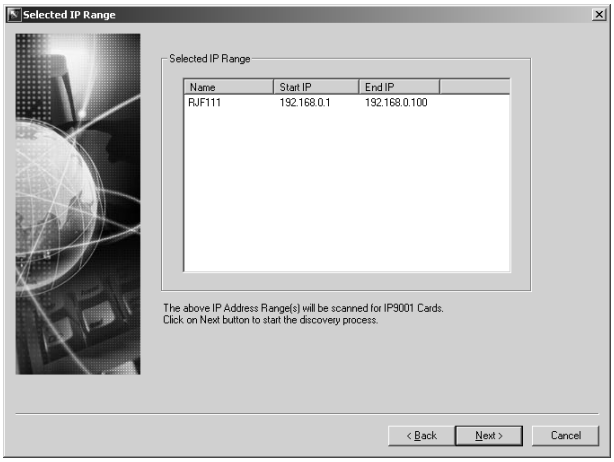
3. When the *Add IP Address Range* dialog box comes up, key in a name for your network in the *Network Name* field, and the range of IP addresses that the card's IP address will fall under, then click **Add**:



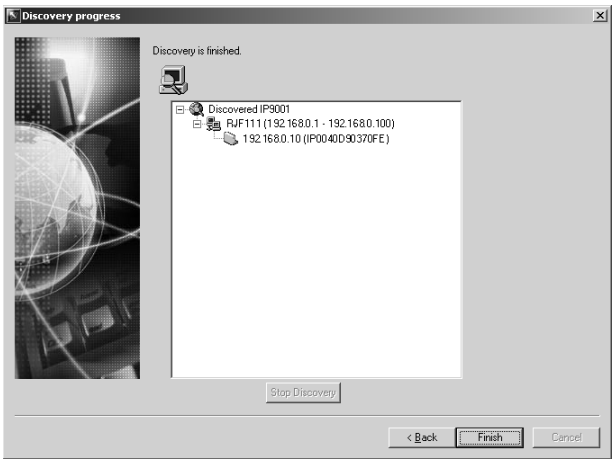
4. In the dialog that comes up, the name and IP range of the IP9001 card appears in the list at the right. Place a check in the box next to the range of IP addresses, then click **Next**:



5. The *Selected IP Range* dialog comes up with the name and IP range of the IP9001 card displayed. Click **Next** to continue:



6. If the IP range is correct, *RacTrendsSeek Locator* will locate the IP9001 card, and list it with all the IP9001 cards it has discovered:



Note: If more than one IP9001 card is found, you can distinguish them by the IP9001 card's name. The IP9001 card's name consists of the characters *IP* followed by the MAC address of the card's NIC.

7. In this example, the IP9001 card's IP address is 192.168.0.10. Double click the IP address to start managing the IP9001 card and write down its IP address. After *RacTrendsSeek Locator* discovers all the IP9001 cards, Click **Finish**.

8. The login screen comes up:

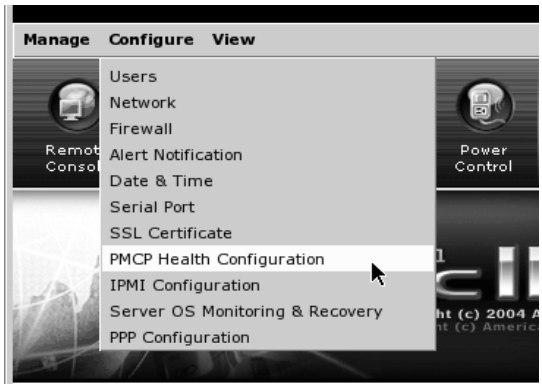
The default User Name is *root*; the default password is *superuser* (both in lower case).

Note: When you log in using this user name and password, you have full administrative privelegess. For security purposes, we strongly advise you to change the root password. See *Administrator Setup* under the *IP9001 Configurations* section of this chapter.

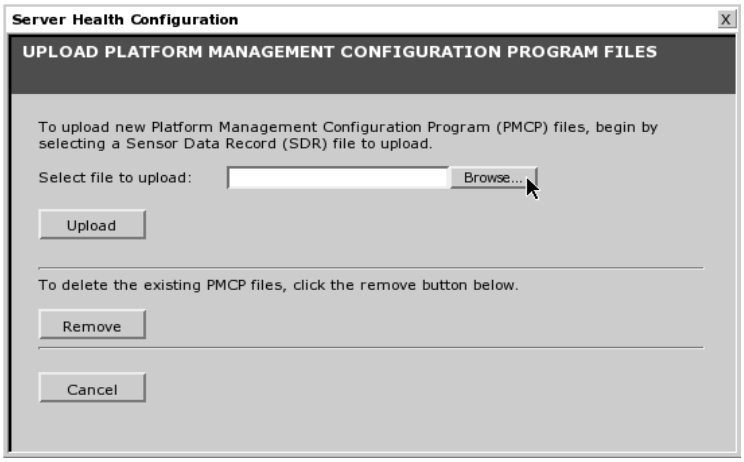
11. Load the SDR and Soft Processor (SP) File

This is an optional procedure and requires a custom file specific to your motherboard. To load the SDR and Soft Processor (SP) file, do the following:

1. Select *Configure* from the menu bar at the top of the IP9001 GUI, then select *PMCP Health Configuration* from the menu:



2. The *Host Health Monitoring Files* dialog box opens. Click **Browse**:



3. Starting from the IP9001 CD, browse to the folder that contains your SDR file.

   Note: You can create your own SDR and Soft Processor (SP) Files using the *Platform Management Configuration Program* (PMCP).

4. Select the SDR file (it will end in *-sdr.bin*), then click **Open**:

5. In the dialog box that comes up, click **Upload**:

6. The next dialog box confirms that the the SDR file was successfully uploaded, and prompts you to upload a *Soft Processor Instruction Set* file. Click **Browse** to continue.

7. In the dialog that comes up, select the SP file (it will end in *-sp.bin*), then click **Open**:

8. In the dialog box that comes up, click **Upload**:

9. The next dialog box confirms that the the SP file was successfully uploaded, and Host Health monitoring is active:

   Click **Close** to end the installation procedure.

[redacted]

Notes:

Chapter 3.

Locating the IP9001 Card

Overview

IP9001 cards can be accessed from anywhere on your Intranet via an Internet browser, allowing you to maintain your critical servers from a physically remote location. This chapter explains how to locate the IP9001 card on your local network.

Locating the IP9001 Card

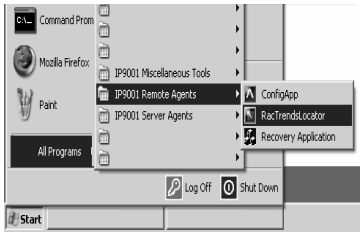
In order to connect to the IP9001 card, you must access it from another system (referred to as the *client system*) on the same network. To do this, you must know the IP9001 card's IP address. If you have installed the IP9001 on a network that uses DHCP, you can ascertain its IP address with the *RacTrendsSeek Locator* program.

Note: 1. In a Windows 2000/XP environment, you can also get or set the IP9001's IP address by running the *ConfigApp* program on the host system. See Appendix B, *ConfigApp*, for more information on how to use the program.

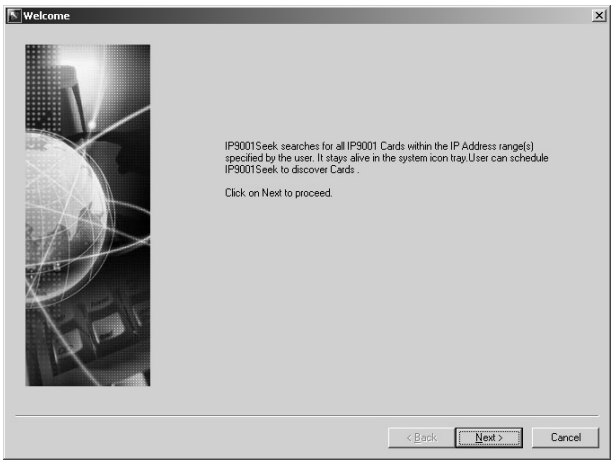
2. Make sure that you have already installed the IP9001 Windows Software Components on the system that you want to use to locate the IP9001 card.

To connect to the IP9001 from a remote client system, do the following:

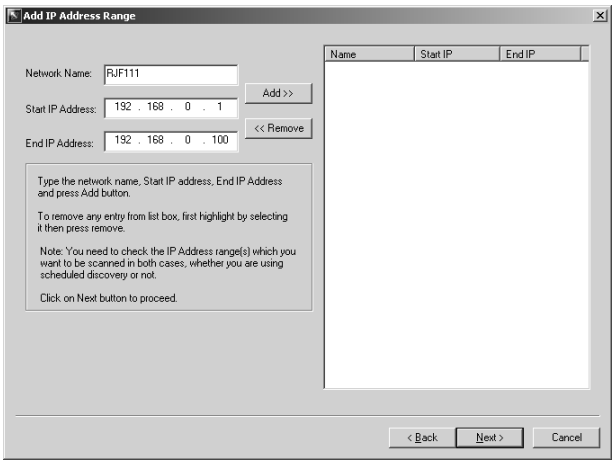
1. Run the *RacTrendsSeek Locator* program:



2. When the opening screen comes up, click **Next**:

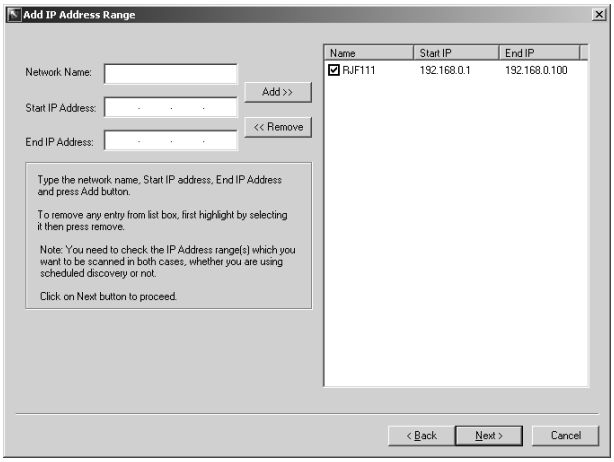


3. When the *Add IP Address Range* dialog box comes up, key in a unique name for your network in the *Network Name* field, then key in the range of IP addresses that the card's IP address will fall under, in the *Start IP Address* and *End IP address* fields, then click **Add**:

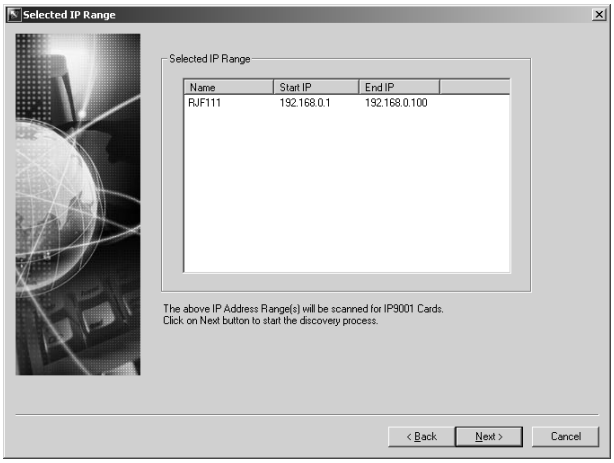


Note: If you only wish to scan for one card with a specific address, the Start and End addresses should be the same.

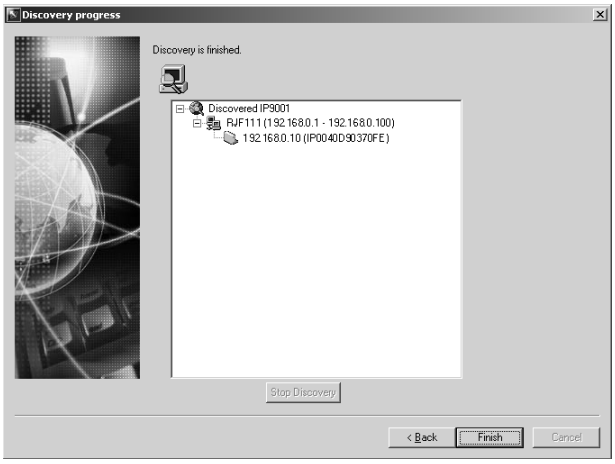
4. In the dialog that comes up, the name and IP range of the IP9001 card appears in the list at the right. Place a check in the box next to the range of IP addresses, then click **Next**:



5. The *Selected IP Range* dialog comes up with the name and IP range of the IP9001 card displayed. Click **Next** to continue:



6. If the IP range is correct, *RacTrendsSeek Locator* will locate the IP9001 card, and list it with all the IP9001 cards it has discovered:



Note: If more than one IP9001 card is found, you can distinguish them by the IP9001 card's name. The card's name consists of the characters *IP* followed by the MAC address of the card's NIC.

7. In this example, the IP9001 card's IP address is 192.168.0.10. Double click the IP address to start managing the IP9001 card and write down its IP address. After *RacTrendsSeek Locator* discovers all the IP9001 cards, Click **Finish**.

Usage

Once the program has been installed and setup, you can access it any time by double clicking its icon on the task bar:

The screen that was active when the program was last viewed will appear.

Chapter 4.

Browser Operation

Overview

The IP9001's user-friendly Graphics User Interface (GUI) is accessed with a standard Internet browser. Specify the IP9001's IP address in your browser's Locator bar, and you can be up and running in a matter of minutes. This chapter describes the browser screen layout, and explains how to use each of the IP9001's features and functions.

Note: 1. If you don't know the IP9001's IP address, get it from your administrator.

2. Some elements of the GUI may have changed since this manual was written. If the GUI on your monitor does not match the ones in this document, go to our website to download the most current version.

Logging In

Before you are granted access to the IP9001 web page, a login page comes up asking you to provide a User Name and Password:

Provide a valid Username and Password, then Click **OK** to continue.

Note: 1. If you are the administrator logging in for first time, use the default User Name: *root*; and the default Password: *superuser*. Use lower case for both.

2. This login gives you full administrative powers. For security purposes, we strongly recommend you change the root password to something unique.

After you have successfully logged in, the IP9001 Main Screen appears:

- The Menu Bar at the top of the screen consists of three items:Manage, Configure, and View. Clicking a menu item causes a drop down list of submenu choices. The meanings and use of these coices are explained in the chapters that follow.
- Below the menu bar, are four *Quick Launch* icons. These icons are a short cut method to access their equivalent functions found in the menu bar submenus.
- The *Session Information* entry at the right of the screen shows the User Name and permission level of the currently logged in user.

Chapter 5.

The Manage Menu

Overview

When you click *Manage* on the menu bar, its submenu drops down:

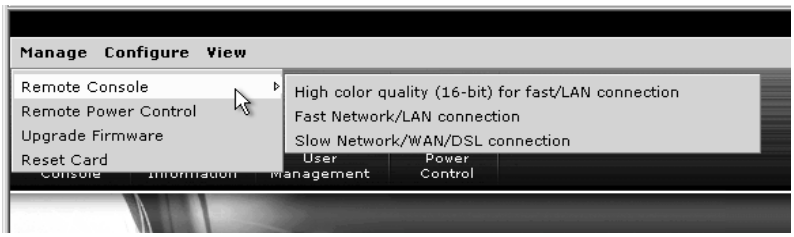
A brief description of the items is given in the table below:

Item	Description
Remote Console	Starts a remote console session with the host system.
Remote Power Control	Powers On, Powers Off, Power Cycles or Resets the host system.
Upgrade Firmware	Upgrades the IP9001's firmware.
Reset Card	Resets the IP9001 card.

Each entry is explained in detail in the sections that follow

Remote Console

The Remote Console submenu offers three choices for remote console display as shown in the figure and table below:



Item	Description
High Color Quality (16-bit) for fast/LAN Connection	Allows the IP9001 to send 16 bits per pixel color. Recommended for faster connection speeds or over a LAN connection.
Fast Network/LAN connection (Low Color Quality)	Allows the IP9001 to send 8 bits per pixel color. Recommended for lower connection speeds or over a WAN connection. When using this connection, you can opt not to use software compression. Compression can increase the frame rates. It is best used for slower connections.
Slow Network/WAN/DSL Connection (Low Color Quality)	Allows the IP9001 to send 8 bits per pixel color. Recommended for lower connection speeds or over a WAN connection. When using this connection, you can also use software compression. Compression can increase the frame rates. It is best used for slower connections, such as DSL.

Note: The Low Color Quality (8-bit) for slow/WAN/DSL Connection mode is recommended for low speed connections such as those over a Wide Area Network or home DSL. If you are connecting over a LAN at high speeds you can use High Color Quality (16-bit) for fast/LAN Connection mode. In order to change modes you must stop redirection, close the browser, and reconnect in the appropriate mode.

Console Redirection

The most powerful feature of the IP9001 is the ability to redirect the host system's console - giving you the ability to manage your host system as if you were actually right in front of it.

Internet Explorer Setup

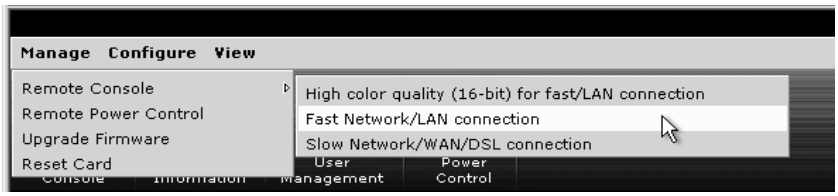
Before you can perform redirection, you must first set up Internet Explorer. This is the same procedure that was described in Chapter 2, pages 25 to 28. If you haven't already set IE up according to the steps described, refer back to that section to set up your browser now.

Note: The Remote Console program cannot run, and console redirection cannot take place, unless Internet Explore is set up according to the steps indicated.

Starting Redirection

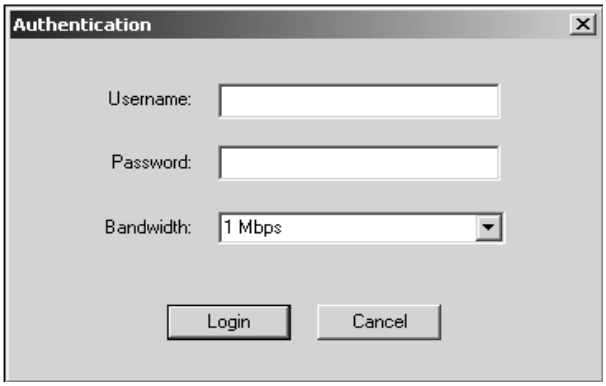
To begin Console Redirection, do the following:

1. From the Manage menu, select *Remote Console*, then the quality mode you wish to use:

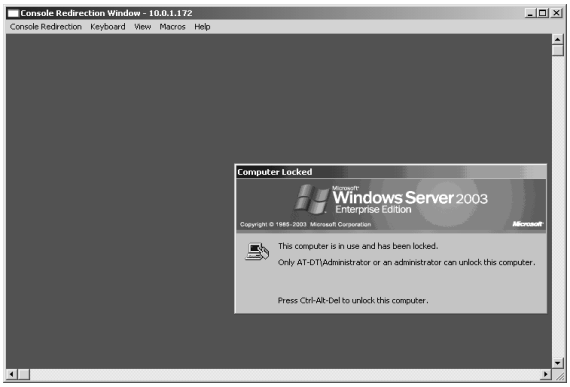


The *Loading Remote Console* screen appears:

2. When the authentication dialog box comes up, key in your Username and Password; select a data transmission speed; then click **Login**:



The Console Redirection screen opens:



Now that you have redirected the host system's console, you have the ability to manage the host system from your console just as if you were physically at it.

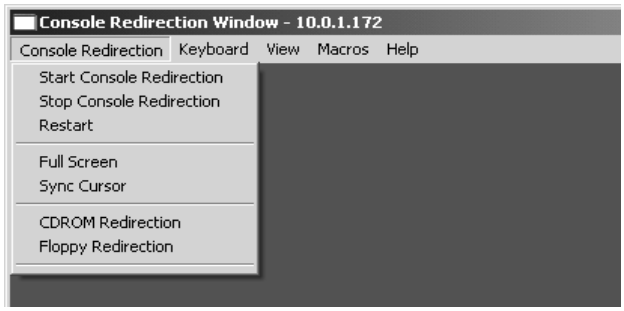
3. Drop down the *Keyboard* menu, and click the **Alt+Ctrl+Del** entry to begin.

The next sections explain how to use the console redirection screen.

The Console Redirection Screen

Several drop down menus to manage the host system are arranged across the screen. The next sections describe the functions of each of the menu items.

The Console Redirection menu:



Item	Function
Start Console Redirection	Begins console redirection
Stop Console Redirection	Ends console redirection
Restart	When console redirection is active, it stops redirection, then restarts it.
Full Screen	Toggles viewing console redirection in Full Screen mode On or Off. **Note:** Set the client system screen resolution to 1024 x 768 in order to view the host system in true full screen mode.
Sync Cursor	Syncs or unsyncs the host and client mouse pointers.
CDROM Redirection	Toggles the redirection of the CDROM drive On or Off.
Floppy Redirection	Toggles the redirection of the floppy drive On or Off. **Note:** This feature is not available on all versions of the IP9001.

Note: These functions can also be performed with hotkey combinations. See p. 71 for details.

The Keyboard Menu:

Under console redirection some keystrokes cannot be captured and sent to the host system - the items on this menu provide the keystroke functionality to the host system.

Item	Function
Hold Right Ctrl Key	Acts as the Right Ctrl key*
Hold Right Alt Key	Acts as the Right Alt key*
Hold Left Ctrl Key	Acts as the Left Ctrl key*
Hold Left Alt Key	Acts as the Left Alt key*
Left Windows Key	Acts as the Left Windows key
Right Windows Key	Acts as the Right Windows key
Alt+Ctrl+Del	Acts as the Ctrl-Alt-Del combination*
Auto Key-Break Mode	This menu item must be enabled when USB keyboard emulation is used. The IP9001 does not use USB keyboard emulation. Instead, the IP9001 uses legacy PS/2 emulation. This feature is used to avoid repeated keystrokes over slow connections.
Encryption	Click this item to enable/disable encryption of the keyboard data being transferred from the remote client.

***** This function can also be performed with a hotkey combinations. See p. 71 for details.

The View Menu:

This View menu contains one item: *Toolbar*. Clicking Toolbar brings up the Console Redirection toobar. The Console Redirection toolbar is discussed in detail on p. 50.

The Macros Menu:

Record New Macro allows you to record a set of keystrokes. A good example of how this would be useful is when the IP9001 is used in conjunction with a KVM switch. Normally, you must use a key sequence to switch systems. With a pre-recorded macro created for that purpose, you could switch systems by runnning the macro instead of having to input the sequence manually.

The Help Menu:

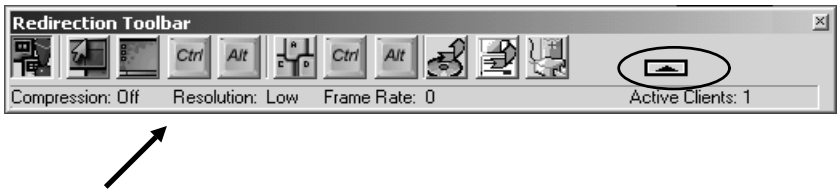
This menu contains the *About RConsoleOCX Control* item. Click it to view the RConsoleOCX Control version number and copyright information.

The Console Redirection Toolbar

Clicking Toolbar on the View menu brings up the Console Redirection toolbar:

The toolbar allows you to perform console redirection functions more conveniently when you are in full screen mode and the menus are not visible. It is especially useful if you are not familiar with the hotkey combinations.

Clicking the arrow at the right of the toolbar displays Console Redirection Status information:



The meanings of the fields are given in the table below:

Field	Function
Compression	Indicates whether or not you are using compression.
Resolution	Indicates the resolution quality.
Frame Rate	Indicates the current fram rate.
Active Clients	Shows how many users are currently logged into the IP9001.

Toolbar Icons

The function that each of the toolbar icons performs is described in the table below:

Icon	Description
	Toggles Console Redirection On and Off.
	Toggles mouse synchronization On and Off.
	Toggles full screen mode On and Off. **Note:** Set your client's resolution to 1024 x 768 to see the host system in true full screen mode.
	Toggles the Ctrl key On and Off. The icon on the left of the CAD button represents the Left Ctrl key; the icon on the right of the CAD button represents the Right Ctrl key.
	Toggles the Alt key On and Off. The icon on the left of the CAD button represents the Left Alt key; the icon on the right of the CAD button represents the Right Alt key.
	Performs a Ctrl+Alt+Del (CAD) operation.
	Toggles CDROM device redirection On and Off.
	Toggles floppy device redirection On and Off **Note:** Floppy device redirection is not available on all versions of the IP9001 card.
	Toggles the Power Control dialog box On and Off. Remote power control is discussed in detail on p. 63.

CD Drive Redirection

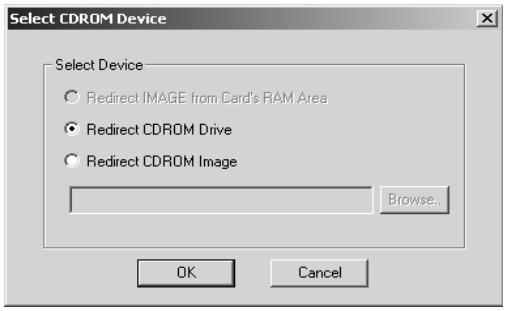
Starting CD drive redirection:

To perform CD drive redirection, do the following:

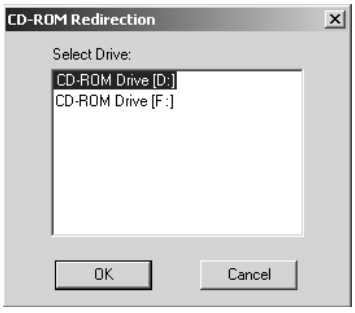
1. Use one of the following three methods to invoke the redirection:
   - Click the CD Drive Redirection icon on the Redirection Toolbar (see p. 51)
   - Select CDROM Redirection on the Console Redirection menu (see p. 47)
   - Use the **Alt+E** hotkey combination (see p. 71)

   Note: You must be logged in as an administrator on the windows client to perform CD-ROM drive redirection.

2. In the dialog box that comes up, select whether you want to redirect the CD-ROM drive or a CD image file, then click **OK**.



3. In the dialog box that comes up, select the CDROM drive you want to redirect, then click **OK**. CDROM drive redirection begins immediately.

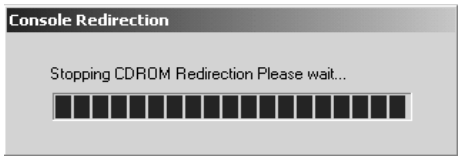


Stopping CD drive redirection:

To stop CD drive redirection, use one of the following three methods:

- Click the CD Drive Redirection icon on the Redirection Toolbar (see p. 51)
- Select CDROM Redirection on the Console Redirection menu (see p. 47)
- Use the **Alt+E** hotkey combination (see p. 71)

A dialog box comes up to inform you of the progress:



When the dialog box closes, redirection has ended.

Floppy Drive Redirection

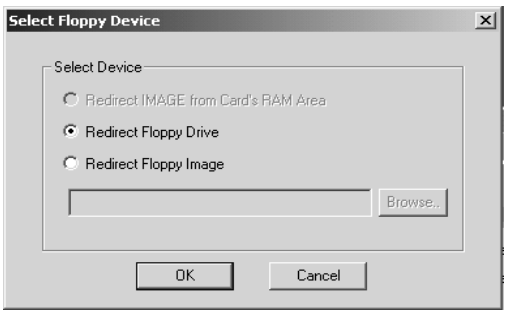
Starting floppy drive redirection:

To perform floppy drive redirection, do the following:

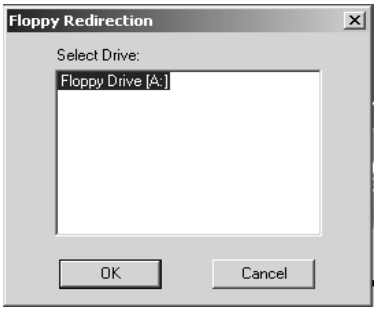
1. Use one of the following three methods to invoke the redirection:
   - Click the Floppy Drive Redirection icon on the Redirection Toolbar (see p. 51)
   - Select Floppy Redirection on the Console Redirection menu (see p. 47)
   - Use the **Alt+P** hotkey combination (see p. 71)

   Note: You must be logged in as an administrator on the windows client to perform floppy drive redirection.

2. In the dialog box that comes up, select whether you want to redirect the floppy drive or a floppy image file, then click **OK**.



3. In the dialog box that comes up, select the floppy drive you want to redirect, then click **OK**. Floppy drive redirection begins immediately.

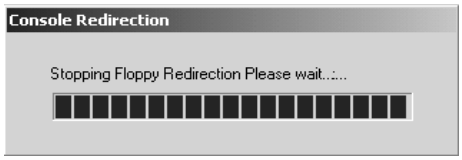


Stopping floppy drive redirection:

To stop floppy drive redirection, use one of the following three methods:

- Click theFloppy Drive Redirection icon on the Redirection Toolbar (see p. 51)
- Select Floppy Redirection on the Console Redirection menu (see p. 47)
- Use the **Alt+P** hotkey combination (see p. 71)

A dialog box comes up to inform you of the progress:



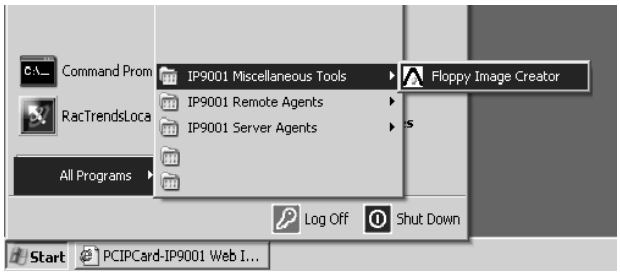
When the dialog box closes, redirection has ended.

Floppy Image Creation

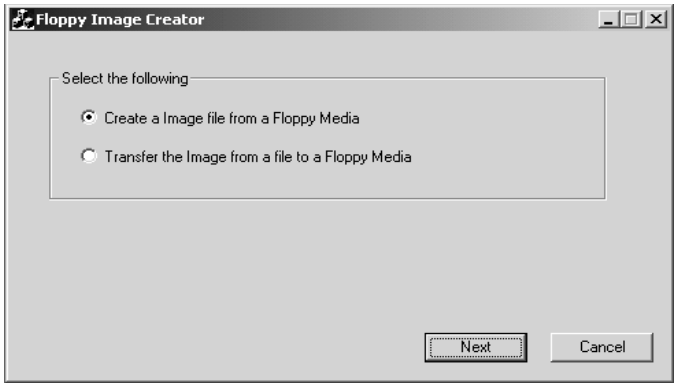
Using a floppy image file during device redirection is faster and more efficient than redirecting from an actual floppy disk. It is also more convenient to have a series of floppy images stored on a CD or on a local or networked hard disk drive than to keep and maintain actual floppy disks.

To create a floppy image file, do the following:

1. Install the IP9001 utility programs (located on the Software CD that came with your IP9001 package) on your system.
2. Run the Floppy Image Creator program:



3. In the dialog box that comes up, select *Create an Image file from a Floppy Media*, then click **Next**.



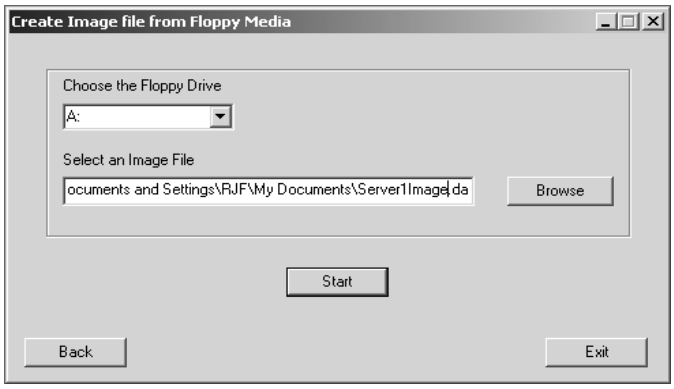
4. In the dialog box that comes up:

   a. Select the floppy drive that you want to create the floppy image from

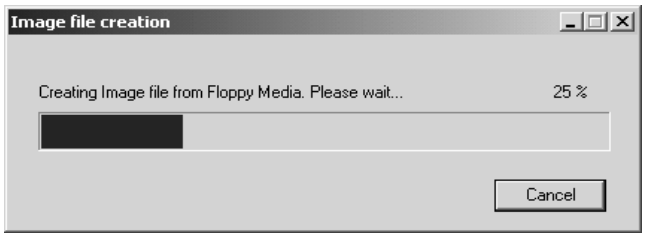
   b. Select a location where you want the image to be stored and give it a file name

   c. Put the floppy with the data you want to copy to the image file in the floppy drive

   d. Click **Start**

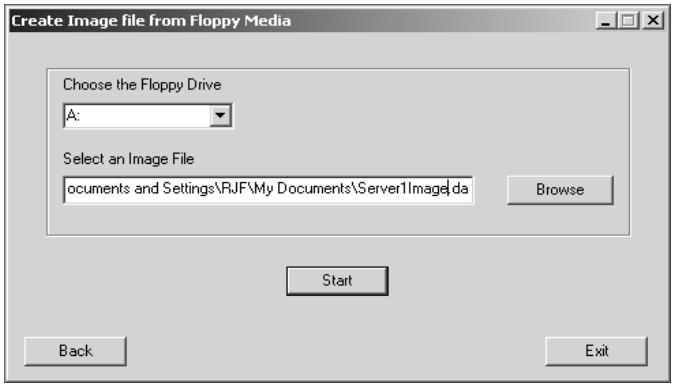


A progress dialog box comes up to indicate the status of the procedure:



5. Once the image file is successfully created a confirmation dialog box comes up. Click **OK** to move on.

6. When the *Create Image file from a Floppy Media* dialog box comes back up, click **Exit** to close the program.

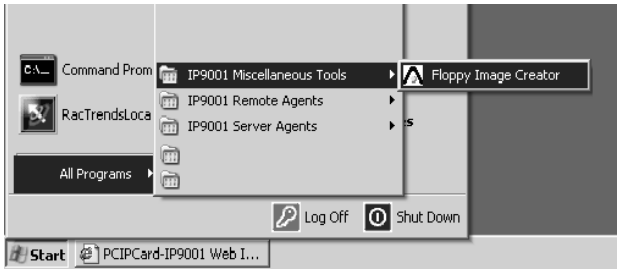


This completes the floppy image file creation procedure. You can now use this image file during device redirection.

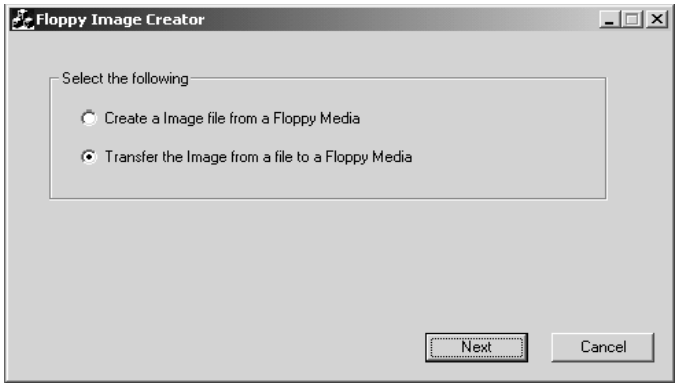
Transfer A Floppy Image To Floppy Disk

To transfer a floppy image to floppy disk, do the following:

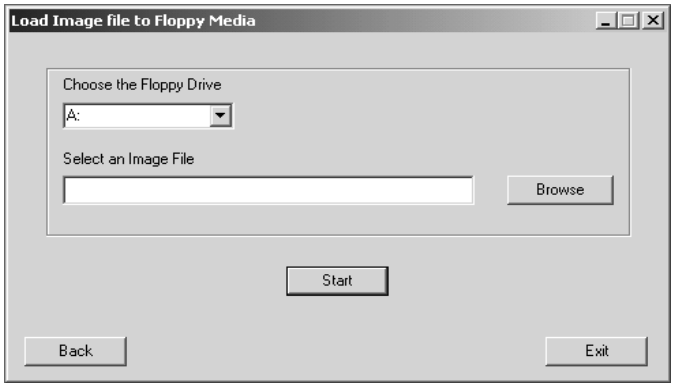
1. Run the Floppy Image Creator program:



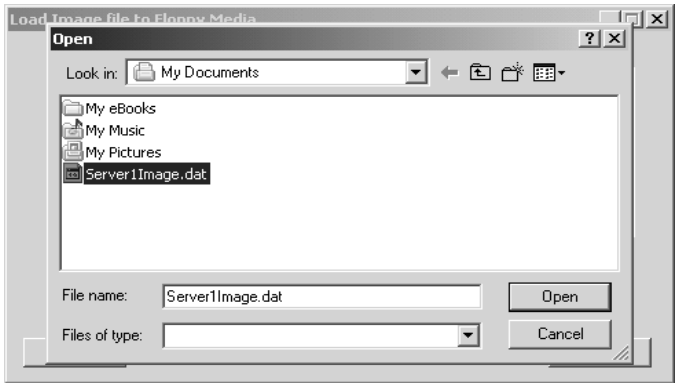
2. In the dialog box that comes up, select *Transfer the Image from a file to a Floppy Media*, then click **Next**.



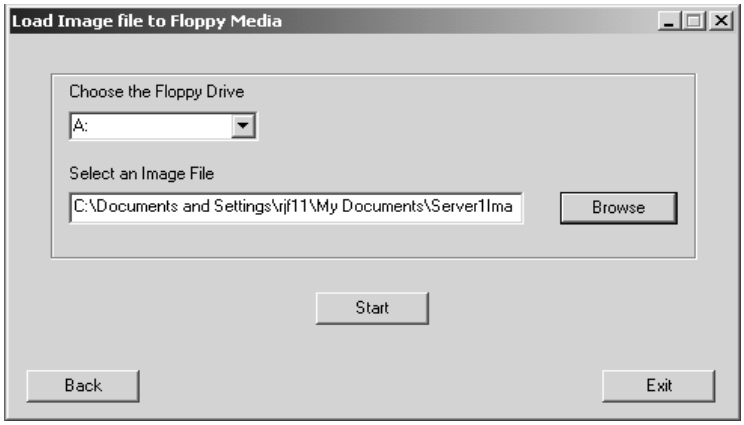
3. In the dialog box that comes up, click **Browse**.



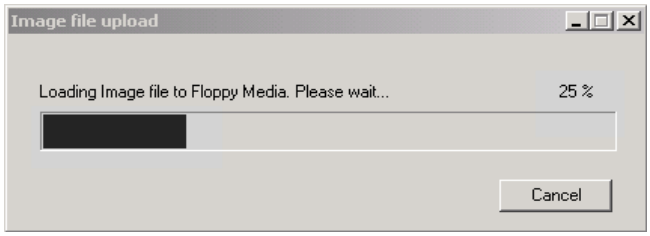
4. Navigate to the image file you want to transfer to the floppy disk, then click **Open**.



5. In the dialog box that appears, click **Start**.

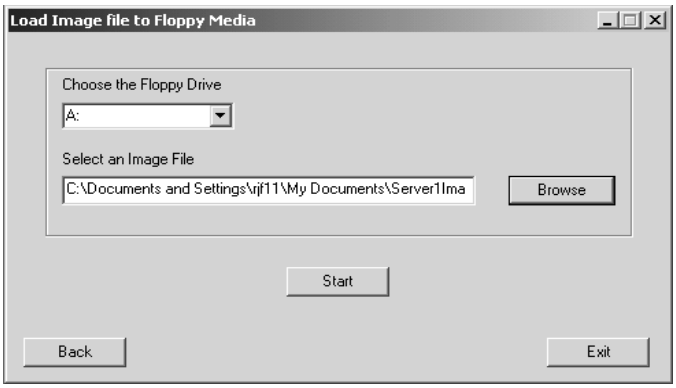


A progress dialog box comes up to indicate the status of the procedure:



6. Once the image file is successfully created a dialog box comes up to indicate so. Click **OK** to move on.

7. When the *Load Image file to a Floppy Media* dialog box comes back up, click **Exit** to close the program.



This completes the floppy image file transfer to floppy media procedure.

Stopping Console Redirection

To stop console redirection, use one of the following three methods:

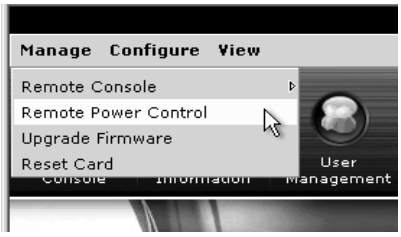
- Click the Stop Redirection icon on the Redirection Toolbar (see p. 51)
- Select Stop Console Redirection on the Console Redirection menu (see p. 47)
- Use the **Alt+T** hotkey combination (see p. 71)

A dialog box comes up to inform you of the progress:

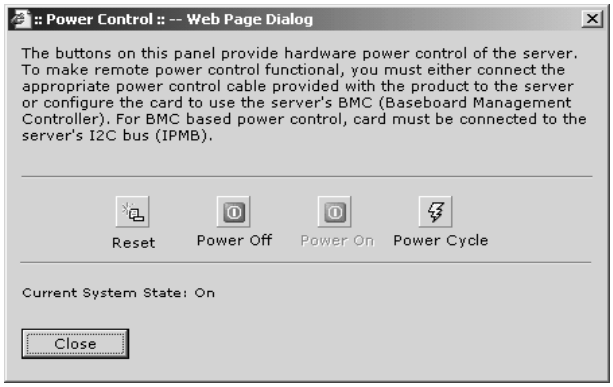
When the dialog box closes, redirection has ended.

Remote Power Control

The second item on the Manage menu is Remote Power Control:



The Power Control dialog box allows you to remotely reset, power off, power on, and power cycle the host system:

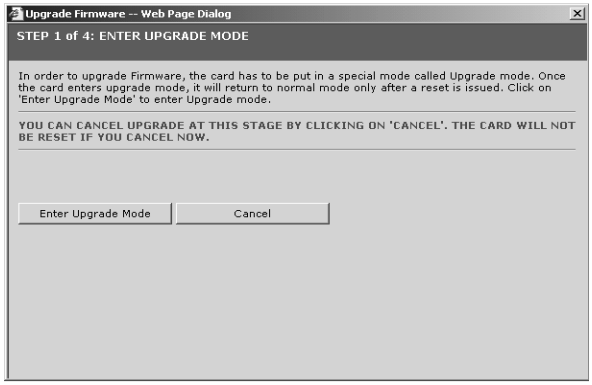


Simply click the icon to perform the corresponding action on the remote system. The entry below the icons indicates the remote system's current power status (Off or On).

Upgrade Firmware

The Upgrade Firmware utility provides an easy, convenient method to upgrade the IP9001's firmware:

To begin, click the *Upgrade Firmware* entry on the Manage menu to bring up the opening dialog box:



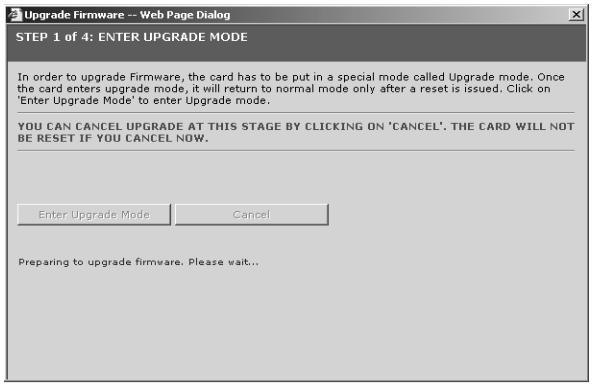
Note: 1. Upgrading the firmware is a critical procedure. Make sure that the chances of a power or connectivity loss are minimal when performing this operation.

2. If you click **Cancel** at this time to abort the upgrade process, the IP9001 card resets itself.

3. If you cancel after you have entered Upgrade Mode, the IP9001 card must be reset by closing the Internet browser and then logging back onto the IP9001 in a new browser session.

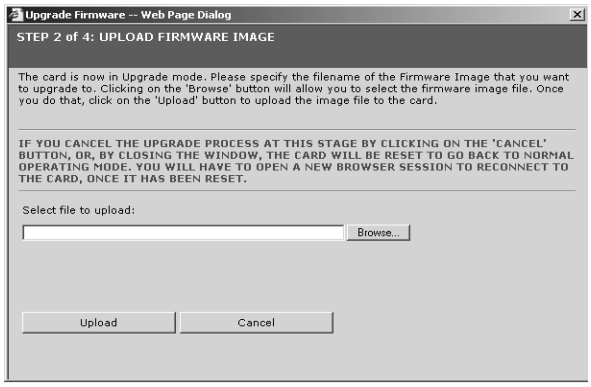
To update the IP9001's firmware, do the following:

1. Click **Enter Firmeare Upgrade Mode**. The following dialog box appears:

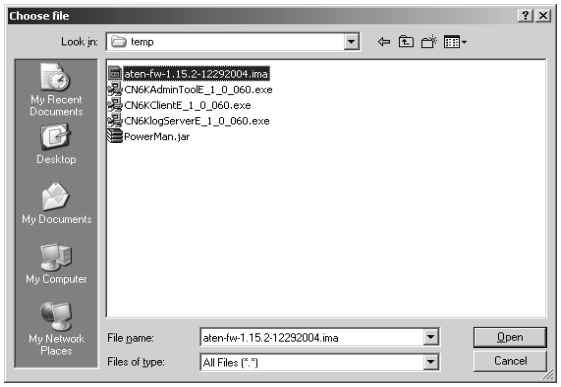


When the IP9001 is in Upgrade Mode and you want to abort the procedure, you must use the **Cancel** button to close the upgrade dialog boxes. DO NOT use the Title Bar's **X** button to close the dialog boxes.

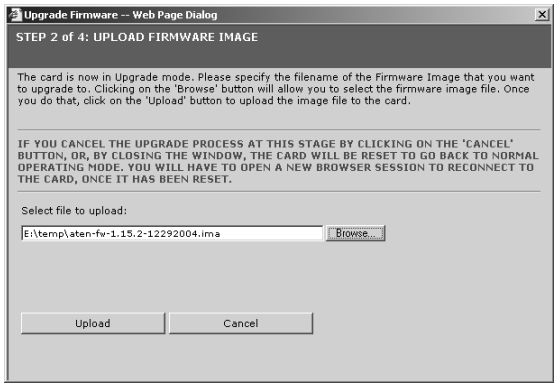
2. In the dialog box tha comes up, click Browse to navigate to where the firmware upgrade file (*.IMA) resides:



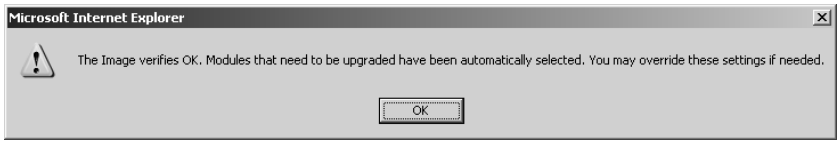
3. Select the image file (it has an *ima* extension), then click **Open**.



4. In the dialog box that comes up, click **Upload**.

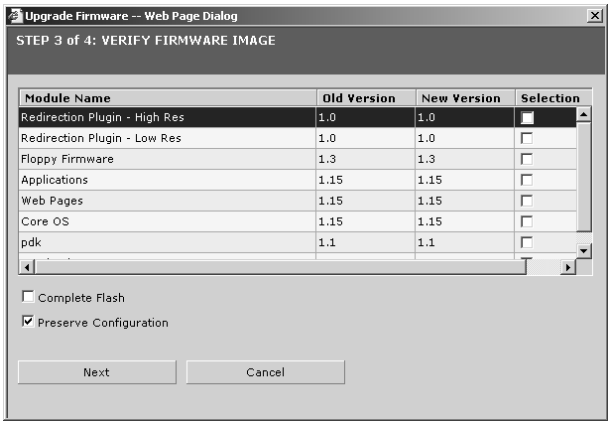


5. The upgrade utility starts the upload of the new firmware file and checks it for integrity. After it verifies the image file, it displays the following message:



Click **OK** to move on.

6. A dialog box comparing the old and new versions appears:

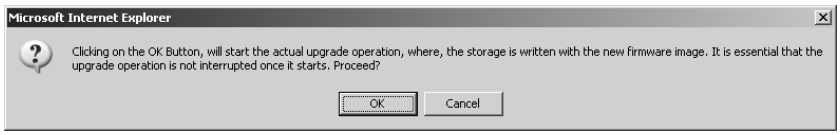


- To upgrade some components but not others, check the component you want to upgrade in the *Selection* column.
- To upgrade all the components, check *Complete Flash*.
- To upgrade, but retain a copy of your original configuration, check *Preserve Configuration*.

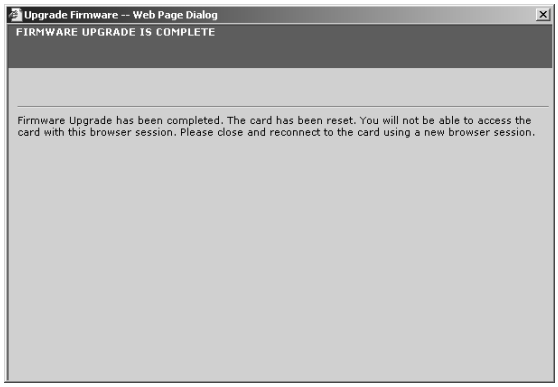
When your selections have been made, click **Next** to move on.

Note: If you choose to cancel the upgrade, the IP9001 card must be reset by closing the Internet browser and then logging back onto the IP9001 in a new browser session.

7. A confirmation dialog box comes up. Click **OK** to start the actual upgrade.



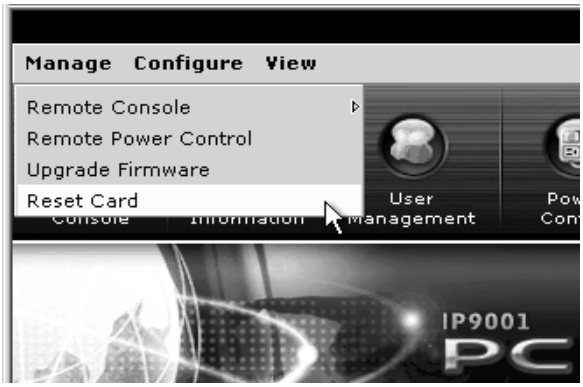
8. A screen showing the upgrade progress comes up. After the procedure has successfully completed the following screen appears:



You must now close your browser and log back onto the IP9001 in a new browser session.

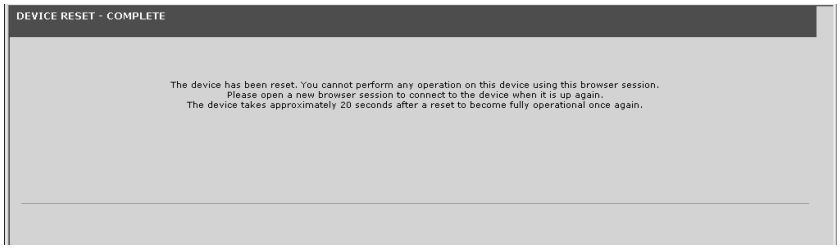
Reset the IP9001

The function of this menu item is to reset the IP9001:



1. When you click Resert Card on the Manage menu, a confirmation dialog box comes up. Click **OK** to reset the card:

2. When the reset procedure is complete, the following dialog box appears.:



Close your browser and relog into the IP9001 in a new browser session.

Remote Console Hotkey Combinations

The following table lists hotkey combinations that perform many of the remote console functions directly from the keyboard.

Hotkey	Function
ALT + S	Start Console Redirection
ALT + T	Stop Console Redirection
ALT + R	Restart Console Redirection
ALT + F	Toggle Full Screen Mode
ALT + M	Synchronize Mouse
ALT + A	Hold/Release Right **Alt** Key
ALT + B	Hold/Release Left **Alt** Key
ALT + L	Hold/Release Right **Ctrl** Key
ALT + N	Hold/Release left **Ctrl** Key
ALT + D	Generate **Ctrl + Alt + Del**
ALT + E	Start CDROM Drive Redirection
ALT + P	Start Floppy Drive Redirection

[redacted]

Notes:

Chapter 6.

The Configure Menu

Overview

When you click *Configure* on the menu bar, its submenu drops down:

Item	Function
Users	Administer users that can access the IP9001 and host system.
Network	Configure the IP9001's network parameters.
Firewall	Control which IP addresses can access the IP9001.
Alert Notification	Configure how alerts are sent.
Date & Time	Configure the IP9001's date and time settings.
Serial Port	Configure the IP9001's Serial Over LAN access.
SSL Certificate	Upload a Digital Certificate and Private Key to the IP9001 card. **Note:** Pass-phrase encrypted certificates are not supported.
PMCP File Upload	Upload a platform management file for your motherboard/server board.
IPMI Configuration	Configure the IP9001 card to read data from an onboard baseboard management controller (BMC) on the motherboard/server board.
Server OS Monitoring & Recovery	Configure operating system monitoring and recovery methods.
PPP Configuration	Set the PPP addresses for the Server and Client when using a modem.

Users

Clicking *Users* on the Configure menu brings up the User setup dialog box:

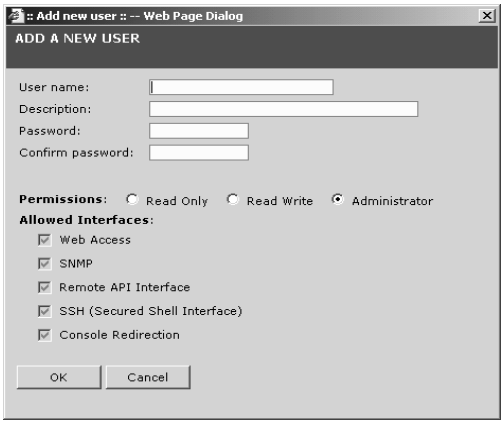
The dialog box screeen elements are described in the table below.

Element	Function
Username	User's log in name. **Note:** The default administrator's Username is *root*; the default administrator's password is *superuser*. For security purposes, we strongly recommend that you change the default password to something unique.
Description	Descriptive information about the user.
Add	Click to add a new user account.
Remove	Click to delete the user account currently selected in the Username list.
Properties	Click to View/Edit the user account currently selected in the Username list.
Close	Click to exit the User Administation dialog box.

Adding Users

To add a user account, do the following:

1. In the User dialog box, click **Add**. The *Add a New User* dialog box appears:

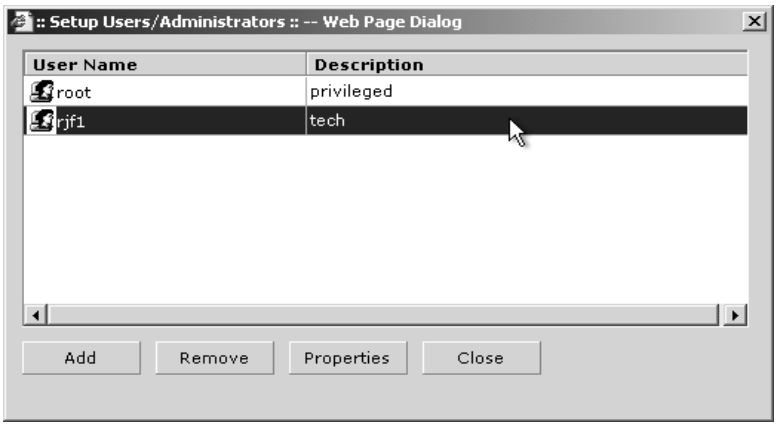


2. Key the appropriate information into the Username, Description, Password and Confirm Password fields. Please note the following:
   - User names are case sensitive. They can consist of any combination of alphanumeric characters but they must start with an alphabetic character, and must be between 4 and 12 characters long.
   - Entering a remark in the Description field is optional.
   - Passwords are case sensitive. They must be between 8 and 16 characters long. For security purposes, we recommend using a combination of alphabetic and numeric characters.
   - Confirm the password by entering it again in the *Confirm Password* field.
3. Assign the user's permissions and allowed interfaces:
   - Only users with *Administrator* permissions are allowed to add, edit, and remove users. Non-administrator users can only change their own password.
   - Users with *Administrator* permissions are automatically granted access to all interfaces.

Removing Users

To delete a user account, do the following:

1. Select the account to be removed from the *User Name* list.



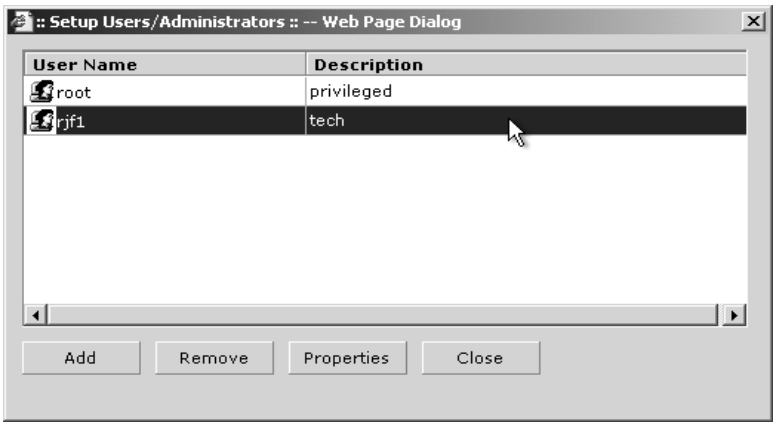
2. Click **Remove**.

3. In the confirmation dialog box that comes up, click **OK** to confirm the deletion, or click **Cancel** to abort the procedure.

Viewing and Editing Users

To view and/or edit a user account, do the following:

1. Select the account from the *User Name* list.



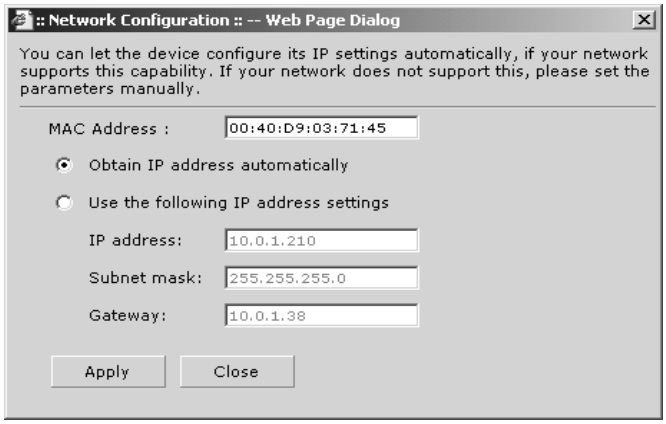
2. Click **Properties**.

   The *Modify User* dialog box comes up. This dialog box is similar to the *Add a New User* dialog box on p. 75. Refer back to the field descriptions given there, if necessary.

3. After you have made your changes, click **OK** to complete the procedure, or click **Cancel** to abort the procedure without saving your changes.

Network

Clicking *Network* on the Configure menu brings up the Network Configuration dialog box:



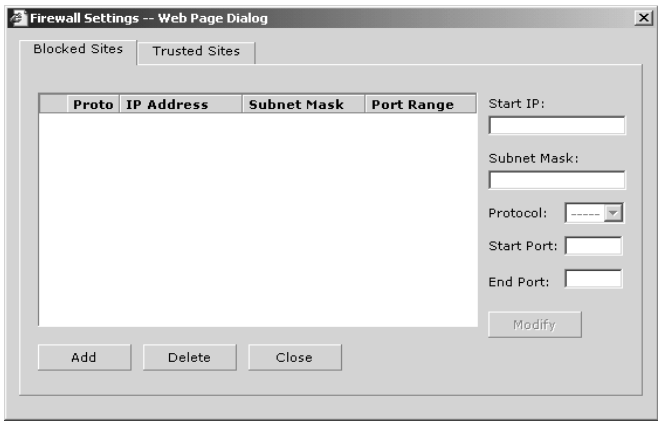
- The IP9001's MAC address displays in the *MAC Address* field.
- If you want the IP9001 to get its IP address dynamically (from a DHCP server), select *Obtain IP address automatically*.
- If you want to assign a static IP address to the IP9001, select *Use the following IP address settings*, then fill in the IP address, Subnet mask, and Gateway fields with entries that are appropriate for your network.

When you have finished making your entries, click **Apply** to save your changes. To abort the procedure without saving your changes, click **Close**.

Note: If you change the information in the Network Configuration dialog box, you are prompted to close your browser and reconnect to the IP9001 at its new IP address.

Firewall

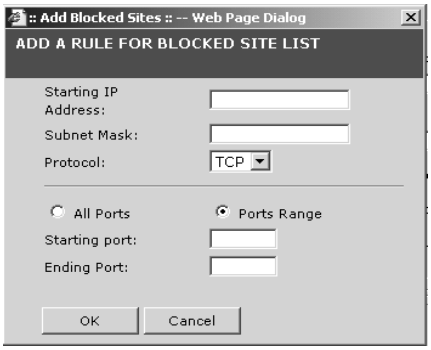
Clicking *Firewall* on the Configure menu brings up the Firewall Settings dialog box:



This dialog box allows you to configure the IP9001's access parameters, by entering IP addresses and ports to block or allow.

- Click the *Blocked Sites* tab to enter a range of addresses that you want to block.
- Click the *Trusted Sites* tab to enter a range of addresses that you want to always allow.

After you click **Add** for either the Blocked or Trusted site, the *Add a Rule* dialog box comes up:

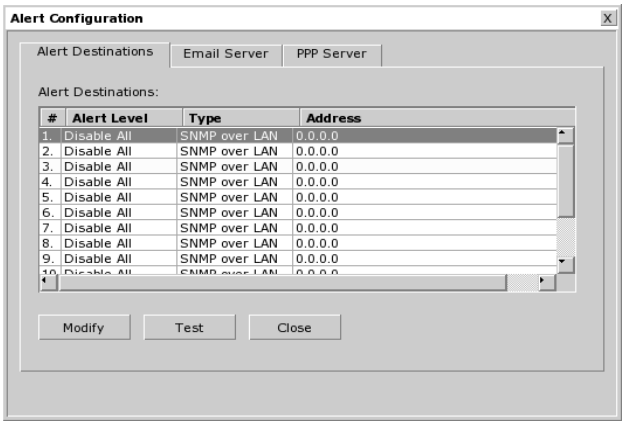


Note: The dialog box shown is for Blocked sites. The dialog box for Trusted sites has the same fields, so the descriptions that follow also apply to the dialog for Trusted sites.

Field	Function
Start IP Address	This field allows you to enter the start IP address of the subnet you want to block or always allow.
Subnet Mask	This field allows you to enter the specific subnet of the IP address range that you want to filter.
Protocol	This drop down list lets you select a protocol (UDP or TCP) that the IP9001 will either accept or ignore.
All Ports	If this is enabled, the IP9001 will accept or ignore data on all ports (1 through 65535).
Port Range	If this is enabled, you can select a specific range of ports that you want the IP9001 to accept of ignore.
Starting Port	This field allows you to enter the the first port of the range that you want the IP9001 to accept or ignore.
Ending Port	This field allows you to enter the last port of the range that you want the IP9001 to accept or ignore.
[OK]	Click **OK** when you are satisfied with the information you entered.
[Cancel]	Click **Cancel** to discard your changes and exit.

Alert Notification

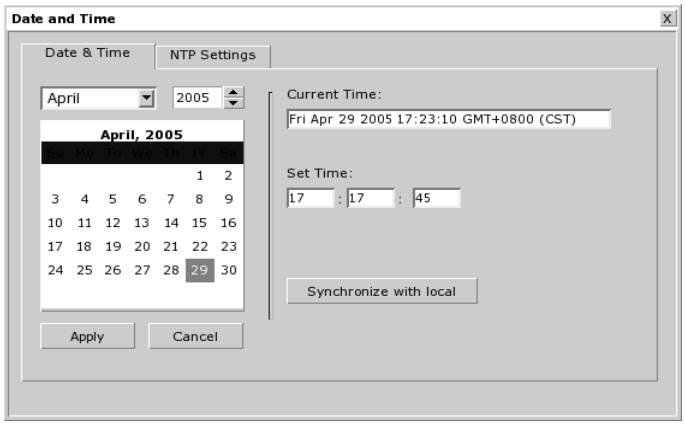
Clicking *Alert Notification* on the Configure menu brings up the Alert Notification dialog box:



This dialog box lets you configure where and how various alerts from the IP9001 are sent.

Date & Time

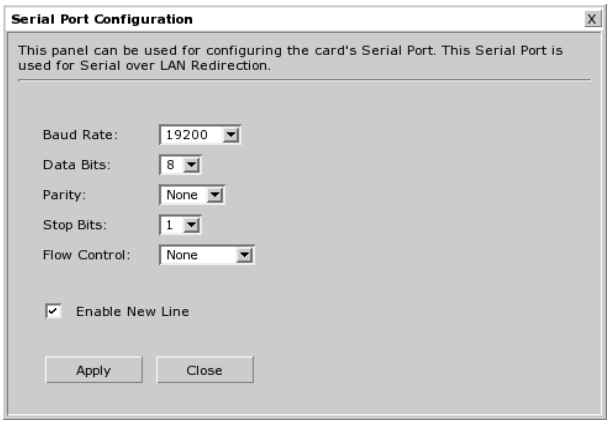
Clicking *Date & Time* on the Configure menu brings up the Date & Time dialog box:



Use this dialog box to set the IP9001's date and time. You can set the time manually, synchronize it with your local machine; or have it synchronized with an NTP (Network Time Protocol) server.

Serial Port

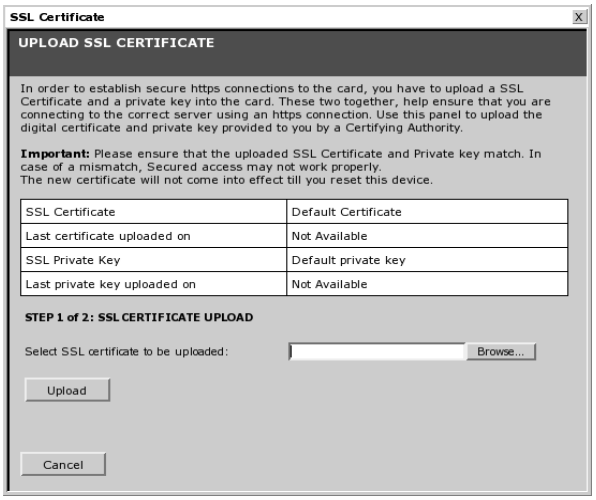
Clicking *Serial Port* on the Configure menu brings up the Serial Port dialog box:



Use this dialog box to set the serial port parameters: baud rate, data bits, parity, stop bits, and flow control.

SSL Certificate

Clicking *SSL Certificate* on the Configure menu brings up the SSL Certificate dialog box:



Use this dialog box to upload an SSL Certificate and SSL Private Key for verification when users access the IP9001 with their browsers.

Click the *Browse* button to navigate to where your Certificate and Private Key files are located - both files have a *PEM* file extension.

Note: The IP9001 does not support pass-phrase encrypted certificates.

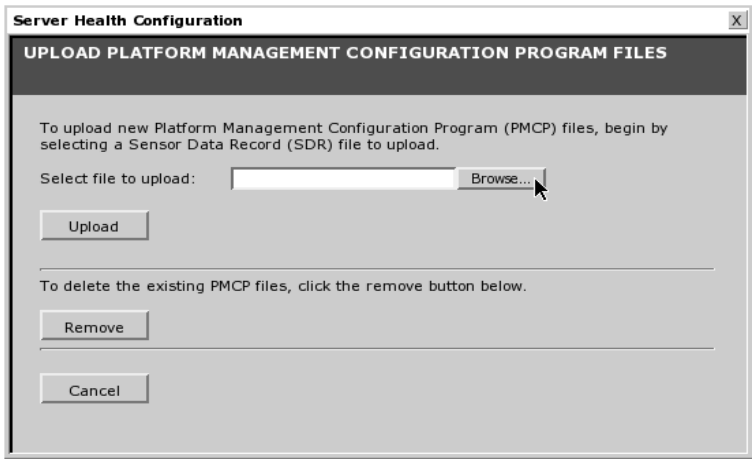
After both files are uploaded a dialog comes up reminding you that the IP9001 needs to be reset for the new certificates to take effect. Click **OK** to reset the card.

Now, users can securely access the IP9001 with a format similar to the following:

```
https://[the IP9001's IP address]
```

PMCP File Upload

Clicking *PMCP Health Configuration* on the Configure menu brings up the The Host Health Monitoring Files dialog box.

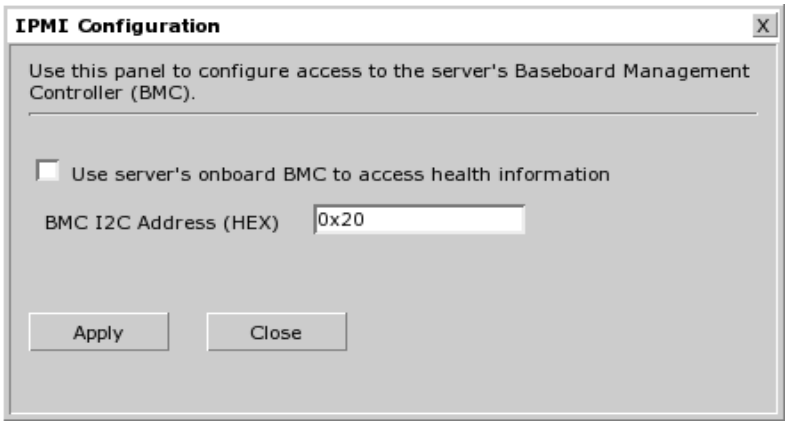


This is the same dialog box, and involves the same procedures discussed in Chapter 2, p. 34, under *Load the SDR and Soft Processor (SP) File*.

Follow the steps on those pages to complete this procedure.

IPMI Configuration

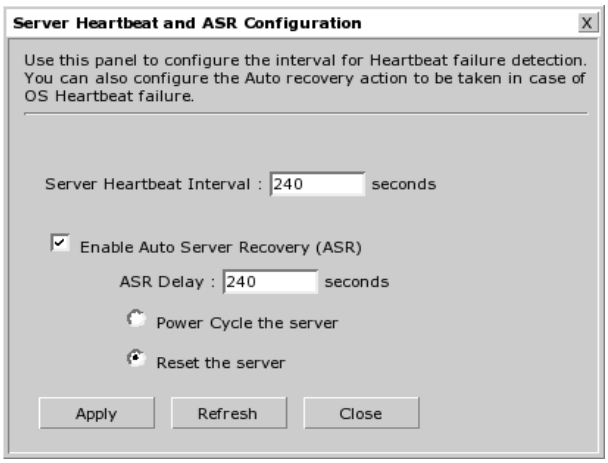
Clicking *IPMI Configuration* on the Configure menu brings up the IPMI Configuration dialog box:



To read data from an onboard baseboard management controller (BMC) on the motherboard/server board, put a check in the the checkbox, then click **Apply**.

Server OS Monitoring and Recovery

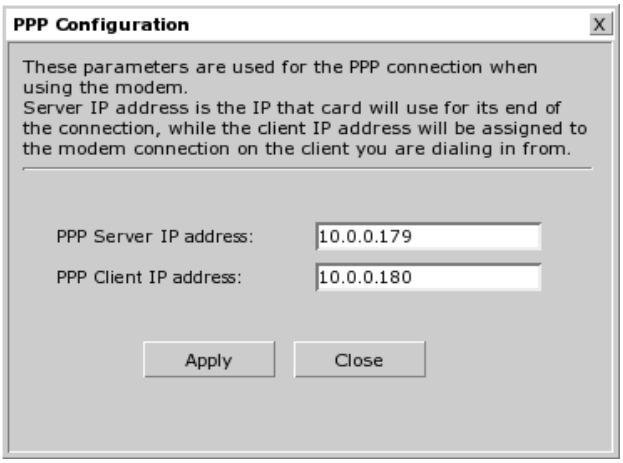
Clicking *Server OS Monitoring and Recovery* on the Configure menu brings up the Server OS Monitoring and Recovery dialog box:



This dialog box allows you to configure operating system monitoring and recovery methods.

PPP Configuration

Clicking *PPP Configuration* on the Configure menu brings up the PPP Configuration dialog box:



This dialog box allows you to set the PPP addresses for the Server and Client when using a modem.

Chapter 7.
The View Menu

Overview

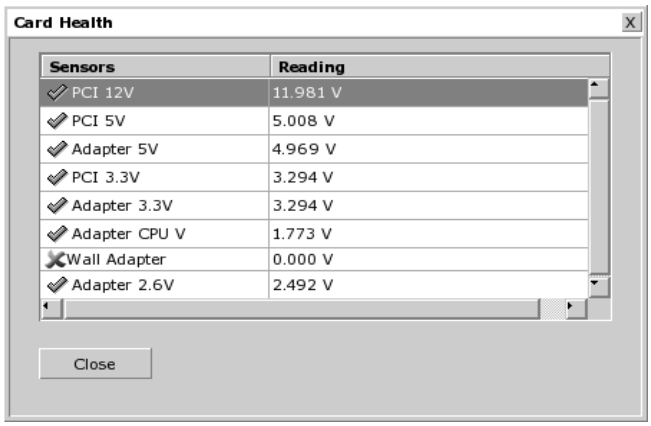
When you click *View* on the menu bar, its submenu drops down:

A brief description of the items is given in the table below: Each item is explained in detail in the sections that follow.

Item	Function
Card Health	Shows health information for the IP9001.
Event Log	Allows you to view and clear the event logs.
Server Health	Shows the host system's health information based on the sensor readings and platform management configuration information.
General Information	Shows general information about the IP9001.
Last Saved Crash Screen	Shows the last text screen on the host system before it locked up.

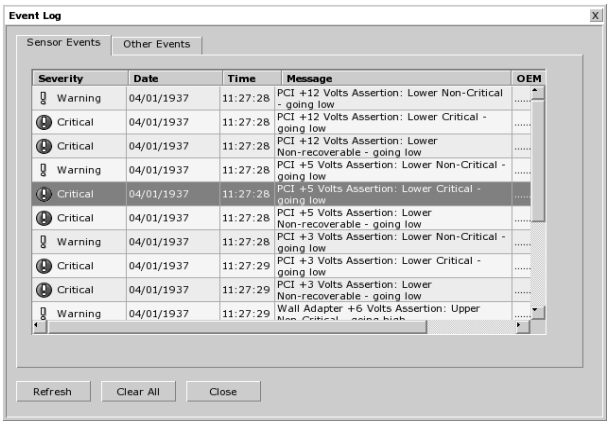
Card Health

Clicking *Card Health* on the View menu brings up a screen that shows the IP9001's health information:



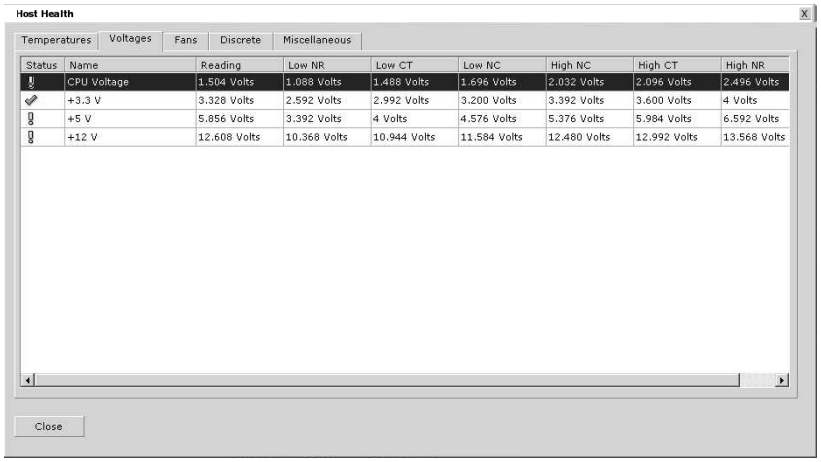
Event Log

Clicking *Event Log* on the View menu brings up a screen that allows you to view and clear the event logs:



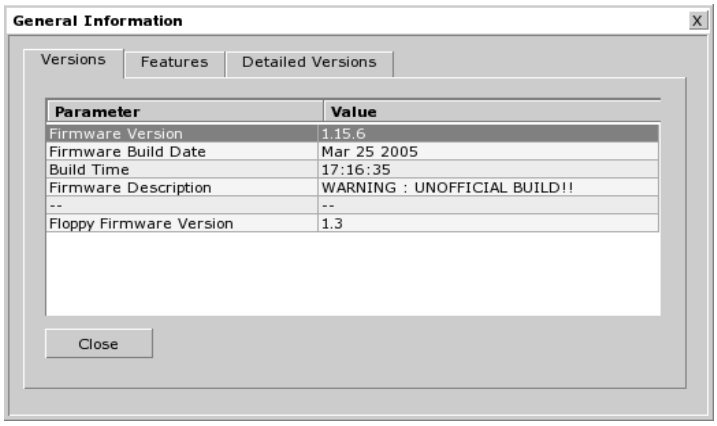
Server Health

Clicking *Server Health* on the View menu brings up a screen that shows the host system's health information based on the sensor readings and platform management configuration information:



General Information

Clicking *General Information* on the View menu brings up a screen that provides information about the IP9001:



The General Information screen has three tabs: Versions; Features; and Detailed Versions.

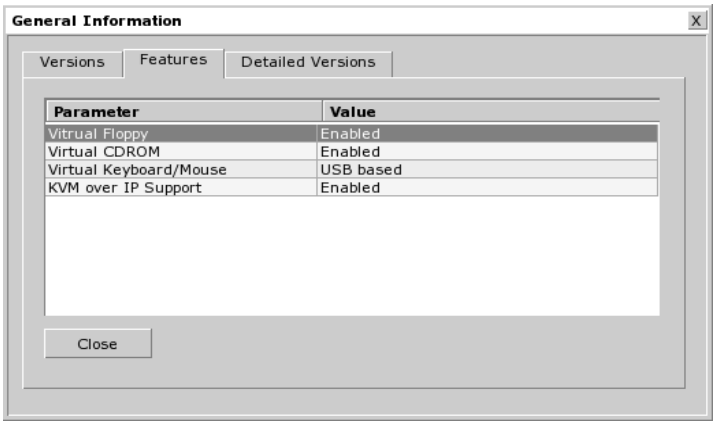
Versions

When the General Information screen comes up, the *Versions* screen is the one that is displayed. The meanings of the parameters and their values are explained in the table below:

Parameter	Value
Firmware Version	Shows the IP9001's firmware version number.
Firmware Build Date	Shows the IP9001's firmware build date in **MONTH DAY YEAR** format.
Firmware Build Time	Shows the IP9001's firmware build time in **HOUR:MIN:SEC** format.
Firmware Description	Shows a short description of the firmware.
Floppy Firmware Version	Shows the floppy emulation firmware version.

Features

The *Features* screen shows the available featuers provided by the IP9001:

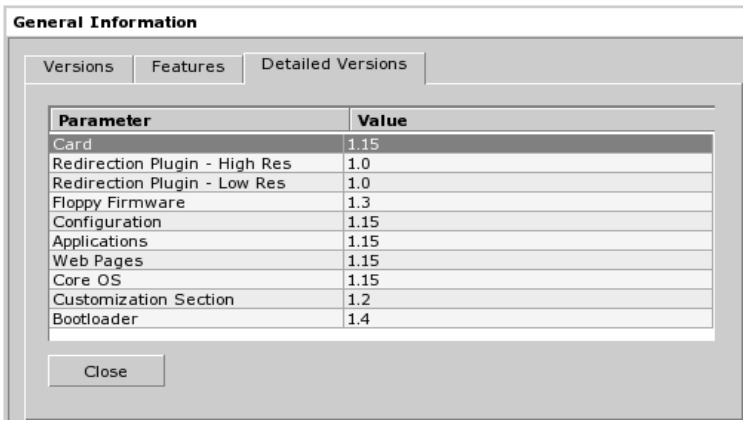


The meanings of the parameters and their values are explained in the table below:

Parameter	Value
Virtual Floppy	Shows whether or not floppy redirection is available.
Virtual CDROM	Shows whether or not CDROM redirection is available.
Virtual Keyboard/Mouse	Shows the type of emulaton being used for the keyboard and mouse.
KVM over IP Support	Shows whether or not KVM over IP is available.

Detailed Versions

The *Detailed Versions* screen shows the version numbers of the individual components that make up the IP9001's firmware:



The firmware components are listed in the *Parameter* column; the firmware version of each component is listed beside it in the *Value* column.

Last Saved Crash Screen

The *Last Saved Crash Screen* on the View menu allows you to see the last text-based screen on the host system prior to its locking up or freezing during a blue screen. This is useful because it allows you to troubleshoot the host system.

Clicking this item brings up a login screen. Provide your Username and Password, then click **Login** to see the Crash Screen.

Note: 1. You must have the Java Runtime Environment (JRE) installed to view the Crash Screen. If it isn't already installed on your sysem, it is available for free download from Sun's Java site: http://java.sun.com

2. The maximum size of the Crash Screen image is 50 Kb. Therefore, only one Crash Screen image can be saved, and only text-based crashes can be saved. The output from a crash on a graphics based system would be too large.

3. A captured Crash Screen image cannot be flushed from the IP9001's memory. It is automatically erased and replaced when the next Crash Screen image is saved.

[redacted]

Notes:

Appendix A.

Feature Cable Layout

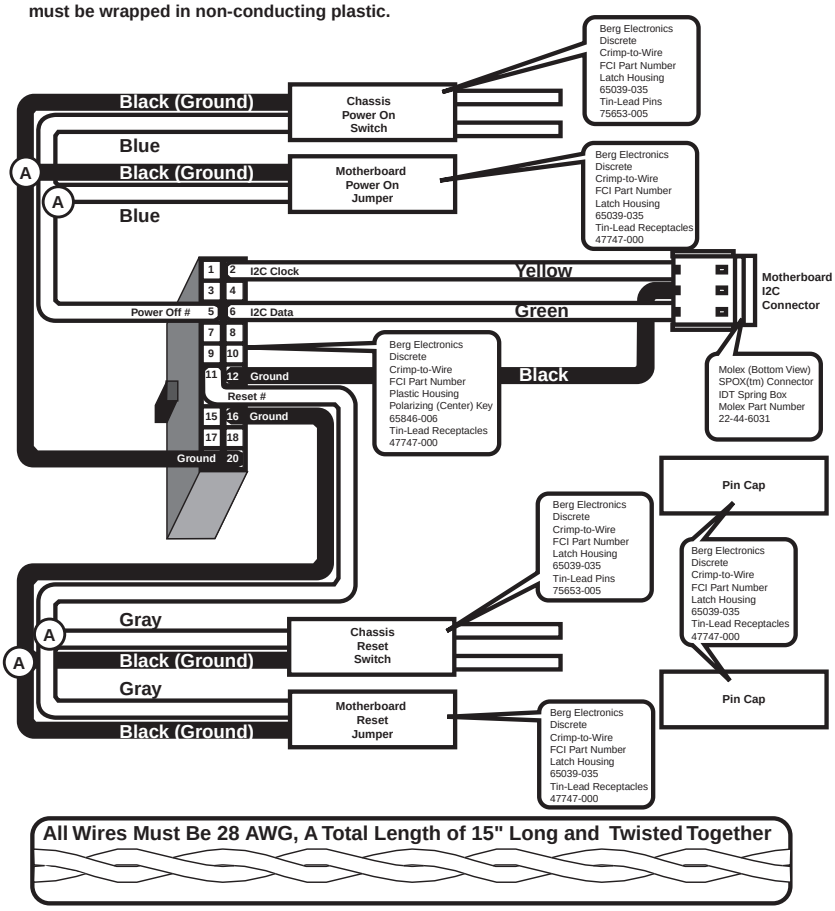
The IP9001 Feature Cable's layout is illustrated on the next page.

Please make note of the following:

- If you do not have an American Megatrends Olympus II (series 821) motherboard, you cannot use the I2C connector to monitor the hardware health of the motherboard.
- If you do not use the chassis power on switch or chassis reset switch pins, you should place a plastic cap on them so that they do not short your motherboard. Do not use a standard jumper. It will short the connection.

PART NUMBER CBL-G2RAC821
All Connectors Must be Labeled
Chassis Power On Switch = "Power"
Motherboard Power On Jumper = "Power"
Chassis Reset Switch = "Reset"
Motherboard Reset Jumper = "Reset"
Motherboard I2C Connector = No Label
Where two cables come together (marked with the letter (A)), cables can be crimped with a connector or spliced and soldered. In Either case, the cable must be wrapped in non-conducting plastic.

This cable is specifically designed for use with the American Megatrends Olympus II (series 821) motherboard only.



All Wires Must Be 28 AWG, A Total Length of 15" Long and Twisted Together

Appendix B.

API Configuration Program

Overview

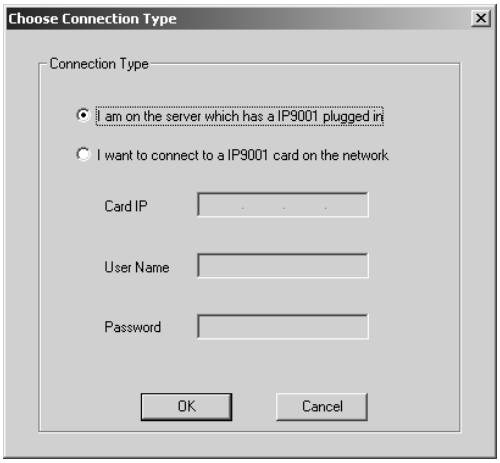
In addition to the usual browser based configuration, the IP9001 can also be configured through an API utility, which is a GUI program that runs under Microsoft Windows.

The utility can be run either from the host system, or from a client system. The client system is the one that connects to the IP9001 remotely, over the network. This is basically WinCuri with a GUI.

Setup

To start the API configuration program do the following:

1. On the CD that came with this package, go to either the *CDROM\RemoteTools\Win32* directory, or the *CDROM\ServerAgent\Win32* directory and double click **ConfigApp**. The *Choose Connection Type* dialog box comes up:

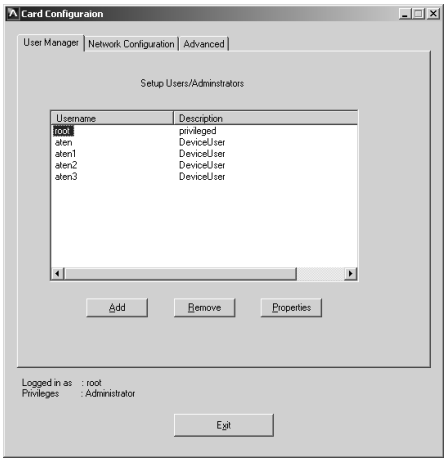


2. If you are running the ConfigApp program from the host system, select *I am on the server which has an IP9001 plugged in*; click **OK**.

   Note: Make sure that the IP9001 card is connected to the host system's motherboard through the USB cable.

   If you are running the ConfigApp program from a remote system, select *I want to connect to an IP9001 card on the network*; key in the card's IP address, your username and password; then click **OK**.

After clicking OK in step 2, the Configuration dialog box appears with the *User Manager* tab selected:

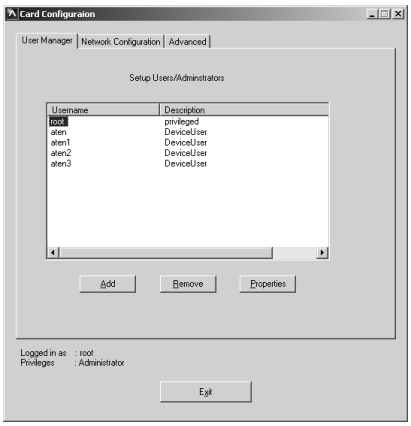


The Configuration dialog allows you to manage users, configure the network, flash the IP9001 card's firmware and perform advanced configuration operations.

Configuration

The User Manager

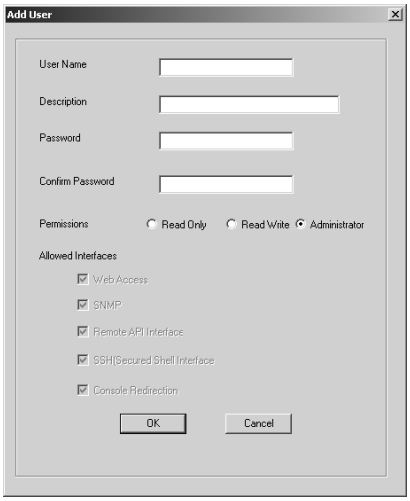
This dialog box allows you to add, remove, and modify users.



Adding a User:

To add a user, do the following:

1. Click **Add**. The following dialog box appears:



2. Fill in the fields according to the information provided in the table, below:

Field	Description
User Name	The name that the new user will log in with. The name cannot be longer than eight characters.
Description	A short note to describe this account (optional).
Password	The password that the new user will log in with. ◆ Passwords must be a minimum of eight characters and cannot be longer than 16 characters. We recommend using alphanumeric passwords for better security. ◆ Passwords are case sensitive. ◆ Parenthesis, slashes, asterisks, spaces, the at sign (@), and the hash sign (#) are not allowed.
Confirm Password	Reenter the user's password to confirm you entered it correctly.
Permissions	Choose the permissions for this user.

3. When you have finished, click **OK** to save your changes. To exit without saving any changes, click **Cancel**.

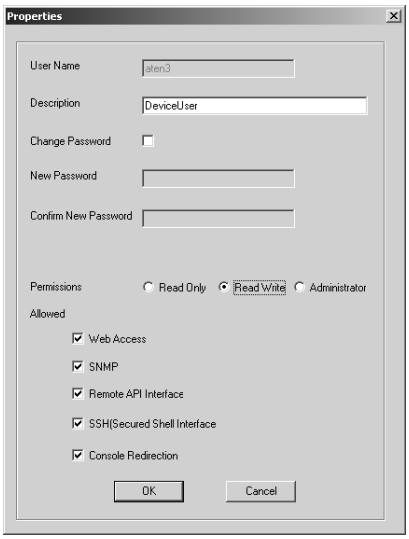
Removing Users:

To remove a user, select the user in the Username list, then click **Remove**.

Modifying User Accounts:

To modify a user's account, do the following

1. Select the user in the *Username* list, then click **Properties**. The P*roperties* dialog box comes up:



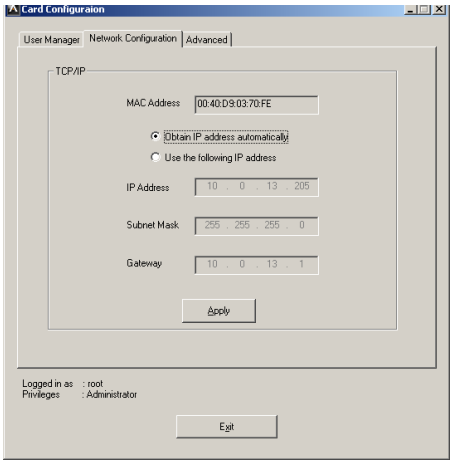
2. Fill in the fields according to the information provided in the table, below:

Field	Description
User Name	The user's name appears here. This field is disabled, and cannot be edited.
Description	A short note to describe this account (optional). You can edit the information if you so choose.
Password	After enabling *Change Password*, this field becomes active. You can change the user's password according to the following information: ◆ The new password must be a minimum of eight characters and cannot be longer than 16 characters. We recommend using alphanumeric passwords for better security. ◆ Passwords are case sensitive. ◆ Parenthesis, slashes, asterisks, spaces, the at sign (@), and the hash sign (#) are not allowed.
Confirm Password	Reenter the new password to confirm you entered it correctly.
Permissions	Choose the permissions for this user.

3. When you have finished, click **OK** to save your changes. To exit without saving any changes, click **Cancel**.

Network Configuration

The Network Configuration tab allows you to change the way the IP9001 card connects to the network.

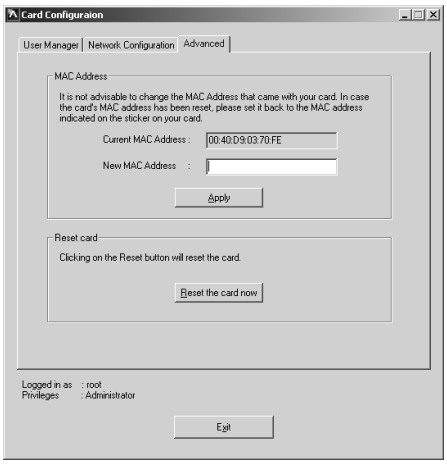


By default, the IP9001 card obtains an IP address dynamically via DHCP. You can change this to assign a fixed IP address to the card as follows:

1. Enable *Use the following IP address*.
2. Specify IP address, network mask, and gateway for the card in the appropriate fields.
3. Click **Apply** to save your changes.

Advanced Configuration

The Advanced dialog box allows you to force your IP9001 card's on board NIC to a specific MAC address:



1. Key the new MAC address into the *New MAC Address* field.
2. Click **Apply**.
3. To reset the card, click **Reset the card now**.

Appendix C.

Remote Recovery Application

Overview

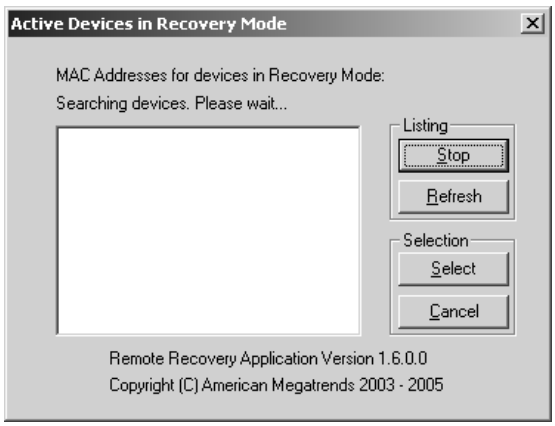
The Remote Recovery Application (RRA) is a recovery tool that can be executed from a remote client system, running under Windows, located on the same network as the IP9001 card. It is used to recover from a failed flash attempt.

Note: 1. You must physically set the IP9001 card you want to recover into Recovery Mode. To do this, short pins 2 and 3 of jumper JP12 on the card.

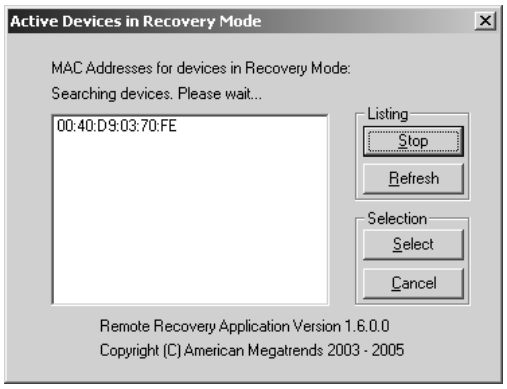
2. The IP9001 must be write enabled before you can flash an image to it. To write enable the card, short pins 1 and 2 of jumper JP11.

3. Upgrading the firmware is a crucial operation. Make sure that the chances of a power or connectivity loss are minimal when performing this procedure.

To run the IP9001 RRA, navigate to the directory where the RRA program is located (IP9001CD → Recovery Tools → Win32) and double click the **RRA** icon. The following screen appears:



After a few moments it displays the *Active Devices in Recovery Mode* that it has found:



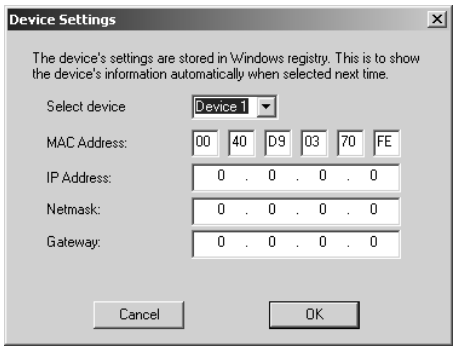
The meaning of the screen's buttons are explained in the table, below:

Button		Purpose
Listing	Stop	Click to stop searching the network for active cards in Recovery Mode.
	Refresh	Click to restart searching the network for active cards in Recovery Mode.
Selection	Select	After you select a card from the list, click this button to proceed with the Flash Recovery operation for it.
	Cancel	Click to cancel any new settings that have not been saved.

Flashing the Card

To begin the flash procedure, do the following:

1. Select the card(s) that you want to flash from the list, then click **Select**. The following screen appears:

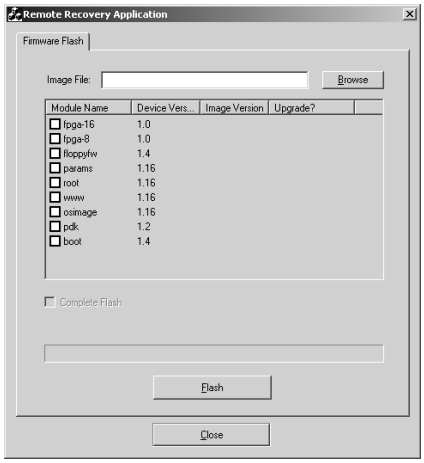


The meaning of the screen's fields are explained in the table, below:

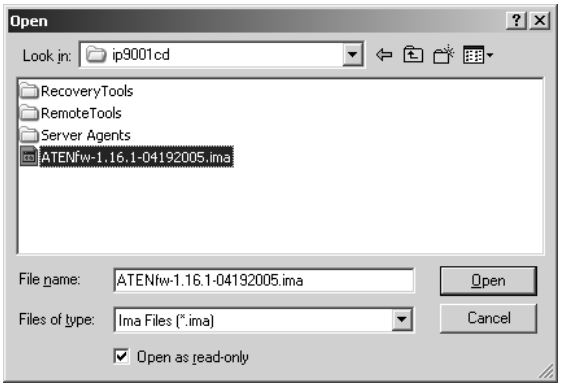
Field / Button	Meaning
Select card number:	The RRA automatically assigns a *card number* to an IP9001 card that it locates in Recovery Mode. This is helpful when you are trying to flash more than one card. Think of this dropdown box as a shortcut to other IP9001 cards that are in Recovery Mode.
MAC Address	This field allows you to specify the IP9001 card's MAC Address. **Note:** New settings are automatically stored in the Windows registry. **Note:** When you specify the IP9001 card, it is advisable to set the MAC address back to the one indicated on the sticker physically located on the back of the IP9001 card
IP Address	This field allows you to specify the IP9001 card's IP address.
Netmask	This field allows you to specify the IP9001 card's network mask.
Gateway	This field allows you to specify the IP9001 card's gateway or router address.
Cancel	Click to cancel any settings that have not been saved.
OK	Click to save the new settings and continue.

2. Fill in the fields with values that are correct for the card's IP address and the network it is on, then click **OK**.

   After a few moments, the *Remote Recovery Application* dialog box comes up:

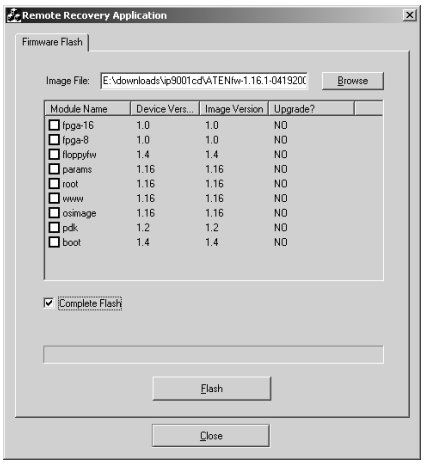


3. Click **Browse** and navigate to the directory that the flash file is locaed in; select it; then click **Open**:

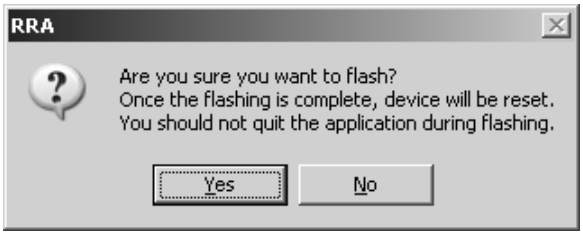


Note: Make sure that the image file is **NOT** Read Only, otherwise you will get an error message saying that the file cannot be opened in Read/Write mode.

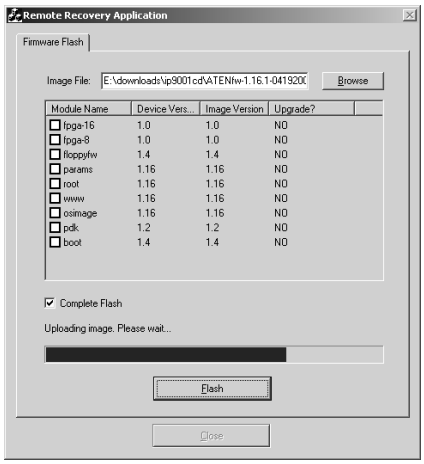
4. When you return to the *Remote Recovery Application* dialog box, select the modules you want to flash (choose one or more sections, or *Complete Flash*):



5. Click **Flash**. A confirmation dialog box comes up:

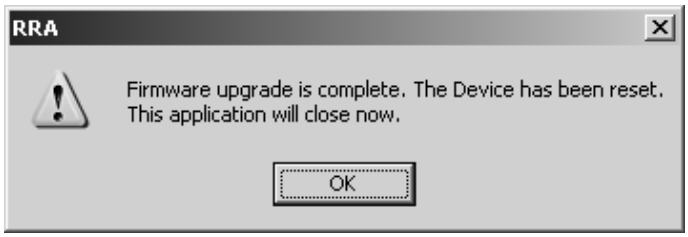


6. Click **Yes** to continue. Aprogress indicator screen comes up:



Note: Wait until all the modules have been flashed. Do NOT quit while flashing is in progress.

When flashing has successfully completed, the following screen appears:



7. Click **OK** to end the program

Note: If the operation fails, try to flash the image again with *Full Image* enabled. Do not flash the Boot Loader.

Appendix D.
Troubleshooting

Screen Distortion

Problem:

The screen on the host system is blurry when using screen resolutions lower than 1024x768. This happens for both console redirection and the physical terminal on the host system.

Explanation:

The IP9001 card's VGA chip has both a digital and analog signal. When the analog signal is set lower than 1024x768 (for example: 800x600), the IP9001 card's video controller uses ratio metric expansion to bring the screen to 1024x768. This causes the screen to become blurry.

Solution:

Set the screen resolution on the host system to 1024x768.

BMC Not Responding

Problem:

The BMC does not respond. The host system can't be powered off, powered on, or power cycled. Host system health information cannot be obtained.

Explanation:

1. *Use server's onboard BMC to access health information* was not enabled in IPMI configuration.
2. The BMC I2C address isn't set to 0X20. 0x20 is the correct address for almost all BMCs. If it is not, the BMC or motherboard provider must supply the correct one.

Solution:

1. Make sure *Use server's onboard BMC to access health information* is enabled in IPMI configuration.
2. Make sure the BMC I2C address is set to 0X20.

Note: Many BMCs feature a reset button that can be used to reset the BMC only. That button can be used to reset the BMC. If using a BMC without a BMC reset button, the system must be powered off and the power cable(s) unplugged. Some BMCs will run on system standby power, and stay on even though the system is in an off state.

Connot Manage Host System's Power Remotely

Problem:

Cannot remotely power on, power off, or power cycle the host system.

Explanation:

1. The feature cable isn't connected properly between the IP9001 and the host system's main board and chassis.
2. The AC wall adapter isn't connected to the IP9001.

Both of the above connections must be properly made in order for the host system's power to be managed remotely.

Solution:

Make sure that the feature cable and AC wall adapter are properly connected

Unexpected Errors After Flashing New Firmware

Problem 1:

After flashing new firmware to the IP9001, there are unexpected errors.

Explanation:

There was a change in the *Config* section of the new firmware image and you didn't perform a *Complete* flash. Whenever there is a change in Config section of the new firmware image, you must perform a *Complete* flash. Otherwise the default selected modules are sufficient for flashing.

Solution:

Reflash the firmware, this time doing a *Complete* flash.

Problem 2:

After flashing, when I log back in, the old firmware version numbers appear in the screens.

Explanation:

Versions of the older pages are stored in your browser's cache files, and the browser is displaying them instead of the new screens.

Solution:

- For IE, on the *Tools* menu, open *Internet Options*. On the *General* page, click **Delete Files** to delete the old pages stored in the browser's cache.
- For Netscape or Firefox (Mozilla), on the *Edit* or *Tools* menu, select *Preferences* or *Options*. Select the *Privacy* button, then click **Clear** for the *Cache* item.

Appendix E.

Modem Daughterboard

Overview

Installation of the optional modem daughterboard allows the IP9001 card to do the following:

- Configure and reset the IP9001 card
- Update the IP9001 card's firmware
- View the IP9001 card's health information and event log
- View the host system's health information
- Remotely control the host system's hardware reset and power cn cycle
- Serial over modem text redirection

Note: 1. Host system health information is only available if you have an SDR and Soft Processor (SP) File for the host system's motherboard or it has a Baseboard Management Controller (BMC). The BMC must be IPMI 1.0 compliant or greater.

2. The optional modem is **NOT** designed for Console Redirection. Although you can still perform Console Redirection, but it is debilitating and extremely slow.

3. As of March 15th, 2004, the IP9001 firmware does not support the optional modem.

Before You Begin

Avoid Electrostatic Discharge (ESD)

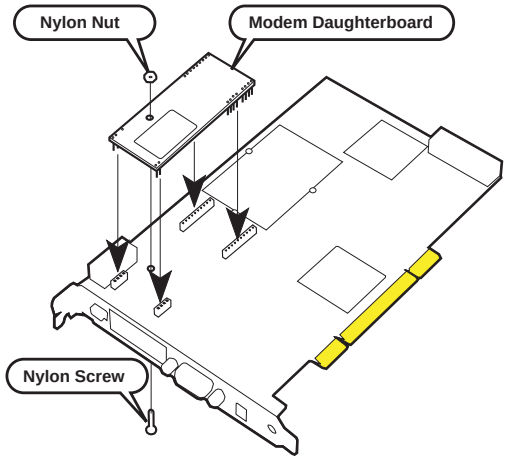
Electrostatic discharge (ESD) can damage the IP9001 card and other system components. Keep your IP9001 card in its antistatic bag until it is ready to be installed. Avoid contact with any component or connector on any adapter card, printed circuit board, or memory module. Handle these components by the mounting bracket.

Perform all unpacking and installation procedures on a ground connected antistatic mat. Wear an antistatic wristband grounded at the same point as the antistatic mat. You can also use a sheet of conductive aluminum foil grounded through a one megaohm resistor instead of the antistatic mat, and a strip of conductive aluminum foil wrapped around the wrist and grounded through a one megaohm resistor instead of a wristband.

Installation

The IP9001 modem daughterboard is an optional component. Refer to the diagram below as you perform the following steps:

1. Unpack the modem daughterboard and inspect it for obvious damage.
2. If the IP9001 is already installed in a host system, power down the host system and IP9001 card. Physically unplug all external and internal cables from the card. Remove the IP9001 card from the host system.
3. Locate JP10 on the IP9001 card; align the pins on the modem daughterboard with the pin holes on the IP9001, then push the daughterboard down until the pins are completely seated in the pin holes.
4. Plug the IP9001 card into the host system and attach internal cables.
5. Connect external cables. See Chapter 2, *Installation*, for complete IP9001 installation details.



[redacted]

Notes:

Appendix F.

Port Usage

Port Usage Table

Port	Protocol	Purpose	Direction
5121	TCP	Remote Keyboard and Mouse data (iUSB HID)	Bidirectional.
5120	TCP	CD Redirection (iUSB - CD)	Bidirectional.
5123	TCP	Floppy Redirection (iUSB - Floppy)	Bidirectional.
7578	TCP	Video Redirection	Bidirectional.
6577	TCP (&SSL)	CURI (API) (Same is used for SSL)	Bidirectional.
161	UDP	SNMP V3 Access	Bidirectional.
3072	UDP	Trap out port	Outgoing from card to trap destination.
80	HTTP over TCP	Web Server & CLIP	Bidirectional.
443	HTTP over TCP	Web Server & CLIP	Bidirectional.

[redacted]

Notes:

Appendix G.

MAC Address Map

MAC Address	Location	Description
00-40-D9-0S-9B-3C	Server Room 3 Rack 2, 5	Mail Server

[redacted]

Notes:

Appendix H.
Linux 7.x Considerations

Overview

This appendix describes how to set up the USB keyboard and mouse for redirection on a host system running RedHat Linux 7.x. For Linux 8.x and above, disregard this appendix.

Preparation

Mouseconfig

You will need to install the following file:

```
mouseconfig-4.22-1.i386.rpm
```

If it isn't on the CD that came with your package, you can download it from the following website:

```
http://www.redhat.com/support/errata/RHBA-2001-062.html
```

BIOS Settings

Check your system BIOS to verify that the *OnBoard USB* and *Legacy USB* options are Enabled. If not, the USB devices cannot function.

USB Keyboard

You will be able to redirect the keyboard and use the keyboard on the host system at the same time.

Note: LILO is not USB aware. The system BIOS must have USB keyboard support. If not, you cannot use the redirected keyboard to select a different boot image.

USB Mouse

- If you are adding USB mouse support to a system that was originally installed with a PS/2 mouse, follow the instructions, below.
- If you are adding PS/2 mouse support to a system that was originally installed with a USB mouse, first reboot the computer to allow Linux to configure and reallocate the interrupts for boththe USB and PS/2 mouse, then follow the instructions, below.

1. To check which X server the system links to, run the following command:

```
ls -l /etc/X11/X
```

2. If the X server links to */usr/X11R6/bin/XFree86*:

   a. Edit the /etc/X11/XF86Config-4 file by adding the following line to the *ServerLayout* section:

```
InputDevice "mouse1" "SendCoreEvents"
```

   b. Add a new *Input Device* section below the existing Input Device section:

```
Section "Input Device"
   Identified "Mouse1"
   Drive "mouse"
   Option "Protocol" "IMPS/2"
   Option "Device" "/dev/mouse"
   Option "ZaxisMapping" "4 5"
EndSection
```

3. If the X server links to*/usr/X11R6/bin/Xwrapper* or */usr/X11R6/bin/XF86_SVGA*, edit the */etc/X11/XF86Config* file and add a new section, as follows:

```
Section "Xinput"
   SubSection "mouse"
      DeviceName "USB mice"
      Protocol "imps/2"
      XAxisMapping "4 5"
      Port "/dev/input/mice"
      AlwaysCore
   EndSubSection
EndSection
```

4. Refresh the X server. After you make and save all the changes to the XF86Config (orXF86Config-4) file, press **[CTRL] [ALT] [BkSp]** to restart the X server and have the new settings take effect. If this does not work, type **startx** in text mode or reboot the host system.

Appendix I.

Specifications

Function	Specification
Processor SOC	32 bit 266 MHz 400 MIPS MMU 16K I-Cache 16K D-Cache
CPU Memory	32MB PC-133 MHz SDRAM
Flash	16 MB; 16 bit
Frame Grabber	AMI Proprietary Hardware Assist Engine for Faster Console Redirection A. Compression Method: - Hardware + Software Combination B. VGA Capture Screen Resolution: - 640 x 480 - 800 x 600 - 1024 x 768
Frame Memory	8MB; 32 bit SDRAM (Standard) 16 MB (Option for OEMs)
VGA Controller	ATI RAGE XL; 8 MB 32 bit SDRAM with DVI output PCI 2.2 32 bit; 66 MHz
Ethernet LAN	10/100 Mbit SOC Integrated
USB Mouse/KB Controller	USB 1.1 Device Controller
USB CDROM Controller	USB 2.0 Device Controller
USB Floppy Controller	USB 1.1 Device Controller
USB Hub 12C Controller	USB 2.0 Hub
Modem + DAA	Plug In Socket Modem - 56K
Hardware Monitor	PCI Voltages Card Internal Voltages Temperature
RTC	Time Clock Chip + Lithium Coin Cell
Power Supply	PCI 3.3V PCI 5V Wall Adapter - 6V; 2.5A 900ma/hr Lion battery

Function	Specification
Serial Ports (x 3)	Debug Port RS-485 1 External
Form Factor	Half Size Standard PCI Card
Debut Support	Jtag ICE
Power Consumption	15W (max)
Weight	128g
Dimensions	18.77 x 12.67 x 0.21cm

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