



Internet Telephony Gateway
VIP-050 / VIP-450
User's Manual

Rev 2.0

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Revision

PLANET VIP-050 / VIP-450 User's Manual

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How to Use This Manual

This manual was designed for the technical and non-technical users of PLANET Internet telephony gateway VIP-050 / VIP-450. It contains information about the functions of VIP and instructions for its installation, basic configuration and operation in related chapters, and introduces more advanced command line interface, firmware upgrade and appendix information. Read this section carefully for important information about the manual's organization.

Chapter 1: Overview

This chapter provides conceptual overview and description of VIP, explanation of how VIP interacts with each for enabling VoIP services, and an overview of the required tasks

Chapter 2: Installing VIP

This chapter describes required steps to properly and safely install and configure VIP on your network

Chapter 3: VIP Concepts

This chapter gives information about VIP technology and describes basic concepts using VIP for providing telephony services over IP network

Chapter 4: Configuring VIP from Web Browser

This chapter explains procedures for configuring VIP from a web browser

Chapter 5: Making a Call with VIP

This chapter explains how to make Internet calls from telephony devices connected to VIP directly or indirectly.

Chapter 6: Command Line Interface

This chapter describes how to access the command line interface. It also contains information about the commands used to configure VIP.

Chapter 7: Upgrading VIP

This chapter explains how to download new revision software and upgrade VIP.

Appendix A: Technical Specifications

This appendix lists VIP specifications and the assignment of pins of all the interface ports.

Appendix B: CLI Commands

This appendix provides a short description of each CLI command with a reference to the pages that contain detailed information on the command.

Appendix C: Factory Default Settings

This appendix lists factory settings of VIP.

Important Safety Instructions

Before plugging VIP into an electrical outlet, carefully read all the installation instructions in Chapter 2.

For your own safety and the safety of your equipment, always take the following precautions:

- Follow instructions and warnings in the documentation.
- Never push any object through the fan vent or other openings in the equipment. Such action may produce a short circuit, causing fire, electric shock, or equipment damage.
- Keep VIP away from all chemicals and sources of liquids.

Warning

- Connection of the RJ45 connector from a VIP to TNV circuits can cause permanent damage to VIP.
- Incorrectly connecting telephony devices to the RJ11 port on the Telephony Interface Module can cause permanent damage to the module.

Documentation Abbreviations

Throughout this guide, the user will come across a number of abbreviations that are common throughout the industry. The user should be familiar with the following abbreviations:

| | |
|----------------|--|
| ATPM | Address Translation and Parsing Manager |
| CLI | Command Line Interface |
| DSP | Digital Signal Processor |
| DTMF | Dual Tone Multi-Frequency |
| E&M | Ear & Mouth |
| FXO | Foreign Exchange Office |
| FXS | Foreign Exchange Subscriber |
| SIP | ITU specification for multimedia transmission over IP networks |
| ICMP | Internet Control Message Protocol |
| IMTC | International Multimedia Telecommunications Consortium |
| IP | Internet Protocol |
| ITG | Internet Telephony Gateway |
| KTS | Key Telephone System |
| LAN | Local Area Network |
| NVS | Non-Volatile Storage |

| | |
|-------------|-----------------------------------|
| LED | Light Emitting Diode |
| PBX | Private Branch Exchange |
| PSTN | Public Switched Telephone Network |
| RTP | Real-Time Transport |
| SIP | Session Initialization Protocol |
| TCID | Telephony Channel Identifier |
| TFTP | Trivial File Transfer Protocol |
| TIM | Telephony Interface Modules |
| TNV | Telephone Network Voltage |
| UDP | User Datagram Protocol |
| UTP | Unshielded Twisted Pair |
| VAD | Voice Activity Detection |
| WAN | Wide Area Network |

Notation Conventions

Throughout this guide, different type styles and characters are used. These serve a variety of purposes as described below:

| Convention | Description |
|-------------------|---|
| boldface | Commands and keywords are in boldface . |
| <i>italic</i> | Arguments for which you supply values are in italics. |
| courier | Messages that VIP CLI displays are in plain courier font. |
| [] | Elements in square brackets are optional. |
| { x y z } | Alternative but required elements are grouped in braces ({ }) and separated by vertical bars (). |
| [x y z] | Optional alternative keywords are grouped in brackets ([]) and separated by vertical bars (). |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |

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Chapter 1 Overview

This chapter illustrates an overview of PLANET Internet Telephony Gateway Family – VIP-050 / VIP-450 and a detailed product description of features and capabilities.

1.1 Features

Via growth of Internet technology, Internet telephony service plays and turns into a cost-effective and highly reliable substitution system of the old-time traditional PBX system. PLANET VoIP (Voice over IP) system – VIP-050 / VIP-450 offer toll quality voice and real-time fax data over IP networks. With optimized SIP architecture, PLANET VIP series are ideal solution for various VoIP applications such as Headquarter and Branch Office communication, and IDD cost-effective solution. With its intuitive user-friendly interface, PLANET VIP series may be installed easily conveniently, and dramatically down cost the huge amount of IDD fee.

With embedded, efficient Real-Time Operating System, VIP series provides efficiency and feature enhancement capabilities; being programmed with updated firmware users may have the most flexibility and functionality to meet different kind of application requirement. It comes equipped with remote management capabilities, configurable signaling to work with PBX, KTS, and/or telephone. Building on state-of-the-art advanced VoIP related technology. PLANET VVIP series offers various features: echo cancellation, Voice Activity Detection (VAD) , Comfort Noise Generation (CNG) , lost packet recovery algorithms and optimized voice and FAX coders to bring users superior voice quality, and best compatibility with major Internet telephony service providers.

1.2 Networking Protocols

VIP supports several industry-standard networking protocols required for voice communication. The following table describes these protocols.

| Networking Protocol | Description |
|---------------------------------------|---|
| Internet Protocol (IP) | IP is a messaging protocol that addresses and sends packets across the network. To enable IP protocol, VIP must have a static IP address, subnet, and gateway assigned to it. |
| Voice over IP Protocol (VoIP) | VoIP enables VIP to transfer voice communications over an IP network. VIP employs ITU-T SIP protocol for setting up call with one another. |
| Trivial File Transfer Protocol (TFTP) | TFTP allows you to transfer files over the network. VIP implements a TFTP client allowing you to download new revision firmware from a TFTP server. The TFTP client requires a TFTP server in your network. |
| Real-Time Transport (RTP) | RTP is a standard for transporting real-time data over IP network. VIP uses RTP protocol to send digitized and compressed voice packets. |

1.3 Package Contents

The contents of your product should contain the following items:

VIP-050

- 2-slot Internet Telephony Gateway
- Power cord
- 9-pin straight through RS-232 cable
- Quick Installation Guide
- User's Manual CD
- Rack mount Accessories

VIP-450

- 4-port Internet Telephony Gateway
- Power cord
- 9-pin straight through RS-232 cable
- Quick Installation Guide
- User's Manual CD

1.4 Front Panel

The front panel of VIP contains a RJ-45 Ethernet port, one DB9 RS-232 interface port, a push button and 16 LED indicators. The following figure illustrates the front panel of VIP.

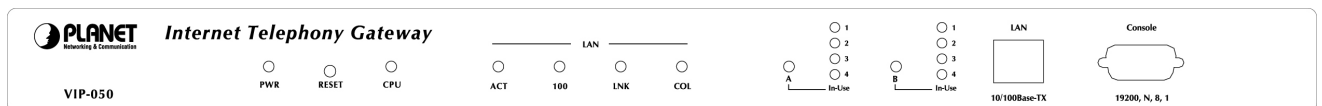


Figure 1-1 VIP-050 Front Panel

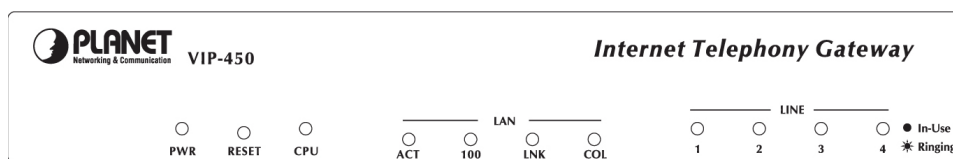


Figure 1-2 VIP-450 Front Panel

LED Indicators

The LED indicators on the front panel display the current status of VIP as described in the following table:

| Indicator | Color | Activity | Indication |
|-----------|-------|----------|------------|
|-----------|-------|----------|------------|

| | | | |
|--|--------------------------------------|-----------------------------|--|
| PWR | Green | On | Power is supplied to the gateway. |
| SYSTEM | Green | Blinking | The system is running. (Heartbeat LED) |
| LAN • ACT • 100M • LNK • COL | Green Green Green Green | On On Off On On | Data is presented on LAN. The gateway is connected to LAN at 100Mb/s. The gateway is connected to LAN at 10Mb/s. The gateway is connected to LAN. Data collision is occurring on the network connection. |
| Slot A/B Channels 1-4 | Green | Off On Blinking | The line is idle. The line is being used. The line is ringing. |

Ports

VIP is equipped with an Ethernet interface with 10/100 Mbps auto-negotiation capability. The Ethernet interface port is located on the front panel. In addition to the Ethernet interface port, there is a 9-pin RS-232 interface port on the front panel. Their functions are described below:

| Port | Label | Function |
|--------------|--------------|--|
| RJ45 | LAN | Connecting VIP to a 10/100 Mbps Ethernet network |
| 9-pin RS-232 | User Console | Connecting VIP to a VT-100 terminal or terminal emulator for configuring VIP |

Reset Button

There is a push button located behind a small hole next to the SYSTEM LED. **This button allows you to reset VIP or force VIP to enter firmware upgrade mode.**

Reset

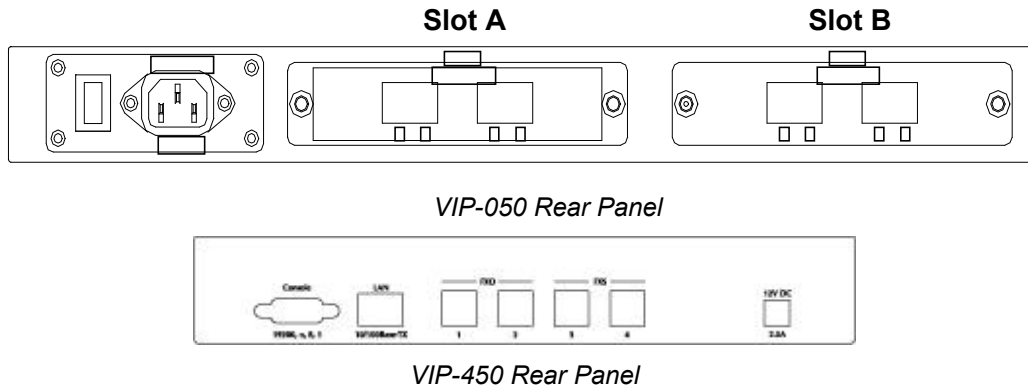
Push a small, stiff object into the hole until the SYSTEM LED stops blinking, then release the button.

Force firmware download mode:

Powering on the gateway while pressing down the button for **5** seconds forces VIP to enter download mode

1.5 Rear Panel

The rear panel of VIP-050 has two slots allowing the installation of up to two Telephony-Interface-Module (TIM) . Each module is equipped with 4 telephony interface ports. Depending on the type of the telephony interface module, the telephony interface ports may be connected to telephony devices, such as PBX, KTS, and telephone sets of central office. VIP-450 equips with two FXO and two FXS ports. In addition to the TIM slots (ports), there is an AC power receptacle and a power switch (power adapter: VIP-450) on the rear panel.



Note: For VIP-050, three modules available, VIP-FXS, VIP-FXO and VIP-E&M. Modules are not included, please consult your local dealer for the information of the modules.

Chapter 2 Installing VIP

This chapter gives information on how to install VIP.

2.1 Network Requirements

For VIP successfully operate in your network, your network must meet the following requirements:

1. A working 10/100 Base-T Ethernet. VIP connects to Internet via an Ethernet LAN.
2. IP network that supports gateway, and subnet mask. You'll need one static IP address to assign VIP.

2.2 Installing VIP

VIP can be used in a desktop configuration. Ensure that VIP is placed in a clean, well-ventilated, and vibration-free environment.

When VIP is placed on a desktop, be certain that the unit is placed on a sturdy, flat surface, near a grounded power outlet. At least three inches of clearance must be provided on both sides of VIP for well ventilation.

2.3 Connecting to the telephony devices

VIP-050 supports three types of TIM. One is FXO, FXS and the other is E&M. Each module has four ports for connecting to telephony devices. VIP-450 equips two FXO and two FXS interfaces to have the great flexibility of PBX connection (FXO), and telephone or FAX machine connection (FXS).

VIP-FXO module is designed for connecting to PBXs (extension line) or central office switches (CO line).

VIP-FXS module is designed for connecting to analog telephone sets or G3 fax machines. Connecting the telephony devices to the appropriate RJ11 ports on the TIM.

Warning: *connection of incorrect telephony devices to the ports on the TIM can cause permanent damage to the TIM and/or VIP.*

2.4 Connecting to the Network

The RJ45 network port on the front panel supports 10/100 Mbps half-duplex connection to Ethernet Network. You can use either category 3 or 5 straight-through UTP cable for 10 Mbps connections, but use Category 5 for 100 Mbps connections. To connect to Ethernet, insert one end of the Ethernet cable to the RJ45 port on the front panel of VIP and other end of the cable to an Ethernet switching hub or repeater hub.

2.5 Providing Power to VIP

To provide AC power to VIP complete the following steps:

1. Turn the power switch on the rear panel of VIP to the off position.
2. Connect one end of the power cord that came with VIP to the power receptacle on the rear panel.
3. Connect the other end of the power cord to an AC power outlet.
4. Turn the power switch on. VIP will perform power on self-test. After completing the self-test, the SYSTEM LED blinks continuously and the TIM indicators on the front panel will turn on.

2.6 Assigning IP address to VIP

The IP address is the unique logical address identifying each IP node, such as VIP, on an IP network. An IP address is a 32-bit number expressed as four decimal numbers from 0 to 255 separated by periods. VIP needs a static IP address and be aware of the subnet mask and default gateway (typically a router) of your network to be able to send to and receive data from the IP network. Consult your network manager to obtain a unique and static IP address for VIP, the IP subnet mask and default gateway of your network, and fill out the work sheet in Appendix D before configuring the gateway. Procedures for assigning IP address, default gateway and subnet mask is available in Chapter 4.

Chapter 3 VIP Concepts

VIP enables the transmission of voice and fax traffic over any IP network by digitizing voice and fax signals, encapsulating the information within IP packets, and then sending the packets across the IP network

3.1 How VIP Operates

1. The TIM inside VIP digitizes analog voice signals at 8 Kbps.
2. VIP system software handles the:
 - Capture of telephone number presented as DTMF tones.
 - Mapping the telephone number to the IP address of remote VIP.
 - Setting up calls with remote VIPs utilizing SIP call control protocol.
 - Digitizing, compressing and encapsulating the voice into IP packets and transmission of the IP packets onto the Ethernet LAN.
3. A router attached to the LAN forwards the IP packets across the WAN, where they will be received by another VIP at the remote.
4. The process is reversed at the remote VIP.

3.2 ATPM

To allow you to easily dial a telephone or fax on the network, VIP maps a series of dialed digits to the IP address of the remote VIP whose phone or fax you are calling. This mapping information is contained in a database inside each VIP called the dial plan.

Based on the dial plan the Address Translation and Parsing Manager (ATPM) inside VIP translates telephony numbers to IP addresses of remote VIPs. The ATPM collects telephone number dialed by users, decides whether the dial string is part of the dial plan and, if it is, maps it a remote VIP. When the call is set up to the destination, a substring of the original dial string will be sent along to the remote VIP.

3.3 Destination

The destination is where a call is terminated. Typically, for inbound calls from IP network, VIP terminates the call at one of the telephony ports. The destination for the call is the telephony port where the call terminated. For calls initiated from telephony ports, VIP forward the call to a remote VIP via IP network, and the remote VIP terminal the call. The destination of the call is the remote VIP.

3.4 Hunt Group

Instead of directly mapping a phone number to a destination, the ATPM first maps the phone number to a group of destinations known as a Hunt Group. A hunt group is a group of destinations that are equivalent. For example, the customer support group of a company might have 20 people who can handle support calls. Access to customer support is through a single phone number but the next available support person is actually connected upon each incoming call. These 20 phones would be configured as a hunt group. A hunt group consists of a phone number and a list of destinations (members of the group). When an incoming phone number matches the phone number of the hunt group, VIP attempts to terminate the call at each of the destinations in the hunt group, one at a time until a call is successfully completed.

Every destination that can be reached by dialing a phone number is a member of at least one hunt group. When an address is presented to ATPM for lookup, the output is a hunt group ID number. As a second step, the hunt group ID is presented to ATPM to get the list of members. To effectively bypass the hunt group feature, simply make a unique hunt group for each destination and one member in each hunt group.

3.5 Dial Plan

The dial plan is a database inside VIP for the ATPM to map telephony numbers users dialed to the IP address of remote VIPs. The dial plan consists of the destination table, hunt group table and the address table. Users need to setup these tables, so that VIP knows how to setup calls with remote VIPs.

Address Table

The address table maps a phone number to a hunt group. The table contains entries that specify the following information:

- Telephone number
- The hunt group the phone number maps to.
- The minimum number of digits to collect before the ATPM starting address lookup.
- The maximum number of digits the ATPM collects before it considers the dial string is complete.
- Number of digits forward to the destination.

Address table sample:

| Address Entry | Hunt Grp_Id | Min. Digits | Max. Digits | Prefix strip | Prefix Address |
|---------------|-------------|-------------|-------------|--------------|----------------|
| 200 | 1 | 3 | 3 | 0 | None |
| 201 | 3 | 3 | 3 | 0 | None |
| 899 | 11 | 3 | 3 | 0 | None |
| 8 | 11 | 3 | 3 | 0 | None |
| 0 | 5 | 1 | 1 | 0 | None |
| 03 | 5 | 10 | 10 | 2 | "0" |

Hunt Group Table

The hunt group table maps a hunt group to a list of destinations.

Hunt group sample

| Group id | Type | #Members | Member ids |
|----------|------|----------|------------|
| 1 | 2 | 1 | 1 |
| 3 | 2 | 1 | 2 |
| 5 | 2 | 1 | 4 |
| 11 | 2 | 1 | 11 |

Destination Table

The destination table maps a destination to a telephony port or the IP address of a remote VIP.

Destination table sample

| Dest id | Mode | Destination |
|---------|-------|-----------------------------------|
| 1 | Local | PORT = 0 |
| 3 | Local | PORT = 2 |
| 5 | Local | PORT = 4 |
| 11 | SIP | Dest = 192.168.0.55/ 5060 |
| 12 | DNS | Dest = planetvip.dyndns.org /5060 |

3.6 DTMF Relay

Voice from PSTN is compressed by VIP before sending across the IP network and then decompressed by the destination VIP. The voice coders supported by VIP are designed for ideally compressing and decompressing human voice. If the compression / decompression process is performed on DTMF tone which needs to be conveyed across IP network, distortion might be too significant to be not cognizable in the receiving end. To overcome the shortcoming that the voice coders cannot perfectly encode DTMF tone, VIP encodes DTMF tone into special packets. The packets are then sent to the destination VIP via a separate IP connection. The destination VIP decodes the packets, generates the DTMF tone, and then sends the tone to the PSTN. The way VIP handles DTMF tone is so called DTMF relay.

VIP handles DTMF relay per SIP specifications. Certain third party VoIP devices may handle DTMF relay per IMTC standard. For VIP to interoperate with those VoIP devices, users need to specify which remote VoIP devices uses IMTC conforming DTMF relay technique. Refer to CLI command for detailed information on how to select DTMF relay mode.

3.7 Voice Codecs

Voice codecs supported by VIP include G.711, G.723.1 5.3kbps, G.723.1 6.3kbps and G.729 AB. When setting up a call, two VIP automatically negotiate with each other until an agreed upon codec is determined.

Chapter 4 Configuring VIP from a Web Browser

This chapter explains procedures for configuring VIP from the web browser.

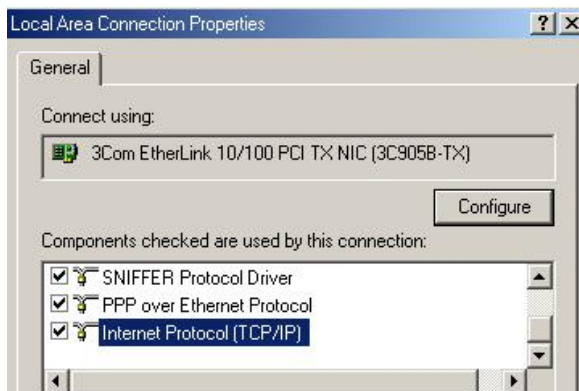
4.1 Http setting mode

This section describes the processes for setting up Internet Telephony Gateway once it has been installed. Microsoft Explorer version 4 or higher, or Navigator version 4.5 or higher can be used in this section to view and change parameters.

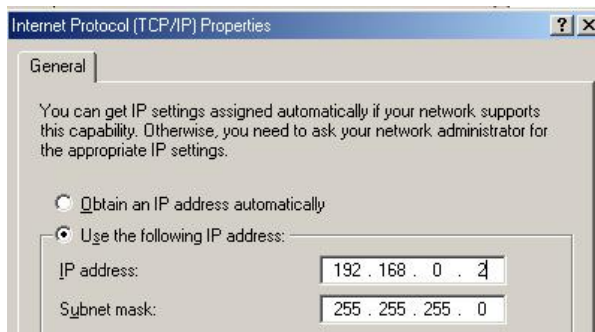
PC Setup

In order to configure VIP, PC needs to have TCP/IP protocol and a compatible IP Address.

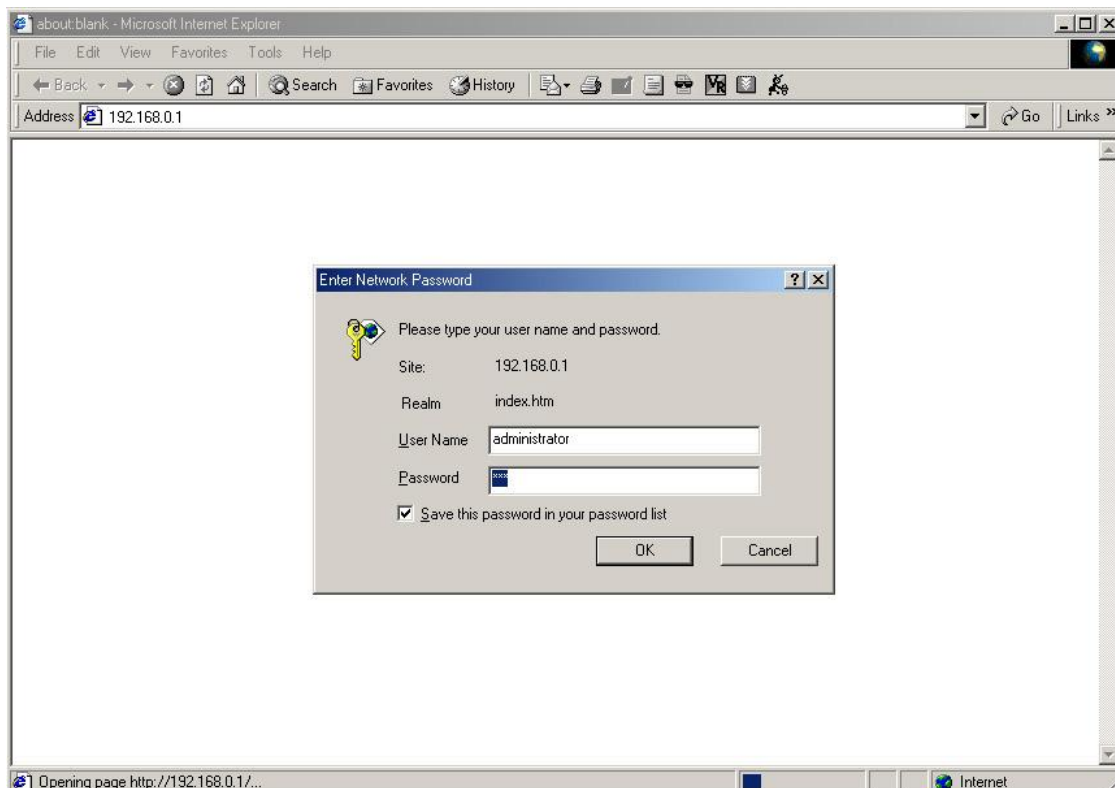
1. Connect VIP to network with a RJ-45 UTP cable. Power it on.
2. Find a PC, for example, Windows 2000. Under Windows 2000, select the *Network Neighborhood* icon on the desktop, then select *Properties*. We will see a screen like below:



3. If a line like the one highlighted ("TCP/IP -> Network Card") is not listed, select *Add-Protocol-Microsoft-TCP/IP-OK* to add it.
4. Select *Properties* for the "TCP / IP -> Network card" entry. You will see a screen like the following:



5. On the *IP Address* table, enter values as follows:
 - *Specify an IP address* set ON.
 - *IP Address*: 192.168.0.2
 - *Subnet Mask*: 255.255.255.0Restart your PC and Start your WEB browser.
6. In the *Address* box, enter the following:
<http://192.168.0.1> (default IP address of the Voice Gateway)
7. Press enter to confirm and you should find the screen below.



8. The User Name is **administrator** (all lower case). Password is **123**. Both **administrator** and **123** are default strings from factory). For security reasons, please change and memorize the new password after this first setup.
9. Click "OK". The main screen will appear as below.



4.1.1 Dial Plan/ Dial Settings

Main Menu Function Briefings

1. **Dial Plan Settings**, which helps you configure the dial plan. You should complete the dial plan work sheets before working on this menu.
2. **View System Configurations**, which includes the specific information related to version, network, SIP, coder, and the channel of the gateway you are using.
3. **Configure System Settings**, which allows you to modify the system parameters as you wish.

Select Main Menu\Dial Plan Settings, we can find the following Dial Plan Menu.



| | |
|-------------------------------|---|
| Dial Settings | The Setup screen of the Dial Plan including: <ul style="list-style-type: none"> • Telephone Settings, which allows one to Add, Delete, Find, or List telephone numbers. • Hunt Group Settings, which allows one to Add, Delete, Find, or List hunt group settings • Destination Settings, which allows one to Add, Delete, Find, or List destination settings |
| Common Dial Parameters | Defines the desired total dial time, first digit wait time, inter-digit wait time, and the termination digit |
| Clear Dial Plan | Clears all telephone numbers, hunt groups, and destinations settings, for both old and new ones |
| Restore Dial Plan | Retrieves all dial plan settings from the flash while temporary settings will be cleared |
| Store to NVRAM | Stores all settings that you have specified permanently |

4.1.1.1 Phone number

Please select **Main Menu\Dial Plan\Phone/Hunt Group/Destination Settings**, we can find **Phone/Hunt Group/Dest. Setting Menu**. We are doing VIP telephone address table management.

We can add (delete, find or list) desired telephone number mapping to hunt group at this menu.



| | |
|-------------------------|--|
| Telephone Number | Telephone number to match. This is only part of the total dialed string. |
| Hunt Group ID | For each hunt group ID, you need to assign it a unique identifier between 0 and 99. |
| Min. Digits | Minimum number of digits to be collected before the ATPM starting matching the dial string with entries in the address table. |
| Max. Digits | Maximum number of digits to be collected before the ATPM starting matching the dialed string with entries in the address table. |
| Strip Length | The number of digits to be stripped at the beginning of the collected dial string before forwarding the string to the destination. |
| Append Prefix | (Optional) Digit to be added before the beginning of the collected dial string before forwarding it to the destination. |

To list the phone numbers, click on “List” and select “Telephone”, the screen will displayed as below:



List All Phone Numbers Result:

<

| Phone # | Hunt Group ID | Min. Digits | Max. Digits | Strip | Prefix |
|---------|---------------|-------------|-------------|-------|--------|
| 0 | 9 | 0 | 10 | 1 | None |
| 01 | 9 | 0 | 4 | 1 | None |
| 02 | 9 | 0 | 4 | 1 | None |
| 03 | 9 | 0 | 4 | 1 | None |
| 05 | 9 | 0 | 4 | 1 | None |
| 06 | 9 | 0 | 4 | 1 | None |
| 09 | 9 | 0 | 10 | 0 | 0 |
| 1 | 2 | 0 | 1 | 0 | None |

To delete / find a Telephone, select the option and telephone, you can key in the phone number to find or delete. The right bottom screen will show the result.



PLANET
Networking & Communication
Internet Telephony Gateway

Main Menu
Dial Plan Settings
Dial Settings

Find
Telephone
Select

Help

Find A Telephone Number

Find Telephone Number:

Find Telephone Number Result:

| Phone # | Hunt Group ID | Min. Digits | Max. Digits | Strip | Prefix |
|---------|---------------|-------------|-------------|-------|--------|
| 205 | 5 | 1 | 3 | 3 | None |

4.1.1.2 Hunt Group

Please select Main Menu\Dial Plan\Phone/Hunt Group/Destination Settings, we can find Phone/Hunt Group/Dest. Setting Menu. We are doing VIP hunt group table management.

PLANET
Networking & Communication
Internet Telephony Gateway

Main Menu
Dial Plan Settings
Dial Settings

Add
HuntGroup
Select

Add Hunt Group IDs

Hunt Group ID:

Destination ID 0:

We can add (delete, find or list) desired hunt group ID mapping to destination ID at this menu. If you want to make the port calls to the secondary receiver, you can click one "More Destinations" you can then add the second, third receiver if the desired port/phone is busy.

We can add (delete, find or list) desired hunt group ID mapping to destination ID at this menu.

4.1.1.3 Destination IP/ Destination Channel

Please select Main Menu\Dial Plan\Phone/Hunt Group/Destination Settings, we can find Phone/Hunt Group/Dest. Setting Menu. We are doing VIP destination table management. One is Remote Destination IP, one is Remote Host Name and the other is Local Destination Channel.

PLANET
Networking & Communication
Internet Telephony Gateway

Main Menu
Dial Plan Settings
+ Dial Settings

Add
Remote_Destination_IP
Select

Help

Add Remote Destination ID

Destination ID:

IP Address: or

Host Name:

Note: If both IP Address and Host Name are defined, only IP Address will be recognized.

Company/Location:

Add Destination ID Result:

The Destination ID 12 is bound to Host Name testvip.planet.com.tw for H.323 VoIP application.

The screenshot displays the PLANET Internet Telephony Gateway web interface. On the left is a blue sidebar with the PLANET logo and navigation links: Main Menu, Dial Plan Settings, Dial Settings, Add (with a dropdown menu showing Local_Destination_Channel and Select), and Help. The main content area is titled 'Add Local Destination ID' and contains two input fields: 'Destination ID:' with the value '13' and 'Channel Number:' with the value '1'. Below these fields are two buttons: 'Complete' and 'Clear All Changes'. At the bottom of the main area, the text 'Add Destination ID Result:' is followed by the message 'The Destination ID 13 is bound to local channel 1.'

We can add (delete, find or list) desired destination ID mapping to Remote Destination IP, Domain Name or Local Destination Channel at this menu.

Please back to Dial Plan Menu.

4.1.1.4 Common Parameter

Please select Main Menu\Dial Plan\Common Parameter Settings

Common Dial Parameters Settings

Total Dial Time: ms
First Digit Wait Time: ms
Inter Digit Wait Time: ms
Termination Digit:

Current Common Parameter Settings Are:

System Info: Total dial time = 30000ms, First digit wait = 10000ms, Interdigit wait = 5000ms, Dial term digit = None

This Common Parameter Settings is the same as previous ATPM system parameters description. .

4.1.2 Clear DialPlan

Please select Main Menu\Dial Plan\Clear All Dial Plan Settings

Clear All Dial Plan Settings

Caution! Clear Dial Plan Settings will clear ALL the settings you made before.

However, the 'Clear All' is only temporary if you do not store to the Flash Memory afterwards.

That is, to restore all the settings from the Flash Memory, you need only to click on the 'Restore Dial Plan' on the left frame, or to reboot the system (the settings can be restored ONLY IF YOU DID NOT STORE the entries).

Are you sure?

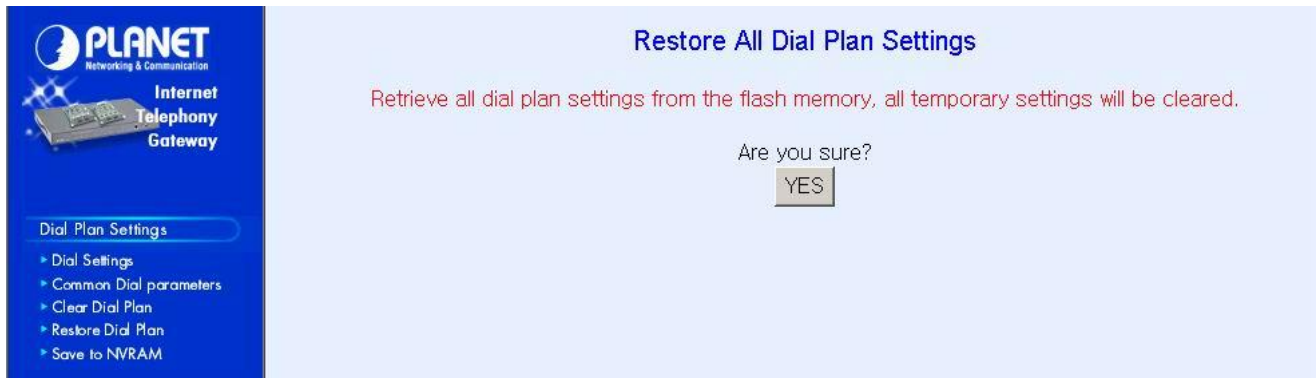
Clear All Dial Plan Settings will clear all the settings you made before. However, the 'Clear All' is only temporary if you do not store to the Flash Memory afterwards.

That is, to restore all the settings from the Flash Memory, you need only to click on the 'Restore All Entries' on the left frame, or to reboot the system (the settings can be restored ONLY IF YOU DID NOT STORE the entries).

4.1.3 Restore DialPlan

Please select Main Menu\Dial Plan\Restore All Dial Plan Settings

Retrieve all dial plan settings from the flash memory. All temporary settings will be cleared.



4.1.4 Save to NVRAM

Please select Main Menu\Dial Plan\ Save to NVRAM

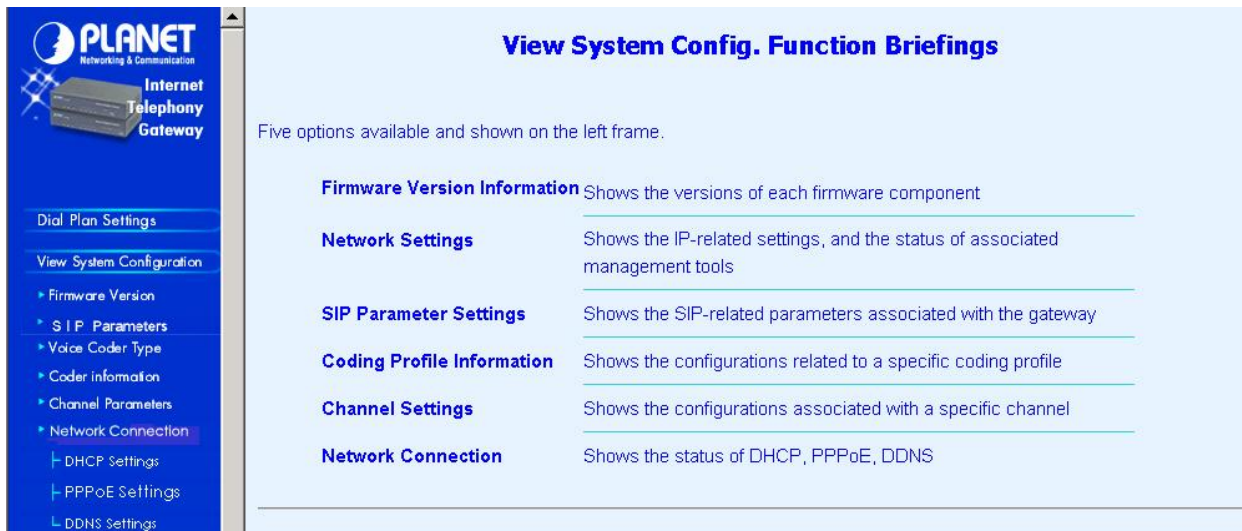
Ready to store Dial Plan settings to Flash Memory



Please Back To Main Menu

4.2 View System Configurations

Please select Main Menu\View System Config.



View System Config. Function Briefings. Six options available

1. **Firmware Version Information**, which shows the versions of each firmware component
2. **Network Settings**, which shows the IP-related settings, and the status of associated management tools
3. **SIP Parameter Settings**, which shows the SIP-related parameters associated with the gateway
4. **Coding Profile Information**, which shows the configurations related to a specific coding profile
5. **Channel Settings**, which shows the configurations associated with a specific channel
6. **Network Connection**, which shows type of connection enabled in VIP

4.2.1 Firmware Version Information

Please select Main Menu\View System Config.\Firmware Version Info.

This will show current VIP firmware version information.

Firmware Information:

```
Internet Telephony Gateway (PLA) Version: s1.0
Boot Loader Version: 4.13
RTOS Version: 2.5.0/BE
SIP Stack Version: 2.1.1.4
DSP image Version: 8.1.2.1.
TSG Version: R8.0 Gateway (Build 4)
```

4.2.2 SIP Parameters

Please select Main Menu\View System Config.\SIP Parameter Settings

The SIP Parameters Settings:

SIP Addr Configuration:
UDP ctl addr = 192.168.0.99/5060
RTP data addr = 192.168.0.99/2070

Domain name server = 168.95.192.1
Info switch is off
nat_call is on
auto_reg is off
outboundproxy : None

4.2.3 Voice Coder Type

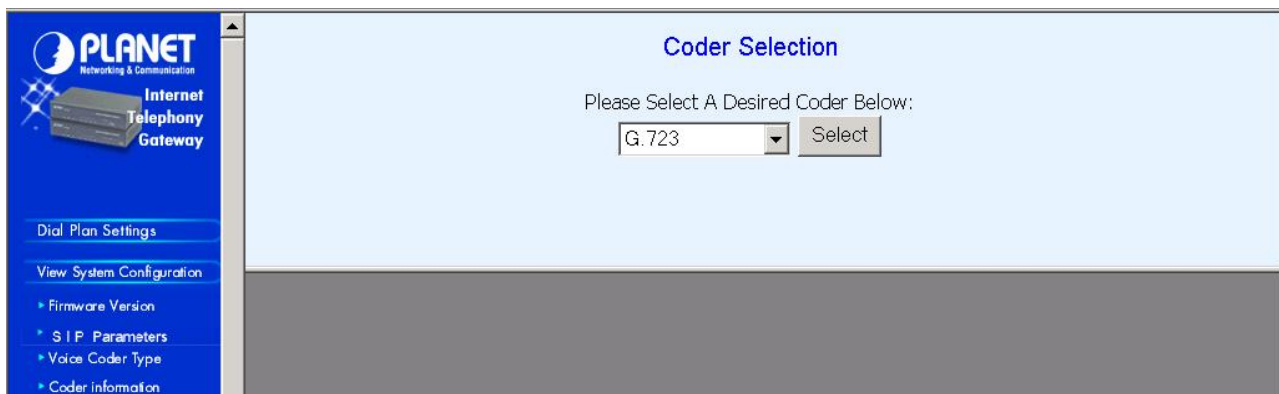
Please select Main Menu\View System Config.\Coder Type

The Voice Coder For Each Line Module:

Voice coder is G.723 for Line Module 1.

4.2.4 Voice Coder Information

Please select Main Menu\View System Config.\Coder Information



The screenshot displays the web interface for the Planet Internet Telephony Gateway. On the left is a blue sidebar with the Planet logo and a list of menu items: Dial Plan Settings, View System Configuration, Firmware Version, SIP Parameters, Voice Coder Type, and Coder Information. The main content area has a light blue header titled "Coder Selection" and the instruction "Please Select A Desired Coder Below:". Below this is a dropdown menu showing "G.723" and a "Select" button.

4.2.5 Channel Parameters

Please select Main Menu\View System Config.\Channel Parameters

This command can show the desired channel setting of VIP.



4.2.6 Network Connection

Please select Main Menu\View System Config\Network Connection

This command can display the type of connection currently enabled in VIP.

4.2.6.1 DHCP Settings

Display current DHCP status in VIP



DHCP Status

DHCP : disable.

[Click here](#) to change DHCP Status

Command Line Interface reference:

net set dhcp

net set dhcp command configures VIP to be DHCP client in order to obtain TCP/IP related parameters from ISP while VIP is deployed in DHCP environment.

Syntax Description

| | |
|------------|----------------------|
| <i>on</i> | Turn on DHCP client |
| <i>off</i> | Turn off DHCP client |

If DHCP client is enabled/disabled, VIP has to be rebooted to make the DHCP service started/stopped.

4.2.6.2 PPPoE Settings

Display current PPPoE status in VIP



PPPoE Status

- PPPoE : disable.
- User name : .
- password : .
- Fixed IP : 0.0.0.0

[Click here](#) to change PPPoE Status



PPPoE Settings

- PPPoE :
- User Name :
- Password :

OK

Command Line Interface reference:

net set pppoe

The **net set pppoe** command configures PPPoE related parameters while VIP is deployed in PPPoE environment.

Syntax Description

| | |
|-----------------|---|
| on | Turn on PPPoE client |
| off | Turn off PPPoE client |
| username | PPPoE connection username provided by ISP |

| | |
|-----------------|---|
| <i>password</i> | PPPoE connection password provided by ISP |
| <i>fix_ip</i> | Fixed IP address provided by ISP |

If PPPoE client is enabled/disabled, VIP has to be rebooted to make the PPPoE service started/stopped.

4.2.6.3 DDNS Settings

Display current DDNS status in VIP



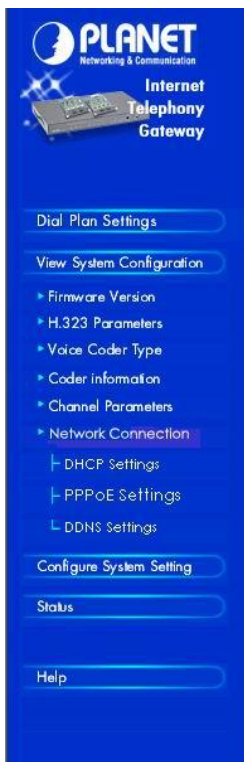
Dyn-DNS Status

- DDNS : disable.

Dyn-DNS HOST SETTINGS :

- dyndns serv= dyndns
- host = planetvip
- user = XXXXXXXXXX
- password = XXXXXXXX

[Click here](#) to change DDNS Status



Dynamic DNS Settings

- Dyn-DNS :
- Server Name :
- Host Name :
- User Name :
- Set User Password :

- DynDNS setting completed.
- DynDNS server name setting OK.
- DynDNS host name setting OK.
- DynDNS user name setting OK.
- DynDNS user password setting OK.

[Store the settings.](#)

Be certain that PPPoE has enabled.

Command Line Interface reference:

net set dyndns

DDNS service can help users to find each other in dynamic/static IP environment, and enable two VIPs call each other with registered host names. To be fully functional, DNS server **MUST** be added into SIP configuration while DDNS service is enabled.

DDNS clients supported in VIP are www.dyndns.org and www.dtdns.com currently.

If VIP DDNS client is enabled, users **MUST** register a DDNS name from the sites listed above before proceeding any further.

Syntax Description

| | |
|------------|----------------------|
| <i>on</i> | Turn on DDNS client |
| <i>off</i> | Turn off DDNS client |

If DDNS client is enabled, VIP has to be rebooted to make the DDNS service effective.

sub commands:

set dyndns add [serv_name] [host_name] [user_name] [password]

Adding applied DDNS name into VIP database.

Note: if multiple DDNS names are inserted, only the first one will be updated.

Syntax Description

| | |
|------------------|---|
| <i>serv_name</i> | DDNS service server (MUST be “dyndns” or “dtdns” for now) |
| <i>host_name</i> | DDNS name registered from DDNS service provider |
| <i>user_name</i> | Username used to update DDNS account |
| <i>password</i> | Password used to update DDNS account |

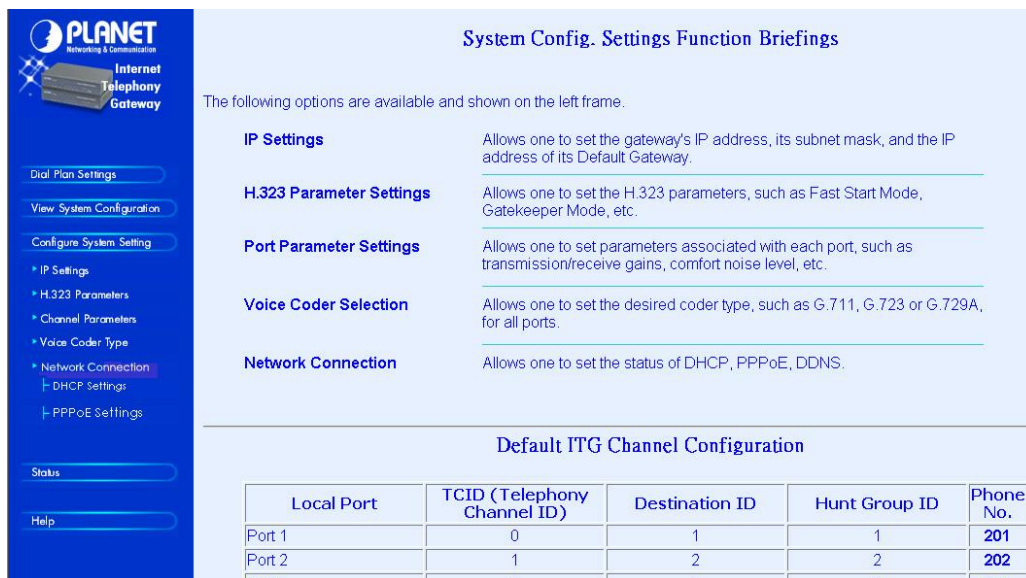
set dyndns delete [host_name]all

Delete specified or all DDNS name(s) configured in VIP.

DDNS related parameters must be saved via commands: “config activate, config store” in order to be effective.

4.3 Configure System Settings

Please select Main Menu\Configure System Settings



System Config. Settings Function Briefings

1. **IP Settings**, which allows one to set the gateway's IP address, its subnet mask, and its Default Gateway IP address.
2. **SIP Parameter Settings**, which allows one to set the SIP parameters, such as communication ports, SIP registration settings, outbound proxy server settings etc.
3. **Channel Parameter Settings**, which allows one to set parameters associated with each port, such as transmission/receive gains, comfort noise level, etc.
4. **Voice Coder Type Selection**, which allows one to set the desired coder type, such as G.711, G.723 or G.729A, in a per line module base.
5. **Network Connection**, which allows user to buildup Internet connection according to different connection type, currently connection types supported in VIP are DHCP, PPPoE connections.

4.3.1 IP Settings

Please select Main Menu\Configure System Settings\IP Settings

IP Address Settings

- IP Address:
- Subnet Mask:
- Default IP Gateway Address:
(If a Default IP Gateway is not desired, please enter 0.0.0.0)

Save The Changes Clear The Changes

This screen can setup your VIP IP Address, Subnet Mask and Default IP Gateway Address. These values will be valid after VIP reboot.

4.3.2 SIP Parameters

Please select Main Menu\Configure System Settings\SIP Parameter Settings

There are SIP Configuration Settings, Registration Server Settings, Outbound Proxy Server configurations, Domain name server configurations, and Other settings..

4.3.2.1 SIP Configuration Settings

Please select Main Menu\Configure System Settings\SIP Parameter Settings\SIP Configuration Settings

Address Port Configuration Settings

- UDP Port Number:
- RTP Port Number:

OK

4.3.2.2 SIP Registration Server settings

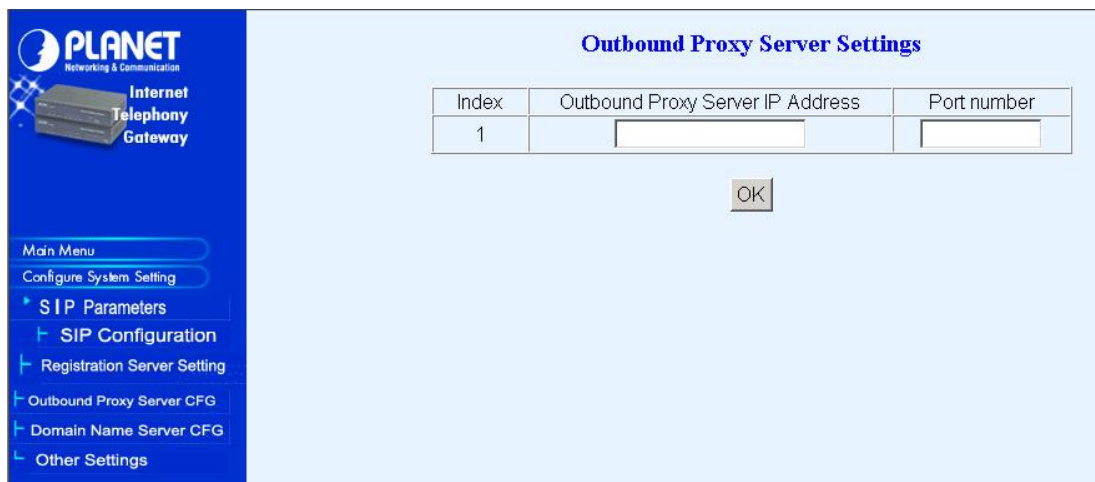
Please select Main Menu\Configure System Settings\SIP Parameter Settings\SIP Registration Server Settings

The screenshot shows the 'Registration Server Settings' page in the Planet Internet Telephony Gateway web interface. On the left is a blue sidebar with a menu: 'Main Menu', 'Configure System Setting', 'SIP Parameters' (expanded), 'SIP Configuration', 'Registration Server Setting' (selected), 'Outbound Proxy Server CFG', 'Domain Name Server CFG', and 'Other Settings'. The main content area has a title 'Registration Server Settings' and two buttons: 'Add' and 'Del'. Below these are two configuration items: 'Expire Time : 300 seconds' and 'Local Phone Numbers :'. A section titled 'Information of Registration Server' contains a table with four columns: 'Registration Server IP Address', 'Port number', 'User Name', and 'Password'. Each column has an empty input field below it. An 'OK' button is located below the table.

| Registration Server IP Address | Port number | User Name | Password |
|--------------------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

4.3.2.2 SIP Outbound Proxy Server Settings

Please select Main Menu\Configure System Settings\SIP Parameter Settings\SIP Outbound Proxy Server Settings



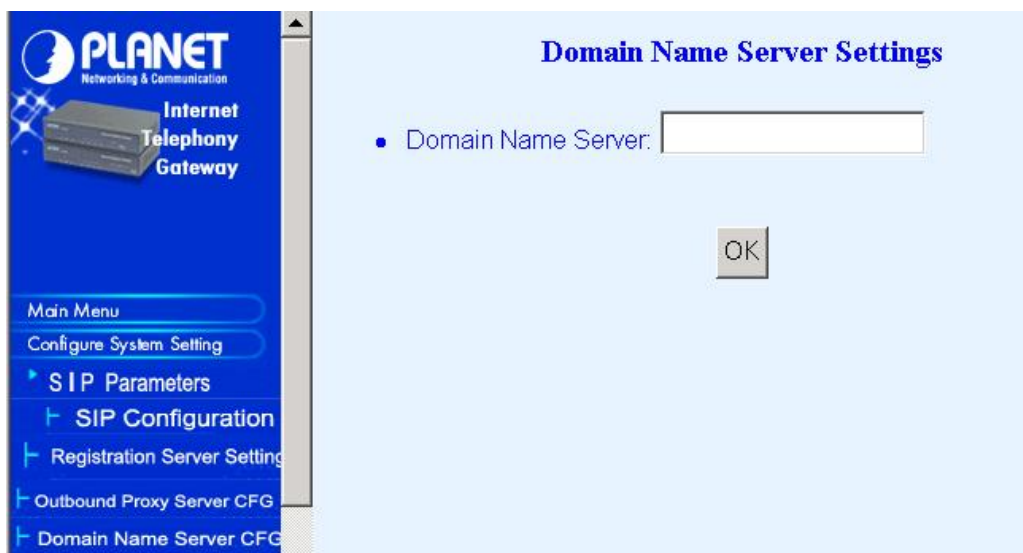
The screenshot shows the 'Outbound Proxy Server Settings' page. On the left is a blue sidebar with the PLANET logo and a menu. The main content area has a title 'Outbound Proxy Server Settings' and a table with three columns: 'Index', 'Outbound Proxy Server IP Address', and 'Port number'. The first row has the index '1' and two empty input fields. Below the table is an 'OK' button.

| Index | Outbound Proxy Server IP Address | Port number |
|-------|----------------------------------|----------------------|
| 1 | <input type="text"/> | <input type="text"/> |

OK

4.3.2.3 SIP Domain Name Server Settings

Please select Main Menu\Configure System Settings\SIP Parameter Settings\SIP Domain Name Server Settings

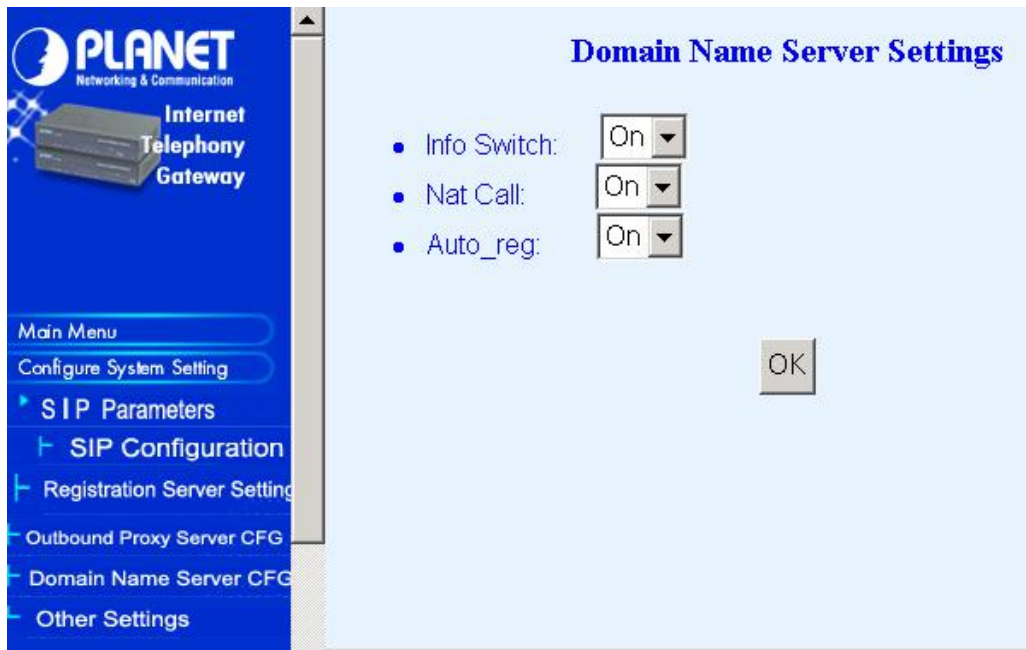


The screenshot shows the 'Domain Name Server Settings' page. On the left is a blue sidebar with the PLANET logo and a menu. The main content area has a title 'Domain Name Server Settings' and a single configuration item: 'Domain Name Server:' followed by an empty input field. Below the input field is an 'OK' button.

Domain Name Server:

OK

4.3.2.4 Other SIP Settings



Chapter 5 Troubleshooting Tips

This section provides solutions for problems you may possibly encounter while installing and connecting your Internet Telephony Gateway.

Power (PWR) LED is not illuminate

1. Check the power adapter connection.
2. If the power adapter or power cord is connected to the gateway, check that the cord is securely plugged into the power socket on the rear of the console.
3. Check that the other end of the power adapter or power cord is securely plugged into the power outlet.
4. If both ends of the power cord are properly connected and there is still no power, the gateway might have a faulty power outlet, power adapter, or power cord.
5. Change to another power outlet or obtain another power adapter or power cord.

LNK LED is not illuminate

1. Check VIP was connected correctly:
 - a. Powered on
 - b. Correctly connected
2. Check if the cable connect to an end device is a standard straight through network Ethernet cable.
3. Make sure connectors at both end are securely seated.
4. Check VIP IP setting is correct

There is no dial tone when pick up the phone

1. Check line module port LED illuminate
2. Check the RJ11 telephone line is connected correctly between phone set and line module port

There is an out-of-service tone when dialing destination phone number

1. Check the dial plan setting (address table, hunt group table and destination table) at the destination phone number

There is no connected tone when dialing destination phone number

1. Check the IP network (Ethernet cable, Ethernet port and GW IP setting) is connected correctly
2. Check the destination VIP and phone is available

Final Steps

If the procedures in this section have not solved the problem, reset the gateway several times by turning the power on and off. If the problem still exists, contact customer support.

Chapter 6 Command Line Interface

VIP has a built-in command line interpreter and provides users a Command Line Interface (CLI). You can configure VIP by entering commands from the CLI.

You can access the CLI from a VT-100 terminal or terminal emulator connected to the RS-232 port on the front panel or through a Telnet session.

6.1 Connection through Serial Port

The serial port of VIP is fixed at the following settings:

| | |
|--------------------|--------|
| Baud rate | 19,200 |
| Number of data bit | 8 |
| Parity check | None |
| Number of stop bit | 1 |
| Flow control | None |

To access VIP through the RS-232 serial port, follow the steps below:

1. Insert one end of the serial cable that came with VIP into the 9-pin RS-232 port (labeled User Console) on the front panel.
2. Insert the other end of the cable into your terminal's serial port.
3. Configure the terminal so that settings for baud rate, number of data bit, parity check, number of stop bit and flow control capability exactly match VIP's serial interface. (Refer to your terminal documentation for more information about setting up these features).
4. Press <Return> from the terminal.
5. VIP displays the following prompts on the terminal and you are ready to access the CLI then.
EVIP>

6.2 Connection through Telnet

To use Telnet, you must have previously set the IP address using the **net set ip** command for VIP. Refer to the section describing the **net set** command later in this chapter for information about setting the IP address. Up to two sessions through Telnet are possible. To access VIP from a remote host with Telnet, perform the following tasks:

| Task | Prompt | Type |
|---|-----------|-----------------------|
| From the remote host, enter the telnet command followed by the IP address of VIP you want to access. | None | telnet ip_addr |
| When VIP prompts " Login: ", enter the user name " administrator " | Login: | administrator |
| When VIP prompts "Password:", enter the password. The default password is " 123 " unless a password was previously established using the net set user_pw command (Refer to the section describing net set user_pw command later in this chapter for details about the setting password). | Password: | <i>password</i> |

Upon successfully entered the password, VIP displays greeting message and the following prompts and you are ready to access the CLI commands.

ITG>

6.3 Command Help

Help for commands is provided by the CLI. Type **help** to see a listing of the top-level commands. On most cases, if you enter a command using the wrong number of arguments or inappropriate arguments, the CLI will give further usage.

6.4 Designating IP Address

Some commands require an IP address, which must be designated in a standard format. The IP address format is 32 bits, written as four octets separated by periods (dotted decimal format) that are made up of a network section, an optional subnet section, and a host section, as shown in the following example:

192.168.0.1

6.5 Designating Port Number

Some commands require a telephony port number. VIP designates the first port telephony interface as port number 0, the 2nd port as port number 1 and so on.

6.6 Command Reference

The following table list the CLI command in alphabetic order.

| Command | Description |
|----------|---|
| atpm | Dial plan management command |
| clrscr | Clear screen |
| config | Configuration management command |
| download | Download new revision code image from TFTP server |
| help | Display help screen |
| net | Set or display network parameters |
| ping | Ping another Internet host |
| set | Set system configuration |
| tel | Set or display telephony port options |

For the ease of understanding and explaining these commands, the commands are categorized into the following command sets and the following sections explaining each set of the commands.

| Command Set | Commands | Function |
|--------------------------|------------------------------------|---|
| Utility | clrscr download help ping | General purpose utility commands |
| Network | net | Commands for setting or displaying network related parameters |
| Configuration management | config show set | Commands for configuring VIP or displaying configuration |
| Dial plan management | atpm | Commands for setting or displaying dial plan |
| Telephony | tel | Commands for setting or displaying telephony related options |

6.7 Utility Commands

clrscr

The **clrscr** command to clear the screen

Syntax Description

This command has no arguments or keywords

download

Use the **download** command to enter download mode for reading code image from a TFTP server and program it to flash memory. Refer to 0 for detailed information on how to upgrade the system software.

Syntax Description

This command has no arguments or keywords

Note

This command is available from serial interface. It is not available from Telnet unless the TFTP loader is version 3.00 or higher.

help

The **help** command lists the top-level commands.

Syntax Description

This command has no arguments or keywords

ping

The **ping** command sends Internet Control Message Protocol (ICMP) echo request packets to another node on the network.

ping *host_ip_addr*

ping -s *host_ip_addr count/timeout*

Syntax description

| | |
|----------------------------|---|
| -s | Causes ping to send one datagram per second, printing one line of output for every response received. |
| <i>host_ip_addr</i> | The IP address or IP alias of the host. |
| <i>count</i> | (Optional) The number of packets to send |
| <i>timeout</i> | (Optional) Timeout value for the ping in millisecond |

6.8 Network Commands

net reset

Use the **net reset** command to reset VIP. The CLI will prompt you to confirm the command before resetting VIP.

Syntax Description

This command has no arguments or keywords

net set gateway *ip_addr*

Use the **net set gateway** command to assign a default gateway (router) for VIP. The default gateway routes packet data outside of your IP subnet.

Syntax description

| | |
|----------------|---|
| <i>ip_addr</i> | The IP address of the default gateway. IP address of 0.0.0.0 stands for no default gateway. |
|----------------|---|

Note

The new setting will not take effect until VIP is reset.

net set http {on|off}

VIP allows you enable or disable its built-in HTTP server. Use the **net set http** command to enable or disable the HTTP server.

Syntax description

| | |
|----|---|
| on | Enable HTTP server. This allows users to access VIP from web browser. |
|----|---|

| | |
|-----|----------------------|
| off | Disable HTTP server. |
|-----|----------------------|

net set telnet {on|off}

VIP allows you enable or disable its built-in Telnet server. Use the **net set telnet** command to enable or disable the Telnet server.

Syntax description

| | |
|----|---|
| on | Enable Telnet server. This allows users to access VIP from web browser. |
|----|---|

| | |
|-----|------------------------|
| off | Disable Telnet server. |
|-----|------------------------|

net set ip *ip_addr*

Use the **net set ip** command to assign a static IP address to VIP.

Syntax description

| | |
|----------------|------------------------|
| <i>ip_addr</i> | The IP address of VIP. |
|----------------|------------------------|

Note

The new IP address will not take effect until VIP is reset.

net set ip_preced ip_preced

VIP allows you to set the 8-bit Service Type field in the IP header for all the voice packets it sends out. The Service Type field is broken down into five subfields, among which four subfields are user configurable. This command is used to set these subfields.

```
net set ip_preced ip_preced [d] [t] [r]
```

Syntax description

| | |
|------------------|---|
| ip_preced | The 3-bit PRECEDENCE subfield ranging from 0 through 7. |
| d | The <i>D</i> bit subfield, either 0 or 1. |
| t | The <i>T</i> bit subfield, either 0 or 1. |
| r | The <i>R</i> bit subfield, either 0 or 1. |

Default

ip_preced: 0

d: 0

t: 0

r: 0

Notes

The new setting will not take effect until the VIP is reset.

net set mask ip_mask

Use the **net set mask** command to set the IP subnet mask for VIP.

Syntax description

| | |
|----------------|----------------------------------|
| ip_mask | The subnet mask of your network. |
|----------------|----------------------------------|

Note

The new setting will not take effect until VIP is reset.

net set speed {10|100|auto}

VIP allows you set the link speed for its Ethernet interface. Use the **net set speed** command to set the Ethernet link speed.

Syntax description

| | |
|------------|--------------------------------------|
| 10 | Fixed the Ethernet speed at 10 Mbps |
| 100 | Fixed the Ethernet speed at 100 Mbps |

| | |
|-------------|---|
| auto | Enable the 10/100 Mbps auto-negotiation capability. |
|-------------|---|

net set user_pw password password

Use the **net set user_pw** command to change the password for Telnet user.

Syntax description

| | |
|-----------------|--|
| password | The new password. The password must be equal to or less than 7 alphanumeric characters. It must be identically typed twice for VIP to be certain about the new password. |
|-----------------|--|

net show

The **net show** command displays all the network settings.

Syntax Description

This command has no arguments or keywords

Example

The following example shows how to display network settings:

```
ITG> net show <Enter>
***** Net Parameters *****
PPPoE =          disabled
DYN DNS =        enabled
DHCP client =    disabled
Configured IP address = 192.168.0.99.
Configured IP subnet mask = 255.255.255.0.
Default gateway IP address = 192.168.0.253.
Current active IP address = 192.168.0.99.
Current active subnet mask = 255.255.255.0.
IP precedence =   0 0 0 0
Ethernet MAC address = 00-30-4f-00-29-20
Ethernet speed setting = 10/100 Mbps auto-negotiation
USER password =   123
HTTP server =     enabled
Telnet server =   enabled
Ethernet speed setting = 10/100 Mbps auto-negotiation
USER password =   123
```

```

HTTP server =      enabled
Telnet server =    enabled

*****
ITG>

```

net show hwstat

The **net show hwstat** command displays the hardware configuration of VIP.

Syntax Description

This command has no arguments or keywords

Example

The following example shows how to display hardware configuration:

```

ITG>net show hwstat <Enter>
***** Hardware Configuration *****
Flash:   type-MX29L1611 32 sectors 64 KB/sector
RAM:     8 MB 512K x 16
LAN:     100 Mbps half duplex. Link UP
TIM slot A: type-FXO2S2 DSP-C5409 codec-PEB2466 Diag-OK
*****
ITG>

```

net set pppoe

The **net set pppoe** command configures PPPoE related parameters while VIP is deployed in PPPoE environment.

Syntax Description

| | |
|-----------------|---|
| on | Turn on PPPoE client |
| off | Turn off PPPoE client |
| username | PPPoE connection username provided by ISP |
| password | PPPoE connection password provided by ISP |
| fix_ip | Fixed IP address provided by ISP |

net set dhcp

net set dhcp command configures VIP to be DHCP client in order to obtain TCP/IP related parameters from ISP while VIP is deployed in DHCP environment.

Syntax Description

| | |
|------------|----------------------|
| <i>on</i> | Turn on DHCP client |
| <i>off</i> | Turn off DHCP client |

net set dyndns

DDNS service can help users to find each other in dynamic/static IP environment, and enable two VIPs call each other with registered host names. To be fully functional, DNS server **MUST** be added into SIP configuration while DDNS service is enabled.

DDNS clients supported in VIP are www.dyndns.org and www.dtdns.com currently.

If VIP DDNS client is enabled, users **MUST** register a DDNS name from the sites listed above before proceeding any further.

Syntax Description

| | |
|------------|----------------------|
| <i>on</i> | Turn on DDNS client |
| <i>off</i> | Turn off DDNS client |

sub commands:

set dyndns add [serv_name] [host_name] [user_name] [password]

Adding applied DDNS name into VIP database.

Note: if multiple DDNS names are inserted, only the first one will be updated.

Syntax Description

| | |
|------------------|---|
| <i>serv_name</i> | DDNS service server (MUST be “ dyndns ” or “ dtdns ” for now) |
| <i>host_name</i> | DDNS name registered from DDNS service provider |
| <i>user_name</i> | Username used to update DDNS account |
| <i>password</i> | Password used to update DDNS account |

set dyndns delete [host_name]all

Delete specified or all DDNS name(s) configured in VIP.

Syntax Description

This command has no arguments or keywords.

6.9 Configuration Management Commands

The configuration management commands allow the user to set values for system configuration parameters. In addition, it provides mechanisms to allow a user to control when new parameter values are put in use.

The CLI maintains three areas where the parameters are stored:

- Temporary
- Active
- Non-volatile Storage (NVS)

When a **set** command is entered and processed, it changes the parameter value in the Temporary area. This does not affect current operation of VIP, which is using the values in the Active area. The **config activate** command moves configuration data from the Temporary area to the Active area, where it can actually be used. Thus a user can make multiple changes in the Temporary area using **set** commands, then put them into use with a single **config activate** command. (Note that the **config activate** command may only be used between calls, and will usually tear down any in-progress calls when invoked.)

Configuration data in the Active area is only available while VIP remains in operation. If VIP is reset, the Active area is reloaded from the data stored in NVS. Data in the Active area may be saved to NVS by entering the **config store** command.

For most of the SIP parameter, settings won't take effect until VIP reset. To ensure the SIP setting to take effect, it is recommended to reset VIP after changing the settings using the **set** command.

In summary:

- Use **set** commands to make configuration parameters changes in the Temporary area
- Use the **config activate** command to move the new values into the Active area, available for use
- Use the **config store** command to save the new Active values in NVS
- Reset VIP after changing SIP settings and storing the setting to NVS.

config {activate|store|erase}

Use the **activate** command to manage the configuration data. A sequence of **set** command is typically preceded by and/or followed by the **config** command for the **set** command to become active.

Syntax description

| | |
|-----------------|--|
| activate | Move the configuration from temporary area to active area. |
| store | Store the active configuration data into non-volatile storage. |
| erase | Erase the configuration from non-volatile storage. |

SIP related commands

show sip

The **show SIP** command displays the settings of the parameter that are related to SIP signaling protocol.

Syntax Description

This command has no arguments or keywords

Example

The following example shows how to display the SIP parameters:

```
ITG>show sip
SIP Addr Configuration:
  UDP ctl addr    = 192.168.0.99/5060
  RTP data addr   = 192.168.0.99/2070
Domain name server = 168.95.192.1
Info switch is off
nat_call is on
auto_reg is off
outboundproxy : None
```

show sip reg

- Displays the information of registration

show sip cfg

- Displays the configuration of registration

show sip proxy

- Displays the configuration of proxy server

show sip dns_ip

- Displays the configuration of DNS server

show sip info_sw

- Displays the information switch

show sip auto_reg

- Displays auto-registration on/off when reboot

show sip nat_call

- Displays nat_call switch

show sip outboundproxy

- Displays the outbound proxy

set sip reg add

- used to add registration information

set sip reg add [reg_num] [expires] [#registrar] [ip] [port] {name | 0} {passwd | 0} {ip port ...}

Syntax description

| | |
|-------------------|---|
| reg_num | the phone number to be registered |
| expires | how long the reg_num is to re-register |
| #registrar | the number of registrar |
| ip | IP of the registrar |
| port | port of the registrar |
| name | [the name for authentication 0 for no authentication] |
| passwd | [the password for authentication 0 for no authentication] |

set sip reg del

- used to delete registration information

set sip reg del [reg_num]

Syntax description

| | |
|----------------|--------------------------------|
| reg_num | the phone number to be deleted |
|----------------|--------------------------------|

set sip cfg

- used to set the configuration of sip

set sip cfg [udp_ctl_port] [rtp_data_port]

Syntax description

| | |
|----------------------|---|
| udp_ctl_port | <udp control port> (0 : default port will be used) |
| rtp_data_port | <rtp data port> (0 : default port will be used) |

set sip proxy

- used to set the configuration of sip

set sip proxy [#proxy_svr] [proxy svr-1 nwa] { proxy svr-2 nwa }...

Syntax description

| | |
|-------------------|--|
| #proxy_svr | number of proxy server 0 to remove existing server |
|-------------------|--|

proxy svr nwa <ip> <port>

set sip actreg

- used to send out the registration

set sip actreg

set sip dns_ip

- used to set the domain name server. The IP domain should be in numerical format

set sip dns_ip [ip]

Syntax description

ip <x.x.x.x> | 0 to remove dns ip

set sip info_sw

- used to set the sip process information switch

set sip info_sw [on/off]

set sip auto_reg

- used to set registration auto start when reboot in the condition of registration server is set

set sip auto_reg [on/off]

set sip nat_call

- used to set nat_call switch on/off whether the gateway in public IP is to receive calls from the private IP or not. The default value is on.

set sip nat_call [on/off]

set sip outboundproxy add

- used to add outbound proxy

set sip outboundproxy add [ip/hostname] [port]

set sip outboundproxy del

- used to delete outbound proxy

set sip outboundproxy del

set sip name [Registrar_ID] [name]

- used to setup SIP Caller ID information. You may use "show sip reg" to show the Registrar ID and setup the corresponding Caller ID parameter. The Caller ID is the [name] field.

6.10 Voice Coding Profile Configuration Commands

Coding profile is used to store coding parameters for voice and fax coding p that can be used by telephony port on VIP. VIP has built-in coding profiles, each having a unique profile ID and parameters for specific voice, fax or modem coder. Among these coding profiles, there are five may be used for voice or fax applications. The following table summarizes coding profiles available for voice and fax applications.

| Coding profile ID | Coder |
|-------------------|------------------------------|
| 0 | G.723 6.3 kbps voice coder |
| 1 | G.729ab voice coder |
| 2 | G723 5.3 kbps voice coder |
| 5 | Proprietary fax coder |
| 6 | G.711 μ -law voice coder |
| 10 | Standard T.38 fax coder |

This session will introduce commands for setting the parameters for a particular coding profile. All the commands in this session are of the same syntax as follows:

```
set coding profile_id option [option] . . .
```

Syntax for the *profile_id* is as follows:

| | |
|-------------------|--|
| profile_id | ID of the coding profile to be modified. |
|-------------------|--|

6.10.1 Common Coding Profile Configuration Commands

set coding profile_id coding_type coding_type

Syntax description

coding_type Type of the codcc as defined in the following table.

| Parameter | Description |
|----------------|-------------------------------------|
| g711_mu | G.711 PCM u-law coding |
| g723_53 | G.723.1 5.3 kbps coding |
| g723_63 | G.723.1 6.3 kbps coding |
| g729ab | G.729 annex A, annex B 8kbps coding |
| fax_t38 | Fax Relay in T.38 mode |

Note: Modification will not take effect till save and next reboot.

set coding profile_id cp_tone_detect {on | off}

This command is used to specify a secondary level of control of call progress tone detection. If the call progress detection control for a telephony port is set to "As per coding profile" (refer to command "[set port port cp_tone_det_ctrl](#)"), this parameter determines if detection is to be enabled or not.

Syntax description

| | |
|------------|---------------------------------------|
| on | Enable call progress tone detection. |
| off | Disable call progress tone detection. |

set coding profile_id fax_tone_detect {on | off}

This command is used to specify a secondary level of control of V.21 fax tone detection. If the fax tone detection control for a telephony port is set to "As per coding profile" (refer to command "[set port port fax_tone_det_ctrl](#)"), this parameter determines if detection is to be enabled or not. For a voice coder, fax tone detection has to be enabled, otherwise, telephony port never switches to fax mode while the voice coder is active. For a fax profile it does not matter if the fax tone detection is enabled or disabled.

Syntax description

| | |
|------------|----------------------------------|
| on | Enable V.21 fax tone detection. |
| off | Disable V.21 fax tone detection. |

set coding profile_id usage {voice | fax} {on | off}**Syntax description**

| | |
|--------------|---|
| Voice | The coding profile is allowed, if the parameter that follows is "on", for being used as voice coder. The coding profile is not allowed, if the parameter that follows is "off", for being used as voice coder. |
| Fax | The coding profile is allowed, if the parameter that follows is "on", for being used as fax coder. The coding profile is not allowed, if the parameter that follows is "off", for being used as fax coder. |

6.10.2 Voice Coding Profile Configuration Commands

set coding profile_id adaptive_playout {on | off}

VIP has built-in voice packet buffer, which allows VIP to remove packet jitter from the incoming packet stream. VIP also implements an adaptive voice packet playback. This command is used to enable/disable the adaptive playback function for a voice coding profile.

Syntax description

| | |
|------------|----------------------------|
| on | Enable adaptive playback. |
| off | Disable adaptive playback. |

set coding profile_id dtmf_relay {on | off}

VIP supports DTMF Relay, in which DTMF tones are detected during voice processing, encoded into SIP-UserInformation packets and conveyed to the remote VIP via the SIP call control band. This command is used to enable or disable the DTMF Relay feature.

Syntax description

| | |
|------------|---|
| on | Detect DTMF tones while voice session is on-going, and send detected DTMF digits to remote gateway via the SIP call control band. |
| off | Do not detect DTMF tones. DTMF tones are compressed and send to remote gateway the same as regular voice frame. |

set coding profile_id max_delay

Voice packets from network may have traversed variable path and each packets have experienced different propagation delay. To ease this phenomenon, VIP has a built-in voice packet buffer, which stores voice packets received from the network. The effect of non-uniform delay among packets is known as jitter. The voice buffer allows VIP to remove the packet jitter from the incoming packet stream before decompressing and sending the packet to telephony port for playing out. This command is used to set the size of voice buffer.

Syntax description

| | |
|--------------|------------------------|
| delay | Value in milliseconds. |
|--------------|------------------------|

Notes

1. The maximum delay should be at least 2 packet times greater than the nominal delay. Refer to command "[set coding profile_id nom_delay](#)" for details about setting nominal delay.
2. The maximum delay for each coder is shown in the following table:

| Coding Type | Maximum Delay |
|--------------------|----------------------|
| G.711 μ -law | 145 ms |
| G.723 | 500 ms |
| G.729AB | 500 ms |

set coding profile_id min_delay

This command is used to set the time each voice packet is stored in the voice packet buffer before VIP playing out the packet. It is only meaningful when the adaptive playback feature is disabled. Refer to "[set coding profile_id adaptive_playout](#)" for details about adaptive playback feature.

Syntax description

| | |
|--------------|------------------------|
| delay | Value in milliseconds. |
|--------------|------------------------|

set coding *profile_id* nom_delay**Syntax description**

| | |
|--------------|------------------------|
| Delay | Value in milliseconds. |
|--------------|------------------------|

set coding *profile_id* vad {on | off}

This command is used to enable/disable the Voice Activity Detector (VAD) for a coding profile.

Syntax description

| | |
|------------|--------------|
| On | Enable VAD. |
| Off | Disable VAD. |

set coding *profile_id* vad_thresh

This command is used to set threshold level for the VAD for a coding profile.

Syntax description

| | |
|------------------|--|
| threshold | Value in dBm, ranging from -20 to +10. |
|------------------|--|

set coding *profile_id* vif

This command is used to set the size of the Voice Information Field (VIF), in bits, for a voice coder.

Syntax description

| Coding type | Sampling time | VIF |
|------------------|---------------|-------|
| G.711 μ -law | 10 ms | 640 |
| | 20 ms | 1,280 |
| | 30 ms | 1,920 |
| G.723 | 30 ms | 192 |
| | 60 ms | 384 |
| | G.729AB | 10 ms |
| | 20 ms | 160 |
| | 30 ms | 240 |
| | 40 ms | 320 |
| | 50 ms | 400 |
| | 60 ms | 480 |

Note:

Size of the Voice Information Field (VIF), in bits, for a voice coder are related to the coding type and the rate the voice coder samples a voice frame (the packet time), as shown in the table above. **VIF sizes of a coder of values other than those shown in the table are not valid.**

6.11 Dial Plan Management Commands

Among the command sets supported by the CLI, the dial plan management commands are the most sophisticated. Some of the dial plan management commands are only allowed when VIP is in the atpm table update state. For ease of explaining, this command set is further categorized into several sub command sets.

| Sub command set | Purposes | Commands | atpm table update state required? |
|------------------------------|---|--|------------------------------------|
| Database update control | <ul style="list-style-type: none"> Instruct VIP to start or stop atpm table update state. Store/restore atpm tables to/from non-volatile storage Purge atpm tables Erase dial plan database from non-volatile storage | atpm req atpm done atpm re-store atpm store atpm purge atpm erase | No No Yes No Yes No |
| Destination table management | Manage atpm destination table | atpm dadd atpm ddel atpm dfind atpm dlist | Yes Yes No No |
| Hunt group table management | Manage atpm hunt group table | atpm hadd atom hdel atpm hfind atpm hlist | Yes Yes No No |
| Address table management | Manage atpm address table | atpm aadd atpm adel atpm afind atpm alist | Yes Yes No No |
| System | Manage atpm system configuration | atpm slist atpm sys | No Yes |

The following sections describe each sub command set and the commands.

Database Update Control Commands

atpm done

The **atpm done** command ends the atpm table update session and re-enables the address translation.

Syntax description

This command has no arguments or keywords

atpm erase

The **atpm erase** command erases the dial plan database from the non-volatile memory.

Syntax description

This command has no arguments or keywords

atpm purge {all|addr|dest|hunt}

Use the **atpm purge** command to delete all entries from the atpm tables.

Syntax description

| | |
|-------------|--|
| all | Delete all entries from atpm address, destination and hunt group tables. |
| addr | Delete all entries from atpm address table. |
| dest | Delete all entries from atpm destination table. |
| hunt | Delete all entries from atpm hunt group table. |

atpm req

The **atpm req** command starts the atpm table update session. Upon starting the atpm table update session, the ATPM address translation is disabled, hence no phone call can be made, until a **atpm done** command is issued.

Syntax description

This command has no arguments or keywords

atpm restore

The **atpm restore** command restores the whole dial plan from non-volatile storage to the atpm address, destination and hunt group tables.

Syntax description

This command has no arguments or keywords

atpm store [erase]

The **atpm store** command store all atpm tables into non-volatile memory.

Syntax description

| | |
|--------------|--|
| erase | (Optional) Erase the non-volatile before storing the dial plan data-base. This option is not recommended except the very first time you use the atpm store command. |
|--------------|--|

Hunt Group Table Management Commands

atpm hadd *hunt_group_id* {1|2} *dest_id* [*desi_id2*] ...

Use the **atpm hadd** command to add an entry into the atpm hunt group table.

Syntax description

| | |
|--|--|
| <i>hunt_group_id</i> | Hunt group ID. For each hunt group, you need to assign it a unique identifier between 1 and 65536. |
| 1 | Hunt type 1. Hunt type 1 hunts destination within a hunt group starting from the destination member just after the last used member. |
| 2 | Hunt type 2. Hunt type 2 hunts destination within a hunt group starting from the first destination member. |
| <i>dest_id1</i> | ID of the first destination member in the hunt group. |
| <i>dest_id2</i> <i>dest_id3</i> ... | (Optional)List of ID's of additional destination members in the hunt group. |

Example

The following example shows how to group destination 1, 2, 3 and 4 into a hunt group, assign it hunt group ID 10, and specify hunt type 2 for this hunt group.

```
ITG>atpm hadd 10 2 1 2 3 4<Enter>
```

atpm hdel *hunt_group_id*

The **atpm hdel** command deletes an entry from the atpm hunt group table.

Syntax description

| | |
|----------------------|---|
| <i>hunt_group_id</i> | ID of the hunt group to be deleted from the hunt group table. |
|----------------------|---|

atpm hfind *hunt_group_id*

The **atpm hfind** finds and display an entry in the hunt group table.

Syntax description

hunt_group_id ID of the hunt group to be displayed.

atpm hlist

The **atpm hlist** display all entries in the hunt group table.

Syntax description

This command has no arguments or keywords

Example

```
ITG>atpm hlist
Group id  Type  #Members  Member ids
-----
  1    2    1    1
  2    2    1    2
  3    2    1    3
  4    2    1    4
  5    2    1    5
  6    2    1    6
  7    2    1    7
  8    2    1    8
 11    2    1   11
OK
ITG>
```

Address Table Management Commands**atpm add tel# min_digits max_digits hunt_group_id prefix_strip_len [prefix#]**

Use the **atpm add** command to add an entry into the atpm address table.

Syntax description

| | |
|-------------------------------|--|
| tel# | Telephone number to match. This is only part of the total dialed string. |
| min_digits | Minimum number of digits to be collected before the ATPM starting matching the dialed string with entries in the address table. |
| max_digits | Maximum number of digits to be collected before the ATPM starting matching the dialed string with entries in the address table. |
| hunt_group_id | Hung group ID for this telephone number |
| pre- fix_strip_len | The number of digits to be stripped at the beginning of the collected dial string before forwarding the string to the destination. |
| prefix# | (Optional) Digit to be added before the beginning of the collected dial string before forwarding it to the destination. |

atpm adel tel#

The **atpm adel** command deletes an entry from the atpm address table.

Syntax description

| | |
|-------------|---|
| tel# | Number of a previously added entry to be deleted from the atpm address table. |
|-------------|---|

atpm afind tel#

The **atpm afind** finds and display an entry in the address table.

Syntax description

| | |
|-------------|---|
| tel# | Number of a previously added entry in the atpm table to be displayed. |
|-------------|---|

atpm alist

The **atpm alist** displays all entries in the address table.

Syntax description

This command has no arguments or keywords

Example

```
ITG>atpm alist
Address      Hunt  Min  Max  Prefix Prefix
Entry       Grp_Id Digits Digits strip Address
201         1    1    3    3    None
202         2    1    3    3    None
203         3    1    3    3    None
204         4    1    3    3    None
ITG>atpm done
OK
ITG>
```

System Commands**atpm slist**

The **atpm slist** displays the atpm system table.

Syntax description

This command has no arguments or keywords

Example


```
ITG>atpm slist
System Info: Total dial time = 30000ms, First digit wait = 10000ms,
             Interdigit wait = 5000ms, Dial term digit = None
OK
ITG>
```

atpm sys dial_time 1st_digit_wait inter_digit_wait [dial_term_digit]

Use the **atpm sys** command to set the time constraints for collection of dial digits.

Syntax description

| | |
|-------------------------|--|
| dial_time | The maximum time, in millisecond, allowed for entry of the entire string of dial digits. At expiration, ATPM starts address lookup. |
| 1st_digit_wait | The maximum time, in millisecond, allowed between off-hook and when the first dial digit is entered. At expiration, ATPM considers address lookup to fail. |
| inter_digit_wait | The maximum time allowed between entry of each digit after the previous digit. At expiration, ATPM starts address lookup. |
| dial_term_digitr | (Optional) End of the dial string is declared when the digit is entered. |

6.12 Tel Commands

tel show pcm_gain_level

The **tel show pcm_gain_level** command to display the gain level setting of the PCM codec's receive channel.

Syntax Description

This command has no arguments or keywords

tel show port [port#]

The **tel show port** command displays the hook state of a telephony port.

Syntax Description

| | |
|--------------|---------------------|
| port# | Number of the port. |
|--------------|---------------------|

Default

If the port number is not specified, the CLI displays hook state of all telephony ports.

tel show ring_freq

The **tel show ring_freq** command to displays the frequency of the ring signal that VIP sends to FXS ports..

tel set pcm_gain_level {1|2|3|4|5}

The FXO ports might be connected to central office switch or PBX via local loop which may of as long as several miles. For compensating signal distortion in the local loop, VIP's PCM codec is designed in such a way that users might adjust it gain level before transmitting analog signal to the local loop. The **tel set pcm_gain_level** command is used to set the gain level for the PCM codec for compensating signal loss in the local loop.

Syntax Description

| | |
|---|-------------------------|
| 1 | Set gain level to -1 dB |
| 2 | Set gain level to 0 dB |
| 3 | Set gain level to +1 dB |
| 4 | Set gain level to +2 dB |
| 5 | Set gain level to +3 dB |

Default

The default setting is -1 dB.

Note

The PCM gain level setting is only meaningful to FXO ports. It is not applicable to FXS ports.

tel set ring_freq {1|2|3|4}

Use the **tel set ring_freq** command to set the frequency of the ringer VIP uses to ring a FXS port.

Syntax Description

| | |
|---|------------------------|
| 1 | Set ring freq to 17 Hz |
| 2 | Set ring freq to 20 Hz |
| 3 | Set ring freq to 25 Hz |
| 4 | Set ring freq to 50 Hz |

Chapter 7 Upgrading and resetting VIP

VIP-450 is able to have system functionality enhancement via software upgrade. This must be operated in upgrade mode. In firmware upgrade mode, limited commands allow users to read new revision codes from a remote TFTP server and write into the built-in flash non-volatile storage.

To enter download mode, either Telnet or Console (RS-232) connection can take the job, and a TFTP server is required by VIP to complete firmware upgrade process.

7.1 Firmware upgrade

To switch from normal operation mode to download mode, use the **download** CLI command.

```
ITG> download <Enter>
```

Note: To be able to switch to download mode from Telnet session, TFTP loader on VIP must be version 3.00 or higher. To upgrade to firmware version 3.03 or above, bootloader version 4.01 or above is required.

After **download** command is inserted, VIP will terminate all on-going calls, reset and enter firmware download mode. If you enter download mode from Telnet session. The Telnet session will be terminated too. You need to re-connect to VIP from Telnet client to be able to access the firmware download mode.

Before going any further, please note: **NEVER, NEVER TURN OFF POWER** while firmware upgrade is working in progress!! (**Please ensure power supply is stable before firmware upgrade is executed.**)

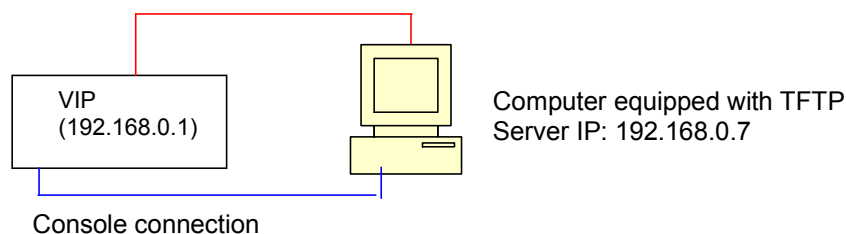
TFTP server is required to complete VIP series firmware upgrade process; there are various TFTP server software on the market, please utilize the existing software or find a new one on the net to complete upgrade process. (In this chapter, 3CDeamon TFTP server was installed for demonstration.)

TCP/IP Configuration:

Computer installed with TFTP server: 192.168.0.7

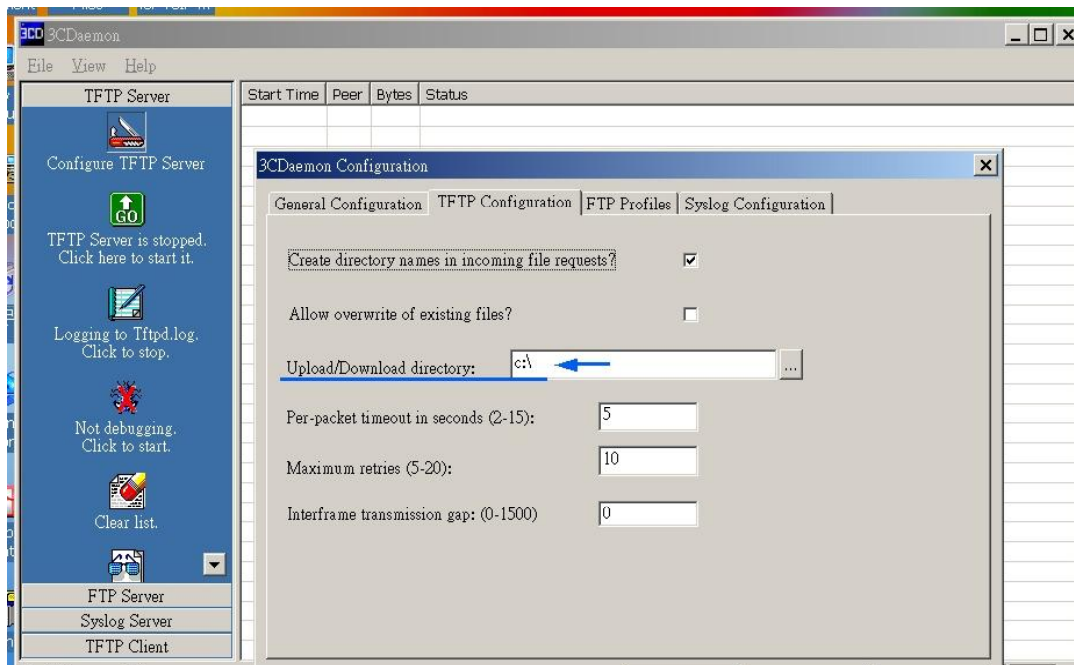
VIP: 192.168.0.1

Note: If a Telnet connection is built behind NAT environment, **TCP port 69 MUST** be reserved for data communication.



TFTP server configuration

1. Execute TFTP server program, assign firmware file location, and save the path if necessary. (In this sample datagram, the file is assigned in c:\) (This part might vary on different kind of TFTP server.)



2. Allocate VIP firmware file in the directory, and apply the modification (if required).

Note: TCP port 69 is required for TFTP access.

VIP configuration:

Telnet session

- a) Under Telnet firmware download mode, the user name: **eitg**; password: **123** (password may vary because of user's configuration) is used for logging on VIP
- b) Under ITG> prompt, insert command: **download** to enter VIP firmware upgrade mode.
- c) Insert command: **start** and answer questions on screen to proceed firmware upgrade.
- d) When VIP prompts downloading firmware file into EEPROM, insert **y** to continue.
- e) Wait till firmware is fully loaded into VIP, insert **quit** to leave firmware upgrade mode and answer **y** to reboot machine when VIP prompts for restart.

```
ITG>download
===== WARNING =====
* Entering download mode will hang up all telephone connections *
* and all the configuration settings will lose. *
* Be certain all the configuration settings have been saved. *
=====

Do you want to enter download mode now (y/n)? [n] y

Boot loader V4.12
Loading TFTP loader.....
** Internet Telephony Gateway TFTP Loader Ver 4.10 **
EITGLoader>start

IP address of the TFTP server? [192.168.0.254] 192.168.0.7
File name? xyz123.imz

Starting download file: xyz123.imz
.....
Download complete, file size = 833004
Application code downloaded successfully
Do you want to write downloaded image to flash EEPROM (y/n)? [y] y
Press <Enter> to start flash EEPROM programming
Flash EPROM programming on-going, BE CERTAIN NOT TO TURN POWER OFF...
Flash sector no. 4 write done
Flash sector no. 5 write done
Flash sector no. 6 write done
Flash sector no. 7 write done
Flash sector no. 8 write done
Flash sector no. 9 write done
Flash sector no. 10 write done
Flash sector no. 11 write done
Flash sector no. 12 write done
Flash sector no. 13 write done
Flash sector no. 14 write done
Flash sector no. 15 write done
Flash sector no. 16 write done
Flash EEPROM programming completed
All sectors programmed successfully
Download another file (y/n)? [n] n
EITGLoader>quit

Do you want to restart the system now (y/n)? [n] y
```

Console session

- a) Connect VIP through the 9-pin RS232 female console (No password required)
Under ITG> prompt, insert command: **download** to enter VIP firmware upgrade mode.
- b) Insert command: "**start**" and answer questions on screen to proceed firmware upgrade.
- c) When VIP prompts downloading firmware file into EEPROM, insert "**y**" to continue.
- d) Wait till firmware is fully loaded into VIP, insert "**quit**" to leave firmware upgrade mode and answer "**y**" to reboot machine when VIP prompts for restart.

```

ITG>download
===== WARNING =====
* Entering download mode will hang up all telephone connections *
* and all the configuration settings will lose. *
* Be certain all the configuration settings have been saved. *
=====

Do you want to enter download mode now (y/n)? [n] y

Boot loader V4.12
Loading TFTP loader.....
** Internet Telephony Gateway TFTP Loader Ver 4.10 **
EITGLoader>start

IP address of the TFTP server? [192.168.0.254] 192.168.0.7
File name? xyz123.imz

Starting download file: xyz123.imz
.....
Download complete, file size = 833004
Application code downloaded successfully
Do you want to write downloaded image to flash EEPROM (y/n)? [y] y
Press <Enter> to start flash EEPROM programming
Flash EPROM programming on-going, BE CERTAIN NOT TO TURN POWER OFF...
Flash sector no. 4 write done
Flash sector no. 5 write done
Flash sector no. 6 write done
Flash sector no. 7 write done
Flash sector no. 8 write done
Flash sector no. 9 write done
Flash sector no. 10 write done
Flash sector no. 11 write done
Flash sector no. 12 write done
Flash sector no. 13 write done
Flash sector no. 14 write done
Flash sector no. 15 write done
Flash sector no. 16 write done
Flash EEPROM programming completed
All sectors programmed successfully
Download another file (y/n)? [n] n
EITGLoader>quit

Do you want to restart the system now (y/n)? [n] y

```

Trouble Shooting Tips

If following error (**TFTP timeout error**) occurs:

```
** Internet Telephony Gateway TFTP Loader Ver 4.10 **
EITGLoader>start

IP address of the TFTP server? [192.168.0.7]
File name? xyz123.imz

Starting download file: xyz123.imz
TFTP device open failed. - TFTP server timeout while waiting for a response from the client.
Download another file (y/n)? [n]
```

Possibility:

- a) Network connection is not correctly configured
 - check if cable is securely connected.
 - check if TFTP server IP address is correctly configured
 - check if TCP port 69 is available for TFTP connection
 - if firmware upgrade is processed remotely, a fast connection between VIP and TFTP server is required (ping response time <300 ms)

During firmware upgrade, "**protocol error detected**" displays on the screen.

```
** Internet Telephony Gateway TFTP Loader Ver 4.10 **
EITGLoader>start

IP address of the TFTP server? [192.168.0.7]
File name? xyz123.imz

Starting download file: xyz123.imz
TFTP device open failed. - Protocol error detected.
Download another file (y/n)? [n]
```

- a) In most circumstances, this error occurs while requested firmware file cannot be found on TFTP server.

Possibility:

- check if the firmware file is correctly located in assigned folder.
- check if TFTP server supports long file name format.
- check if firmware file name is correctly inserted
- check system log on TFTP server if there is error message for trouble shooting.

7.2 CLI Commands in Download Mode

Under download mode, the CLI supports the following commands:

| Command | Description |
|--------------|---|
| help | Display help screen |
| quit | Terminate download mode, switch to normal operation mode. |
| set | Change IP parameter |
| start | Start downloading code from TFTP server |

The following section describes each of the commands.

help

The **help** command lists the top-level commands.

quit

The **quit** command is used to terminate the download mode and return to normal operation mode.

Syntax Description

This command has no arguments or keywords

Note

Switching mode from Telnet session will terminate current active session. You'll need to connect to VIP again to be able to access the CLI.

set ip ip_addr

Use the **set ip** command to assign a static IP address to VIP.

Syntax description

| | |
|----------------|------------------------|
| ip_addr | The IP address of VIP. |
|----------------|------------------------|

Note

The new IP address will not take effect until VIP is reset.

set gateway ip_addr

Use the **set gateway** command to assign a default gateway (router) for VIP. The default gateway routes packet data outside or your IP subnet.

Syntax description

| | |
|----------------|---|
| ip_addr | The IP address of the default gateway. Default value: 0.0.0.0 |
|----------------|---|

Note

The new setting will not take effect until VIP is reset.

set mask *ip_mask*

Use the **set mask** command to set the IP subnet mask for VIP.

Syntax description

| | |
|-----------------------|----------------------------------|
| <i>ip_mask</i> | The subnet mask of your network. |
|-----------------------|----------------------------------|

Note

The new setting will not take effect until VIP is reset.

start

Use the **start** command to start downloading code from TFTP server. VIP will prompt you for the IP address of the TFTP server and the file to download.

7.3 Restore default configuration

If there is system re-organization, firmware upgrade or improper parameters are loaded in VIP-450, restoring factory default settings may help you to restore initial state of machine and restart configuration.

Following are steps loading VIP series default parameters:

Note: restore process in this session only can be applied to firmware version 3.xx)

System configuration default parameters

- Logon VIP via telnet or console connection, and insert command: **config erase**
- After this command, VIP pops up a warning message and prompts for confirmation.
- Press "y" to erase current system configuration parameters,
- Enter **net reset** to reboot and load the default system parameters into machine.
- Log on VIP, and insert command: **config store** to load factory default parameters into VIP.

A sample is attached below for reference.

```
ITG>config erase
```

```
The system configuration data will be erased from non-volatile storage permanently.
```

```
Are you sure to erase it (y/n)? [n] y
```

```
System configuration records erased from flash
```

```
ITG>net reset
```

```
===== WARNING =====  
* Restarting the system will hang up all telephone connections *  
* and all the configuration settings will lose. *  
* Be certain all the configuration settings have been saved. *  
=====
```

```
Do you want to restart the system now (y/n)? [n] y
```

```
Boot loader V4.12
```

```
Mem 16b 16M
```

```
Loading application code.....
```

```
***** Internet Telephony Gateway (PLA) Version s1.0 *****
```

```
***** Hardware Configuration *****
```

```
Flash: type-MX29L1611 32 sectors 64 KB/sector
```

```
RAM: 8 MB 512K x 16
```

```
LAN: auto-negotiation on-going. Link DOWN
```

```
TIM slot A: type-FXO2S2 DSP-C5409 codec-PEB2466 Diag-OK
```

```
*****
```

```
ITG>config store
```

```
OK
```

```
ITG>
```

Dialplan configuration default parameters:

- a) Log on VIP via telnet or console connection.
- b) At the ITG prompt, insert following commands:
 ITG>**atpm erase**

ITG>**net reset** (Answer "y" to reboot machine.)

After rebooting, logon VIP. At the ITG> prompt, insert: **atpm store** to restore Dialplan default value into VIP.

A sample is attached below for reference.

```

ITG>atpm erase

The dial plan will be erased from non-volatile storage permanently.

Are you sure to erase it (y/n)? [n] y
Dial plan erased from flash
OK
ITG>net reset

===== WARNING =====
* Restarting the system will hang up all telephone connections *
* and all the configuration settings will lose. *
* Be certain all the configuration settings have been saved. *
=====
Do you want to restart the system now (y/n)? [n] y

Boot loader V4.12
Mem 16b 16M
Loading application
code.....

***** Internet Telephony Gateway (PLA) Version s1.0 *****

***** Hardware Configuration *****
Flash: type-MX29L1611 32 sectors 64 KB/sector
RAM: 8 MB 512K x 16
LAN: auto-negotiation on-going. Link DOWN
TIM slot A: type-FXO2S2 DSP-C5409 codec-PEB2466 Diag-OK
*****

ITG>No dial plan info can be found in the Flash, the default dial plan is used but NOT saved.
OK

ITG>atpm store

OK
    
```


Appendix A Technical Specifications

A.1 VIP Technical Specifications

| | |
|---|--|
| Telephony Interface Module support | VIP-450: 2 ports loop start FXO, 2 ports loop start FXS VIP-050: 4 ports loop start FXO, 4 ports loop start FXS (Up to two modules per unit) |
| Network Interface Ports | 1 10/100Base-T, auto sensing, RJ45 |
| Voice codec support | G.711 PCM 64kbps (A-law and μ -law) G.723.1A ACELP/M-MLQ (5.3, 6.3kbps) G.729AB CS-ACELP (8kbps) |
| Fax | ITU-T V.21, V.27ter, V.29, V.33 and V.17 |
| Fax over IP protocol | T.38 Proprietary low bandwidth protocol |
| Echo cancellation | G.168 compliant, 16 ms tail length |
| Simultaneous connection | VIP-450: 4 channels voice/fax VIP-050: 8 channels voice/fax |
| Voice processing | Voice activity detection DTMF detection/generation Echo cancellation Comfort noise generation Call progress detection Gain control |
| Call control | SIP 2.0 (RFC3261) |
| Management | Built HTTP server allowing management from web browser Command line interface allowing management from VT-100 terminal or Telnet client |
| Software upgrade | Flash memory and built-in TFTP allowing software upgrade via network |
| Power | VIP-450: AC-to-DC power supply, 90-260 VAC, 50-60 Hz VIP-050: 90-240 VAC, 20 Watts, 50-60 Hz |
| Environmental | Operating temperature: 0° to 45° C (32° to 113° F) Storage temperature: -10° to 65° C (-4° to 149° F) Humidity: 10% to 85% (non-condensing) |
| Dimension (L x W x D) | VIP-450: 150 x 220 x 44 (mm) VIP-000: 445 x 275 x 44 (mm) |

| | |
|--------------------|---|
| Compliances | EMI FCC Part 15 Class A EN55022 Class A (CISPR-22 Class A) VCCI Class A CE Safety UL 1950 CE |
| Mounting | VIP-450: Desktop VIP-000: Desktop or 19" rack mounting |

A.2 Console Port

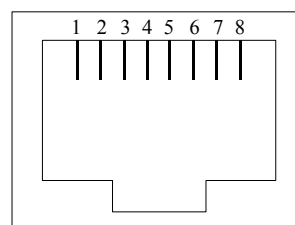
The console port uses a DB-9 RS-232 connector. The supplied straight-through RS-232 cable connects the console port of VIP to a console PC or terminal. Pinout for the port is described in the following table.

| DB-9 pin | Signal |
|----------|---------------|
| 1 | Not connected |
| 2 | TxD |
| 3 | RxD |
| 4 | Not connected |
| 5 | Ground |
| 6 | Not connected |
| 7 | Not connected |
| 8 | Not connected |
| 9 | Not connected |

A.3 LAN Port

The 10/100 LAN port use standard RJ-45 connector and Ethernet pinouts. The following diagram and table show the pinout on the port connector. When connecting the LAN port to switches or repeaters, you must use a straight-through cable.

| RJ45 pin | Signal |
|----------|---------------|
| 1 | RxD+ |
| 2 | RxD- |
| 3 | TxD+ |
| 4 | Not connected |
| 5 | Not connected |

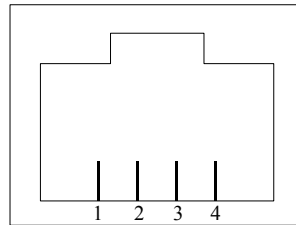


| | |
|---|---------------|
| 6 | TxD- |
| 7 | Not connected |
| 8 | Not connected |

A.4 FXO Port Pin Assignments

The FXO Telephony Interface Module has 4 RJ11C/W modular jacks. The following diagram and table show the assignments of the pin for the RJ11 port.

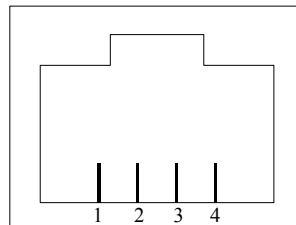
| RJ-11 pin | Signal |
|-----------|---------------|
| 1 | Not connected |
| 2 | Tip |
| 3 | Ring |
| 4 | Not connected |



A.5 FXS Port Pin Assignments

The FXS Telephony Interface Module has 4 RJ11C/W modular jacks. The following diagram and table show the assignments of the pin for the RJ11 port.

| RJ-11 pin | Signal |
|-----------|---------------|
| 1 | Not connected |
| 2 | Tip |
| 3 | Ring |
| 4 | Not connected |



A.6 FXO Card Technical Specifications

| Signaling: | Loop Start / DTMF |
|-------------------------|---------------------------------------|
| No. of channels: | 4 |
| Interface Connectors: | 4 RJ-11 2-pin modular jacks. |
| Line Impedance : | 600 Ω 900 Ω |
| Insertion Loss: | 2 dB nominal. |
| Frequency Response: | 300Hz ~ 3400Hz +/- 2dB w.r.t. 1004Hz. |
| Return Loss: | ≥ 18 dB |
| Input Level adjustment: | -6 dB to +6 dB |
| Output Attenuation: | 0 dB to 13 dB |
| Longitudinal Balance: | ≥ 45 dB |

A.7 FXS Card Technical Specifications

| Signaling: | Loop Start / DTMF |
|-------------------------|---------------------------------------|
| No. of channels: | 4 |
| Interface Connectors: | 4 RJ-11 2-pin modular jacks. |
| Line Impedance : | 600 Ω 900 Ω |
| Insertion Loss: | 2 dB nominal. |
| Frequency Response: | 300Hz ~ 3400Hz +/- 2dB w.r.t. 1004Hz. |
| Return Loss: | ≥ 18 dB |
| Input Level adjustment: | -6 dB to +6 dB |
| Output Attenuation: | 0 dB to 13 dB |
| Longitudinal Balance: | ≥ 45 dB |
| Loop Current: | 25mA nominal |
| Ring Voltage: | 50Vrms Nominal |
| Ring Tone: | 16.67Hz, 20Hz(default), 25Hz or 50Hz |

Appendix B CLI Commands

B.1 Normal Mode Commands

| Command | Description |
|-----------------|--|
| atpm aadd | Add an entry to the address table |
| atpm adel | Delete an entry from the address table |
| atpm afind | Find and display an entry in the address table |
| atpm alist | Display all entries in the address table |
| atpm dadd | Add an entry to the destination table |
| atpm ddel | Delete an entry from the destination table |
| atpm dfind | Find and display an entry in the destination table |
| atpm dlist | Display all entries in the destination table |
| atpm hadd | Add an entry to the hunt group table |
| atpm hdel | Delete an entry from the hunt group table |
| atpm hfind | Find and display an entry in the hunt group table |
| atpm hlist | Display all entries in the hunt group table |
| atpm done | End the atpm table update session |
| atpm erase | Erase all atpm tables from NVS |
| atpm purge | Purge entries from atpm table(s) |
| atpm req | Start atpm table update session |
| atpm restore | Restore atpm tables from NVS |
| atpm store | Store atpm tables into NVS |
| atpm slist | Display atpm system parameters |
| atpm sys | Set atpm system parameters |
| config activate | Move the configuration from temporary area to active area. |
| config erase | Erase the configuration from NVS |
| config store | Store the active configuration data into NVS |
| clrscr | Clear screen |
| download | Switch to download mode |
| help | Display help screen |

| | |
|-------------------------|--|
| net reset | Reset the system |
| net set gateway | Set default gateway's IP address |
| net set http | Turn on/off HTTP server |
| net set ip | Set IP address |
| net set ip_preced | Set IP precedence bits |
| net set mask | Set IP subnet mask |
| net set speed | Select Ethernet link speed |
| net set user_pw | Set password |
| net show | Display IP parameters |
| net show hwstat | Display hardware status |
| ping | Send ICMP echo request to another host |
| show sip | Display SIP parameter settings |
| show version | Show software versions |
| set sip | Setup SIP related parameters |
| tel show pcm_gain_level | Display gain level setting of the PCM codec's receive channel. |
| tel show port | Display hook state for a telephony port |
| tel show ring_freq | Show ringer's frequency |
| tel set pcm_gain_level | Set gain level for the PCM codec's receive channel |
| tel set ring_freq | Set ringer's frequency |

B.2 Download Mode Commands

| Command | Description |
|--------------|-----------------------------------|
| help | Display help screen |
| quit | Switch to normal operation mode |
| set gateway | Set default gateway 's IP address |
| set ip | Set IP address |
| net set mask | Set IP subnet mask |
| start | Start downloading file |

Appendix C Factory Default Settings

The following table lists the settings of certain parameters before VIP is shipped.

| Parameter | Default Setting |
|---|-------------------------|
| Network | |
| IP address | 192.168.0.1 |
| IP subnet mask | 255.255.255.0 |
| Default gateway | 0.0.0.0 |
| IP precedence | 0 |
| Ethernet link speed | 10/100 auto-negotiation |
| User ID for HTTP browser and Telnet client login | administrator |
| Password for HTTP browser and Telnet access login | 123 |
| User name for Telnet session in download mode | eitg |
| Password for Telnet session in download mode | 123 |
| HTTP server | On |
| Telnet server | On |
| Serial port (Fixed) | |
| Baud rate | 19,200 |
| Number of data bit | 8 |
| Parity check | None |
| Number of stop bit | 1 |
| Voice codec | |
| Preferred voice codec | G.723 6.3kbps |
| TxVIF size (default voice codec=g.723) | 192 |
| RxVIF size (default voice codec=g.723) | 192 |
| VAD | Enabled |
| Playout nominal delay | 120 ms |
| Playout maximum delay | 240 ms |
| Playout minimum delay | 0 ms |
| Fax tone detect | Enabled |
| Call Progress Tone detect | Enabled |
| Telephony | |
| PCM codec receiver gain for FXO ports | -1 dB |
| Ringer frequency for FXS ports | 17 Hz |