

Cable Voice Gateway

H.323 and MGCP Protocols

User's Manual

# USER'S NOTICE

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Manual Revision:	<b>1.00 Exxx</b>
Release Date:	<b>Dec 2001</b>

# CONTACT INFORMATION

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# FCC & DOC COMPLIANCE

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This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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

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

**WARNING! Any changes or modifications to this product not expressly approved by the manufacturer could void any assurances of safety or performance and could result in violation of Part 15 of the FCC Rules.**

# 1. Introduction

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Thank you for purchasing an Cable Voice Gateway. The Cable Voice Gateway, like the rest of the VoIP voice gateway products offers the highest performance and interoperability capabilities in a **Voice over Internet Protocol (VoIP)** environment for residential and small business users. With VoIP technology, users can dial with a VoIP phone to all over the world at a very low cost or even no cost.

This product contains two major functionalities: a DOCSIS/EuroDOCSIS certified Cable Modem and a VoIP telephony. By connecting the Cable Voice Gateway to a broadband cable network, high quality telephony service though the Internet can easily be attained.

## Features

- Compliant to MCNS DOCSIS or Euro DOCSIS standards
- Support network management protocol
- Plug and Play operation for easy setup and installation
- Diagnoses through front panel LEDs or HTTP server
- Software upgradable if initiated by your cable company
- Low power consumption
- Stylish, compact design

## Package Contents

- (1) Cable voice gateway
- (1) AC power adapter
- (1) User's Manual
- (1) CAT.5 Ethernet cable (RJ-45)
- (1) USB Driver (optional)
- (1) USB Cable (optional)

# 1. Introduction

---

## 1.1. How to make calls to Internet phones

If you have already an Internet Service account from your local ISP, you can use this service to provide VoIP Telephone Service by VoIP cable voice gateway. Make sure that your ISP's firewall allows VoIP services (H.323 or MGCP).

## 1.2. How to make calls to PSTN phones

As well as free telephony service by VoIP technology of VoIP products, you can subscribe to an Internet Telephony Service Account from your ITSP, then you can let your Cable Voice Gateway to provide telephony service to PSTN.

**NOTES: The Media Access Control (MAC) address (printed on a label on the bottom of the voice gateway) is needed for your local ISP/ITSP to configure your subscription. Have this number ready before you contact your local ITSP.**

## 2. Features

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### Supports

- Extension design from cable modem complied by DOCSIS or EuroDOCSIS standards
- Supports network management protocol
- G.711/G.723.1/G.729A voice compression algorithm
- Multiple VoIP protocols: H.323, H.225.0, Q.931, H.245, RTP/RTCP, H.450\*, H.235\*, MGCP 1.0: MGCP, SDP, RTP/RTCP
- Multiple UI/GUI for management and configuration: Web Console, Telnet, Console, Phone Set, SNMP.
- Voice: DTMF detection and generation, G.168 compliant echo canceller, silence detection (VAD) and CNG, Call Progress and User Tone Generation, Caller ID (optional), Fax (optional)
- Telephony Supplemental services: Inner Conference Call, Speed Dial, Redial, Call Back, Distinct Ring, Call waiting\*, Call Holding\*, and Call Forwarding\*
- Supports multiple languages for phone set configuration (phone number report & speed dial), voice record & playback\*, and voice mail\*
- Software upgradeable if initiated by your cable company

\* Please check availability with your service provider.

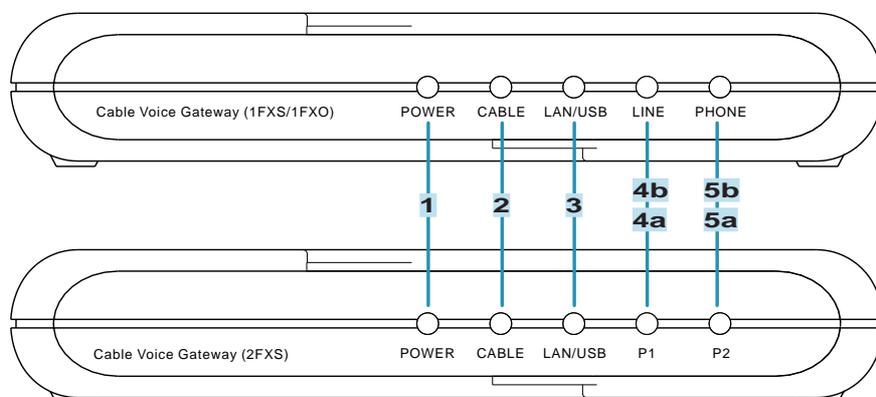
### Provides

- One 10/100 Base-T Fast Ethernet RJ-45 interfaces
- One UART RJ-45 connector console interface
- Two RJ-11 POTS interfaces, FXS and FXO available
  - FXS only: 2 FXS port
  - FXO/FXS: 1 FXO and 1 FXS port
  - FXO only: 2 FXO port

# 3. Installation

## 4.1. Understanding the Cable Voice Gateway

### 4.1.1. Front Panel LED Descriptions



LED	State	Description
1. POWER	On	Cable Voice Gateway is power ON
	Off	Cable Voice Gateway is power Off
2. CABLE	On	Cable network connection established
	Flashing	Data traffic on cable network
	Off	Waiting for cable network connection
3. LAN/USB	On	LAN or USB is connected successfully
	Flashing	Data is transmitting
	Off	Ethernet not connected to PC / USB driver not ready
4a. P1	Off	Telephone Set is On-Hook
4b. P2	On	Telephone Set is Off-Hook
	Flashing	Ring Indication
4b. LINE	Off	Line is not enabled
	On	Line is busy
5b. PHONE	Off	Telephone Set is On-Hook
	On	Telephone Set is Off-Hook
	Flashing	Ring Indication

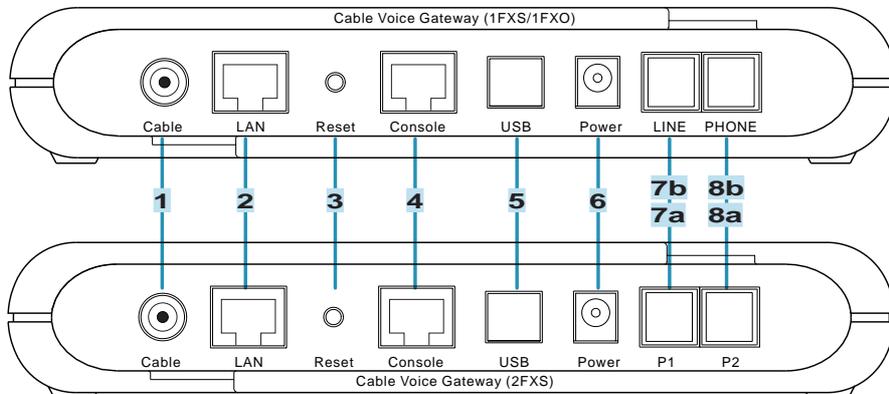
**NOTE:** System initialization will turn some LEDs ON for a few sec.

#### Other Statuses

P1 & P2            All On                    Power On Self Test  
Phone & Line    Flashing Together    Cannot find VoIP server

# 3. Installation

## 4.1.2. Rear Panel Descriptions



### 1. Cable

The F-Type female connector allows cable data communication between the cable voice gateway and cable service provider through a coaxial cable.

### 2. LAN (optional)

The LAN port supports 10/100Base-T networks. This port allows your PC to be connected to the voice gateway through a CAT.5 twisted pair Ethernet cable.

### 3. Reset

The reset button, when pressed, resets the cable voice gateway without the need to unplug the power cord.

### 4. Console

The RJ45 port supports the RS232 terminal interface for cable voice gateway management

### 5. USB (optional)

The optional USB port allows the cable voice gateway to be connected to your computer through the USB interface.

### 6. Power

The supplied power adapter connects here. The supplied power adapter converts 110V or 220V AC to DC as required for this device.

### 7a-8a. P1-P2 (FXS Model)

These ports connect to your telephone sets.

### 7b. LINE (FXO/FXS Model)

This port connects to your telephone line.

### 8b. PHONE (FXO/FXS Model)

This port connects to your telephone.

# 4. Installation

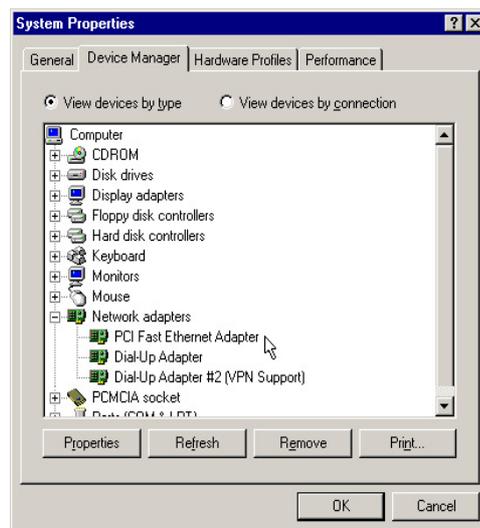
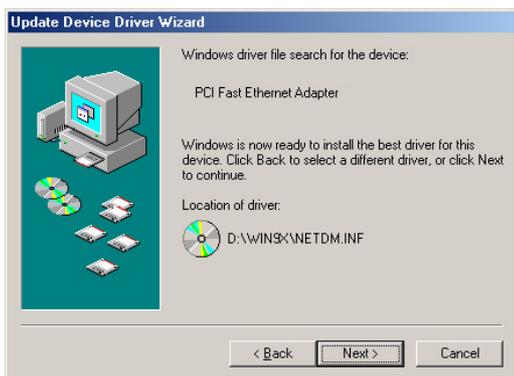
## 4.2. System Requirements

Before connecting the cable voice gateway to your PC, make sure your system is equipped with a LAN controller and supports the TCP/IP protocol.

### 4.2.1. Installing a Network Card

If your system does not have an embedded LAN controller, you must install a network interface card as instructed below:

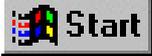
1. Install a LAN card on your motherboard.
2. Power up your PC and follow the **Add New Hardware Wizard**'s instructions to install the driver. When asked to restart your computer at the end of the installation, click **Yes**.
3. After restarting the system, right-click **My Computer** on the desktop, select **Properties**, click the **Device Manager** tab, and then double-click **Network adapters** to confirm that the Ethernet driver is properly installed.



# Preparations

## 4.3. Installing the TCP/IP Protocol

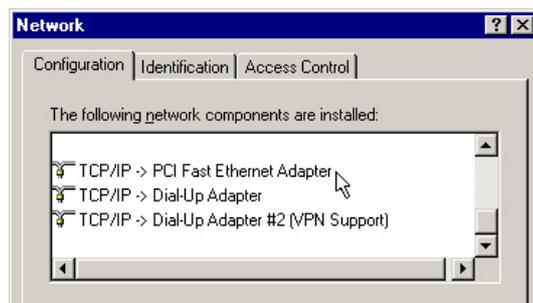
### 4.3.1. Checking if TCP/IP is already installed

1. Click the **Start** button  on the desktop. In the **Settings** menu, select

**Control Panel**  **Control Panel**. Double-click the Network icon  .

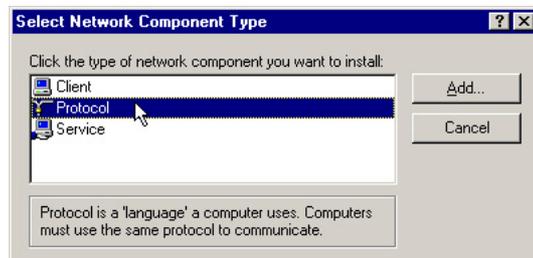
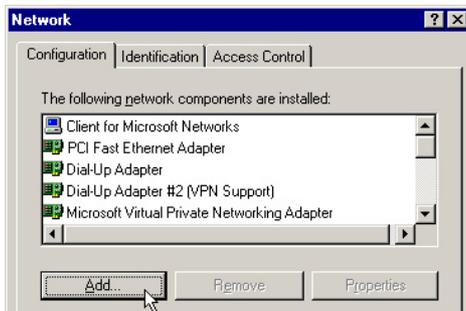
Network

2. In the list of installed network components try to find the TCP/IP protocol. It may be followed by the name of the Ethernet controller. If you cannot locate anything that begins with **TCP/IP**, install it as described below.

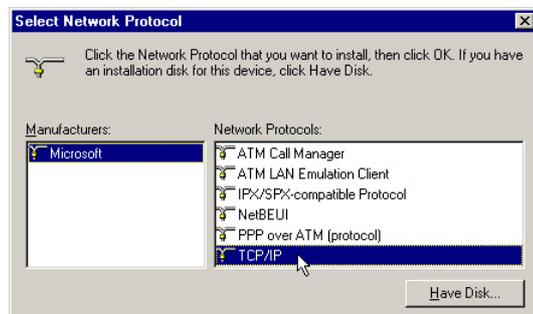


### 4.3.2. Adding TCP/IP in Network properties

1. Click **Add**.
2. Double-click **Protocol**.



3. Select **Microsoft** from the manufacturers. In the list of network protocols browse to **TCP/IP** and then double-click it.



### 4.3.3. Changing TCP/IP Settings

After the TCP/IP protocol is installed, restart your computer and consult the installation guide provided by your cable operator to complete TCP/IP configurations.

# 4. Installation

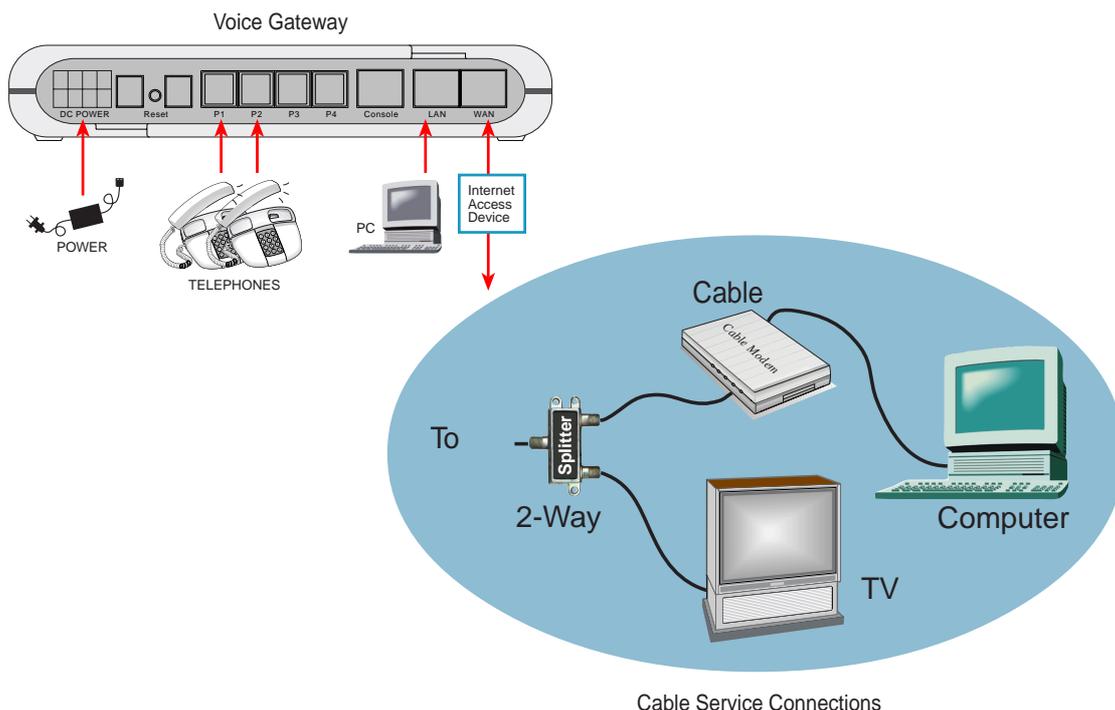
## 4.4. Connecting the Cable Voice Gateway

To avoid overheating problems, allow at least 3 centimeters (one inch) spacing between the ventilation holes and any object to either side of the unit. Avoid any obstructions on the top of the unit. The top of the unit should be at least 5 centimeters (two inches) from any obstruction.

Connect the Cable Voice Gateway using the following steps:

1. Connect the cable TV coaxial cable to the input connector of a signal splitter.
2. Connect a coaxial cable from one of the output connectors on the splitter to the input connector of your TV set.
3. Use another coaxial cable to connect the other output connector on the splitter and the RF connector on the rear panel of the cable voice gateway.
4. Connect the 10/100BaseT cable (RJ-45) from your computer to the LAN port connector on the voice gateway rear panel.
5. Connect the telephone line from your telephone to the P1–P2 (RJ-11) connector on the rear panel.
6. Connect the adapter to the Cable Voice Gateway rear panel. Then plug the AC adapter to a wall electrical outlet.

NOTE: If you are not using a television on the cable line, you may skip steps 1 to 3 and connect the cable TV coaxial cable directly to the RF connector on the rear panel of the cable voice gateway.



# 5. System Configuration

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The Cable Voice Gateway can be configured in many ways such as using telnet, Web browser, telephone keypad, or SNMP control. Although there are many VoIP protocols, Voice Gateway currently supports H.323 protocol and MGCP protocol.

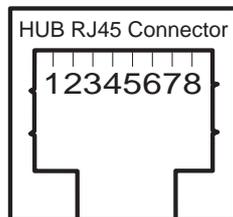
The following sections describe all methods for controlling Voice Gateway.

## 5.1. Console Control

This section describes how to set up the different operation modes or monitor the performance of the Voice Gateway using the User Mode Console.

### 5.1.1. PIN Definition of RJ-45 type UART

<b><u>PIN</u></b>	<b><u>Signal</u></b>
1	NC
2	NC
3	TXD
4	GND
5	GND
6	RXD
7	NC
8	NC



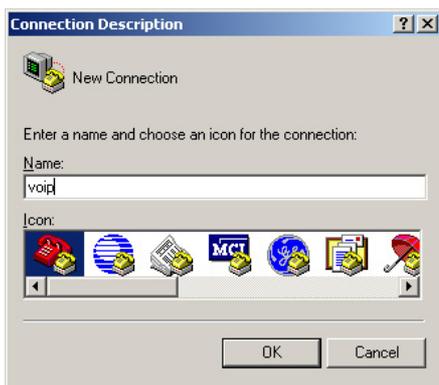
# 5. System Configuration

## 5.1.2. COM Port Configurations

To access the user console, use the console cable to connect the Console port on the Voice Gateway to your PC's empty COM port. Open a VT100 terminal emulation program such as Windows' HyperTerminal to configure the COM port. (The setup under HyperTerminal is given as an example below.)

In Windows, click **Start, Programs, Accessories, Communications**, and then select **HyperTerminal**. When the HyperTerminal window appears, double click the HyperTerminal icon to run it. If you cannot find it, add the program using **Add/Remove Programs** in Control Panel.

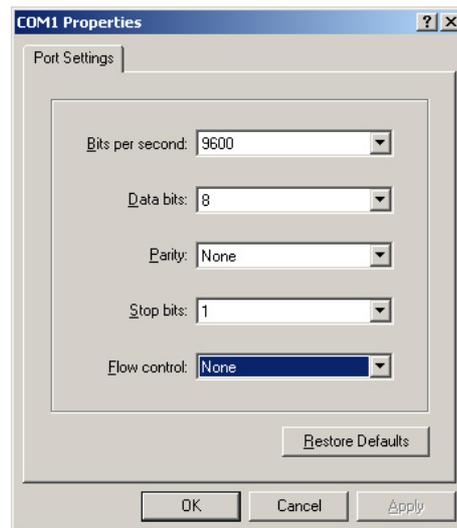
1. When HyperTerminal is started, you will be prompted to establish a new connection. Follow the on-screen instruction.



2. A user console connection do not require dial-up information. Simply choose the COM port that you are using and then click OK.



3. Configure the COM port as shown below. You are now ready to configure the operation mode.



### Recommended COM Port Settings:

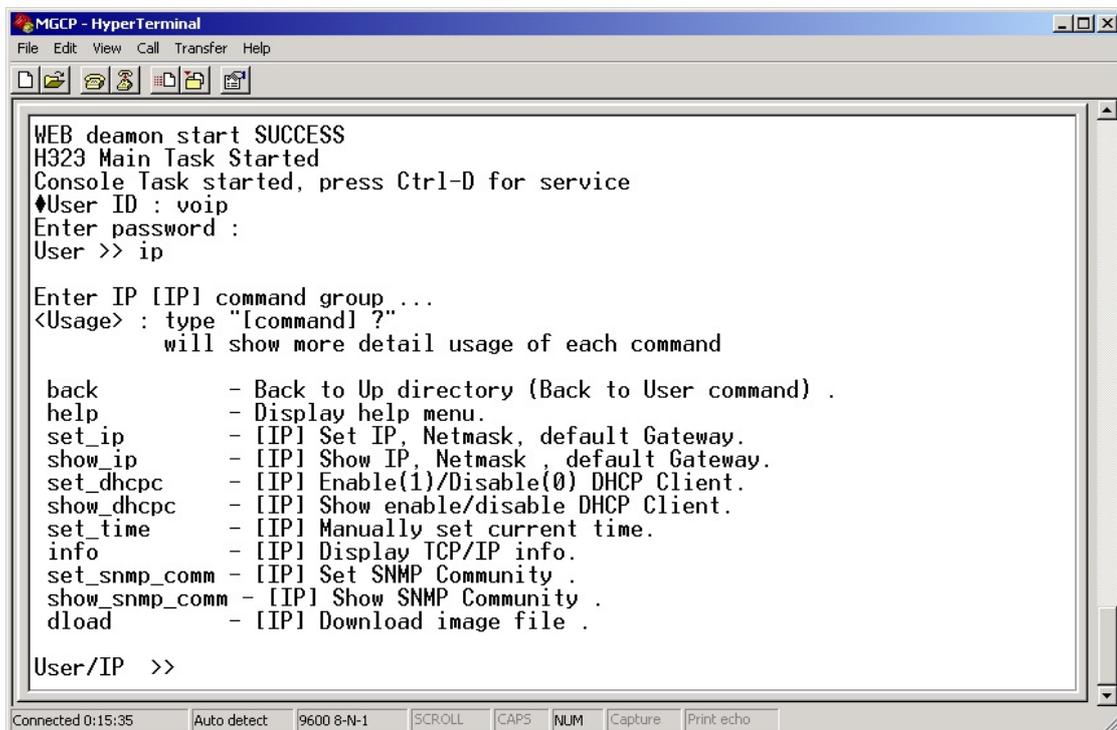
Bit Rate: 9600 bps  
Data Bits: 8  
Parity Check: None  
Stop Bit: 1  
Flow Control: None

# 5. System Configuration

## 5.1.3. Access Console Control

In order to configure the voice gateway, press [CTRL D] to enter the console control mode. To protect the system settings, a username “voip” and a password is required. The factory password is the last 6 digits of the Ethernet MAC address. For example, if the MAC address of the voice gateway is 00:E0:18:F0:00:36, then the default password is f00036. (The default password is in lower case) Use the command “passwd” to change the password.

To reset the Voice Gateway to the above default values, press [CTRL O R] during system bootup while attached using the console cable.



```
MGCP - HyperTerminal
File Edit View Call Transfer Help

WEB daemon start SUCCESS
H323 Main Task Started
Console Task started, press Ctrl-D for service
♦User ID : voip
Enter password :
User >> ip

Enter IP [IP] command group ...
<Usage> : type "[command] ?"
          will show more detail usage of each command

back      - Back to Up directory (Back to User command) .
help      - Display help menu.
set_ip    - [IP] Set IP, Netmask, default Gateway.
show_ip   - [IP] Show IP, Netmask, default Gateway.
set_dhcp  - [IP] Enable(1)/Disable(0) DHCP Client.
show_dhcp - [IP] Show enable/disable DHCP Client.
set_time  - [IP] Manually set current time.
info      - [IP] Display TCP/IP info.
set_snmp_comm - [IP] Set SNMP Community .
show_snmp_comm - [IP] Show SNMP Community .
dload     - [IP] Download image file .

User/IP >>
```

Connected 0:15:35 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

# 5. System Configuration

---

## 5.1.4. Console Command Set

### 1. System Commands

#### **h323 (valid only on H.323 Client)**

Enter H.323 Client [H323] Command Group.

#### **help**

Display the help menu. It lists all available commands in the current command group.

#### **ip**

Enter TCP/IP [IP] Command Group.

#### **info**

Display all information. It shows all information about the Voice Gateway/Pocket Voice Gateway, including hardware and software version, Internet configuration, and run-time status.

#### **mg (valid only on MGCP Client)**

Enter MGCP Client [MG] Command Group.

#### **ping**

Send ICMP echo request. Use this command to detect the connectivity with other Internet devices.

#### **quit**

Quit console command mode.

#### **reboot**

Reboot the system.

#### **tel**

Enter Telephony [TEL] Command Group.

### 2. Telephony Commands [TEL]

#### **back**

Return Root Command Group.

#### **help**

Display help menu. It lists all available commands in the current command group.

#### **info**

Display Telephony information.

#### **set\_sd\_line**

<Usage>: *set\_sd\_line* [line]

Input up to 8 Speed Dial entries SD(2~9) of a line.

line: Specify the line number of configuration.

[option]

?            Display this help.

[prompt]

speed dial phone: max. 19 digits

## 5. System Configuration

---

speed dial Ring: [0] normal / [1] fast / [2] slow

[example]

```
set_sd_line 1
```

Input all SD(2~9) entries of Line 1.

Follow the prompt to fill in the phone number and select the ring type.

[Tips]

If you want to clear any SD entries, type “NULL” in [speed dial phone].

If you skip the rest of the SD entries, type “s” in [speed dial phone].

### **set\_sd**

<Usage>: *set\_sd* [line] [SetNum] [phone] [ring]

Input one Speed Dial entry to a line.

line: Specify the line number of configuration.

SetNum: Specify the entry number of SD(2~9)

phone: Max. 19 digits

ring: [0] normal / [1] fast / [2] slow

[example]

```
set_sd 1 2 12345678 0
```

set up Line 1, SD(2), phone: 12345678, ring: normal

```
set_sd 1 2 NULL 0
```

clear SD(2) entry of Line 1.

### **show\_sd**

<Usage>: *show\_sd* [option]

Show all Speed Dial entries in all lines

[option]

?            Display this help.

### **set\_country**

<Usage> : *set\_country* [option]

Select the country of location to generate a suitable tone signal.

[option]

?            Display this help

### **set\_ring**

<Usage> : *set\_ring*

Set up the ring cadence.

Follow the prompt to assign the ring on/off duration

[option]

?            Display this help

[prompt]

on\_duration - assign the on duration (unit : ms)

off\_duration - assign the off duration (unit : ms)

# 5. System Configuration

---

## **show\_ring**

<Usage> : *show\_ring*

Show the ring cadence.

[option]

?            Display this help

## **set\_buffer**

<Usage> : *set\_buffer* [option]

Set jitter buffer size.

[option]

?            Display this help

## **set\_gain**

<Usage> : *set\_gain*

Use this command to set gain control

[option]

?            Display this help.

## **set\_idt**

<Usage> : *set\_idt*

Use this command to set inter-digit time

[option]

?            Display this help.

[prompt]

inter-digit time - assign the inter-digit time.

## **set\_rbt**

<Usage> : *set\_rbt*

Use this command to enable/disable pseudo ring back tone

[option]

?            Display this help.

[prompt]

Enable/Disable pseudo ring back tone

## **set\_echocncl**

<Usage> : *set\_echocncl*

Use this command to enable/disable echo cancellation

[option]

?            Display this help.

[prompt]

Enable/Disable echo cancellation

## **3. Internet Protocols Commands [IP]**

### **help**

Display help menu. It lists all available commands in the current command group.

# 5. System Configuration

---

## **back**

Return root command group.

## **info**

Display TCP/IP information.

## **set\_ip**

<Usage> : *set\_ip* [option] [IP] [Netmask] [Default Gateway]

Set up the IP address, subnet mask, and default gateway of the voice gateway.

Type “set\_ip” command, then, follow the prompt to complete the setting.

Type “set\_ip” command and the parameters of IP address, subnet mask, and default gateway in one command line

[option]

?            Display this help

This command is only valid in Disable DHCP status, and you can use “show\_dhcpc” command to read current DHCP status.

## **show\_ip**

<Usage> : *show\_ip* [option]

Show current IP , Netmask , Default Gateway

[option]

?            Display this help

## **set\_dhcpc**

<Usage> : *set\_dhcpc* [option] | [0|1]

Disable/enable the DHCP client

Disable DHCP client – use assigned static IP

Enable DHCP client – obtain IP automatically from DHCP server

[option]

?            Display this help.

## **show\_dhcpc**

<Usage:> *show\_dhcpc* [option]

Show the current status of DHCP client

Enabled -> obtain IP automatically from DHCP server

Disabled -> use assigned static IP

[option]

?            Display this help.

## **set\_time**

<Usage> : *set\_time* [option] | [yy-mm-dd] [hh:mm:ss]

Set up current time of day.

yy-mm-dd    Year (A.D.), month (1-12), and day (1-31).

hh:mm:ss    Hour (0-23), minute (0-59), and second (0-59).

[option]

?            Display this help.

# 5. System Configuration

---

## **set\_snmp\_comm**

<Usage> : *set\_snmp\_comm* [option]

Set up SNMP community for SNMP Get(Read)/Set(Write).

[option]

?            Display this help

## **show\_snmp\_comm**

<Usage> : *show\_snmp\_comm* [option]

Show SNMP Get(Read)/Set(Write) community .

[option]

?            Display this help

## **dload**

<Usage> : *dload* [option]

Download image file from TFTP Server.

Follow the prompt to assign the TFTP Server IP and download image file name then start to download the image file.

[option]

?            Display this help

[prompt]

TFTP Server IP - assign the TFTP Server IP

Download image file name - assign the download image file name

## **4. H.323 Commands [H323]**

**(Valid only on H.323 client)**

### **help**

Display help menu. It lists all available commands in the current command group.

### **back**

Return root command group.

### **info**

Display H.323 protocol information

### **set\_codec**

<Usage> : *set\_codec*

Use this command to set the preferred audio codec

[option]

?            Display this help.

[prompt]

codec        choose the preferred audio codec

silence      choose to enable/disable the silence suppression function.

### **set\_phno**

<Usage> : *set\_phno*

# 5. System Configuration

---

Use this command to set up the phone number for each line

[option]

?            Display this help.

[prompt]

phone number - enter the phone number for each line

## **set\_h323id**

<Usage> : *set\_h323id*

Use this command to setup the h323 id

[option]

?            Display this help.

[prompt]

h323\_id     enter the h323 id

## **set\_gk**

<Usage> : *set\_gk*

Use this command to enable/disable gatekeeper functionality

[option]

?    Display this help.

[prompt]

Gatekeeper     Enable this function to register with a gatekeeper

DNS            Enable this only if your DNS server provides gatekeeper information.

Auto Discovery   Enable this to auto-discovery the gatekeeper.

H.323 GK IPInput static gatekeeper IP address if AutoDiscovery is turned off.

## **set\_altgk**

<Usage> : *set\_altgk*

Use this command to setup alternate gatekeeper

[option]

?            Display this help.

[prompt]

No            use this number to index the table.

IP            define the IP address corresponding to this gatekeeper.

## **set\_fs**

<Usage> : *set\_fs*

Use this command to enable/disable fast start functionality

[option]

?            Display this help.

[prompt]

fast-start    enable this to use the fast start function defined in H.323.

## **set\_gw**

<Usage> : *set\_gw*

Use this command to enable/disable gateway support

# 5. System Configuration

---

[option]

? Display this help.

[prompt]

Enter a Gateway IP if an H.323 Gateway is present to support phone number/IP translation.

## **set\_maptab**

<Usage> : *set\_maptab*

Use this command to setup the mapping table content

[option]

? Display this help.

[prompt]

No use this number to index the table.

Phone assign a phone number.

IP define the IP address corresponding to the phone number.

## **set\_ac**

<Usage> : *set\_ac*

Use this command to enable/disable the function of auto insertion of the area code

[option]

? Display this help.

[prompt]

Area-Code enter the area code here to enable auto insertion.

## **set\_nat**

<Usage> : *set\_nat*

Use this command to set no answer time

[option]

? Display this help.

[prompt]

nat set no answer time

## **set\_shp**

<Usage> : *set\_shp*

Use this command to enable/disable sharp flag '#' support (end of phone no)

[option]

? Display this help.

[prompt]

shp Enable/Disable sharp flag '#' support

## **set\_autoswitch**

<Usage> : *set\_autoswitch*

Use this command to enable/disable auto-switch support

[option]

? Display this help.

[prompt]

Enable/Disable auto-switch support

# 5. System Configuration

---

## **set\_dtmfrelay**

<Usage> : *set\_dtmfrelay*

Use this command to select a DTMF rely protocol

## **5. MGCP Commands [MG]**

**(Valid only on MGCP client)**

### **info**

This will show all information of MGCP gateway setting. It includes Profile ID, Call agent information, Endpoint information..

### **restart**

This will restart the MGCP gateway. It will re-activate using the parameter stored in the system

### **help**

Display help menu.

### **back**

Return root command group.

### **set\_profile**

<Usage> : *set\_profile* [number] | [option]

number      Set up MGCP profile, there are three basic profiles :

RFC 2705

NCS

MGCP 0.1 NCS 1.0 (CLARENT)

[option]

?            Display this help.

After changing MGCP profile MG will automatically restart.

### **show\_profile**

<Usage> : *show\_profile* [option]

Show MGCP profile detail.

[option]

?            Display this help.

all          Show all profile.

### **set\_ca**

<Usage> : *set\_ca* [option]

Set up Call Agent (CA) information of MG.

Follow the prompt to complete the setting.

[option]

?            Display this help

[prompt]

localname   The local name of CA, max 32 characters allowed. This value is optional. e.g. CA1.

Type "NULL" to clear.

# 5. System Configuration

---

Domain | IP The Domain name or IP of the CA. e.g. “1.2.3.4” or “yourCA.company.com”.  
If Domain name is used, use “set\_dns” to set up DNS. Type “NULL” to clear the entry. Max 100 characters.

Port The port number of CA, 1024 ~ 65535, usually 2427 or 2727.

After setting CA information, MG will automatically restart.

## **show\_ca**

<Usage> : *show\_ca* [option]

Show the CA information of MG and current NotifiedEntity of all endpoints.

[option]

? Display this help

## **set\_gwname**

<Usage> : *set\_gwname* [option]

Set MG’s DomainName. epX@DomainName is name of endpoint X of this MGCP Gateway

Follow the prompt to complete the setting.

[option]

? Display this help

[prompt]

DomainName Max 50 characters allowed.

Type “NULL” to use default domain name ‘V’+MAC.

After setting Domain Name, MG will automatically restart.

## **show\_gwname**

<Usage> : *show\_gwname* [option]

Show MG’s Domain Name

[option]

? Display this help

## **set\_dns**

<Usage> : *set\_dns* [option]

Set a DNS Server IP of MG.

If CA is given in Domain Name, this value must be set.

Follow the prompt to complete the setting.

[option]

? Display this help

[prompt]

DNS Server IP Type “NULL” to clear DNS Server IP.

## **show\_dns**

<Usage> : *show\_dns* [option]

Show DNS Server IP of MG

[option]

? Display this help

# 5. System Configuration

---

## 5.2. Telnet Control

The Voice Gateway can be controlled by Telnet applications. This capability is disabled when the voice gateway is already controlled from the console. Users may access all console commands using Telnet.

### 5.2.1. Establish Connection

Telnet can be used to enter the console control mode. The parameters of the factory default are shown below. The default values using Telnet are:

IP Address = 192.168.100.100  
Netmask = 255.255.255.0  
Default Gateway = 192.168.100.254

You have to also enter a username (default “voip”) and password while you use Telnet to connect to the system. The default password using Telnet is the same as the console control input (last 6 lowercase characters of the Ethernet MAC address). The console mode using the console cable has a higher priority than using Telnet. Therefore, the Telnet user cannot enter control mode while another computer has control through the console port. If a current Telnet session is active, it will be disconnected when a connection is started through the console port. Except priority levels, there are no differences in commands when accessing through Telnet or the console port.

## 5.3 Web (HTTP) Console

Users can use browsers to setup or show the information of the voice gateway. For example, they can use Internet Explorer to configure the telephone number of VoIP phone. The IP address of the Web console is the same as the IP address used by Telnet.



The web page is divided into several frames, each of which is related to a VoIP module. It includes system settings, H.323 or MGCP settings, and About. Users can follow the procedures listed below to set up Voice Gateway.

# 5. System Configuration

## 5.3.1. System Info (VoIP MISC)

### 5.3.1.1. System Status

**VoIP MISC**

[Configuration](#) [Status](#)

**VoIP MISC Info**

Port Status	[1] ok, [2] ok, [3] ok, [4] ok		
IP	192.168.100.100	Netmask	255.255.255.0
Default Router	192.168.100.254	DHCP Client	Disable

**1 Line (phone) Show Config**

Phone	Ring	Phone	Ring
1	Normal	2	Normal
3	Normal	4	Normal
5	Normal	6	Normal
7	Normal	8	Normal

**2 Line (phone) Show Config**

Phone	Ring	Phone	Ring
1	Normal	2	Normal
3	Normal	4	Normal
5	Normal	6	Normal
7	Normal	8	Normal

**3 Line (phone) Show Config**

Phone	Ring	Phone	Ring
1	Normal	2	Normal
3	Normal	4	Normal
5	Normal	6	Normal
7	Normal	8	Normal

**4 Line (phone) Show Config**

Phone	Ring	Phone	Ring
1	Normal	2	Normal
3	Normal	4	Normal
5	Normal	6	Normal
7	Normal	8	Normal

# 5. System Configuration

## 5.3.1.2. System Configuration

**VoIP MISC Info**

<a href="#">Configuration (1st Line)</a>	<a href="#">2nd Line (Phone) Configuration</a>	<a href="#">3rd Line (Phone) Configuration</a>	<a href="#">4th Line (Phone) Configuration</a>	<a href="#">Status</a>
--	--	--	--	------------------------

**VoIP MISC Configuration**

DHCP Client:  enable  disable

IP:  Netmask:  Default Router:

After you change/set the above value.  
Please wait the Voice Gateway restart, then re-connect to the Voice Gateway.

**VoIP Software Upgrade**

TFTP Server IP:  Image File Name:

Press "Download" button to download image file to this Voice Gateway !

**1st Line (Phone) Configuration**

1st Line (Phone)	1: <input type="text"/>	Ring: <input type="text" value="Normal"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>
	2: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	3: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	4: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	5: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	6: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	7: <input type="text"/>	Ring: <input type="text" value="Normal"/>	
	8: <input type="text"/>	Ring: <input type="text" value="Normal"/>	

# 5. System Configuration

## 5.3.2. H.323 Info

### 5.3.2.1. H.323 Status

**H.323 Info**

[Configuration](#) [Status](#)

---

**H.323 Per-port and Codec Info**

Phone	Tel No.	H323 ID
0		
1		
2		
3		

**H.323 General Info**

Gatekeeper	Gatekeeper IP	DNS IP	Fast Start	Auto-Ins Area Code	Area Code
Disable	0.0.0.0	0.0.0.0	Disable	Disable	

**H.323 Voice Related Info**

Preferred Codec	Silence Suppression	DTMF Relay
G7231	Enable	In-Band

**Alternate gatekeeper Info**

IP Address

**Private Mapping table Info**

Phone Number	IP Address

# 5. System Configuration

## 5.3.2.1. H.323 Configuration

VoIP Product - Voice Gateway - Microsoft Internet Explorer

Address: http://192.168.100.100/

**H.323 Info**

Configuration      Status

---

**H.323 Per-port Configuration**

H323 ID	E164	H323 ID	
<input type="radio"/> enable <input checked="" type="radio"/> disable	0: <input type="text"/>	0: <input type="text"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>
	1: <input type="text"/>	1: <input type="text"/>	
	2: <input type="text"/>	2: <input type="text"/>	
	3: <input type="text"/>	3: <input type="text"/>	

---

**H.323 General Configuration**

Gatekeeper	Gatekeeper IP	DNS IP	Fast Start	Auto-ins Area Code	Area Code	
<input type="radio"/> enable <input checked="" type="radio"/> disable	<input type="text" value="0.0.0.0"/>	<input type="text" value="0.0.0.0"/>	<input type="radio"/> enable <input checked="" type="radio"/> disable	<input type="radio"/> enable <input checked="" type="radio"/> disable	<input type="text"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>

---

**Voice Related Configuration**

Preferred Codec	Silence Suppression	DTMF Relay	
<input type="text" value="G7231"/>	<input checked="" type="radio"/> enable <input type="radio"/> disable	<input type="text" value="in-band"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>

---

**Alternate gatekeeper Configuration**

IP Address	
<input type="text" value="0.0.0.0"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>
<input type="text" value="0.0.0.0"/>	

---

**Private mapping table Configuration**

Mapping	Phone number	IP address	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="button" value="Set"/> <input type="button" value="Reset"/>
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	
	<input type="text"/>	<input type="text" value="0.0.0.0"/>	

# 5. System Configuration

## 5.3.3. MGCP Info

### 5.3.3.1. MGCP Status

The screenshot shows a web browser window titled "VoIP Product - Voice Gateway - Microsoft Internet Explorer". The address bar shows "http://192.168.100.100/". The page content is as follows:

**MGCP GATEWAY**

[Configuration](#)   [Status](#)

---

**Endpoint Info**

GW status : OK

Name	Status	NotifiedEntity
aain/1@V00E018F0F0F0	Searching CA.	0
aain/2@V00E018F0F0F0	Searching CA.	0
aain/3@V00E018F0F0F0	Searching CA.	0
aain/4@V00E018F0F0F0	Searching CA.	0

---

**MGCP Gateway Info**

Gateway Name (Domain Name)		V00E018F0F0F0
CA	Local Name	
	Domain or IP	
	Port	2427
Domain Name Server (IP)		

---

**Profile Info**

ID : 1	Name : DEFAULT1	Protocol : MGCP 1.0 (RFC 2705)
--------	-----------------	--------------------------------

# 5. System Configuration

## 5.3.3.2. MGCP Configuration

The screenshot shows a web browser window titled "VoIP Product - Voice Gateway - Microsoft Internet Explorer" with the address bar showing "http://192.168.100.100/". The page content is as follows:

- MGCP GATEWAY** (blue header)
- Navigation tabs: [Configuration](#) and [Status](#) (light blue buttons)
- Left sidebar (blue background):
  - [VoIP MISC](#)
  - [MGCP](#) (highlighted in red)
  - [About](#)
- MGCP Client Config** (green header)
- Configuration fields (each with "Set" and "Reset" buttons):
  - Gateway Name (Domain Name) , default use 'V'+MAC  
Max 50 characters :
  - CA Local Name :
  - CA's IP or Domain Name, Max 100 characters :
  - CA Port :
  - Domain Name Server (IP) :
  - Profile :  Default1(MGCP 1.0)  Default2(NCS 1.0)  Clarent(NCS 1.0)
- Restart the Mgcp Gateway Task (press the "Restart" Button)

The browser status bar at the bottom shows "Done" and "Local intranet".

# 5. System Configuration

---

## 5.4. Keypad Control

Voice Gateway / Pocket Voice Gateway can be controlled using the keypad on the telephone set. Users can press special codes to set up the gateway. The control codes are listed below:

### 5.4.1. Basic Commands

#### 1. Set Speed Dial

## (Do) [1] (Do) [2–9 phone ID] (Do) [phone NO./IP][#] (Do) [0–2 :Ring Type] (Do----)

- When input IP, use \* key to identify . (dot).
- Ring Type : 0 (Normal), 1(Fast), 2(Slow)
- Each phone can set 8 speed dial numbers

#### 2. Read Speed Dial

## (Do) [2] (Do) [2–9 phone ID] (phone number will be spoken) (Do)

- You can repeat this operation to hear all telephone setting.

#### 3. DHCP

Enable: ## (Do) [3] (Do) [1 to enable] (Do----)

Disable: ## (Do) [3] (Do) [0 to disable] (Do) then

[1] (Do) [ press IP][#], or

[2] (Do) [ press netmask][#], or

[3] (Do) [ press default gateway][#], or

[# ](Do----)

- If you make an entry error, press # to finish, and repeat any DHCP entry.
- If the parameter is changed, system will reboot (Voice Gateway Reboots Automatically)

---

(Do): Short Tone Sound

(Do----): Long Tone Sound

# 5. System Configuration

---

## 4. MGCP

## (Do) [4] (Do) then  
[1] (Do) [press CAIP] [#] (Do), or  
[2] (Do) [press CAPort] [#] (Do), or  
[3] (Do) [press dnsIP] [#] (Do), or  
[4] (Do) [1–3 to set ProfileID] (Do), or  
[#] (Do----) (# indicate finish setting)

- CAIP = Call Agent IP address
- If the IP or Port parameter is changed, MG module will be restarted.
- Supported Profile ID: 1=MGCP 1.0 (RFC2705), 2=NCS 1.0 (Packet Cable), 3=Clarent (NCS1.0 MGCP 0.1)

## 5. H323

## (Do) [5] (Do) then  
[1] (Do) [1] (Do) [press phone] [#] (Do), or [2] [phone number will be spoken] (Do ), or  
[2] (Do) [0 , set GK not exist] (Do), or [1, set GK exist] (Do) [press GKIP] [#] (Do)  
[3] (Do) [0/1 to set fastStart] (Do), or  
[4] (Do) [press dnsIP] [#] (Do), or  
[5] (Do) [0/1 to set AutoDiscovery] (Do), or  
[6] (Do) [0, set GW not exist] (Do), or [1, set GW exist] (Do) [press GWIP] [#] (Do)  
[#] (Do----)( # indicate finish setting )

## 6. Restore Factory Defaults

##\*9 [1 to confirm]

---

(Do): Short Tone Sound  
(Do----): Long Tone Sound

# 5. System Configuration

---

## 5.4.2. Supplemental Services Commands

Currently, the VoIP products of support the following basic supplemental services.

### **Automatic Callback (\*\*66)**

Automatic Callback allows a subscriber to initiate a call set up to the last directory number that was dialed from the subscriber's line so that the number is dialed automatically without the subscriber having to redial.

### **Automatic Redial (\*\*69)**

Automatic Recall allows a subscriber to automatically call back the last number that called the subscriber's directory number, whether the subscriber answered the call or not. To activate the AR feature, the subscriber needs to go off hook, waits for a dial tone, and dials a feature activation code (\*\*69).

### **Speed Calling (\*\*74 + one digit (2 – 9))**

Speed calling permits the subscriber to dial selected directory numbers using fewer digits than normally required. This is accomplished through the assignment of one-digit code to frequently called directory number. Subscribers are allowed to assign eight directory numbers to the Speed Calling List (2 through 9).

### **Distinctive Ringing (\*\*61)**

Distinctive Ringing allows the subscriber to manage incoming calls by designating special directory numbers that may be identified using distinctive ringing patterns. Currently the VoIP gateway supports Fast/Normal/Slow Ringing. The Ring On/Off Patterns are On-1s, Off-1s (Fast mode)/On-2s, Off-1s (Normal Mode)/On-1s, Off-2s (Slot Mode).

### **Inner Conference Call (\*\*1-4)**

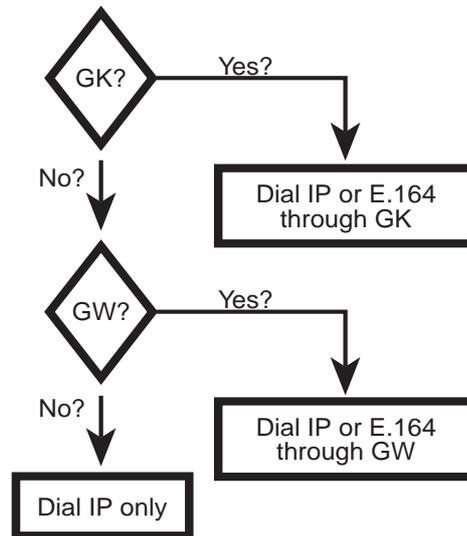
The VoIP products of with multiple phones can support an extra service for inner phones conference. Each user under the same Voice Gateway can call each other without any Internet connectivity. For example, the user in the phone 1 can dial \*\*\*3 to the user in the phone 3 directly.

# 6. System Operation

Voice Gateway / Pocket Voice Gateway products can be operated in two modes: H.323 voice gateway and MGCP voice gateway. The system requirements are different in H.323 and MGCP environments.

## 6.1. H.323 Notes

H.323 is a peer-to-peer connection protocol for VoIP. In an H.323 environment, you can make a phone call to the destination directly, or through an H.323 gatekeeper and/or a trunk gateway. Then, you can make a phone call by either an IP address or a telephone number (E.164 number). Therefore, in our configuration, users have to setup the strategy to make a phone call. The criterion follows the rule:



Make an H.323 phone call to other H.323 VoIP terminal (if H.323 firmware exists)

1. Call to pure VoIP (non-E.164 telephone) terminal
  - a. Pick up phone. After hearing a dial tone, dial the IP address of the peer terminal. Here you have to use star (\*) as dot (.), and then press hash (#) to end. For example, if the IP address of the peer terminal is 192.168.100.2 then you have to press 192\*168\*100\*2#
2. Call to E.164-addressed telephone terminal
  - a. In this environment, you have to connect to an H.323 Gatekeeper or Gateway to support E.164 address or IP Address.
  - b. You can use one of the user interfaces to configure the IP address of the H.323 Gatekeeper or Gateway. Refer to Chapter 5 for the configuration interface.

After you setup the IP address of the Gatekeeper and phone number of each line, you can dial to the peer terminal as in a standard telephone. For example, if you want to dial to 7123456 then you just press 7123456# to make this phone call.

# 6. System Operation

---

## 6.2. MGCP Notes

MGCP is a client-server connection protocol of VoIP technology. In an MGCP environment, it is compulsory for a server (named Call Agent or Call Manager) to manage and control all MGCP clients. Different Call Agents may employ different MGCP profiles, which define the procedures and parameters of a VoIP phone call.

Voice Gateway / Pocket Voice Gateway can support RFC standard profiles (RFC2705, MGCP 1.0), NCS standard profile (Packet Cable), and some proprietary profile (MGCP 0.1, NCS 1.0).

While the operator will set up the call agent with IP phone information, users have to set up the Voice Gateway with a valid IP address, the IP address (or domain name) of the Call Agents, and the corresponding MGCP profile.

In an MGCP environment, all clients need to use E.164 number to start the connection. The mapping of an E.164 number and IP address is handled by the MGCP Call Agent, then a user can call a peer VoIP terminal by the E.164 number. You can simply make a phone call as in standard telephones. For example, if you want to dial to 7123456 , you press 7123456 to make the phone call.

## 6.3. Application Examples

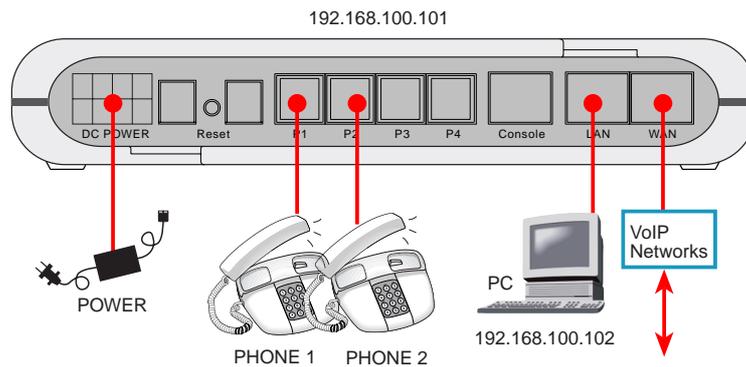
The voice gateways can be configured to perform many roles to support various demands from customers. Here, it presents some application examples for customer to know how to configure the voice gateway.

### 6.3.1. VoIP Voice Gateway to VoIP Networks using IP address

The first simple example shows the use of the Ethernet WAN port to connect to a VoIP network. The other LAN port connects to another computer. One or more telephone directly connects to the FXS interfaces (P1, P2 ... or Phone). This example provides you simple VoIP phone to another VoIP phone (VoIP to VoIP).

# 6. System Operation

---



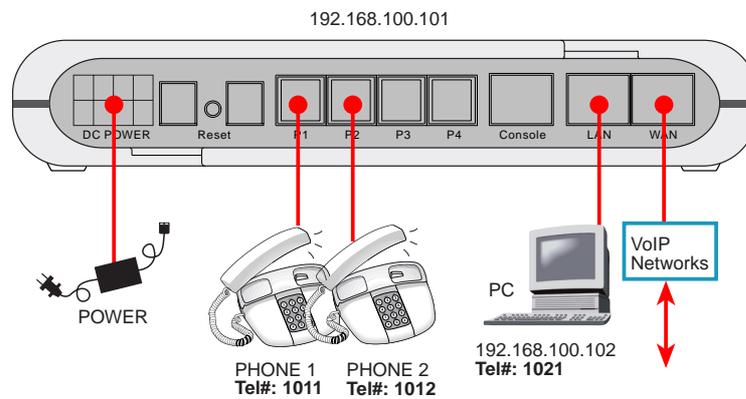
You can check the following items to make sure your configuration setting is correct. If you cannot have the correct result, please check the User Menu to see more details about system setting. Or you can connect to our customers support to inquire the setting.

- a. Use inner conference call to make phone call between each phones on the voice gateway:
  - Pick up one of telephone set, you will hear the dial tone.
  - Then dial \*\*\*1 to \*\*\*4 (for 4 ports) to make phone call to another one.
  - If the one is on-hook, voice gateway will ring the telephone. Pick up the phone, then the phone call establish well.
  - If the one is already in use then you will hear busy tone.
- b. Make the VoIP phone to VoIP Networks
  - Pick up one of telephone set, you will hear the dial tone.
  - Then the IP address of called party. For example, if you want to dial VoIP phone to 192.168.100.102, you have to dial 192\*168\*100\*102#.
  - If called party is available then you will hear ring back tone. And if he accept the call, the phone call establish well.
  - If the one is already in use then you will hear busy tone.
- c. For H.323 phone in this case, you cannot dial E.164 telephone number (the traditional telephone number, like the one as your cell phone). And for multiple ports voice gateway, you cannot make VoIP phone to specified port. For example, you cannot dial to P2 directly without any setting. The P2 will receive the call only when P1 is already in use. But you can use other port (P2, P3, P4) to dial out without any limitations.
- d. For MGCP phone, you need Call Agent to control the MGCP phone. Therefore, you cannot dial IP address in this example.

# 6. System Operation

## 6.3.2 VoIP Voice Gateway to VoIP Networks using E.164 telephone number without VoIP Server

Since there are some limitations in the first example, our Voice Gateway supports another features to provide E.164 numbers' call without server. If another party (caller/called) of VoIP phone can support this feature also, then the both parties can use this function to dial the VoIP phone as the traditional telephone servers. Please refer to user menu to setup the H.323 telephone number mapping (show\_maptab and set\_map\_tab commands in H.323 command directory)



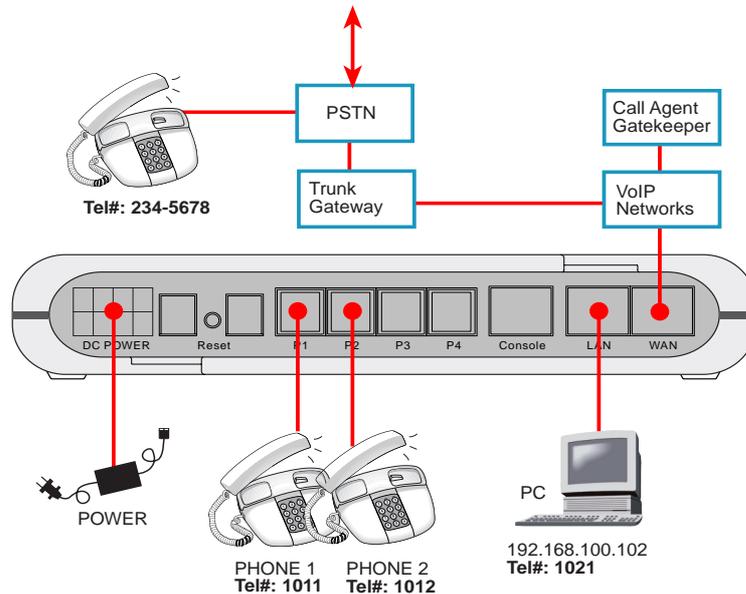
- This example can support all features in the previous example. It means you can dial VoIP phone using IP address and E.164 number co-existed.
- You have to configure the mapping table according above in both caller/called parties. For example, you have already setup the following mapping table:

<u>Index</u>	<u>Telephone</u>	<u>IP Address</u>
0	1011	192.168.100.101
1	1012	192.168.100.101
2	1013	192.168.100.101
3	1014	192.168.100.101
4	1021	192.168.100.102

- From another VoIP phone, you can dial 1012# to make the phone call to the second port of Voice Gateway. You can dial to second port directly even port one is also available for the call.
- Here, we mention again. For MGCP phone, it needs Call Agent to control it. Therefore, you cannot dial VoIP phone to others. The voice gateway can support inner conference call only without controlling from Call Agent.

# 6. System Operation

## 6.3.3 VoIP Voice Gateway to VoIP Networks controlled by VoIP Server



In order to dial out to PSTN world, the VoIP system has to connect to trunk gateway to PSTN controlled by VoIP Server. For example, you have to connect to Call Agent or Gatekeeper. Then you can dial to PSTN using VoIP phone.

- You have to setup the VoIP phone is controlled by Sever first in this example.
- For H.323, you have to enable Gatekeeper function in the H.323 command directory. And setup the IP address of Gatekeeper. Some vendor's trunk gateway supports E.164 numbering function but does not support Gatekeeper functionality, please enable trunk gateway and disable Gatekeeper in H.323 command directory.
- For H.323, the voice gateway has to setup the telephone number itself. Please use the `set_phno` command in H.323 command directory to set them.
- For MGCP, you have to setup the IP address of Call Agent. Then you have to setup the DNS name of the voice gateway. The similar setting have to support in setting of Call Agent. Then the voice gateway can make phone call well.
- If the voice gateway cannot connect to server well, you still can use the function of inner conference call. So, you can hear the dial tone also while you pick up the phone. By the way, if you want to dial out, you will hear busy tone since it cannot connect to VoIP server.
- For H.323, you can also dial to VoIP phone using IP address without connecting to VoIP server.

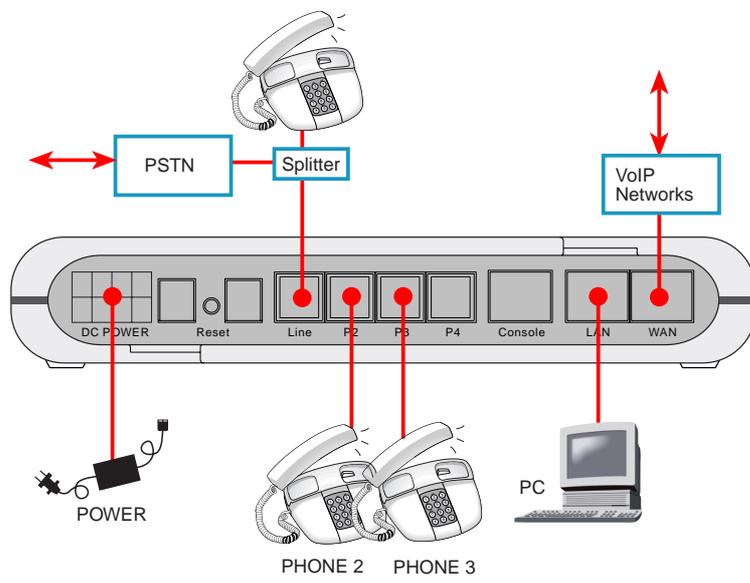
# 6. System Operation

## 6.3.4 VoIP Voice Gateway to VoIP Networks with PSTN line

The voice gateway of also support FXO interface to PSTN world directly. Three models of voice gateway support this function. AVG6001BA and AVG6001BD support one FXO interface. AVG6004BA support four FXO interfaces. Here is the example to support PSTN line and you can dial to traditional phone using our VoIP voice gateway.

Due to the variety of telephony specification, the FXO interface of voice gateway has to commit the specification very well. For example, you have to setup the call progressive tone of the PSTN line from Telephone companies or PBX. Please contact to our Technical Service to inquire the details specification of PSTN line in different countries and different PBX.

- a. The function of P2 (or P3 and P4 in 4 ports model) is as same as all the examples above.
- b. To provide PSTN backup functionality, you can use inner conference call to make a PSTN phone out. Just dial \*\*\*1, you can hear the second tone. Then you can dial the E.164 telephone number to real PSTN world. User can also configure the PSTN line port using E.164 number, for example 1011. Then after all other VoIP phone dial to 1011, the second tone can be hear. Then user can also dial the telephone number to PSTN world. Here, this voice gateway can be treated as a translation (so called gateway) between VoIP phone and PSTN phone.
- c. Vice verse, the user at PSTN world can dial to this PSTN line. After second ring, the voice gateway will pick up the phone and send the second dial tone again. Then user can also dial to VoIP phone using IP address or E.164 telephone number that is described in previous section.

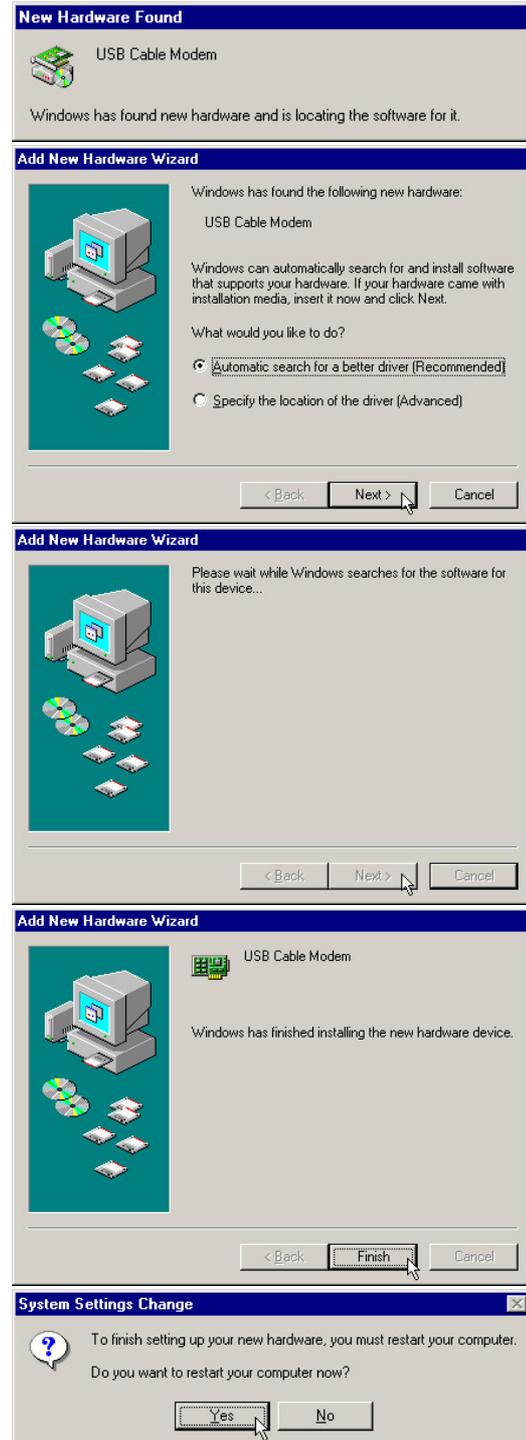


# 7. Installing the USB Driver

## Windows ME

### Installing the Driver

1. Turn ON the cable voice gateway and your computer.
2. If you have not connected the cable voice gateway to your computer using the USB cable, do so now.
3. Windows will detect that a new hardware has been added and will start the **Add New Hardware Wizard**.
4. Insert the cable voice gateway driver disk into your computer.
5. Click **Next**. (Automatic search...)
9. The Wizard searches for the driver and finds the correct device driver. Click **Next**.
11. After the initial setup files are copied, the wizard indicates it has completed the driver installation. Click **Finish**.
13. A dialog box prompts you to restart your computer. Click **Yes**.

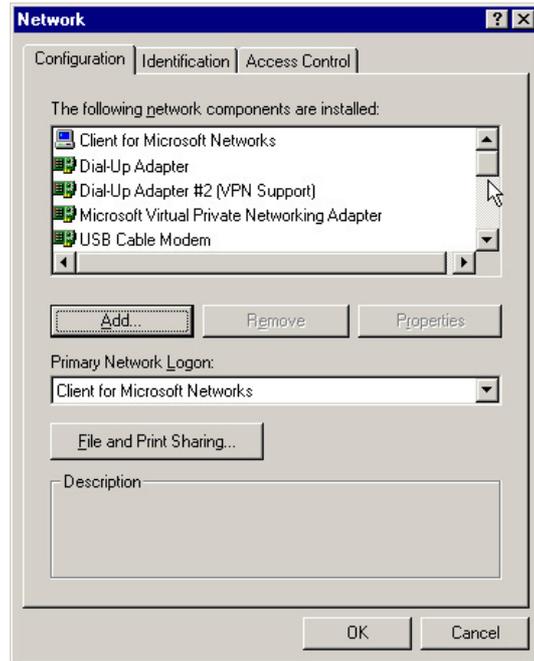


# 7. Installing the USB Driver

## Windows ME

### Verifying the Driver

1. Right-click “My Network Places” icon on the desktop.
2. You should see “USB Cable voice gateway”



### Deleting the Driver - Network

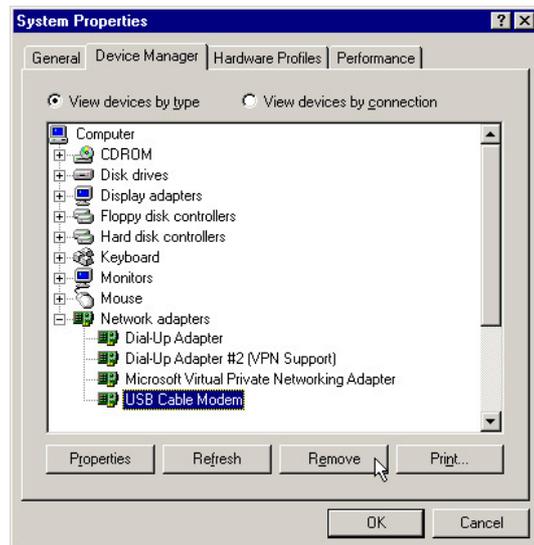
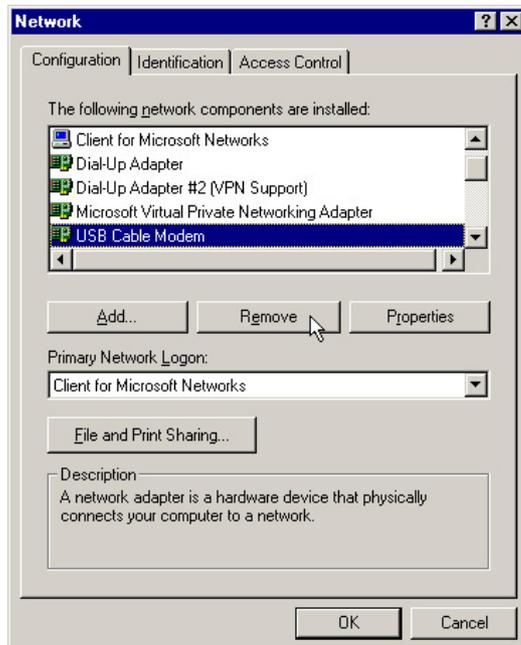
(Either the Network or System will work.)

1. Right-click “My Network Places” icon on the desktop.
2. Select the device and click the remove button.

### Deleting the Driver - System

(Either the Network or System will work.)

1. Right-click “My Computer” icon on the desktop and select Device Manager.
2. Select the device and click the remove button.

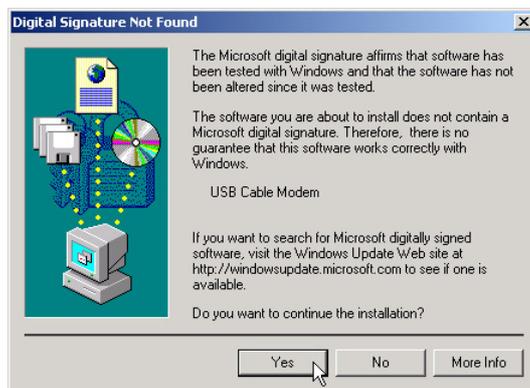


# 7. Installing the USB Driver

## Windows 2000

### Installing the Driver

1. Turn ON the cable voice gateway and your computer.
2. If you have not connected the cable voice gateway to your computer using the USB cable, do so now.
3. Windows will detect that a new hardware has been added and will start the **Add New Hardware Wizard**.
4. Insert the cable voice gateway driver disk into your computer.
5. Click **Next**. (Search for a...)
6. Select "Floppy disk drives" and click **Next**.
7. Click next when "usbcm.inf" is found.
8. When "Digital Signature Not Found" is displayed, click **Yes** to continue.
9. When installation is complete, click **Finish** to close the wizard.



# 7. Installing the USB Driver

## Windows 2000

### Verifying the Driver

1. Right-click “My Network Places” icon on the desktop.
2. You should see “USB Cable voice gateway”

### Deleting the Driver - System

1. Right-click “My Computer” icon on the desktop and select Hardware.
2. Click Device Manager button
3. Select the device and click the remove button.

