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FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 instructions, may cause harmful interference to radio communications. However, there is not guarantee that interference will not occur in a particular installation. If this equipment does cause turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Safety Precautions

1. Follow all warnings and instructions marked on the product.
2. Slots and openings on the device are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered.
3. Do not subject the product, even if it is not plugged in, to an environment that exceeds temperature and humidity specifications. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
4. Unplug this product from wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not place cords or cables where they many be walked on or tripped over.
6. Be sure to comply with any applicable local safety standards or regulations.
7. General purpose cables are provided with this product. Any cables or other requirements mandated by local authority are your responsibility.
8. Cables that are attached to devices in different locations that have different power sources and grounding may have hazardous voltage potentials. Consult a qualified electrical consultant before installing the product to see if this phenomenon exists and, if necessary, take corrective action.
9. Never touch annunciated telephone wires or terminals unless the line has been disconnected.
10. Avoid using telephone equipment or installing the product during an electrical storm.
11. Never install telephone jacks, lines, network cables, this product, or power connections in wet locations.
12. Never spill liquid of any kind on the product.

Table of Contents

INTRODUCTION

Congratulations on your purchase of SAR-1201/1208/SDH-800g IP Gateway series. This series includes powerful yet simple communication devices for connecting local area network (LAN) to the Internet. For those who want to surf on the Internet with limited cost, SAR-1201/1208/SDH-800g IP Gateway products undoubtedly provide the most convenient and economical solution.

ABOUT THIS MANUAL

The User's Manual describes how to set up the connection from LAN to the Internet using CyberTAN's SAR-1201/1208/SDH-800g IP Gateway series. This manual assumes that you are familiar with the basic elements of a computer and are interested in detailed or advanced information on the SAR-1201/1208/SDH-800g IP Gateway series. It is organized as follows:

Chapter	Content
Introduction	Describes IP Gateway's features and main applications.
Before you start	Describes the information and environment needed to configure the IP Gateway.
Quick Installation	Describes how to install IP Gateway quickly for ordinary applications.
Advanced Configuration	Describes all configuration options for the IP Gateway, including configuring the Modems and ISP accounts. This chapter also contains a command reference section for procedures such as resetting the server, setting back to defaults, uploading new firmware, and changing the server password.
Troubleshooting	Lists problems and solutions one might encounter when using the IP Gateway.
Appendix A Specifications	Lists IP Gateway's technical specifications as a quick reference.
Appendix B Glossary	Explains common used words and phrases in this manual.

About SAR-1201/1208/SDH-800g IP Gateway Series

CyberTAN's SAR-1201/1208/SDH-800g IP Gateway series provides the most Internet utilization to multiple users by sharing one/two dial-up accounts. The outstanding feature of SAR-1201/1208/SDH-800g IP Gateway is the two-serial-port design as primary and secondary on-demand or dial-in ports. The Modem2 port will be initiated by the system to increase the bandwidth for traffic congestion relief. When the traffic jam released, Modem2 port will disconnect automatically to save cost. If no request for the Internet resources after a period of time, the system will hang the connection up automatically.

This CyberTAN's SAR-1201/1208/SDH-800g IP Gateway technology makes all effective functions and benefits for you. Simple configuration gets your IP Gateway up and running in minutes.

Features and Benefits

- Support 28.8/36.6/56K modems, ISDN TAs, and leased-line connections
- Support up to two modem connections simultaneously to boost Internet access bandwidth
- Support Dial-on-demand and auto-disconnect function to save Internet access cost
- Support PPP/PAP/CHAP authentication protocol for dial-up identification
- Support PPP dial-in connection by using standard dial-up program
- Support DHCP/fixed IP configuration for IP address host IP assignment
- Free Windows GateKeeper software for setup configuration and diagnosis
- Easy setup through web browser or Telnet on any operating system that supports TCP/IP
- Firmware upgradable using GateKeeper
- Compatible with all popular Internet applications
- Firewall to protect internal hosts from outside intruders
- Network connection through the built-in 10BASE-T Ethernet (SAR-1208) or 10BASE-T/100BASE-TX (SDH-800g) Fast Ethernet ports

Applications

There are several applications for SAR-1201/1208/SDH-800g IP Gateway series, such as:

- **Sharing IP Address**
  The IP Gateway provides the most Internet utilization to multiple users by sharing network environment. With only one ISP account, multiple users on your network can browse to different web pages at the same time.

- **Internet Access**
  The series supports one or two modem Internet accesses. Users can choose to link either one or two modems based on their needs. Normally, it is more economical to use one modem. Yet, if you require more bandwidth for surfing the Net, using two modems would be faster and more efficient. With proper configuration, the IP Gateway can hook up and drop off the line automatically.

- **Remote Access**
  The Modem 2 port of SAR-1201/1208/SDH-800g IP Gateway series can support dial-in function for remote access. Remote users can dial-in and access interior resources through modem connection. Optional callback function is also provided for the sake of security.

- **Virtual Server**
  If you have a fixed IP address, you can setup a virtual host environment. Internet users can access the target host to get the information by using Virtual Host function provided by the unit.

- **Security**
  IP Gateway supports firewall security that can deny Internet users from internal resources. It also can filter internal Internet request that administrator doesn't like to serve.

BEFORE YOU START

The instructions provide information on the package checking list and some requirements before you set up the SAR-1201/1208/SDH-800g. Start using your IP Gateway device after you have below environment.

- An Internet account from an ISP
- An individual telephone line
- A modem
- Verifying your Ethernet network card installedand configured in your computer with TCP/IP.

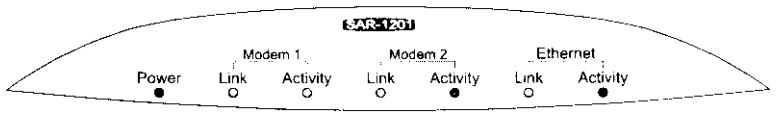
Package Overview

The SAR-1201/1208/SDH-800g IP Gateway series can be located in any convenient location, such as on a table or on a wall (keyslots have been provided on the bottom for wall-mounting.) -- The package items listed are below:

	SAR-1201	SAR-1208	SDH-800g
IP Gateway Device	1	1	1
Power Adapter	1	1	1
User's Manual	1	1	1
Gatekeeper Floppy Disk	2	2	2
RS-232 Cable	1	1	1
Stacking Brackets	2	2	2
Release Note	1	1	1

Hardware Description

SAR-1201



- **Power（green）**
  Indicates that there is power to the unit.
- **Modem 1 / Modem 2**
  Link（green）
  Indicates the modem has a live connection and the PPP connection is established.
  Activity（yellow）
  Flash yellow LED indicates that Ethernet data packets are flowing through the Modem ports.
- **Ethernet**
  Link（green）
  Indicates proper connection to a computer or hub
  Activity（yellow）
  Flash yellow LED indicates that there are packets flowing through this Ethernet port

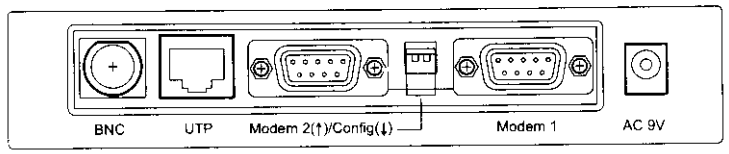


Fig.2 Rear Panel Description

- **Ethernet Ports**
  One 10BASE-T Ethernet network (RJ-45) or BNC connector used for linking hub/computer.
- **MODEM 1/MODEM 2 ports**
  Used to connect modems（Two DB-9 male connector）
- **Configuration Switch**
  Used for setting configuration/Modem mode for Modem 2 port.
- **Power（AC 9V）**
  Uses the power adapter in the package.

SAR-1208

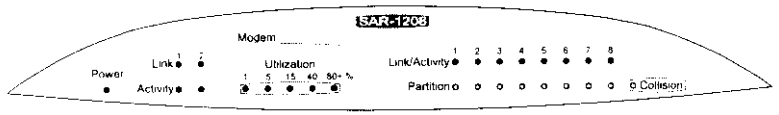


Fig.3 Front Panel Description

- **Power（green）**
  Indicates that there is power to the unit.

- **Modem 1 /Modem 2**
  Link (green)
  Indicates the Modem has a live connection and the PPP connection is established.
  Activity (yellow)
  Flash yellow LED indicates that data packets are flowing through the modem ports.
- **Utilization (green)**
  Indicates the total traffic utilization of Internet connection.
- **Ethernet**
  Link (green)
  Indicates proper connection to a computer or hub.
  Activity (yellow)
  Flash yellow LED indicates that there are packets flowing through this Ethernet port
- **Partition (red)**
  Indicates that there is severe collision at this port and being isolated from the other ports temporarily.
- **Collision (yellow)**
  Indicates that a collision is happening

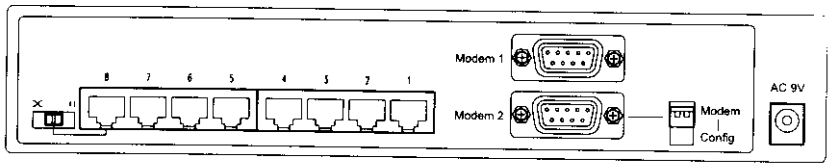


Fig.4 Rear Panel Description

- **Ethernet Ports**
  Eight 10BASE-T Ethernet network (RJ-45) ports used for linking hub/computer.
- **MODEM 1 /MODEM 2 ports**
  Used to connect modems (Two DB-9 male connectors)
- **Configuration Switch**
  Used for setting configuration/modem mode for Modem 2 port.
- **Power (AC 9V)**
  Uses the power adapter in the package to connect this port.
- **Uplink switch**
  Used for setting uplink/normal mode of port 8.

SDH-800g

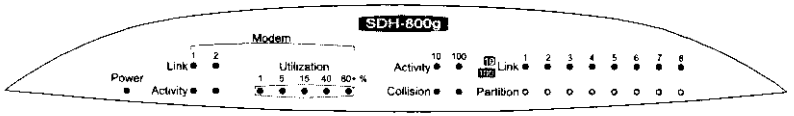


Fig.5 Front Panel Description

- **Power (green)**
  Indicates that there is power to the unit.
- **Modem 1 /Modem 2**
  Link (green)
  Indicates the Modem has a live connection and the PPP connection is established.
  Activity (yellow)
  Flash yellow LED indicates that data packets are flowing through the Modem ports.
- **Utilization (green)**
  Indicates the total traffic utilization of Internet connections.
- **Ethernet**
  Link (green)
  Indicates proper connection to a computer or hub
  Activity (yellow)
  Flash yellow LED indicates that there are packets flowing through this Ethernet port
- **Partition (red)**
  Indicates that there is severe collision at this port and being isolated from the others.
- **Collision (yellow)**
  Indicates that one collision is happening

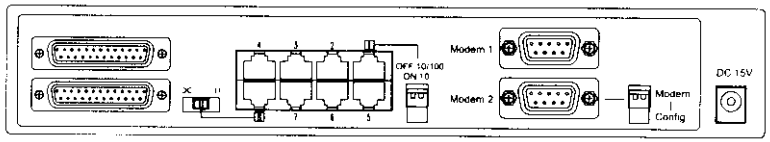


Fig.6 Rear Panel Description

- **Ethernet Ports**
  Eight 10/100Mbps Dual Speed Fast Ethernet network (RJ-45) connectors used for linking hub/computer.
- **MODEM 1 /MODEM 2 ports**
  Used to connect modems (Two DB-9 male connectors)
- **Configuration Switch:**
  Used for setting configuration/modem mode for Modem 2 port.
- **Power:**

Uses the power adapter in the package to connect this port.

- **Uplink switch:**
  Used for setting uplink/normal mode of port 8.

System Requirements

- A 80486 or greater processor computer equipped with a 10BASE-T(10BASE-T/100BASE-TX for SDH-800g) Ethernet card
- Windows 95 or Windows NT 4.0 or the later version(Optional: for using Windows GateKeeper configuration program only.)
- 16-bit, small-font monitor settings or above are suggested
- TCP/IP network protocol for each PC
- At least one computer for configuration
- UTP network cable with RJ-45 connector
- Microsoft Internet Explorer 4.0 or later, or Netscape Communicator 4.0 or later browser (For Web configuration)
- At least one modem or ISDN terminal adapter
- A dedicated phone line or ISDN line

ISP Requirements

Please collect the following information from your ISP before setup:

- ISP authentication type or script (if not PAP/CHAP)
- An ISP account which includes ISP dial-up username and password
- ISP dial-up phone number
- Your ISP's Domain Name Server
- IP Address and Subnet mask(Optional, for fixed IP users only.)

ISDN TA Setup

Unlike most modems, ISDN initial strings vary between different ISDN TAs and there is no "Standard ISDN TA" initial string. If your ISDN TA is not listed in the modem selection list, you must find out what your ISDN TA initial string is. Your ISDN TA's initial string should be listed in your ISDN TA user's manual. There are probably many initial strings listed for your ISDN TA. The one you are looking for is Asyn-to-Syn PPP (Asynchronous to Synchronous PPP). You

can enter this initial string if you would like to use only one channel of you ISDN TA. If you would like to bundle both channels of your ISDN TA together, you need to use a different initial string called Multilink-PPP. For example, the initial strings for a Zyxel Onminet ISDN TA are:

1) **ATB40:** Asyn-to-Syn PPP initial string (Refer to your ISDN TA manual)
2) **AT&J3:** Multilink-PPP initial string

You should also verify that your ISND TA supports the Dial-up string ATDT. Most ISDN TAs will support ATDT and usually the rest will support ATD or ATDI.

Please also note that to bundle the two channels of your ISDN TA together, you must enter the two phone numbers in the Telephone Number field of the Modem Setting menu.

QUICK INSTALLATION

This Quick Installation is designed to help install the SAR-1201/1208/SDH-800g IP Gateway to your network. The instructions included in this section assume you are setting up a new network.

Hardware Installation

The followings are instructions for setting up the IP Gateway. Refer to the illustration and follow the simple steps below to quickly install your SAR-1201/1208/SDH-800g IP Gateway.

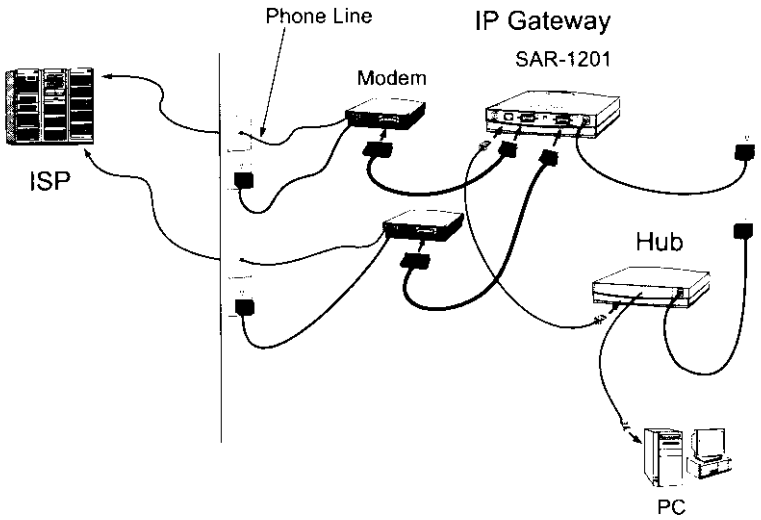


Fig.7 SAR-1201 Hardware Installation

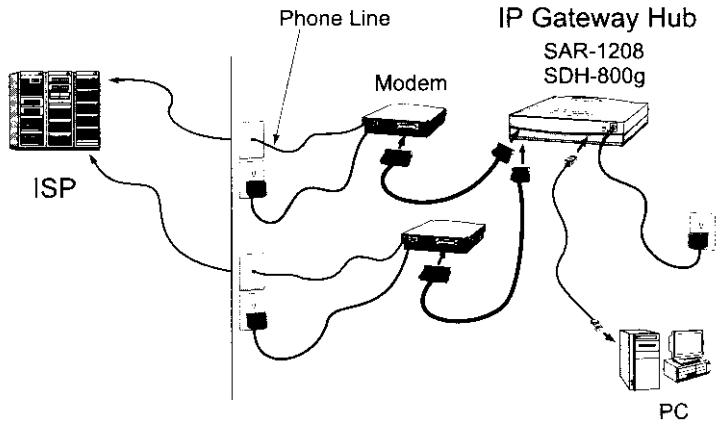


Fig.8 SAR-1208/SDH-800g Hardware Installation

1. Connect one end of an RS-232 serial cable (not included in the package) to the modem/ISDN and the other end to the DB-9 serial port labeled **Modem 1** on the back of the IP Gateway.

Note:

- The SAR-1201 has only one standard 10BASE-T port. Use standard "straight" twisted-pair cables to connect to your current hub/switch.
- The SAR-1208 and SDH-800g integrate an eight-port Ethernet hub. The SAR-1208 is equipped with 8 10BASE-T ports. Use standard straight UPT cables to connect computers or any other end stations to Ethernet port 1 to 8. The port 8 can be adjusted to act as an uplink port by switching the DIP Switch. Use a standard UPT cable to plug one end into Ethernet port 8 on the SAR-1208/SDH-800g and the other into any available Ethernet port on a hub.
- SDH-800g is designed as a member of CyberTAN's stackable dual-speed family. For communicating between different speed segments, It is suggested to use this product in a stack of the family rather stand-alone.
- For the best utilization of bandwidth, SDH-800g uses 100 Mbps only to connect to Internet.

2. Connect phone line to the modem/ISDN.

3. Connect power adapter to the modem/ISDN and turn on the power. We suggest connecting and configuring a single modem first, and then adding an additional modem as needed, repeat the previous procedure for setting up the first modem/ISDN.

4. Using standard twisted-pair Ethernet cable to connect computers or any other Ethernet devices to the Ethernet ports of the units.

5. Plug the SAR-1201/1208/SDH-800g IP Gateway power supply into an AC power outlet, then plug the power supply output cable into the power connector on the rear of the unit. The Power LED should be lit immediately.

Stacking Brackets

There are two stacking brackets in the package. These two brackets can be used to stack multiple units.

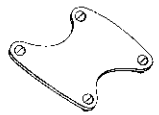


Figure 9. Stacking brackets

Mounting the switch

The SDH-800g is suited for use in an office environment where it can be wall-mounted, stacked in bracket, or standing alone.

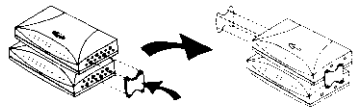


Figure 10 Stack multiple devices

To stack SDH-800g with other SDH dual speed hubs, use the two stacking brackets supplied with the Switch. You can stack up to six units for maximum stability. Follow the steps described below to secure both sides:

1. Choose one device for the bottom one.
2. Attach one of the stacking brackets into the side stacking holes of the bottom switch according to the notation on the bracket. Easily push the bracket until it fits into the place.
3. Choose another device, place it on the top of the bottom. Repeat the second step to secure the top device on the same side.
4. Apply the procedure to the other side.

To remove a bracket, use reasonable force to pull it off.

You can apply the procedures to stack more switches. A maximum of six switches can be stacked together. The stacked units are stable and in no danger of falling over.

Wall mounting

There are two slots on the underside of the device which are used for wall mounting. When wall mounting the device, make sure it is within the reach of a power outlet.

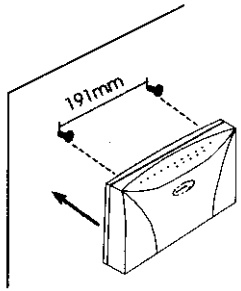


Figure 11 Wall-mounting of the device

To wall-mount the device, you need two screws. Ensure that the wall you are going to use is smooth, flat and dry. Make two screw holes which are 191 mm (7.5 inches) apart. Fix the screws into the wall, leaving their heads 6.5 mm (0.25 inches) clear of the wall surface.

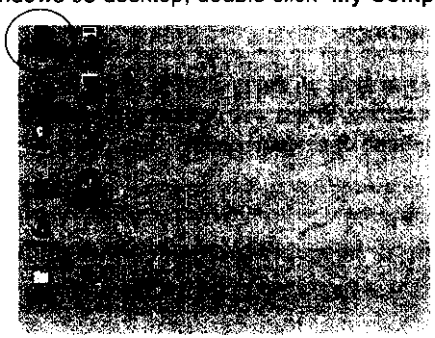
Tun the power off, and remove any connections to the unit and locate it over the screw heads. When in line, gently push the unit on to the wall and move it downwards to secure. When making connections, be careful not to push the unit up and off the wall.

Caution: Only wall mount do not wall mounts stacked units. single unit

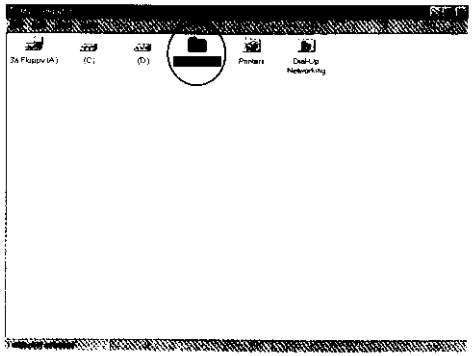
Client side Network Settings

After installing the IP Gateway hardware, please follow the procedures below to configure the units:

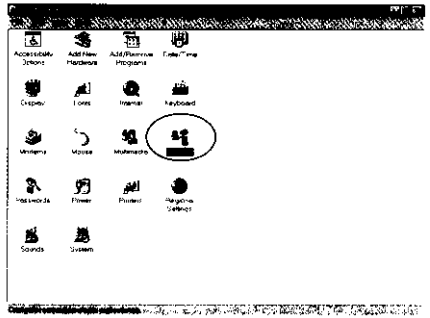
1. Choose a computer in LAN to configure the IP Gateway. On Windows 95 desktop, double click "**My Computer**".

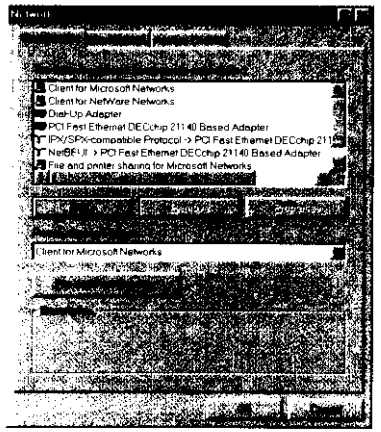


2. Double click "**Control Panel**".

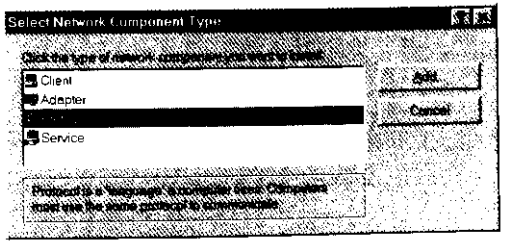


3. Double click "**Network**". This window appears the related information about the network interface card which you installed. Please check out if "**TCP/IP**" component is installed or not. If not, click "**Add**", otherwise, go to Step 6.

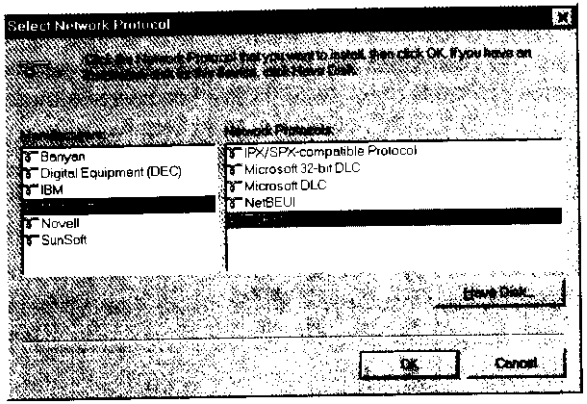




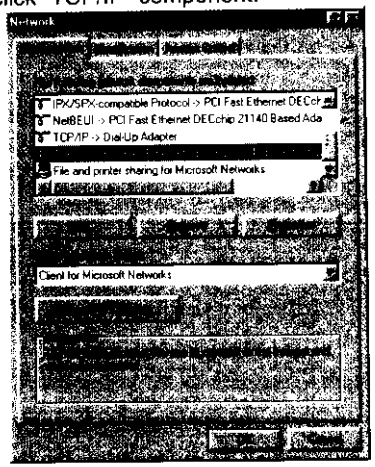
4. Double click **"Protocol"**.



5. On the left side of the window, choose **"Microsoft"**, and then select **"TCP/IP"** component on the right side. After TCP/IP component is completely installed, click **"OK"**.

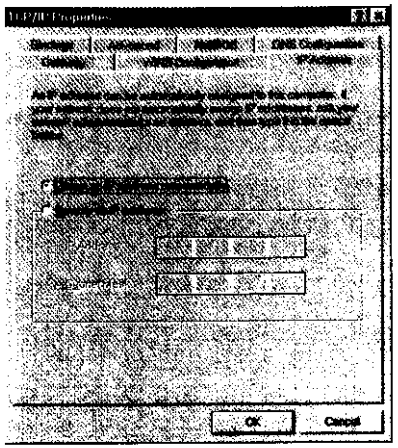


6. Double click "TCP/IP" component.



7. The TCP/IP Properties window appears. If there is no DHCP server in the same Network, click "IP Address" and select "Obtain IP address automatically" item. Meantime, ignore the Gateway and DNS settings because the system will configure them automatically.

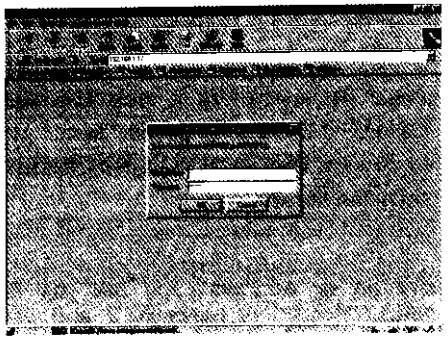
Note : If there is any other DHCP in the Network, please select **"Specify an IP address"** and use the factory default value **"192.168.1.***"** (*** is between 2 and 252) , Subnet Mask **"255.255.255.0"** and Gateway IP **"192.168.1.1"** for configuration.



There are three methods to quickly start the IP Gateway. You can either choose to install the IP Gateway via Web Management, or use the bundled GateKeeper software (or downloaded from www.cybertantech.com) under Windows 95/NT. In addition, you can use Telnet to configure it.

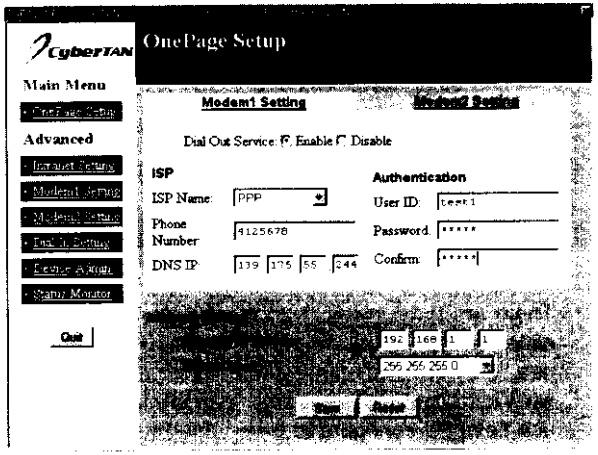
By Web Management

1. Start your web browser (Netscape Navigator 4.0 or Microsoft Explorer4.0) and type **192.168.1.1** in the address and press **"ENTER"** key on your keyboard. The "Username and Password Required" window will pop up. Leave the User Name blank and fill in the Password **"admin"**. Then click **"OK"** to enter Web Management.



2. The OnePage Setup window pops up consequently.

Note: In Netscape Communicator 4.0, after popping up for a while, the One Page Setup screen will be hidden behind the Netscape main screen. Minimize the Netscape main screen so as to see the Web Management page.



3. In Modem1 Setting part, select "**Enable**" to initiate the Dial Out Service.

Note: Modem2 Settings are similar to the Modem1's. Please fill in the blanks as needed so as to use the additional modem.

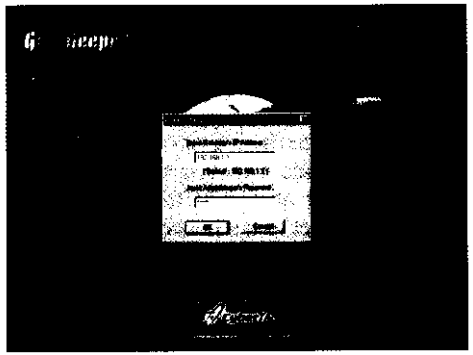
4. Select the applicable ISP Name from the drop-down box.
5. Fill the **ISP phone number, DNS IP, User ID and Password** respectively. The information should be provided by ISP as soon as you applied the account.

6. In Intranet Setting, enter the default value **192.168.1.1** and Subnet Mask **255.255.255.0**, or select one applicable from the drop-down box.
7. Check all the values and click "**Save**" to save the data and leave. Connect to the Internet as a test to see if all the settings are correct.

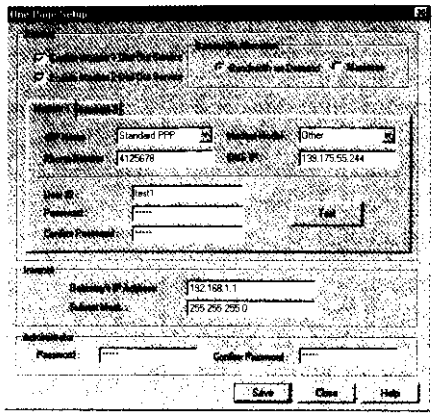
By GateKeeper under Windows 95

1. Find the GateKeeper diskettes/CD in the package and install them by **setup.exe**. Execute GateKeeper, and a "Connecting" page will pop up. Enter the default IP address "**192.168.1.1**" and password "**admin**". Click "OK."

Note: In GateKeeper Home Page, you may click "CyberTAN" button at the bottom to go to CyberTAN's web site.



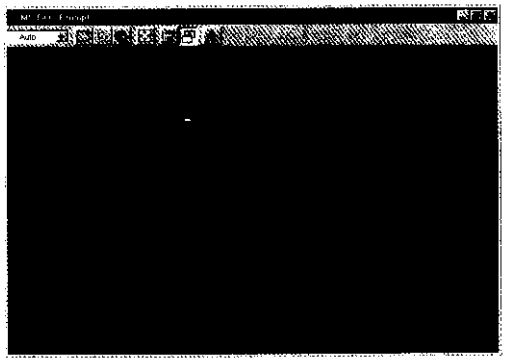
2. You have successfully enter GateKeeper. In the index page, choose OnePage Setup for quick installation.



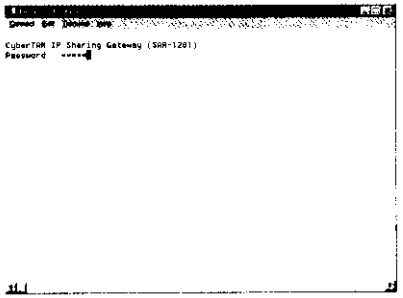
3. In OnePage Setup page, select "Enable MODEM 1 Dial-Out Service."
4. Select "ISP Name" and "Modem Model." Select applicable one from the drop-down box. For most users, you can select the standard PPP for ISP & Hayes compatible for modem.
5. Enter phone number for dialing out. If it is dialing through a PBX, for example, it's necessary to first dial 9 or 0 to get an outside line, add a comma between correct dial prefix and phone number, such as "0,5007025" (comma stands for the waiting time to connect to the outside line.)
6. Enter the ISP account's login name in the "User ID" field and login password for the account in the "Password" field as well as "Confirm Password" field.
7. Leave the default 192.168.1.1 in the Gateway's IP Address field and 255.255.255.0 in the Netmask field if you do not want to change it. The assigned administrator password is "admin".
8. After you have entered all the settings, click "**Test**" to see if the settings are correct. When you see the message "... **PPP activity activity test is successful!**", you have completed the installation successfully.

By Telnet

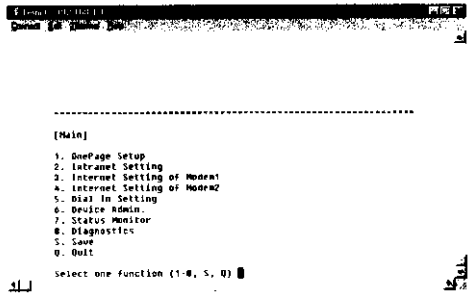
1. At MS-DOS Prompt, execute "telnet 192.168.1.1" command to enter IP Gateway Telnet Configuration Program. (Use respective Telnet program in other operating systems.)



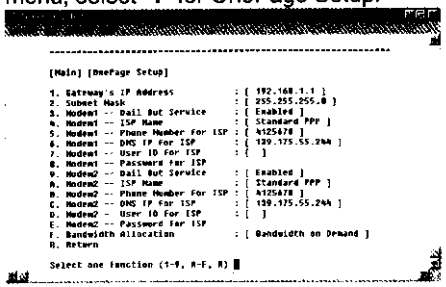
2. To enter the SAR-1201/1208/SDH-800g IP Gateway Telnet Configuration Program, key in the default supervisor password "**admin**".



3. After the password certified OK, the main menu of the SAR-1201/1208/SDH-800g IP Gateway Telnet commands is appeared.



4. In main menu, select "**1**" for OnePage Setup.



5. Under OnePage Setup main menu, select "**1**" to setup the SAR-1201/1208/SDH-800g IP Address. The default value is "**192.168.1.1**".
6. Return to the OnePage Setup main menu, select "**2**" to setup Subnet Mask. The default value is "**255.255.255.0**".
7. Return to the OnePage Setup main menu again. Items 3 to 8 are dial-out service for Modem 1. Enable the Dial Out Service, fill in the applicable **ISP name, phone number, DNS IP and user ID** for ISP.

Note: Items 9 to E are settings for Modem 2. Please refer to the settings of Modem 1 to fill in the correct values.

8. Press "**R**" to return to the main menu and choose "**S**" to save the settings and leave.
9. Use "**Ping**" utility in the Windows 95/NT DOS prompt to connect to the Internet and see if the IP Gateway can be accessed. For example, you can enter "ping 192.168.1.1" to test if the IP Gateway responses.

ADVANCED CONFIGURATION

There are four ways to configure the IP Gateway, choose any one of them to setup:

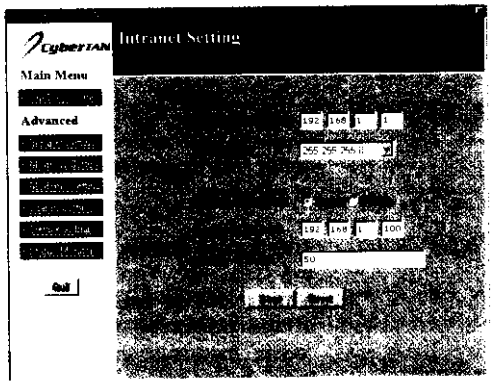
- By Web Management from any Java supported browser.
- By GateKeeper under Windows 95 to configure the IP Gateway.
- For operation systems other than Windows 95, use Telnet to access the IP Gateway.
- If you cannot access the IP Gateway from network, use terminal direct connection to configure. This is also for debugging. Use the enclosed RS-232 cable for connecting the IP Gateway and host.

Configuring by Web Management

Please refer to the previous chapter to enter the Web Management. There are two groups in this Management: Main and Advanced menu. OnePage Setup in the Main menu is for quick installation which was mentioned previously. In Advanced Menu, it includes six parts: Intranet Setting, Modem1 Setting, Modem2 Setting, Dial-In Setting, Device Admin. And Status Monitor.

Intranet Setting

Click "**Intranet Setting**" in the Advanced menu as below. Check the IP Address and Subnet Mask of SAR-1201/1208/SDH-800g. Choose either if you would like to use DHCP server. Set the Starting IP Address and number of users. Remember if you have dial-in users, the last two IP addresses are automatically left for them. Do not overlap with the dial-out users' IP Addresses.

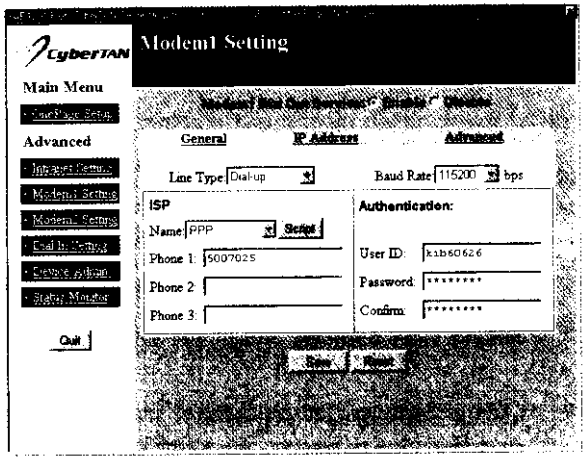


Modem1 Setting

Firstly, **enable** Modem1 Dial-Out Service before setup. There are three parts in this page.

General

Select the Line Type and the Baud Rate from the drop-down box. It is suggested that the Baud Rate should be about four times of maximal speed of your modem. Enter the necessary ISP and Authentication information and press the "save" button.

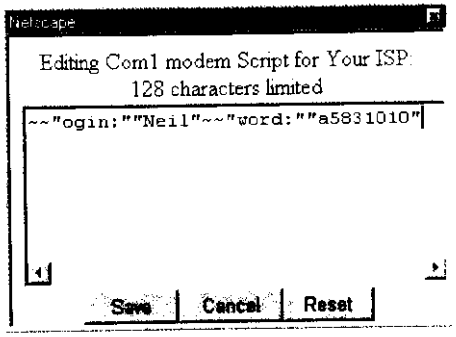


Note:
If your ISP account needs Login Scrip, click the "**Script**" button and the screen below will pop up. Enter the necessary script file to connect to the ISP. The following is a sample script file with the proper syntax and the meaning of the command.

~~"ogin:""Neil"~~"word:""a5831010"

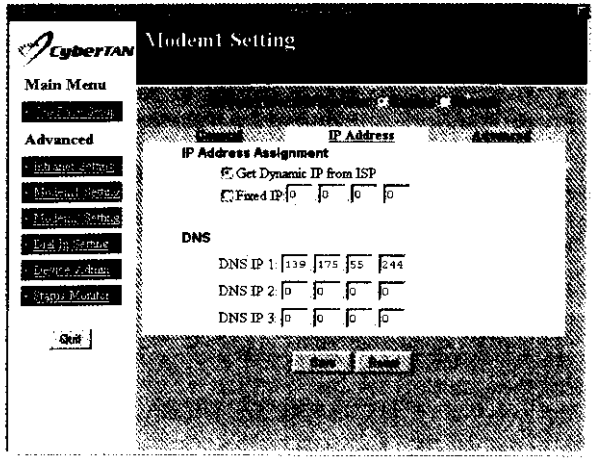
Command	Description
~~	Wait for two seconds before executing the next script line. The number of "~" stands for the time of seconds.
"ogin:"	The double quotes stands for sending/receiving the message. The '**ogin:**' is part of '**login:**' to avoid mistakes caused by lowercase/uppercase of the beginning word "L". As the example, "ogin:" means to verify that the ISP is sending
"Neil"	login message.

	After receiving the login requirement from ISP, you can enter your login name 'Neil' within double quotes to send the message. Please
~~"word"	note that the login name is provided by ISP.
	'Word' is part of 'password'. After sending out the login user name, you may wait two seconds
"a5831010"	for the ISP to ask your password.
	After receiving the inquiry from your ISP, please enter your password within double quotes to send the message. Please note that the password is provided by the ISP.



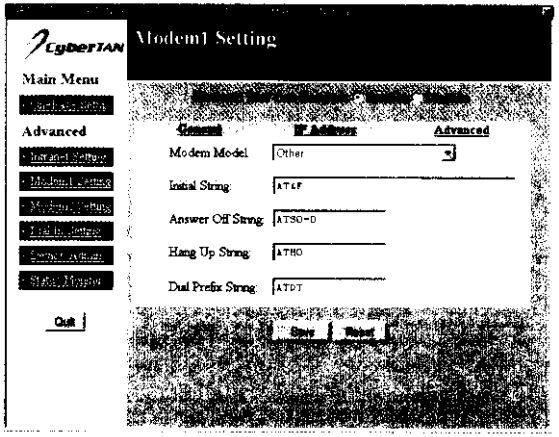
IP Address

This page is to decide if you would like to get a dynamic IP or a fixed IP from ISP. If you wish to have a fixed IP, please also enter the IP address in the field. Then enter the DNS IP.



Advanced

This page is about some settings of your modem. Please check the user's manual of your modem and fill respective data in the blanks.



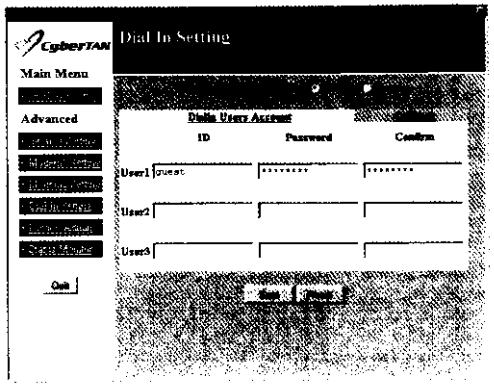
Modem2 Setting

Settings of Modem2 are similar to Modem1. Please refer to Modem1 Settings for setting Modem2.

Dial In Setting

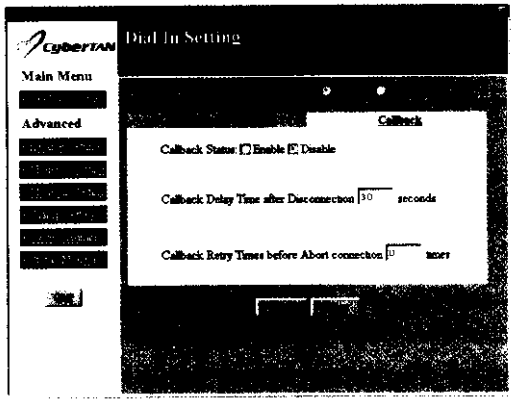
Dialin User Account

To configure computers for remote dial-in access, please select "Enable" radio button to initiate Modem2 Dial-in Service. Enter the ID and Password of dial-in users. The default ID and Password setting for user1 is "guest" and "password" and up to three users are allowed to use dial-in access.



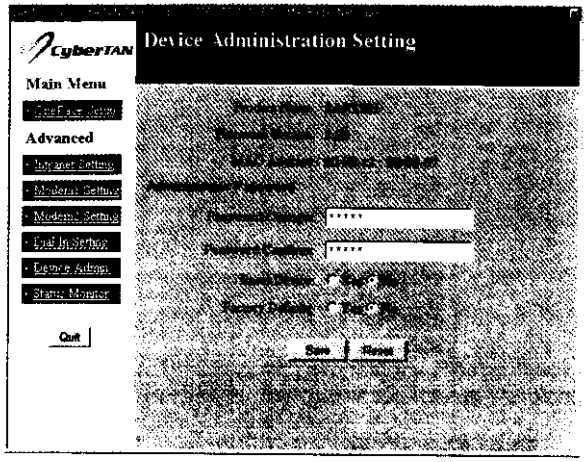
Callback

Dial-in callback function is provided for SAR-1201/1208/SDH-800g. Set the call back time and the SAR-1201/1208/SDH-800g IP Gateway will automatically call back after receiving dial-in inquiries to make sure that the user is on the dial-in list. Note that the phone charge will be transferred to you if you enable the callback function.



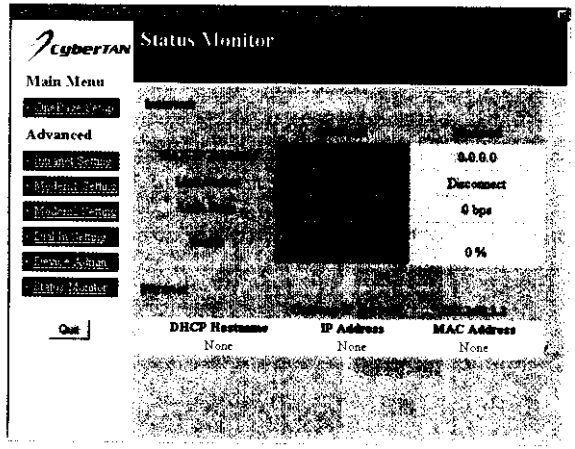
Device Admin Setting

This page is designed to see the firmware version and MAC address of the product you bought. You may change the password or reset the device here. Select "Yes" to the Factory defaults function will clean all the settings previously configured and return to the default configurations.



Status Monitor

This page provides read-only information of the working status of the SAR-1201/1208/SDH-800g.



Configuring by GateKeeper

There are two ways to enter GateKeeper, one is by typing 192.168.1.1 on any browser software; the other one is to install GateKeeper in the Windows 95/NT computer.

There are four parts in the setting of GateKeeper. The following introduce the setting part by part.

One Page Settings:

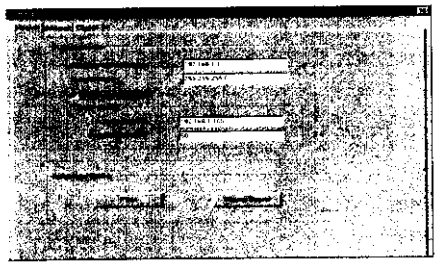
This part is for entry-level user to configure the IP Gateway. Also this page provides a panel for viewing all IP Gateway setups without changing windows. For the "Connecting" and "OnePage Setup" page, refer to the previous chapter of quick installation.

Settings:

This part includes all IP Gateway working parameters. Divided into three tabs: Internet, Intranet and Dial-in, user can control all IP Gateway functions in this part.

Intranet:

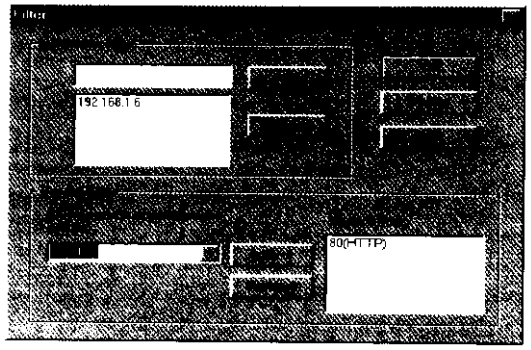
In this page, the default LAN IP address and Subnet mask are shown on the field. If you wish to enable DHCP server, please check the "Enable DHCP Server" field. The IP Start Address/Number of Users fields establish the range of values used by the DHCP server. Please note that the last two IP addresses are used for dialing-in function so make sure that they are not be overlapped.



In Advanced Setting field, there are Filter and Virtual Server functions for advanced setting.

Filter

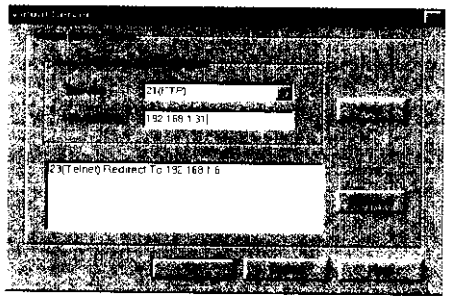
In the filter menu, IP Address Filter prevents some interior members to browse the Internet via the IP Gateway devices. You may add up to five sets of IP address on the field.



Service Filter forbidden all the staff from utilizing some services of the Internet. You may add up to five services on the field.

Virtual Server

Virtual server is setting up public services group interior so as for allowing Internet users to access. You must have a fixed IP to utilize this function. For example, If you set "80(WWW HTTP) in Service field and 192.168.1.2 in IP Address field, then all WWW request from outside user will be transferred to 192.168.1.2. The Gateway of servers must be set on 192.168.1.1



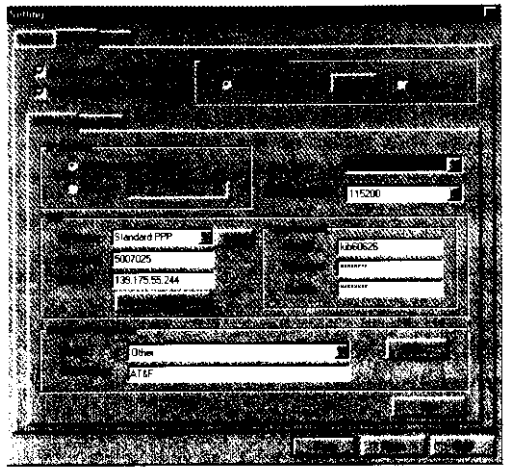
You may use this function to establish web server or FTP server SAR-1201/1208/SDH-800g Gateway for Internet users to access. Only enter the IP Address provided by ISP, Internet users can get all

the information from 192.168.1.2.

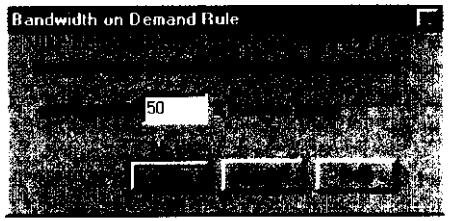
Internet:

This page is about setting up Internet Dial-Out configurations. The defaults are set to enable MODEM 1 and MODEM 2 dial-out service.

Note: If your ISP needs script file to connect to, click the **Script** button to write the script file. For the syntax of login script, refer to Modem1 Setting in Web Management.



Bandwidth Allocation



This field is enabled when both MODEM 1 and 2 are enabled. Bandwidth-on-demand is for users to control the bandwidth. Click the rule menu, then user can decide when the MODEM 2 will be initiated. If Maximum is selected, then Modem 1and 2 will be initiated simultaneously so as to utilize the maximum bandwidth.

IP Address

This field allows you to choose whether you wish to get IP dynamically from your ISP or have a fixed IP address. Enter the IP address if you select to have a fixed IP.

Line Type

Select your WAN connection, such as dial-up, ISDN, or leased line. Note that if leased line is selected, the ISP and Modem AT Command fields will be disabled.

Baud rate (bps)

Choose four times of the maximal speed of your Modem. For example, if the maximal speed of your Modems is 56K, select 230K as the baud rate.

ISP

This part is for configuring ISP authentication settings. For most users, choose the Standard PPP option.

ISP Name

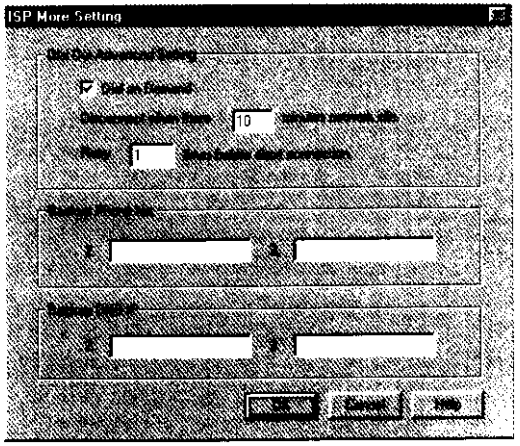
Please enter the applicable ISP name by the pull-down box. If your ISP require special login script, click "Script" and type the authentication script.

Phone No.

Enter Phone Number for dialing out. If it is dialing through a PBX, for example, it's necessary to first dial 9 or 0 to get an outside line, add a comma between correct dial prefix and phone number, such as "0,5007025".

DNS IP

Enter the DNS IP address provided by your ISP. The "Advanced ISP Setting" allow users to set the disconnected idle time, backup phone number and backup DNS IP.

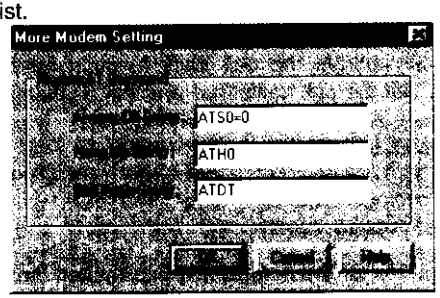


User Account

Enter the user ID and password provided by your ISP.

Modem AT Command

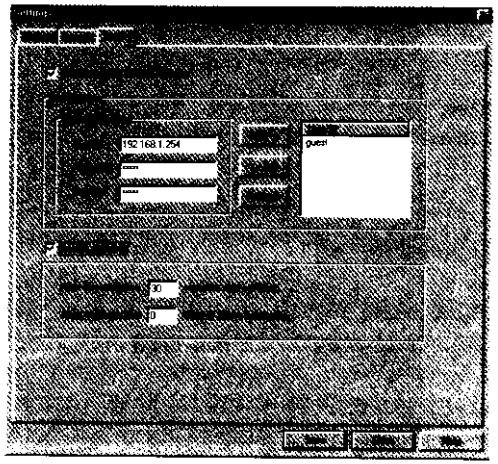
Select the Modem model from the pull-down box and Initial String. Choose Haye or type your Modem initial settings if your Modem is not in the list.



Test

After finishing the above setup and save, click test button to see if all parameters are correct and the connection is working.

Dial-in（Dial-in function is only for Modem 2）



Dial-in Users

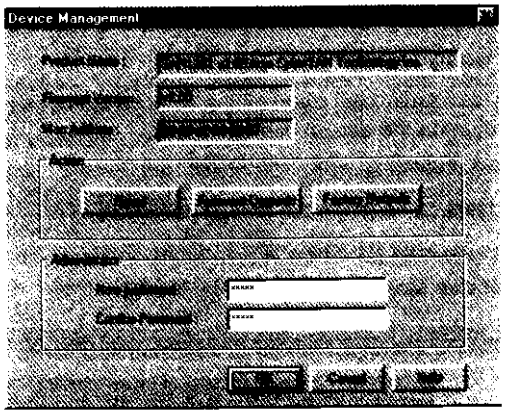
The section is for enable/disable the dial-in service of MODEM 2. If you allow some people to access to your LAN via Modem dial-in, enter their user IDs and passwords.

Call back

You can enable the call back function for SAR-1201/1208/SDH-800g. Set the call back time and the IP Gateway will automatically call back after receiving dial-in inquiries. It can make sure that the user is on the dial-in user list.

Device Admin. :

This part is for the IP Gateway information display and administrator password setting. When users need technical support, they can view this page as a discussion base.



Product name, Firmware Version, and MAC Address

These read-only information shows the product name, firmware version and Mac address current product you are using.

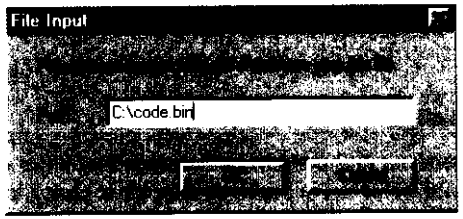
Action

Reset

This function will disconnect SAR-1201/1208/SDH-800g and restart the units again.

Firmware Upgrade

Click the field to upgrade your firmware. Please download the upgrade program **"code.bin"** from www.cybertantech.com and copy to your hard disk. Enter the full directory in the following dialogue box then click **OK**. Remember to reset the SAR-1201/1208/SDH-800g after the firmware upgrade is completed.



Note: If the upgrade is failed, the lights of Modem 1 and Modem 2 in SAR-1201/1208/SDH-800g will be flashing alternatively. You can enter GateKeeper and do the upgrade procedure again. To enter GateKeeper, remember the IP is "192.168.1.1" and password is

"admin".

Factory Defaults

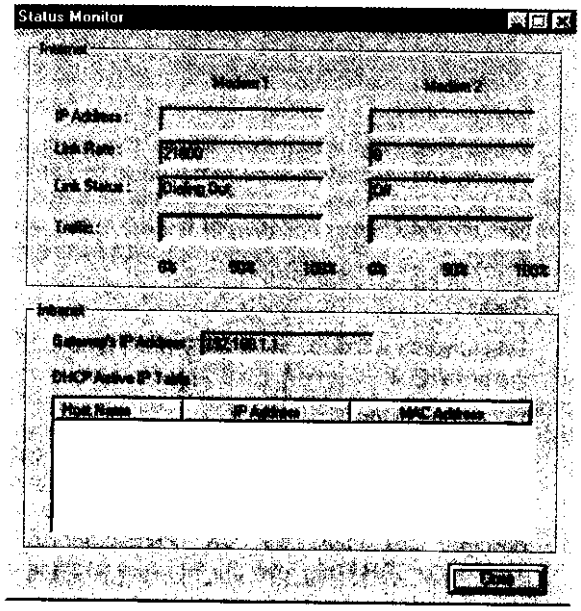
This function will clean all the settings previously configured and return to the default configurations.

Administrator

Users can change the default password to what they want.

Status Monitor

This part shows the read only working status of the series.

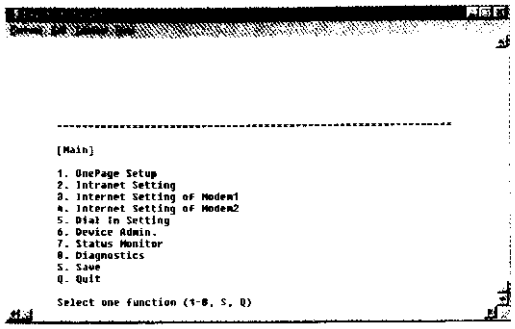


Configuring by Telnet

There are four parts In Telnet main menu (for entering the main menu, refer to the previous chapter of Quick Installation.):

- **Setup Command:**
  This part includes OnePage Setup, Intranet Settings, Internet Setting of MODEM 1and MODEM 2, and Dial-In Settings. OnePage Setup is for entry-level users to quick install the IP Gateway.

- **Device Admin.**
  This part is for the IP Gateway information display and administrator password setting. When users need technical support, they can view this page as a discussion base.
- **Status Monitor**
  This part shows the read-only working status of the SAR-1201/1208/SDH-800g.
- **Diagnostics**
  This part is about some check points to help users verify the problem when something goes wrong.

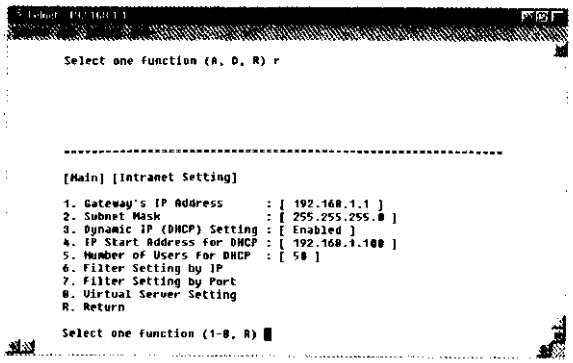


OnePage Setup

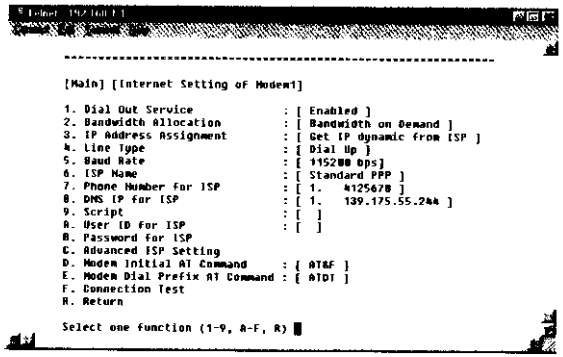
This page is for quickly setting the SAR-1201/1208/SDH-800g. Refer to the Quick Installation chapter to configure the device.

Intranet Setting

Press "2" in Main menu to proceed into the Intranet Setting as below. Modify related information from selection 1 to 8 according to your needs. For relevant settings refer to Web Management or GateKeeper software.



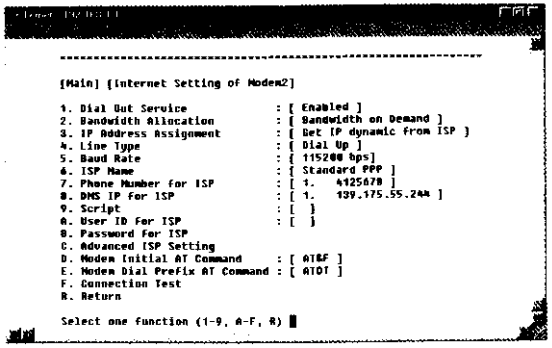
Intranet Setting of Modem 1



Press "3" in Main menu to proceed into the Intranet Setting of Modem 1 as below. Please modify related information from selection 1 to F according to your needs. For relevant settings refer to Web Management or GateKeeper software.

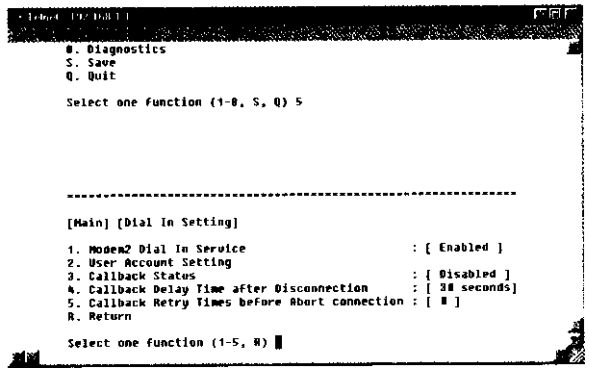
Intranet Setting of Modem 2

Press "4" in Main menu to proceed into the Intranet Setting of Modem 2 as below. Please modify related information from selection 1 to F according to your needs. For relevant settings refer to Web Management or GateKeeper software.



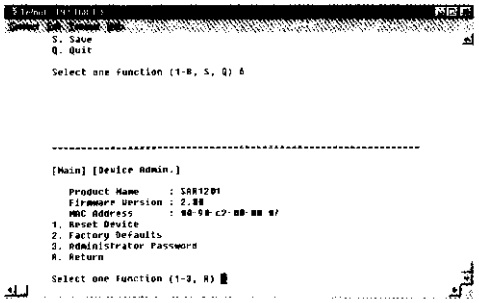
Dial-in Setting

Press "5" in Main menu to proceed into the Dial-in Setting as below. Please modify related information from selection 1 to 5 according to your needs. For relevant settings refer to Web Management or GateKeeper software.



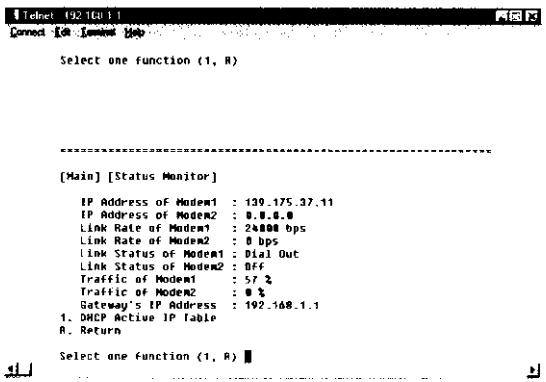
Device Admin.

Press "6" in Main menu to proceed into the Device Admin. as below. Please modify related information from selection 1 to 3 according to your needs. For relevant settings refer to Web Management or GateKeeper software.



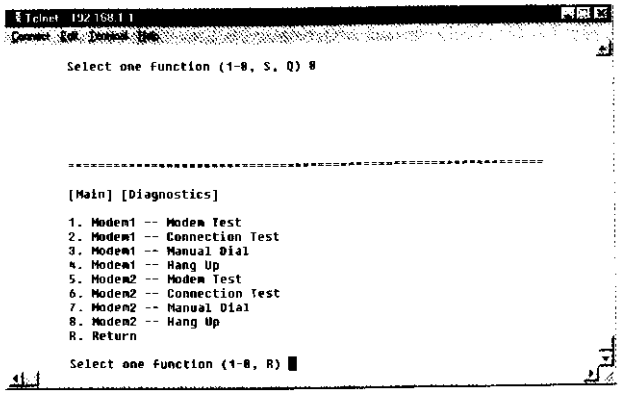
Status Monitor

Press "7" in Main menu to proceed into the Status Monitor as below. This is read-only information for monitoring the status of your device.



Diagnostics

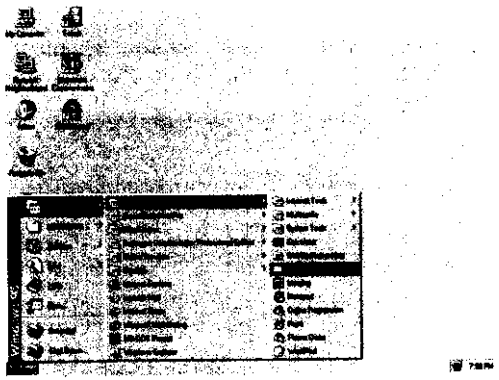
Press "8" in Main menu to proceed into the Diagnostics as below. This function provides some diagnostic information for troubleshooting your device.



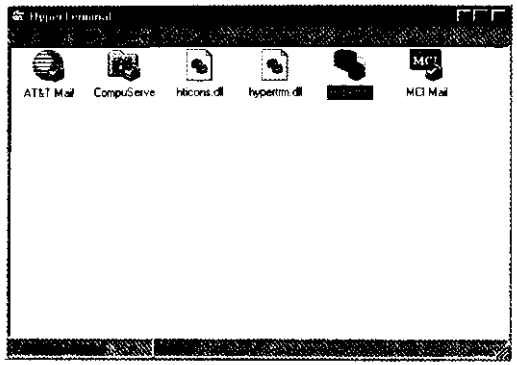
Configuring by Terminal Program via Console Cable

This section explains how to configure and use a Terminal program. The terminal communications program provided with Windows 95 is called "HyperTerminal". Please configure as the following procedure.

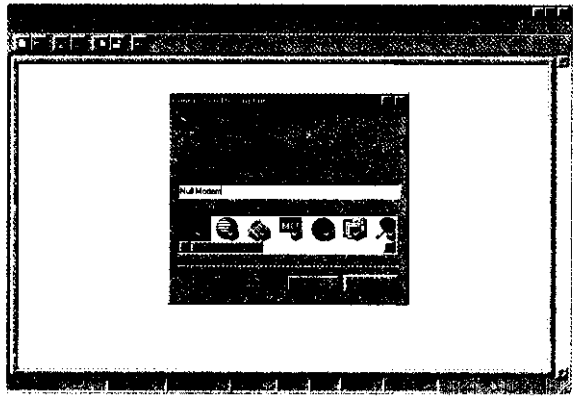
1. Power off the SAR-1201/1208/SDH-800g. Connect the IP Gateway's serial port directly to your PC's serial port using the enclosed serial cable.
2. Set the DIP switch of the SAR-1201/1208/SDH-800g to the "Config" mode.
3. Configure your terminal emulation program. Find the HyperTerminal program as below. Click to enter.



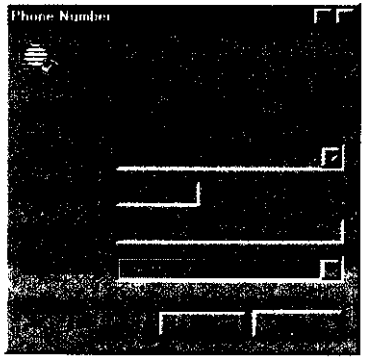
4. Check if the "Null Modem.ht" is built-in. If not, double click "Hypertrm.exe" to build a new one.



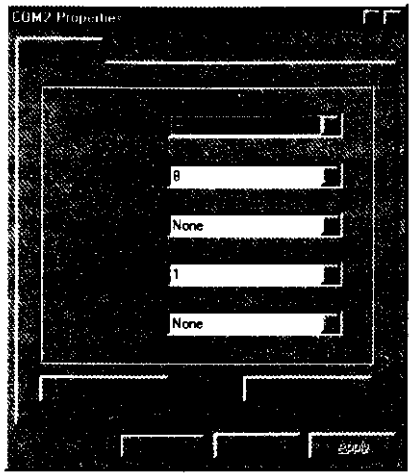
5. A "New Connection" window appears. Enter "**Null Modem**" in the Name field and click "**OK**".



6. The "Phone Number" window appears. Make sure that the "Connect using" box shows the one you have connected the serial cable to.



7. Click the "Configure" button, and you should see a screen as below. Change the settings as the screen shows.



8. Click "Save" when finished.
9. Power on the SAR-1201/1208/SDH-800g by plugging in the power adapter. The built-in configuration program will start automatically. Press "Enter" and the main menu appears. The rest settings are the same as Telnet. Please refer to Telnet setting procedure to configure the SAR-1201/1208/SDH-800g.

TROUBLESHOOTING

This chapter provides the solutions to problems occuring during installation and operation of the IP Gateway. Please check the following to solve problems.

1. The Link LED is off.
   - Check all the connectors and make sure that they are well connected.
   - For the SAR-1201, connect the Ethernet port to crossover port of the hub.
   - For the SAR-1208, port 1 to port 7 are normal ports.

2. The collision LED is always lit.
   - Make sure that the 10BASE-T cable is not exceed the maximum 100-meter limitation.
   - Check all connectors to make sure that they are secure.
   - Use category 5 cables. Each wire should have a solid connector.

3. Modem is not able to dial out.
   - Make sure all the physical connections are well-connected and the Modem is powered on.
   - Make sure a working phone line is connected to the Modem.
   - The ISP's phone number was correctly entered.
   - The number may need to be added with prefix such as "0," to get an outside line. The comma stands for the connection waiting time.

4. Modem can dial out, but won't connect to the ISP.
   - Check the initialization string set up. Be sure to power off and power on the Modem after changing the string.
   - Test the Modem in OnePage Setup of GateKeeper or Diagnostics window of Telnet.

5. Can't browse to the SAR-1201/1208/SDH-800g IP Gateway.
   - Check to see whether the address 192.168.1.1 is correct or not.
   - Check the network cable connections and LAN light on the IP Gateway.
   - Check the TCP/IP setup on your PC. Run "winipcfg" under Windows 95 prompt DOS. The PC should have an IP address of 192.168.1.x (where "x" is from 1 to 254.)

6. When dialing into the IP Gateway, the Modem does not seem to connect .
   - Make sure the number you are calling is correct and the Modem connected to the SAR-1201/1208/SDH-800g IP Gateway is turned on.
   - The SAR-1201/1208/SDH-800g IP Gateway is configured to accept incoming calls.
   - Make sure that you are on the Dial-in User list.
   - Modem 2 cannot be enabled
   - Check the rear panel of the device, the MODEM 2/CONFIG Switch must be set on the MODEM 2.
   - If the Bandwidth-on-demand is set on the bandwidth allocation, lower down the percentage of MODEM1 in the rule dialogue (the default setting is at 50%) .

7. Firmware upgrade failed
   - Escape from the upgrade window.
   - Enter GateKeeper again and you will be asked to execute the upgrade program again. Repeat the upgrade procedure.
   - After completing the upgrade procedure, unplug the power cable of the SAR-1201/1208/SDH-800g to reboot the system and the firmware is upgrade successfully.

APPENDIX A SPECIFICATIONS

	SAR-1201	SAR-1208	SDH-800g
Standards Compliance			
IEEE 802.3 10BASE-T	√	√	√
IEEE 802.3 10BASE-2	√	×	×
IEEE 802.3u 100BASE-TX	×	×	√
PPP, TCP/IP, DHCP, DNS	√	√	√
CHAP/PAP, SNMP	√	√	√
WAN Interface			
RS-232 9-pin connector	2	2	2
LAN Interface			
10BASE-T RJ-45 port	1	8	×
10BASE-2 BNC port	1	×	×
10/100 auto-sensing RJ-45 port	×	×	8
MDI-II auto-sensing uplink port	×	×	1
Management			
Web management	√	√	√
Windows GateKeeper application	√	√	√
Telnet from LAN computer	√	√	√
Terminal control via RS-232 cable	√	√	√
Support Dial-In Client			
Windows Dial-up Network	√	√	√
Trumpet	√	√	√
PPP compatible application	√	√	√
LED Display			
Power	√	√	√
Link/Activity for WAN/LAN ports	√	√	√
Collision/Partition for LAN ports	×	×	√
Stackability	×	×	√
Environments			
Operation Temperature		0~45℃(32~113°F)	
Storage Temperature		-20~70℃(-4~158°F)	
Humidity		0~90%	
Mounting			
Desktop	√	√	√
Wall-mounted	√	√	√
Dimension			
LxWxH (mm)	91x152x34	142x236x46	
LxWxH (in.)	3.58x5.98.1.34	5.59x9.29x1.81	
Power		**AC9V, 1A**	**DC5V, 3A**
Certifications			
EMI/EMC	FCC Class B / CE Mark Class A / VCCI Class 1		
Safety	CUL(UL&CSA)/LVD/TÜV		

APPENDIX B GLOSSARY

DHCP
DHCP is a protocol for automatic IP configuration. Client side computer can get one IP from DHCP server automatically. Using DHCP can save the effort of setting IP for every LAN computers.

Dial-in
Dial in is the function for remote user to access office LAN by Modem/ISDN TA connection. Just like you dial up to ISP, IP Gateway can act as a small ISP that telecommuter and travelling employee can access LAN using standard dial up program.

Dial-up Access
Refers to connecting a device to a network via a modem and a public telephone network. Dial-up access is really just like a phone connection, except that the parties at the two ends are computer devices rather than people. Because dial-up access uses normal telephone lines, the quality of the connection is not always good and data rates are limited, but new technologies such as ISDN are providing faster rates.

An alternative way to connect two computers is through a leased line, which is a permanent connection between two devices. Leased lines provide faster throughput and better quality connections, but they are also more expensive.

Domain Name
A name that identifies one or more IP addresses. For example, the domain name microsoft.com represents about a doze IP addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebopedia.com/index.html, the domain name is pcwebopedia.com.

IEEE
Abbreviation of Institute of Electrical and Electronics Engineers, pronounced I-triple-E. Founded in 1884, the IEEE is an organization composed of engineers, scientists, and students. The IEEE is best known for developing standards for the computer and electronics industry. In particular, the IEEE 802 standards for local-area networks are widely followed.

Internet

A global network connecting millions computers. As of 1998, the Internet has more than 100 million users worldwide, and that number is growing rapidly. More than 100 countries are linked into exchanges of data, news and opinions.

Intranet

A network based on TCP/IP protocols (an internet) belonging to an organization, usually a corporation, accessible only by the organization's members, employees, or others with authorization.

IP Address

An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address.

ISDN

Abbreviation of integrated services digital network, an international communications standard for sending voice, video, and data over digital telephone lines. ISDN requires special metal wires and supports data transfer rates of 64 Kbps (64,000 bits per second).

ISP

Short for Internet Service Provider, a company that provides access to the Internet. For a monthly fee, the service provider gives you a software package, username, password and access phone number. Equipped with a modem, you can then log on to the Internet and browse the World Wide Web and USENET, and send and receive e-mail.

Local Area Network (LAN)

A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A system of LANs connected in this way is called a wide-area network (WAN)

MAC Address

Short for Media Access Control address, a hardware address that uniquely identifies each node of a network. In IEEE 802 networks, the Data Link Control (DLC) layer of the OSI Reference Model is

divided into two sublayers: the Logical Link Control (LLC) layer and the Media Access Control (MAC) layer. The MAC layer interfaces directly with the network media. Consequently, each different type of network media requires a different MAC layer.

PPP

PPP (Point-to-Point protocol) is a communications protocol for transmitting information over standard telephone lines. A PPP account is a dial-up account used to connect to the Internet. It is a dial-up account actually calls another computer to gain Internet access.

PAP/CHAP ISP

PAP stands for Password authentication protocol. CHAP means Challenge handshake authentication protocol. Most ISP use either one for user identification. If your ISP doesn't support these two protocols, contact ISP for authentication script. You have to key in script to IP Gateway.

TCP/IP

Acronym for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP.

Telnet

A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network. To start a Telnet session, you must log in to a server by entering a valid username and password.