VoiceFinder

GS3000 GSM Gateway

[Installation and User Guide]

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AddPac Technology

www.addpac.com

AddPac GS3000 GSM Gateway

Note.

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[Content]

[Table]

[Picture]

Chapter 1. GS3000 Introduction

Overview

VoiceFinder AP-GS3000 is a new cutting edge Analog or IP to GSM gateway supporting maximum 32 ports of GSM Voice interface. GSM and analog/digital interface of AP-GS3000 provide an optimized call scenario when it interoperates with conventional PBX. Compact cost effective design and system architecture of AP-GS3000 provides customer satisfaction in high quality, performance and system reliance. This product uses the state-of-art technology voice compressed algorithm and unique QoS algorithm of AddPac to maintain the maximum voice quality under fast internet line and slow internet line as well.

GSM and VoIP Gateway Service Both Support

AddPac AP-GS3000 is a device that can support both GSM gateway service (Digital E1/T1 GSM or Internet GSM) and VoIP gateway service (Digital E1/T1 Internet) simultaneously. It also supports SIP, H.323 Multiple VoIP signaling protocol, various voice codec support(G.711, G.726, G.729, G723.1), nine(9) module slots for GSM and VoIP module, one(1) module slot for CPU board, two(2) fast Ethernet ports, 1-port RS232C console, and state-of-art technologies and services.

Supports maximum 32 ports of GSM interface

GSM gateway combining IP-PBX (or Conventional PBX) is now suggesting a new model for a main voice communication solution. In order to be a part of advanced VoIP communications naturally in the future, making an excellent choice of choosing GSM gateway is essential. VoiceFinder AP-GS3000 is a mid-range GSM gateway providing total 32GSM interface ports + one (1) Digital E1/T1 port or 24 GSM interface ports + 24 FXS (or FXO) interface ports. It is suitable for general enterprises, medium and large public offices. It has functions as a media gateway which interoperates with IP-PBX or conventional PBX. Especially AP-GS3000 provides an optimal solution of VoIP and GSM communications in telephony environments that using telephone lines and PBX to get connect with a head office.

Powerful networking protocols

VoiceFinder AP-GS3000 GSM VoIP Gateway supports two(1) 10/100 Base-T fast Ethernet Interface ports and provides stabilized leased line environment, ADSL environment, cable modem environment, fixed IP Address, supports all flow IP environment so that it can be selected in accordance with user environments.

Adapt to the Future Environment : Firmware Upgradeable Technology

Designed on programmable high performance RISC Integrated DSP Technology, AP-GS3000 is capable of adopting new capabilities and improvement by downloading firmware from website or with its auto-upgrade option as the customers' needs grow. Moreover, operators can download the latest protocol or service improvements as well as update firmware by checking the version and activating the auto-upgrade via AP-NMS (Network Management System) or AP-VPMS (VoIP Plug &Play Management System) system of AddPac Technologies.

Privacy Function and Security Function

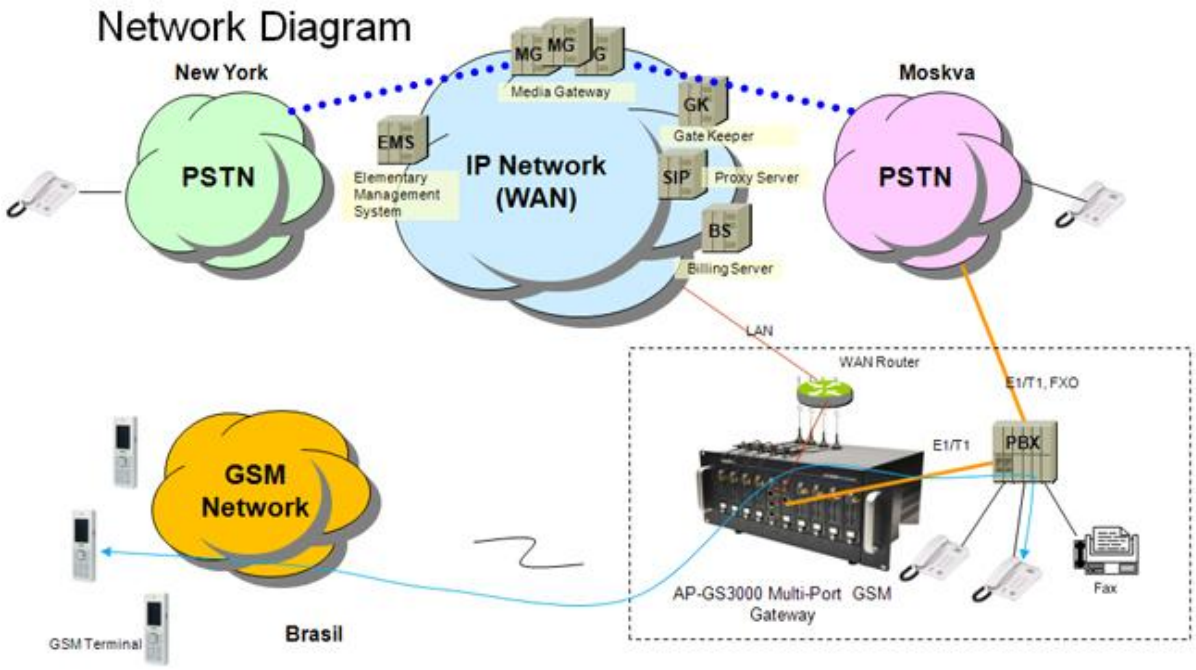
AP-GS3000 not only supports network access control but it also provides solid service level security. By CID (Caller ID Detection), you can identify the phone number of callers before answering and simply block it.

AddPac IP Telephony Total Solution

AddPac technology is not just a vendor of GSM Gateway Box for the customer satisfaction, but it provides various products for appropriate network environment for VoIP, Media Gateway, audio/video terminals, audio/video MCU, IP audio/video broadcast, VoD solutions, network DVR solution, audio/video recording solutions, and traffic controller QoS device solutions. In the future, All IP based multimedia telephony environment, various audio/video resources should be shared on an IP Network; thus, the integration of solutions for each area and entire solutions are considered as top priority. AddPac IP telephony solution is designed to consider the integrated multimedia solution so that it can satisfy the various needs of customer.

AddPac's various GSM, VoIP Gateway series and multimedia network devices have been fully recognized in terms of its performances and stability throughout the world. AP-GS3000, with our accumulated experiences and know-how in the enterprise and service provider markets, will provide full satisfactions for customers who ask for a next-generation GSM-Gateway.

Configuration



<Picture 1-1> GS3000 Network Diagram

GS3000 Hardware Specification

<Table 1-1> GS3000 Hardware Specification

Category	Specification	
Microprocessor	High-End RISC Microprocessor	
Memory	Flash Memory	512Mbyte
	SDRAM Memory	128Mbyte High-Speed DDR2
Network Interface	LAN Port	Two(2) 10/100Mbps Ethernet Interface (2xRJ45)
	Console Port	One(1) RS232C Port for Command Line Interface(1xRJ45)
GSM Interface	GSM Module Nine(9) Module Slots	Four(4) Channel Module One(1) Antenna Interface(Internal 4 channel Antenna combiner) Four(4) SIM Card Interface
		AP-N1-GSM4 Module
		AP-N1-FXS8 Module
Voice Module Slots	Power Requirement	AP-N1-FXO8 Module
		AP-N1-FXS4O4 Module
		AP-N1-E1 Module
		Power Supply / 110~220VAC, 50/60Hz, 5V 30A
		Power ON/OFF Switch
Power & Operation Environments	Operating Temperature	0°C ~ 50°C (32° ~ 122°F)
	Storage Temperature	-40°C ~ +85°C (-40° ~ +185°F)
	Relative Humidity	5% ~ 95% (Non-condensing)
	H x W x D (mm)	177mm x 488mm x 300mm) - 19" Rack Mountable Chassis
	Weight (Kg)	9.6Kg
Dimension	Flash Memory	512Mbyte
	SDRAM Memory	128Mbyte High-Speed DDR2

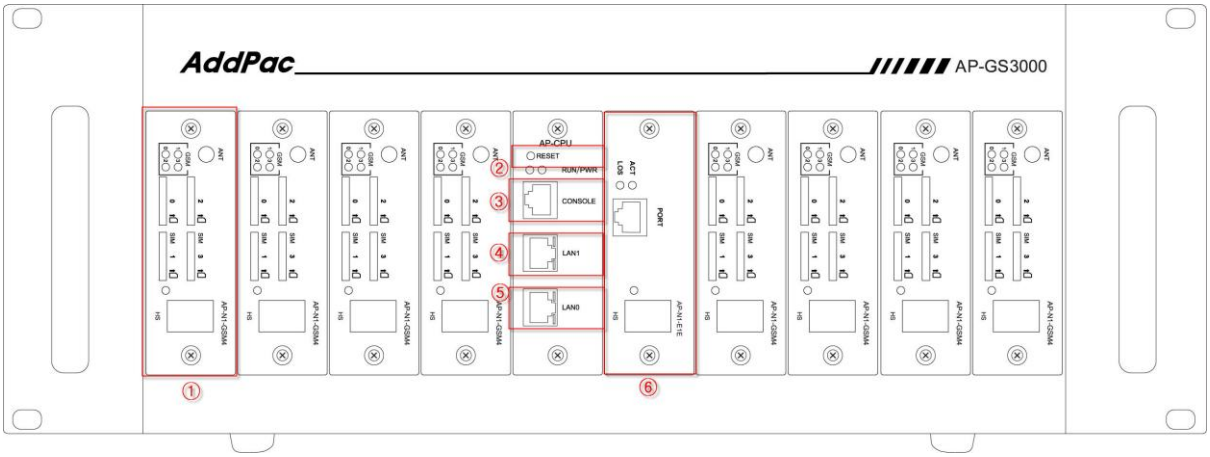
GS3000 Software Function

<Table 1-2> GS3000 Software Function

Category	Specification
IP Routing Protocols	Static and IEEE 802.1Q VLAN Routing
WAN Protocols	Point-to-Point over Ethernet Protocol for ADSL Networking (PPPoE)
GSM Service	GSM two-stage dialing
	GSM Module Management : PIN, IMSI, Power, (No)Shutdown Setting, Up/Down Speed Display, Current Power Level Display
	GSM Inbound call black list & white list
	VoIP Inbound call black list & white list
	LCR(Least Cost Routing)-GSM Traffic Metering
	LCR(Least Cost Routing)-Scheduling
	LCR(Least Cost Routing)-Simulator
	GSM Messaging Service
	GSM SNMP : GSM Standard MIB
	Call Back Service at GSM Port Busy
Voice over IP Services	ITU-T H.323 v3 VoIP Protocol with ITU-T H.235 Security Feature
	SIP protocol support compliant with IETF RFC3261(or RFC2543)
	Supports Triple stack of H.323, SIP and MGCP
	G.723.1, G.729.A, G.711 Voice Compressions
	Voice Processing Features Supports - VAD, DTMF, CNG, G.168, and T.38 G3 FAX Relay
	ITU-T H.323 Gateway, Gatekeeper Support
	Enhanced QoS Management Features for Voice Traffics
Network Managements	Standard SNMP Agent (MIB v2) Support
	Remote Management using Console, Rlogin, Telnet
	Web based Managements using HTTP Server Interface
	Traffic Queuing
Security Functions	Standard & Extended IP Access List
	Enable/Disable for Specific Protocols
	Multi-Level User Account Management
	Auto-disconnect for Telnet/Console Sessions
	PPP User Authentication Supports - Password Authentication Protocol (PAP) - Challenge Handshake Authentication Protocol (CHAP)
	System Performance Analysis for Process, CPU, Connection I/F
	Configuration Backup & Restore for APOS Managements

Operation & Managements	Debugging, System Auditing, and Diagnostics Support
	System Booting and Auto-rebooting with Watchdog Feature
	System Managements with Data Logging
	IP Traffic Statistics with Accounting
Other Scalability Features	DHCP Server & Relay Functions
	Network Address Translation (NAT) Function
	Port Address Translation (PAT) Function
	Transparent Bridging (IEEE Standard) Function - Spanning Tree Bridging Protocol Support - Remote Bridging Support - Concurrent Routing and Bridging Support
	Cisco Style Command Line Interface (CLI)
	Network Time Protocol (NTP) Support
	Remote Upgrade for APOS Management using FTP/TFTP

GS3000 Front Configuration

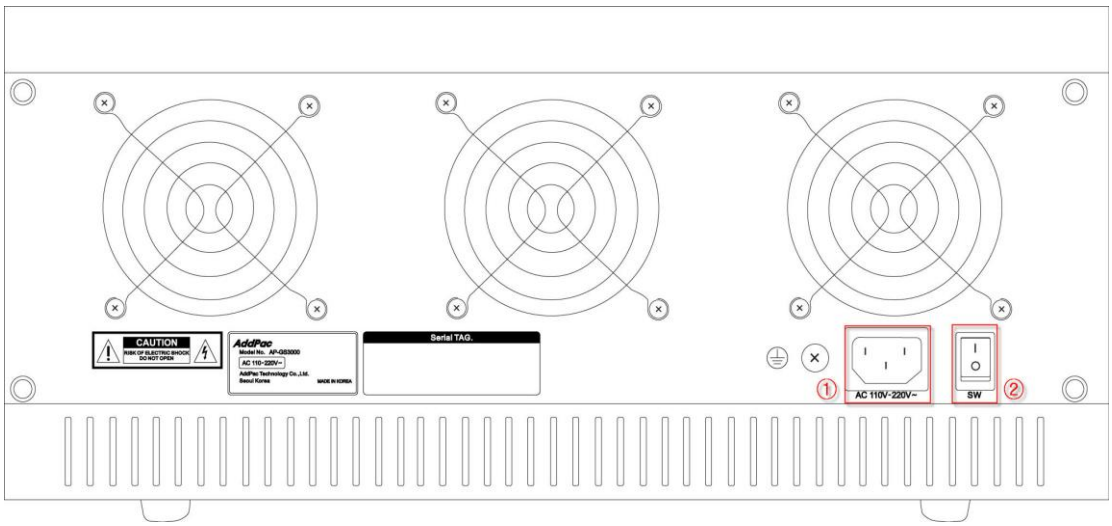


<Picture 1-2> GS3000 Front

<Table 1-3> GS3000 Front Explanation

No.	Display	Explanation
(1)	AP-N1-GSM4	GSM Module / Analog Interface is applicable for 0/1/2/3/5/6/7/8 slot.
(1)	RST	Use when restarting by reset button. (Red)
(2)	CONSOLE	RJ45 standard console interface..
(4)	LAN1	RJ45 standard LAN 1 Ethernet interface.
(4)	LAN0	RJ45 standard LAN 0 Ethernet interface.
(6)	AP-N1-1E1	GSM Module / Analog Interface / E1 Interface are applicable for number 4 slot.

GS3000 Rear Configuration



<Picture 1-3> GS3000 Rear

<Table 1-4> GS3000 Rear Explanation

No.	Display	Explanation
(1)	AC110~220V	A terminal to connect AC power cable for power supply.
(2)	SW	A switch to supply/cut off the system power.

Chapter 2. GS3000Prepare Installation

Installation Recommendation

Requirement

- While installing GS3000 or after GS3000 installation, use it in clean environment.
- When opening GS3000 cover, work in a safe place.
- Do not wear a loose shirt. Don't let your tie or scarf slip down. Roll up your sleeves.

Electric Safety Recommendation

GS3000 may face with two electrical issues. One is safety concern in power supply and the other is device damage from electrostatic.

- **Electrical Safety**
  - ✓ Make sure to work in a location where you can shut off the system immediately when accidents occur.
  - ✓ Shut off the power while installing device or taking off the cover.
  - ✓ Do not work alone in dangerous environment.
  - ✓ Do not assume that the power is off. Be sure to check the power.
  - ✓ Be cautious when working in humid area or without ground connection.

- **Prevent Electrostatic**
  - ✓ GS3000 Chip-Set is very sophisticated components. If you mishandle it, it would cause some damages.
  - ✓ Be sure to wear electrostatic prevention waist strap if you have one.
  - ✓ If you do not have waist tap, be sure to hold the device metal sash. It will prevent electrostatic.

General Installation Requirment

GS3000 is usable anywhere. For the maximum performance, we recommend places as below.

- **Maintain level and adequately ventilated.**
- **Please attach the product in a safe place.**
- **Do not put other objects on the device.**
- **Avoid direct sun light and install in cool location.**
- **Keep a safe distance from fire, flammable liquid, and magnetic material**

Recommendation for Device Installation

When installing GS3000, user must consider EMI (EIA standard) and distance restriction. Following explains Ethernet cable, console cable and preparation.

Necessary equipments and cables are not included in the box unless you order them separately. To install GS3000, please prepare the following devices and equipments.

- Standard Screw Driver Set
- Cable to connect LAN and console port
- RJ-45 to RJ-45 cable for LAN port
- RS-232C console cable that has RJ-45 connector (included in the box)
- RJ-45 to PBX cable for E1/T1 trunk port

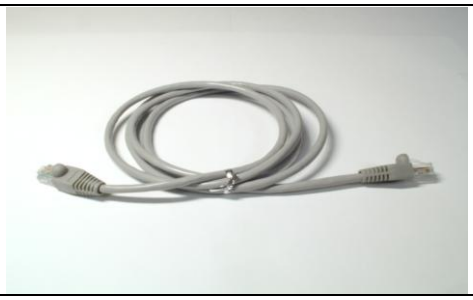
- Ethernet Port
  GS3000 has two RJ45 type Ethernet ports at the back and LED display for port status. Use standard cable and connector when accessing in LAN network. Please refer to appendix cable specification for Ethernet cable PIN specification.

- Console Port
  At the back of IPNext3000, it has RJ-45 type RS-232C Female DCE connector interface. User may initialize the setup, monitoring, and debugging through this port. Be sure to use cable and connector. Please refer to appendix cable specification for RS-232C console cable PIN specification.

Remove Product Packaging and Contents Check

Make sure to check the package damage before unpacking.

Please check the following contents.

No	Name	Contents	Qt.
1	**VoiceFinder GS3000 Gateway Main Body**		1
2	**LAN Cable (RJ45 to RJ45 Specification)**		1
3	**Console Cable (RJ45 to DB9 Specification)**		1
4	**Power Cable**		1

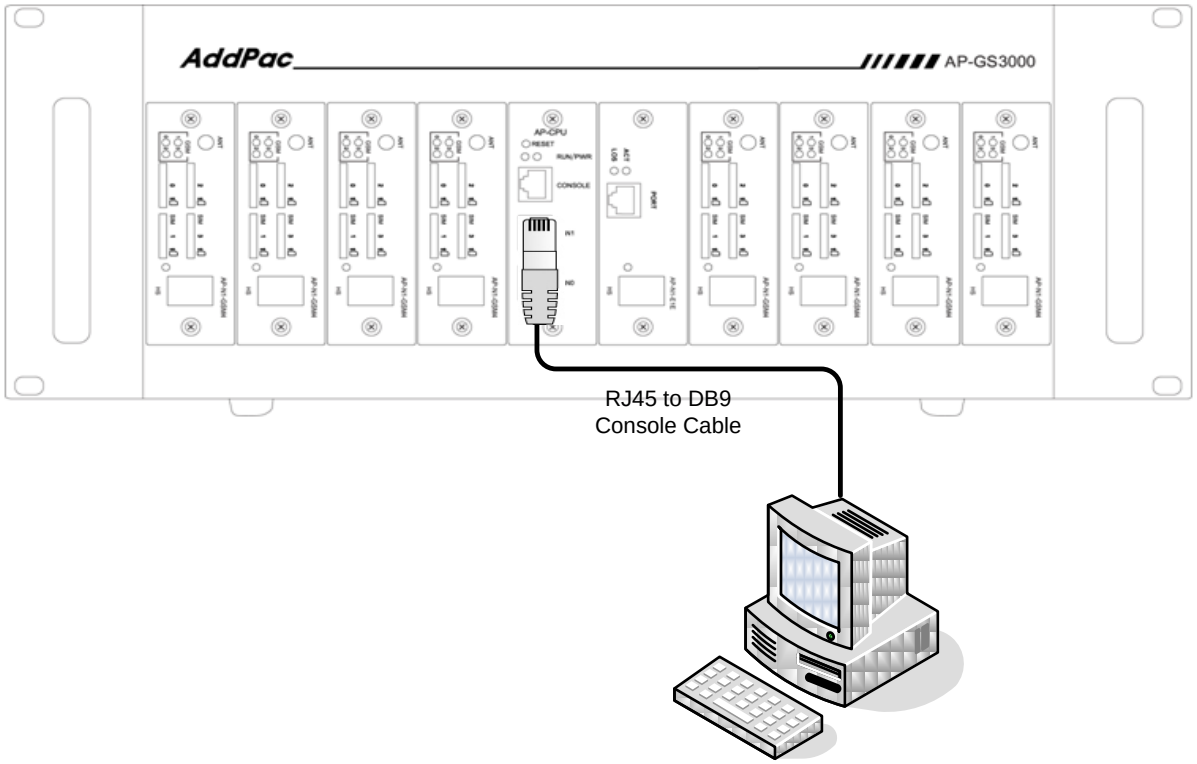
<Picture 2-1> VoiceFinder GS3000 Gateway Product Package

Please contact AddPac Technology if you find any damaged items. (Tel: (02)568-3848)

Chapter 3. GS3000 Installation

Connect Async Serial Interface

Connect RJ-45 connector of RS-232C serial console cable to console port. The opposite serial connector connects to serial port such as GS3000 control PC.

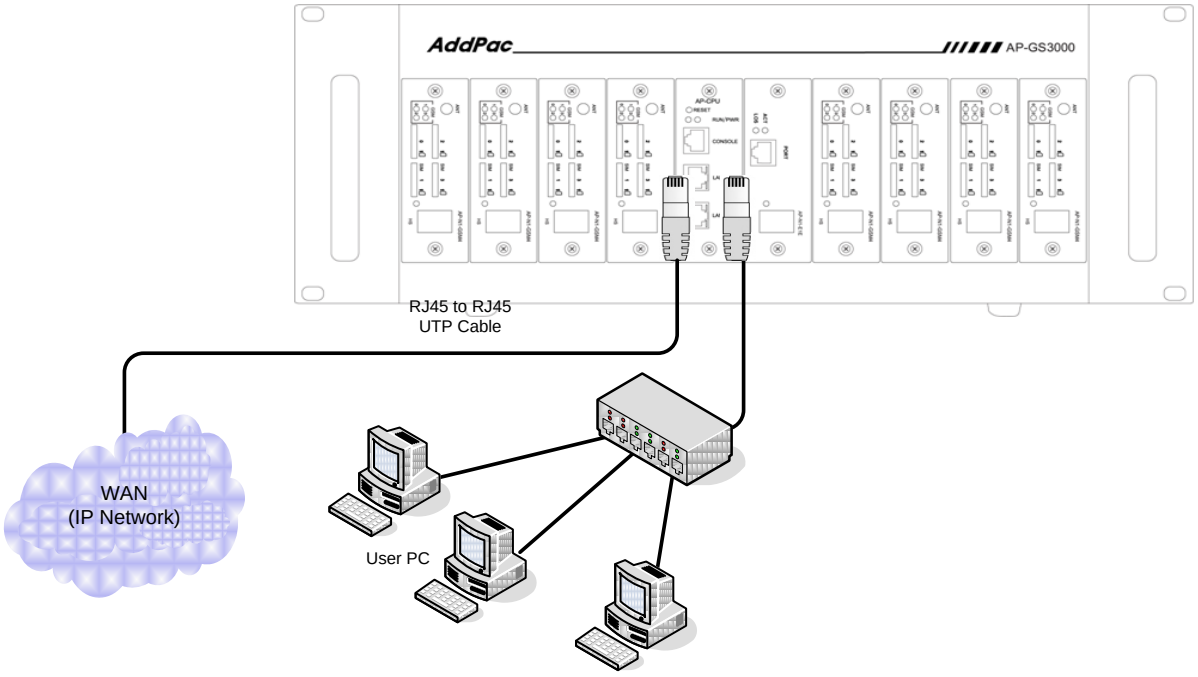


<Picture 3-1> Connect GS3000 Async Serial Interface

Connect Ethernet Interface

For internet connection WAN interface, connect with WAN device (router or ADSL/cable modem) LAN interface and RJ45 standard UTP cable. Cross over may be used when connecting to the router or modem directly. Use direct-through cable when connecting to HUB.

Connect LAN0/LAN1 fast Ethernet interface by using RJ-45 connector.



<Picture 3-2> Connect GS3000 LAN0/LAN1 Interface

Chapter 4. GS3000 Operation Status

Booting Process and Movement

Following shows booting process of GS3000

- Gateway checks the CPU, memory, and interfaces itself.
- Boot Loader will be executed and find appropriate Gateway s/w image file. GS3000 is designed to load Gateway S/W in default configuration.
- If s/w gateway image file cannot be found in flash memory, boot loader will wait in boot mode until it downloads the proper gateway s/w. (Use TFTP or FTP protocol to download proper Gateway s/w)
- After GS3000 loading is completed, GS3000 will be operated in accordance with saved information. GS3000 will run with initial value if there is no saved setup information. For normal network operation, administrator must setup pertinent details.

After GS3000 installation/interface connection is completed, the power must be supplied. Make sure to connect power cable with GS3000. Do not connect GS3000 after providing power cable. Also, use 110V power cable if the power supply is 110V. GS3000 automatically recognizes both 110V and 220V so using proper power cable and additional operation is not necessary.

After normal booting, following message will be shown.

```
System Bootstrap, Version 1.2
Decompressing the image:
####################################[OK]

System Boot Loader, Version 5.2.9
Copyright (c) by AddPac Technology Co., Ltd. Since 1999.

[DUAL-BOOT] Start application (0xf1000100)...


System Bootstrap, Version 1.2
Decompressing the image:
############################################################################
############################################################################
############################################################################
#########[OK]

VoiceFinder Router Series (GS3000_G2)
Serial Number: GS3000_G2-fffe30
32BIT RISC Processor With 333MHz Clock
128 Mbytes System Memory
512 Kbytes System Boot Flash Memory
16 Mbytes System Flash Memory

1 RS232 Serial Console Interface

System main board ID is 0x0

GS3000_G2 System software Revision 8.41.03T
Released at Fri Jul 23 10:11:57 2010
Program is 3497304 bytes, checksum is 0x1bdc47c6

Local Time     : Wed Jul 28 11:48:19 2010
Copyright (c) by AddPac Technology Co., Ltd. Since 1999.
```

SLOT[0] DETECT, ID(0x4)
SLOT[1] DETECT, ID(0x4)
SLOT[2] DETECT, ID(0x4)
SLOT[3] DETECT, ID(0x4)
SLOT[4] DETECT, ID(0x4)
SLOT[5] DETECT, ID(0x4)
SLOT[6] DETECT, ID(0x4)
SLOT[7] DETECT, ID(0x4)
SLOT[8] DETECT, ID(0x4)
Allocating system mbuffer counter: 6144
Kernel callwheelmask 0x3ff callwheelsize 1024
Loading file system(ver2.2), flash-base: 0xffff0000 ram-base: 0x038499bc
System utilization reference (28/28/28/28)
Start Target Debug Server
Attach FastEthernet Interface at Slot 0, Port 0-1, <0-0>/<0-1>
FastEthernet0/0: link is up 100 Mbps (full duplex)
Interface FastEthernet0/0, changed state to UP
Interface FastEthernet0/1, changed state to DOWN
Hardware Revision ID = 0
Line Card equip status = 0xe00
Slot (0) cardId=0 subId=4
Slot (1) cardId=0 subId=4
Slot (2) cardId=0 subId=4
Slot (3) cardId=0 subId=4
Slot (4) cardId=0 subId=4
Slot (5) cardId=0 subId=4
Slot (6) cardId=0 subId=4
Slot (7) cardId=0 subId=4
Slot (8) cardId=0 subId=4
Slot (0) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (1) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (2) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (3) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (4) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (5) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (6) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (7) AP-N1-GSM4 : VoIP module 4 GSM (New 1)
Slot (8) AP-N1-GSM4 : VoIP module 4 GSM (New 1)

```
Slot (0) Module type : GSM
Slot (1) Module type : GSM
Slot (2) Module type : GSM
Slot (3) Module type : GSM
Slot (4) Module type : GSM
Slot (5) Module type : GSM
Slot (6) Module type : GSM
Slot (7) Module type : GSM
Slot (8) Module type : GSM

RTA_Daemon start
GsSim Start
Start File Transfer Protocol Server (listen tcp/21)
Wait                                                    init0.....Wait
init0.....
.....

VOIP_INTERFACE_DOWN
Not Available: status(1) interface(0)
VOIP_INTERFACE_UP : (172.17.114.130)
Not Available: status(1) interface(0)
The port is not available
The port is not available
The port is not available
The port is not available
GsSim Ready


Press RETURN to get started.

RTA Module Ready
DSP S/W download (0): .... OK
DSP S/W download (1): .... OK
DSP S/W download (2): .... OK
DSP S/W download (3): .... OK
DSP S/W download (4): .... OK
DSP S/W download (5): .... OK
DSP S/W download (6): .... OK
```

```
DSP S/W download (7): .... OK
DSP S/W download (8): .... OK
QS (0) install ... OK
QS (1) install ... OK
QS (2) install ... OK
QS (3) install ... OK
QS (4) install ... OK
QS (5) install ... OK
QS (6) install ... OK
QS (7) install ... OK
QS (8) install ... OK

Gatekeeper shutdowned.

VoIP in service.
GSM-0/0: MODULE ID =   MULTIBAND   900E   1800
GSM-4/2: MODULE ID =   MULTIBAND   900E   1800
GSM-7/3: MODULE ID =   MULTIBAND   900E   1800
GSM-1/0: MODULE ID =   MULTIBAND   900E   1800
GSM-6/2: MODULE ID =   MULTIBAND   900E   1800
GSM-8/2: MODULE ID =   MULTIBAND   900E   1800
GSM-2/3: MODULE ID =   MULTIBAND   G850   1900
GSM-3/0: MODULE ID =   MULTIBAND   900E   1800
GSM-5/2: MODULE ID =   MULTIBAND   900E   1800
GSM-6/3: MODULE ID =   MULTIBAND   G850   1900
GSM-5/3: MODULE ID =   MULTIBAND   G850   1900
GSM-0/1: MODULE ID =   MULTIBAND   G850   1900
GSM-3/3: MODULE ID =   MULTIBAND   900E   1800
GSM-4/3: MODULE ID =   MULTIBAND   900E   1800
GSM-6/0: MODULE ID =   MULTIBAND   900E   1800
GSM-8/0: MODULE ID =   MULTIBAND   900E   1800
GSM-1/1: MODULE ID =   MULTIBAND   900E   1800
GSM-7/0: MODULE ID =   MULTIBAND   900E   1800
GSM-8/3: MODULE ID =   MULTIBAND   900E   1800
GSM-1/3: MODULE ID =   MULTIBAND   900E   1800
GSM-7/1: MODULE ID =   MULTIBAND   900E   1800
GSM-8/1: MODULE ID =   MULTIBAND   G850   1900
GSM-7/2: MODULE ID =   MULTIBAND   900E   1800
GSM-4/1: MODULE ID =   MULTIBAND   900E   1800
```

```
GSM-1/2: MODULE ID =   MULTIBAND   900E   1800
GSM-2/0: MODULE ID =   MULTIBAND   900E   1800
GSM-4/0: MODULE ID =   MULTIBAND   900E   1800
GSM-3/1: MODULE ID =   MULTIBAND   900E   1800
GSM-3/2: MODULE ID =   MULTIBAND   900E   1800
GSM-2/1: MODULE ID =   MULTIBAND   900E   1800
GSM-0/2: MODULE ID =   MULTIBAND   G850   1900
GSM-2/2: MODULE ID =   MULTIBAND   900E   1800
GSM-0/3: MODULE ID =   MULTIBAND   900E   1800
GSM-6/1: MODULE ID =   MULTIBAND   900E   1800
GSM-5/1: MODULE ID =   MULTIBAND   900E   1800
GSM-5/0: MODULE ID =   MULTIBAND   900E   1800
GSM-0/0: SIM READY
GSM-0/1: SIM READY
GSM-0/2: SIM READY
GSM-0/3: SIM READY
Interface GSM-0/0, changed state to UP
Interface GSM-0/1, changed state to UP
Interface GSM-0/2, changed state to UP
Interface GSM-0/3, changed state to UP

Welcome, APOS(tm) Kernel Version 8.41.03T.
Copyright (c) 1999-2010 AddPac Technology Co., Ltd.

Login:
Password:
```

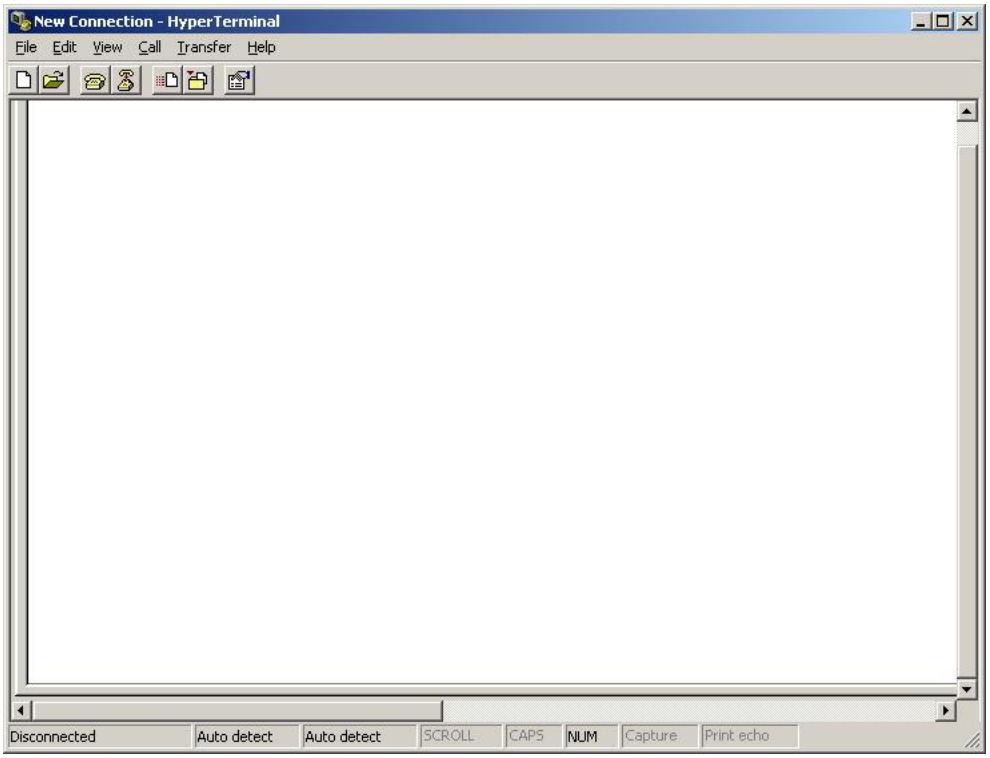
If the log in message is displayed at the end, enter login value **"root"/** password value **"router"** to complete the login. When the login procedure is completed, prompt **"GS3000#"** will be displayed on console terminal.

Prompt which is displayed on VoiceFInder GS3000 Gateway is "router>" and "router#". If the prompt is displayed as ">", logged in user has more authorities other than "admin". A user can't use a command (change the gateway setup) and has the minimum authorities. If the prompt is displayed as "#", logged in user has "admin" authorities and may use all gateway functions.

Admin can change all gateway setup. For the security purpose, we highly recommend to change admin account password basic value. Please refer to Quick Operation Guide and APOS Operation Guide for password change and VoiceFinder GS3000.

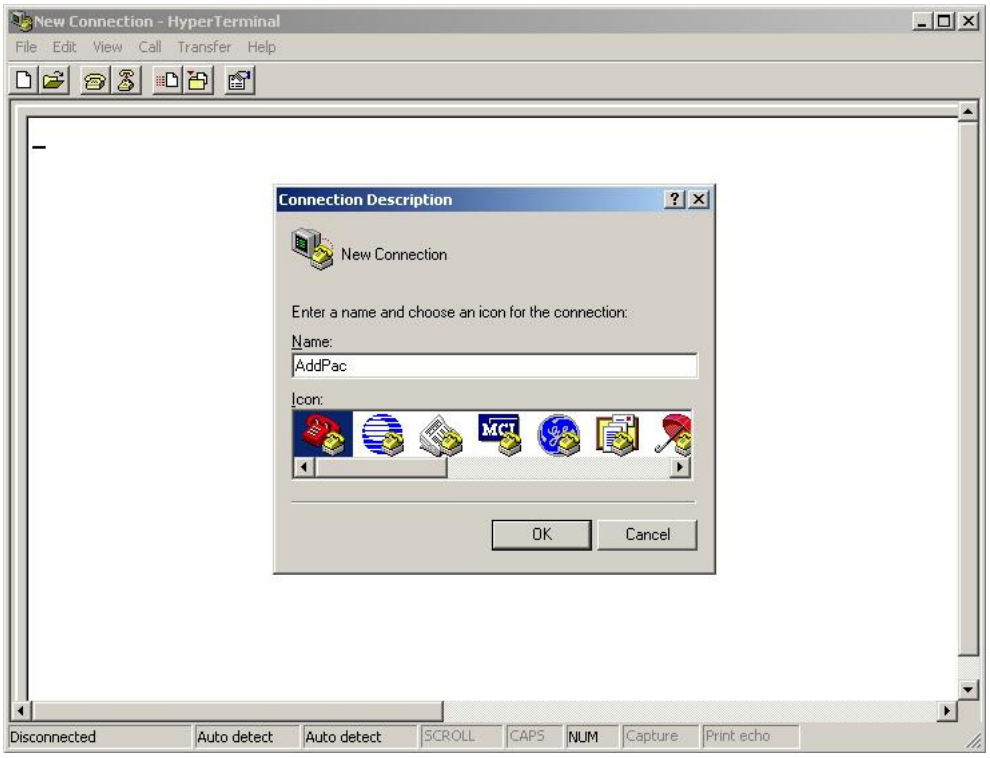
Use Console Terminal by Using HyperTerminal

Terminal Emulator Application must be setup when using PC as console terminal. Use hyper terminal application when using MS-Windows type.



<Picture 4-1> MS-Windows Terminal Emulator HyperTerminal

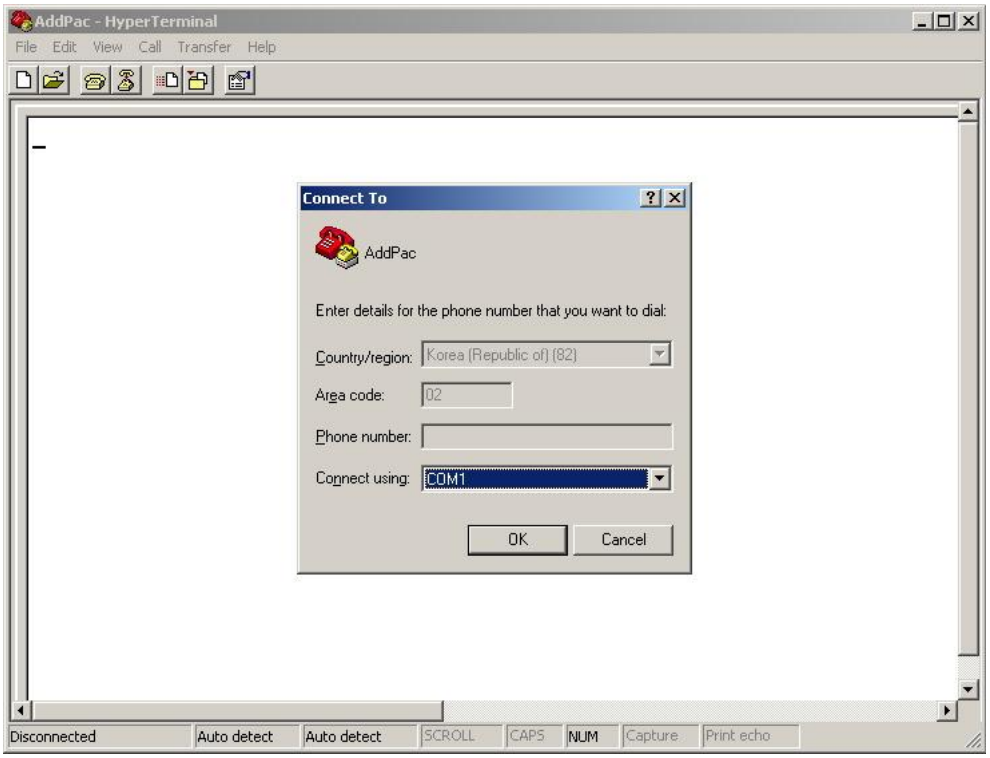
Execute hyper terminal and decide connection name in new connection. User may choose connection name freely. We setup as AddPac.



<Picture 4-2> Enter Connection Name in HyperTerminal

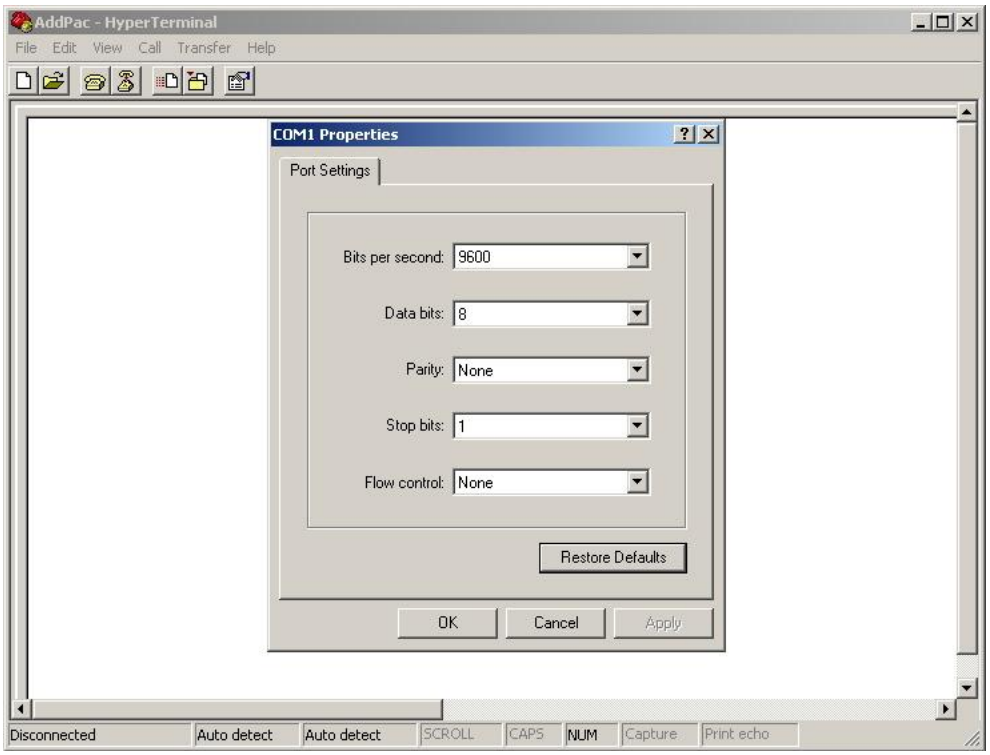
Be sure to specify the interface which was connected with console cable.

Console cable usually connects with RS-232C 9Pin Serial Port. Choose proper port in accordance with user environment. We have connected COM1.



<Picture 4-3> Setup Value When Connecting Console Cable to Serial Port

Decide each setup value in interface register information as below. We have used COM1 as a standard.



<Picture 4-4> COM1 Port Setup Example

After setup is completed, press enter to display booting message on hyper terminal screen.

APOS Command Usage

NOTE	**All AddPac technology devices are embedded with APOS (AddPac Operating System). Thus CLI (Command Line Interface) environment are all identical.**

All command in GS3000 can connect to console or telnet terminal (VT-100 terminal). Command provides to view the system restriction items, user mode to provide access function, look at the system status, administrator mode to use system debuggin function and change the setup environment or setup a new environment.

Following characteristics are GS3000 related command input.

- It automatically recognizes without typing all command. For example, to run "show" command, type "sh" or "sho". It will automatically recognizes as "show"
- It provides on-line help function so that when user enters incorrect system command, possible items and commands will be shown.
- More function provides to display unable information on screen.
- It provides Help and "?" function to display all possible command and explanation.
- It provides "History" function. User may use Prompt number without retyping command.
- System command structures are divided into 3 modes. Each mode has different command. Command for each mode is as below.

Administrator Mode Command

Administrator mode command is command that logged in administrator can use. To access in system setup mode, it must be under logged in status. It shows more information according to options even if it is same as command such as "show".
In administrator mode, user may use all command that is used in general user mode.

Administration mode prompt is displayed as "**GS3000#**".

<Table 4-1> Administrator Mode Command

Command	Explanation
clear	Command to initialize interface counter, statistic
configure	Enter as setup mode
copy	Copy running config as startup config
debug	Debug command for system
disconnect	Command to close VTY(simulated terminal) Connection
end	Enter as administrator mode
erase	Delete config file
exit	Move to previous mode
ftp	Enter as file shell
help	Display APOS help
no	Command to delete current setup
ping	Network connectivity confirmation tool
reboot	System rebooting command
show	System working status/setup status command
telnet	telnet access command
tftp	Command to transmit the file to tftp server
traceroute	IPv4 routing route check command
who	Command to display all logged in users by vty
write	Command to save operating configuration
undebug	Command to deactivate the debugging function
user	Command to add/modify/delete the system user

Basic Setup

- Host Name Setup

You may change the prompt name in CLI environment which was accessed through console/telnet. Host name is used in an important way when you manage the several devices all at once. It is convenient to use some form of word which can display the device name or location.

```
GS3000# configure terminal
GS3000(config)#
GS3000(config)# hostname {name}
GS3000(config)#
```

- Setup Clock

Clock setup shows the time of system. Be sure to set the exact time since system operation time, debugs, and log will be appeared.

```
GS3000# configure terminal
GS3000(config)#
GS3000(config)# clock {Year} {Month} {Day} {Hour} {Minute} {Second}
GS3000(config)#
```

- User Management

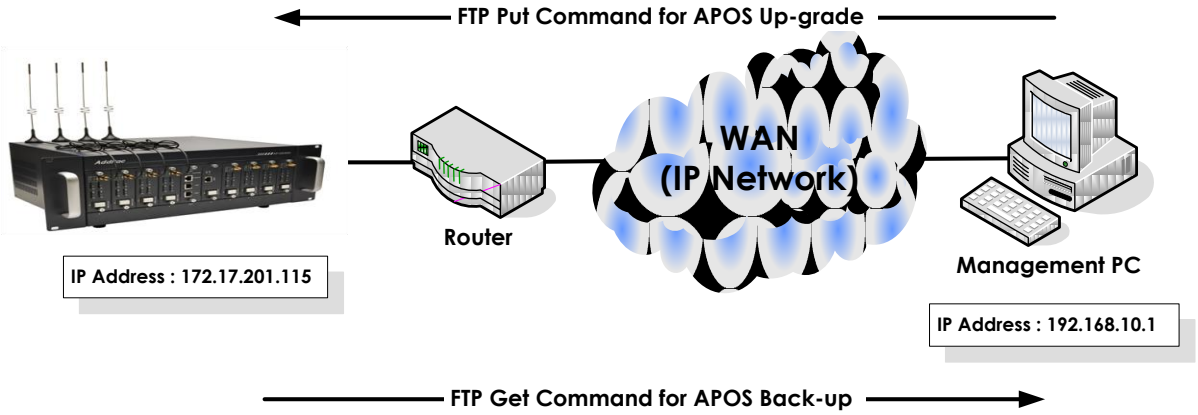
User account is used for telnet, FTP, SAMBA access. Only an administrator knows user account and password. When it is exposed to others, device will not be operating properly.

```
GS3000# configure terminal
GS3000(config)#
GS3000(config)# username {add} <login-name> <password> {admin|high|normal|low}
GS3000(config)#
```

APOS Upgrade

AddPac Technology GS3000 permits to access the APOS image file transmitting by using FTP. Also, relevant protocol let user to do on/off service independently.

Upload/download network configuration is as below.



<Picture 4-5> APOS Image File Upgrade by Using FTP

- FTP Service Activation

Activate FTP service to execute APOS upload/download by using FTP service in AP2620.

```
GS3000# configure terminal
GS3000(config)#
GS3000(config)# ftp server
GS3000(config)#
```

- APOS Upload

Upload GS3000 APOS by using ftp in PC.

```
D:₩ >dir
2007-11-15   05:21p       <DIR>            .
2007-11-15   05:21p       <DIR>            ..
2007-11-15   05:21p              3,098,820         GS3000_v8_21.bin

D:₩>
D:₩> ftp 172.17.201.115
Connected to 172.17.201.115.
220 GS3000 FTP server (Version 8.23) ready.
User (172.17.201.115:(none)): root
331 Password required for root.
Password:
230 User root logged in.
ftp> binary
200 Type set to I.
ftp>
ftp> put GS3000_g2_v8_46_020.bin
200 PORT command successful.
150 Opening BINARY mode data connection for ' GS3000_g2_v8_46_020.bin '.
226 Transfer complete.
ftp: 3098820 bytes sent in 2.47Seconds 1039.51Kbytes/sec.
ftp> quit
221 Goodbye.
D:₩>
```

Chapter 5. GS3000 Console Command

Basic Command for Network Setup

- Command after IP, Default Route Setup

  Following shows the network status for basic communication and checks proper network connectivity by performing ping test with default gateway.

```
GS3000# configure terminal
GS3000(config)# interface FastEthernet 0/0
GS3000(config-if)# ip address 172.17.201.115 255.255.0.0
GS3000(config-if)# exit
GS3000(config)# ip route 0.0.0.0 0.0.0.0 172.17.1.1
GS3000(config)# end
GS3000#
GS3000#
GS3000# write
Do you want to WRITE configuration ? [y|n] y
Writing configuration....done
GS3000#
GS3000# ping 172.17.1.1
PING 172.17.1.1 (172.17.1.1): 56 data bytes
64 bytes from 172.17.1.1: icmp_seq=1 ttl=255 time=2 ms
64 bytes from 172.17.1.1: icmp_seq=2 ttl=255 time=1 ms
64 bytes from 172.17.1.1: icmp_seq=3 ttl=255 time=1 ms
64 bytes from 172.17.1.1: icmp_seq=4 ttl=255 time=1 ms
64 bytes from 172.17.1.1: icmp_seq=5 ttl=255 time=1 ms

--- 172.17.1.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max  = 1.73/2.027/2.75 ms
GS3000#
```

Chapter 6. Appendix

Console Port Signal and Pin Out

Following appendix explains the specification of cable pins in GS3000.

- Console port signal and pin out (RJ-45 to DB9)
- UTP cable (RJ-45 to RJ-45) pin out
- E1/T1 cable (RJ-45 to PBX) pin out

[Console Port Signal and Pin Out]

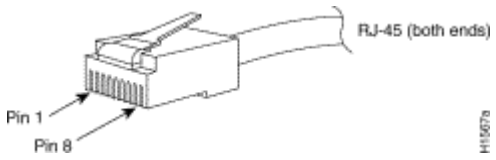
To connect router console port and terminal emulator software PC, user must use built-in RJ-45 to DB9 (Female DTE connector) cable.

<Table 6-1> Console Port Pin Out

Console Port (DTE)	RJ-45	DB-9	Console Device (PC)
Signal	RJ-45 Pin	DB-9 Pin	Signal
RTS	1	8	CTS
DTR	2	6	DSR
TxD	3	2	RxD
GND	4	5	GND
GND	5	5	GND
RxD	6	3	TxD
DSR	7	4	DTR
CTS	8	7	RTS

[UTP Cable (RJ-45 to RJ-45) Pin Out]

Use RJ-45 to RJ-45 Ethernet cable to connect router and other devices (HUB). RJ-45 connector pin order is shown in Picture 6-1.



<Picture 6-1> 100Base-TX RJ-45 Connector

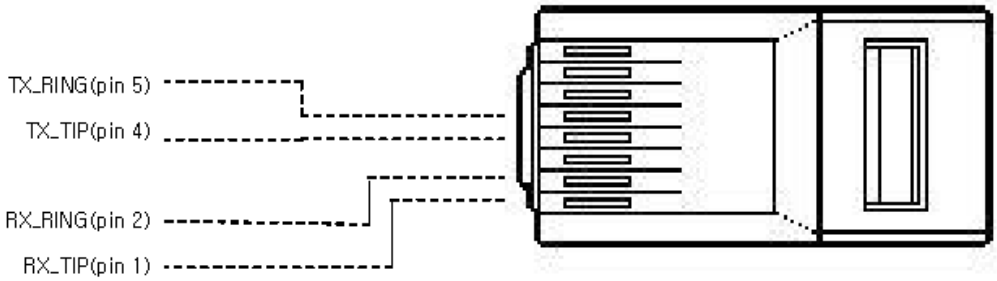
<Table 6-2> Series Ethernet Cable Signal Pin Out

RJ-45	Signal	Direction	RJ-45 Pin
1	**Tx +**	→	1
2	**Tx -**	→	2
3	**Rx +**	←	3
4	**-**	**-**	4
5	**-**	**-**	5
6	**Rx -**	←	6
7	**-**	**-**	7
8	**-**	**-**	8

1. This specification is cable specification for series cable in between router and hub.
2. Use cross cable to directly connect router to PC or router to router.

[E1/T1 Cable (RJ-45 to PBX) Pin Out]

Addpac E1/T1 module can be connected with RJ45 cable. RJ45 pin arrangements are as below. Be sure to connect PBX RX with RJ45 1,2 and TX with 3,4.



<Picture 6-2> Digital E1/T1 RJ45 Pin Out

Abbreviation and Terminology

Abbreviation/Term	Definition and Explanation
ADSL	Stands for Asymmetric Digital Subscriber Line. If you use ADSL, the central office will be connected to each home directly in a 1:1 method. In a down-link where data is transferred downward from the central office to the users, high-speed data communication of at least 1.5 Mb can be made. On the contrary, in an up-link from the users to the central office, communications are made very slowly. Thus, this service is called an asymmetrical service not a symmetrical service.
AP-VPMS	Stands for VoIP Plug & Play Management Software. This integrated management software developed by AddPac Technology enables VoIP products to be installed in a GUI environment, be monitored in real-time, or to be upgraded. This software also enables network administration.
API	Stands for Application Programming Interface. API is a function call legend standard that defines service interfaces.
APOS	Stands for AddPac Internetworking Operation System. This is an operating system that supports the network products developed by AddPac Technology.
ATM	Stands for Asynchronous Transfer Mode. This is an international cell relay standard for providing a variety of services such as voice, video, and data in the form of a cell of a fixed length (53 bytes). If you use a fixed-length cell, cell processing will be performed in the hardware; thus, transmission delay can be reduced. ATM is designed to make use of high-speed transmission media such as E3, SONET, and T3.
ATM High Speed National Network	This network has been commercialized by the Korean government since 1993. The high speed national network designed for governmental offices provides data services (transport network services) and Internet services. Data services are categorized into ATM, dedicated lines, packet exchange, and frame relay services. Internet services are categorized into Internet multi-services provided through ATM connection circuits and simple Internet services.
ATM Forum	This is an international organization founded by Cisco Systems, NET/ADAPTIVE, Northern Telecom, and Sprint in 1991 to reach the agreement of a standard for ATM technologies. ATM Forum expands the formal standards developed by ANSI and ITU-T and the agreements

	on the implementation of technologies
Authentication	Operation of verifying the identification of a person or a process. This is a security feature.
BNC Connector	IEEE 802.3 10Base-2 coaxial cable is standard connector to connect MAU(Media Access Unit)
Boot Loader	This is a chip installed into a printed circuit board used to send executable boot commands to a network device.
Bps	Stands Bits per second. Typically called bps. Refer to bit rate.
Cable Modem	This device converts analog signals to digital signals in order to enable the Internet through a cable network. Since telephone networks are made of copper wires and cable networks are made of coaxial and optical cables, the bandwidth of cable networks are much wider than that of telephone networks. However, the modulation/demodulation technology, which converts digital to analog and vice versa, is required for cable networks when data is transferred.
Call Center	Call Center is a central place where calls from customers and other people are processed systematically. Computer automation is implemented in Call Center to some degree. Typically, Call Center processes many calls simultaneously, categorizes calls, connects the calls to personnel, and records calling logs automatically. Call Center is typically used for mail order catalog firms, telemarketing firms, customer centers for PC products, and large enterprises that sell products or provide services.
Caller ID	Caller ID is phone service which sends caller's phone number to call receiver. However, digital reader must be attached to the phone.
Category 5 cabling	One of the five-level UTP cable connection methods specified by the EIA/TIA-586 standard. Category 5 cabling enables data to be transferred at a rate of up to 100Mbps.
CBR	Stands for Constant Bit Rate. The ATM network QoS class CBR defined by ATM Forum is used for a connection device that is based on a precise clock processing method to ensure untwisted data transfer.
CES	Stands for Circuit Emulation Service. This service allows you to multiplex multiple line emulation streams for voice and video with packet data through a single high-speed ATM link without using a separate ATM access multiplexer.
Checksum	This is a method for checking the integrity of transferred data. Checksum is an integer calculated from the octet sequence obtained by a series of operations. This value is calculated by the recipient again for verification.
Coaxial cable	This coaxial cable is made of an external cylinder-type conductor that

	wraps an internal wire conductor. Examples of the coaxial cables used for LAN include 50Ω cables used for digital signal processing and 75Ω cables used for high-speed digital signal processing.
CODEC	Abbreviation of Coder-Decoder 1. Convert analog signal to digital bit stream by using purse code modulation, and convert digital signal to analog signal again. 2. DSP software algorithm to compress/decompress voice signal or audio signal such as Voice over IP, Voice over Frame Relay, Voice over ATM.
Console	DTE interface (It is a path to enter the host)
CoS	Stands for Class of Service. CoS refers to the standard method that enables a higher-level protocol to make a lower-level protocol process messages. For the SNA lower-level area routing, CoS is used to determine the optional path for lower level area nodes to set a given session. CoS consists of a virtual path number and transmission priority field. Also called ToS.
Decryption	Stands for Class of Service. CoS refers to the standard method that enables a higher-level protocol to make a lower-level protocol process messages. For the SNA lower-level area routing, CoS is used to determine the optional path for lower level area nodes to set a given session. CoS consists of a virtual path number and transmission priority field. Also called ToS.
DHCP	Stands for Dynamic Host Configuration Protocol. DHCP has a mechanism that reassigns an IP address dynamically in order for the host to recycle unnecessary IP addresses.
DNS	Stands for Domain Name Server. This is a server system used for the Internet to convert the name of a network node name to an address.
DS-3	Stands for Digital Signal level 3. This is a frame processing standard used to transmit digital signals at a rate of T3. (44.736Mbps)
DSP	Stands for Digital Signal Processor. This is a dedicated processor that processes only digital signals. DSP is used as a sub-processor for voice processing in NEXT.
DTMF	Stands for Dual Tone MultiFrequency. Two voice-band tones are simultaneously used for dialing. (just like touch tones)
E&M	Stands for either receive and transmit or Ear and Mouth. Typically, this is a trunking device used for switch-to-switch or switch-to-network two-way communications. The analog E&M interface of Cisco is a RJ-48 connector for PBX trunk lines. E&M is available for E1/T1 digital interfaces.
E1	This is a wide area digital transmission technique used mainly in Europe. E1 enables data transfer at a rate of 2,048Mbps. E1 can be lent by

	regular service providers for a private use.
Encryption	To apply specific algorithm for those who do not have right to access into data.
Ethernet	Baseband LAN standard initiated by Xerox Corporation and co-developed by Xerox, Intel, and DEC. CSMA/CD is used for Ethernet networks, which operate through a variety of cables at a rate of 10Mbps. Ethernet is similar to the IEEE 802.3 standards. Refer to 10Base-2, 10Base5, 10Base-F, 10Base-T, 10Broad-36, Fast Ethernet and IEEE 802.3.
FAX	Abbreviation of Facsimile. FAX refers to the transmission of scanned texts or images to a printer or an output device connected to another phone number by using a telephone line. Once the original document is read by a facsimile, the facsimile treats the document as a fixed graphic image, and converts it to bitmap. In this digital form, data is transferred in the form of an electrical signal through a phone system. The receiving facsimile restores the data to a encoded image, and prints it on a sheet of paper.
Frame	Logical group of data transferred to a data link layer unit through a transmission medium. From frames, the header and trailer that include user data are important. Headers and trailers are used for synchronization and error control. Cells, data grams, messages, packets, and segments are used to describe logical data groups in various layers of OSI or based on various technologies.
Frame-Relay	This is an industry-standard switching-type data link layer protocol that processes multiple virtual lines in inter-connected devices by using the HDLC encapsulation. Frame-Relay is more efficient than X.25.
FTP	Stands for File Transfer Protocol. FTP, which is an application protocol, is part of the TCP/IP protocol stack used for file transfer between network nodes. FTP is defined in RFC 959.
FXO	Stands for Foreign Exchange Office. The FXO interface is connected to the switching center of Public Switched Telephone Network (PSTN), and is provided by a regular phone. The FXO interface of Cisco is a station interface of the switching center or PBX on PSTN, and is a RJ-11 connector for analog connection devices.
FXS	Stands for Foreign Exchange Station. The FXS interface is directly connected to a standard phone, and provides a ring-back tone, voltage, and a dial tone. The FXS interface of Cisco is a RJ-11 connector for basic telephone service devices, keyset, and PBX.
G.711	This specifies the PCM voice coding technique of 64Kbps. Voice is encoded under G.711 in an appropriate format that enables digital

	voice transmission over either PSTN or PBX. G.711 is specified under the ITU-T standard of G-series recommendation.
G.723.1	This is one of the H.324 standards, and specifies a compression technique that enables voice or audio signal elements to be compressed at a very low bit transmission rate. This CODEC is related to the bit transmission rates of 5.3Kpbs and 6.3Kpbs. The high bit transmission rate is based on the MLMLQ technology, and provides high quality sounds. The low bit transmission rate is based on CELP, and ensures high flexibility for system designers. This standard is specified under the G-series ITU-T standard.
G.726	This standard specifies ADPCM coding performed at a rate of 40Kbps, 32Kbps, 24Kbps, or 16Kbps. If the PBX network is configured to support ADPCM, you can exchange ADPCM encoding voice with packet voice networks, PSTN, or PBX networks. This standard is specified under the ITU-T standard of G-series recommendation.
G.728	This standard specifies variations that ensure low delay of CELP voice compression performed at 16Kbps. The CELP voice coding should be converted to a public telephony format for transmission over either PSTN or PSTN. This standard is specified under the ITU-T standard of G-series recommendation, and defines the CELP compression that encodes G.729 voice to a stream of 8Kbps. G.728 has two variations (G.729 and G.729 Annex A), and the variations are different in terms of calculation complexity. The two variations have voice quality similar to ADPCM of 32Kbps. G.728 is specified under the ITU-T standard of G series recommendation.
Gatekeeper	This is the component of the H.323 video conference system that analyzes a caller ID, controls access authorization, and manages the subnet bandwidth. A gatekeeper is H.323 entity that provides the features that enable address conversion and LAN access control to the H.323 terminal and gateway on LAN. Gatekeepers can provide other services such as bandwidth control and search for a gateway to the H.323 terminal and gateway. This device manages a device registry on a multimedia network. The devices are registered with the gatekeeper.
H.225	ITU standard for H.225.0 session setup and packet process application. H.225.0 actually regulated various protocols such as RAS, Q.931 usage, RTP usage.
H.245	ITU standard for H.245 endpoint control.
H.323	This standard is an extension of the ITU-T standard H.320 that enables voice conferences over LAN or another packet switching network as

	well as video transmission over the Internet.
HBD3	A type of line code that is used in E1 line.
HDLC	Stands for High-Level Data Link Control. HDLC is a transmission protocol used in the data link layer, which is the second layer of the 7-layer OSI model. HDLC is used in the X.25 packet switching network. Data consists of frames in HDLC, and frames are transmitted through a network. The destination verifies if the frames have been successfully transmitted. The HDLC protocol includes data for controlling data flow and troubleshooting errors in a data frame.
Hookflash	This is short on-hook duration of a device such as phones during a call. Hookflash means that a phone attempts to make a dial tone recall through PBX. This is usually used to perform call transfer.
HTTP	An abbreviation of Hypertext Transfer Protocol. It is a protocol to send text file or graphic file.
IPSec	Stands for Internet Protocol Security protocol. IPSec is a still developing standard for the security of networks or the packet processing layer of network communications. In the previous security techniques, security has been included in the application layers of a communication model. IPSec is particularly useful for the implementation of remote user access through dial-up access to Virtual Private Networks (VPN) and regular private networks. The main advantage of IPSec is that security can be ensured without replacing an individual user PC with a new one. Cisco takes the initiative of suggesting IPSec as the standard, and has embedded support to this feature into its network router.
IPv6	IPv6 is the latest IP, and has been embedded into part of IP support into many products including the operating systems of PC. IPv6 is called IP Next Generation (IPng), that is the next-generation IP. IPv6 is the formal IETF standard. IPv6 is designed as an evolutional version of the currently used IP version 4. Network hosts or intermediate nodes that adopt either IPv4 or IPv6 can process any packets formulized by either IPv4 or IPv6; thus, the users and service provides can upgrade their IP to IPv6 individually without collaboration.
ISP	Stand for Internet Service Provider. ISP refers to service providers that provide Internet access services, Web site construction and Web hosting services to individuals or enterprises. ISP has devices and communication lines required for Internet access, and large ISPs have their own high-speed dedicated lines in order to provide services that have better quality and are less dependent on telephone network service providers to their customers. The large nationwide ISPs of the U.S.

	are AT&T WorldNet, IBM Global Network, MCI, Netcom, UUNet, and PSINet. Those of Korea are INet, Channeli, Netsgo, and Netian. The users access the Internet through online service providers. The main online service providers of the U.S. are America Online and Compuserve, and those of Korea are Chollian, Unitel, and Hitel.
ITU-T	Stands for International Telecommunication Union Telecommunication Standardization Sector. This is an international organization that develops global standards on communication technologies. ITU-T performs the previous tasks of CCITT.
IVR	Stands for Interactive Voice Response. IVR refers to a system that provides data in the form of recorded messages through phone lines as a response to user input in the form of human voice or mainly DTMF signal processing. Examples are banks that allow you to check balance by using a phone or automated stock quotations system.
LAN	Stands for Local Area Network. This is a low-error, high-speed data network that covers relatively small geographical areas of up to several thousand meters. LAN inter-connects workstations, peripherals, terminals, and other devices in a building or a geographically limited area. The LAN standard specifies a cable connection and signal processing method in the physical layer and data link layer of the OSI model. Reference: MAN, WAN.
Link	This is a network communication channel configured with lines or a transmission path between the transmitter and receiver and related devices. A link mainly refers to WAN connections, and is sometimes called a line or a transmission link.
Loopback test	This test is performed as follows: Transmit a signal or return it to the transmitter at a location on the communication path. This loopback test is usually performed to test the availability of network interfaces.
MAC Address	Stands for Media Access Control Address. This is a standard data link layer address required for any and all ports and devices connected to LAN. Other devices on a network use this address to locate a specific port within the network and to create or update a routing table and data structure. A MAC address is 6 bytes long, and is managed by IEEE. A MAC address is called as a hardware address, a MAC-layer address, or a physical address. Compare to: Network Address.
MAN	Stands for Metropolitan-Area Network. This network covers the entire area of a large city. The operation area of MAN is geographically larger than that of LAN; however, is smaller than that of WAN. Compare to: LAN, WAN.

MGCP	MGCP, which is also known as H.248 or Megaco, is a standard protocol required to operate signals required during a multimedia conference or to manage sessions. This protocol defines a method of communications between the media gateway that converts the data format required for a circuit switching network to the one required for a packet switching network and the media gateway control device. MGCP may be used to set up, manage, and complete calls among multiple endpoints. Megaco and H.248 are the improved version of MGCP.
NAT	Stands for Network Address Translation. NAT is a mechanism for reducing the need for globally unique IP addresses. NAT allows you to access the Internet as an organization whose address is not globally unique converts the address to an address space where the address can be globally routed. NAT is also called Network Address Translator.
NTP	Stands for Network Address Translation. NAT is a mechanism for reducing the need for globally unique IP addresses. NAT allows you to access the Internet as an organization whose address is not globally unique converts the address to an address space where the address can be globally routed. NAT is also called Network Address Translator.
PABX	Stands for Private Automatic Branch eXchange. PABX is a switch for phones used at enterprises. PABX is used in Europe, while PBX is used in the U.S.
Packet	A packet is a group of logical data that contains user data and a header where control data is contained. A packet mainly refers to the unit of network layer data.
PBX	Stands for Private Branch eXchange. PBX, which is located in a subscriber building, is a digital or analog phone switchboard used to connect private networks to public phone networks.
PING	Stands for Packet INternet Groper. ICMP echo-processes a response between messages. PING is used for an IP network to test the accessibility of network devices.
Point to Point Connection	Stands for Packet INternet Groper. ICMP echo-processes a response between messages. PING is used for an IP network to test the accessibility of network devices.
Pont to Multipoint Connection	One of the two basic connection types. In ATM, the point to multipoint connection is a one-way connection method that enables a transmitting end-system (root node) to be connected to multiple receiving end-systems (riff). Compare to: Point to Point Connection.
POTS	An abbreviation of Plain Old Telephone Service. Reference Item: PSTN.

PPP	Stands for Point-to-Point Protocol. This protocol is the advanced version of SLIP that enables a router-to-router connection or a host-to-network connection through synchronous or asynchronous lines. SLIP is designed to be used on an IP, while PPP is used along with network layer protocols such as IP, IPX, and ARA. PPP has a bulletin board security mechanism such as CHAP and PAP. PPP has two subprotocols, LCP and NCP. Reference: CHAP, LCP, NCP, PAP, and SLIP.
Protocol Stack	Stands for Point-to-Point Protocol. This protocol is the advanced version of SLIP that enables a router-to-router connection or a host-to-network connection through synchronous or asynchronous lines. SLIP is designed to be used on an IP, while PPP is used along with network layer protocols such as IP, IPX, and ARA. PPP has a bulletin board security mechanism such as CHAP and PAP. PPP has two subprotocols, LCP and NCP. Reference: CHAP, LCP, NCP, PAP, and SLIP.
PSTN	An abbreviation of Public Switched Telephone Network. A general term for various telephony network services. It is also known as POTS.
PVC	Stands for either Permanent Virtual Circuit or Permanent Virtual Connection. PVC is a virtual circuit installed permanently. PVC allows you to reduce a bandwidth for setting up or releasing a circuit when a specific virtual circuit must always exist. As an ATM term, PVC is called Permanent Virtual Connection.
Q.931 Signaling	This is an ITU standard that specifies ISDN signal processing methods. The H.225.0 standard uses a variation of Q.931 to set up or disconnect the session of H.323.
QoS	Stands for Quality of Service. QoS is the criterion of measuring the performance (e.g. transmission quality and service availability) of a transmission system.
RAM	An abbreviation of Random-Access Memory. It is a memory which microprocessor can read or write.
RAS	An abbreviation of Registration, Admission, and Status protocol. This protocol finds gatekeeper and use H.323 for communication.
RISC	An abbreviation of Reduced Instruction Set Computing.
IP-PBX	This is a network layer device that determines the optional route to which network traffic is delivered by using one or more metrics. A router forwards packets from a network to another network based on the network layer information. A router is sometimes called a gateway. (A gateway in this meaning is getting older)
RS-232	Physical layer interface. It is known as EIA/TIA-232.
RTCP	An abbreviation of RTP Control Protocol. It monitors QoS (IPv6 RTP connection) and delivers the processing session related information.

	Reference Item: RTP (Real-Time Transport Protocol)
RTP	1. Stands for Routing Table Protocol. This VINES routing protocol based on RIP distributes network topology data, and helps the VINES server that searches for adjoining clients, servers, and routers. A delay time is used as a routing metric. Reference: SRTP 2. Stands for Rapid Transport Protocol. RTP provides facing and error recovery services to the APPN data when the data passes the APPN network. RTP allows you to check error recovery and flow control synthetically. RTP does not recover but prevents traffic congestion. 3. Stands for Real-Time Transport Protocol. This is one of the IPv6 protocols. RTP is designed to enable the synthetic network transmission feature in the application that transfers real-time data such as audio, video, and simulation data through multicast or unicast network services. RTP enables the real-time application to identify a payload type, specify a sequence number, perform time-stamping, and to monitor a transmission procedure.
SIP	Stands for Session Initiation Protocol. SIP is an application layer control protocol based on very simple texts, and allows more than one user to make, correct, or complete a session. Examples of sessions include remote conferences, phones, meetings, event notifications, and instant messaging on the Internet. SIP is independent to lower-level packet protocols. (e.g. TCP, UDP, ATM, and X.25)
SmartViewer	This is software that allows you to monitor AP-GK1000, AP-GK2000, and AP-GK3000, which are the gatekeeper series of AddPac Technology, in a Graphical User Environment (GUI) environment in real-time and to search or manage statistical data.
SNMP	Stands for Simple Network Management Protocol. This is a network management protocol almost dedicated to TCP/IP networks. SNMP monitors and controls network devices, and manages setup, collection of statistical data, operation performance, and security features. Reference: SGMP and SNMP2
T1	Facility for digital WAN communication business. T1 send DS-1 format data at a speed of 1.5444Mbps through phone switching network Comparison Item: E1. Reference Item: AMI, B8ZS, DS-1.
TCP/IP	An abbreviation of Transmission Control Protocol/Internet Protocol. It is a general name for protocol suit to support worldwide internetwork establishment. TCP and IP are well known protocols. Reference Item: IP, TCAP.
Telco	An abbreviation of Telephone Company. Telco indicates a company that provides phone service to the customers; It usually means independent inner city phone providers such as bell operating

	company. Sometimes, it means a company that provides long distance phone provider.
Telnet	A standard terminal emulation protocol that is included in TCP/IP protocol stack. Telnet is used for remote terminal connection. Telnet is defined in RFC 854.
VCI	Stands for Virtual Channel Identifier. VCI refers to a 16-bit field in the header of an ATM cell. VCI as well as VPI allows you to identify the next receiver of a cell while the cell is being delivered to the receiver through a series of ATM switches. The ATM switches use the VPI/VCI field to identify the next network VCI that the cell should pass to reach the receiver, which is the final destination. The features of VCI are similar to those of DLCI.
VDSL	An abbreviation of Very-high-data-rate Digital Subscriber Line. VDSL provides 13Mbps~52Mbps downstream and 1.5Mbps~2.3Mbps through single twisted fair cooper line. A range of VDSL is restricted in between 1,000ft and 4,500ft. Compare Item: ADSL, HDSL, SDSL.
VoATM	Stands for Voice Over ATM. VoATM enables a router to deliver voice traffic (e.g. phone calling or facsimile) over an ATM network. Voice traffic is encapsulated in a specific AAL encapsulation method for multiplexed voice when voice traffic is sent in ATM.
VoFR	Stands for Voice Over Frame Relay. VoFR enables a router to deliver voice traffic (e.g. phone calling or facsimile) over a frame relay network. When voice traffic is sent through frame relay, the voice traffic is encapsulated after being decomposed into segments by using the FRF.12 encapsulation technique to pass the frame relay network.
VoHDLC	Stands for Voice over HDLC. Voice over HDLC enables a router to deliver live voice traffic (e.g. phone calling and facsimile) to another router through a serial line.
VoIP	An abbreviation of Voice over IP. It is capable of delivering same function, reliability, and voice quality such as POTS. Voice traffic (ex. Call/fax) can be delivered by using Voice over IP function. DSP breaks down the voice signal into frames, and these frames are saved in voice packet.
VPN	An abbreviation of Virtual Private Network. Because of traffic encrypt, TCP/IP network can be moved safely.
WAN	An abbreviation of Wide-Area Network. It is a data communication network to provide service to the users in wide area and use digital transmission service that is provided by communication operator. (EX. Frame relay, SMDS, and X.25 are examples of WAN) Compare Items: LAN, MAN.

Warranty

Name	AP-MC1000 (Serial No.:)			
Date	20 . . . ~ 20 . . . (1 Year)			
User	Address			
	Company		TEL	
	Name			
Seller	Address			
	Company		TEL	
	Name			

Product Warranty Regulation

- If the product breakdown under the normal operation, we will repair the product for free of charge.
- Our company provides the repair, exchange without extra charge. Any removed parts will belong to our company.
- This paper never guarantees the breakdown due to natural disaster, catastrophe, transportation, modification and etc.
- An extra service charge will be incurred if the service is not included in this warranty. This warranty only valid in Korea.
- Addpac is not responsible for a claim for damages from the third party.
- A product repair, exchange and refund follow the consumer protection board.
- For after sales service, please call us at 02)568-3848 or Fax: 02)568-3847
- Our regular business hours : AM9:00 ~ PM6:00
- For more information, please visit our website http:www.addpac.com

AddPac Technology

2F, Kyeong-An Bldg., 769-12 Yeoksam-Dong. Kangnam-gu, Seoul. 135-080

Phone (02) 568-3848

Fax (02) 568-3847

Email: sales@addpac.com

Homepage: www.addpac.com