USER'S MANUAL

VoIP Gateway

Venus Series MGCP

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About This Manual

This section guides users on how to use the manual effectively. The manual contains information needed to install, configure, and operate TAINET's VENUS Series VoIP Gateway. The summary of this manual is as follows:

Symbols Used in This Manual

3 types of symbols may be used throughout this manual. These symbols are used to advise the users when a special condition arises, such as a safety or operational hazard, or to present extra information to the users. These symbols are explained below:

Warning:

This symbol and associated text are used when death or injury to the user may result if operating instructions are not followed properly.

Caution:

This symbol and associated text are used when damages to the equipment or impact to the operation may result if operating instructions are not followed properly.

Note:

This symbol and associated text are used to provide the users with extra information that may be helpful when following the main instructions in this manual.

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Chapter 1. Overview

1.1   Product Overview

TAINET VENUS Series, a critical part of the Next Generation Network (NGN), functions as an interface gateway unit between the legacy Public Switched Telephone Network (PSTN) and the IP packet network by performing the conversion of the analog voice traffic to/from the IP-based media stream.

VENUS Series is a high port density Voice-over-IP (VoIP) Media Gateway (MG) that provides cost-effective and quality voice service over global IP packet network (Internet or Intranets) for end-users, and, in the meanwhile, lowers the installation and maintenance effort. With analog voice interface connecting to user's existing telephone handset or PABX, and the Ethernet interface connecting to the service providers' IP network, VENUS Series bridges the PSTN and IP network.

VENUS Series supports Media Gateway Control Protocol (MGCP), which complies with IETF RFC2705 MGCP V0.1 and V1.0 standard. Leading vendor's SoftSwitch solutions supporting MGCP signaling protocol are inter-operable with VENUS Series. By integrating the SoftSwitch solution together with the VENUS Series, service providers or telecom companies are able to provision integrated voice and data service over the IP network to their customers. Features like billing, accounting and network management supported by the SoftSwitch are available as well.

VENUS Series provides the following services and functions:

- Support MGCP protocol, which complies with IETF RFC 2705 MGCP V0.1 and V1.0 standard.

- Acting as a MGCP client or the so-called Media Gateway (MG), VENUS Series is inter-operable with MGCP compliant Media Gateway Controller (MGC) or MGCP Call Manager (usually embedded within a SoftSwitch or a

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Signaling Gateway) for deployment of VoIP solutions for service providers, telecomm companies, small to medium sized enterprises, international branch offices, Multi-Tenants Units/Multi-Dwellings Units (MTU/MDU) markets, or residential home users.

- Venus 2832 Series support up to 32 analog voice interfaces for traditional POTS (Plain Old Telephone System) equipments (telephone handset, FAX machines, … etc).

- Modularized analog FXS (Foreign Exchange Station) or FXO (Foreign Exchange Office) telephony cards provide 8, 16, 24, or 32 telephone interfaces for various customers. Each telephone interface can drive at least three telephone handsets through up to 3000 meters (10K feet) of 24 AWG copper lines.

- Support ITU-T standard voice codecs.

- Apply quality VoIP technologies including: Real-time voice packet encapsulation and voice play-out based on the Real-Time Protocol (RTP), Adaptive Jitter Buffer, Echo Cancellation（ITU-T G.168 / 165），Compensation for Loss of Packet, Voice Activity Detection (VAD) and Silence Suppression.

- Support T.30 Transparent FAX service or T.38 FAX Relay.

- Under control of the MGCP Call Manager, supplemental Class 5 features like Call Forwarding, Caller ID Display/Blocking, Call Returning, Speed Dial, Call Waiting, Call Transfer, Voice Message Indication, Direct Inward Dialing (DID), and 3-way Conferencing… etc can be easily supported.

- Use static IP address assignment or obtain the dynamic IP address from a DHCP (Dynamic Host Configuration Protocol) Server or BootP (Bootstrap Protocol) Server.

- Provide DHCP server function on LAN port.

- Provide PSTN life-line feature as backup.

- Support PPPoE function (Point-to-Point Protocol over Ethernet), NAT/NAPT function (Network Address Translation/Netwrok Address Port Translation), port-based VLAN, VLAN ID and priority tagging, and QoS function that including IEEE 802.1p and IEEE 802.1Q

- Support RFC-2833 RTP payload for DTMF Digits, Telephony Tones and Telephony Signals

- Provide Terminal User Interface via the console port or TELNET for easy and quick local or remote configuration and monitoring.

- Web-based management through a web browser to remotely setup the gateway configuration, activate the software upgrade or maintain the user account.

- Provide SNMP MIB for integrating into service providers' SNMP management system.

- Support TFTP protocol for remote software upgrade and configuration file download.

- User Interface is protected with User ID and Password from unauthorized users.

- Provide two user accounts with two levels of access privilege.

- Provide enhanced device and service registration and authentication mechanism by inter-operating with leading vender's Authentication Server and SoftSwitch Server.

- Compact 1U-High desktop unit with ear brackets for mounting up to a 19" shelf.

Note:

Through out this User's Manual, the term "MGCP Call Manager", or "SoftSwitch" are used to represent the MGCP Media Gateway Controller (MGC), which is also commonly called as the "MGCP Call Agent".

1.2   Applications

VENUS Series, designed as a desktop or rack-mount unit, can be easily installed in a telecommunication equipment room of a building. It uses the standard 10/100 Base-T Ethernet to connect to the service providers' IP backbone through the router or data communication equipment. Up to 32 traditional telephone handsets or FAX machines located in the rooms at each floor of the building can be connected to the VENUS Series telephone ports using copper wires (Figure 1-1). With advanced MGCP protocol and various management features supported on VENUS Series, service providers or telecomm companies can provide toll-quality voice service to the customers. The deployment of an intelligent IP packet network for integrated data and voice service with billing, accounting, and management features can be soon built up.
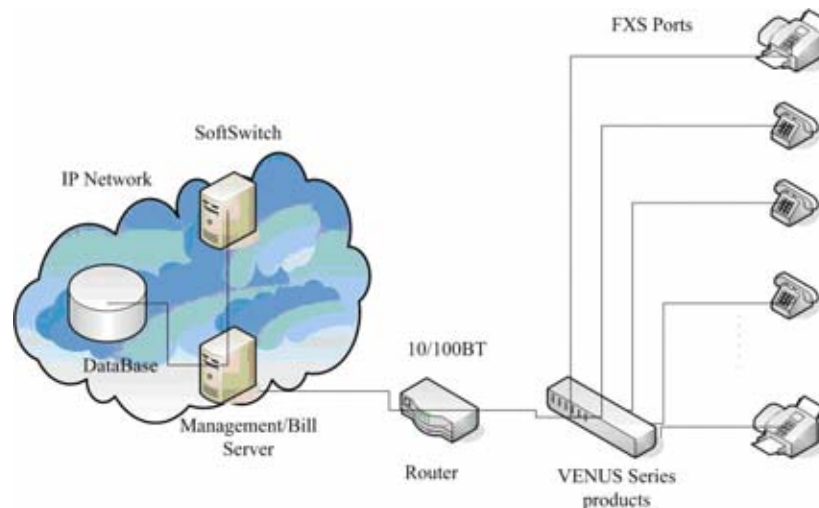
Figure 1-1 -Typical MGCP VoIP Application

MGCP protocol splits the signaling features into two parts: the Media Gateway (MG) and the Media Gateway Controller (MGC). VENUS Series, acting as a MG device, is controlled by the SoftSwitch (MGC) to convert the telephony signals to MGCP messages and the audio wave to voice packets. Each VENUS Series has to be registered on the SoftSwitch (or the Database) in advance in order to provide the service. SoftSwitch records media gateway's location (the IP address) and the identification (the logic name), maintains the Call Routing table for mapping a POTS port of a Media Gateway to the designated Telephone Number. When user dials a telephone number, SoftSwitch, behaving like a traditional PSTN (Public Switched Telephone

Network) Switch, looks up in the call routing table to find out and communicate with the destination MG to establish the voice path between the two MGs over the IP network.

Large or median sized enterprises are able to build-up the high quality, cheap or free, private voice service based on the Intranet or Extranet network by deploying VENUS Series units at corporate HQ and local branch offices. The VENUS Series communicates with the SoftSwitch installed at corporate HQ through managed IP leased line, such as DDN (Digital Data Network) leased line or VPN (Virtual Private Network) network. With the scalable voice capacity feature provided by VENUS Series, enterprises can install proper amount of telephone interfaces for each branch (Figure 1-2).
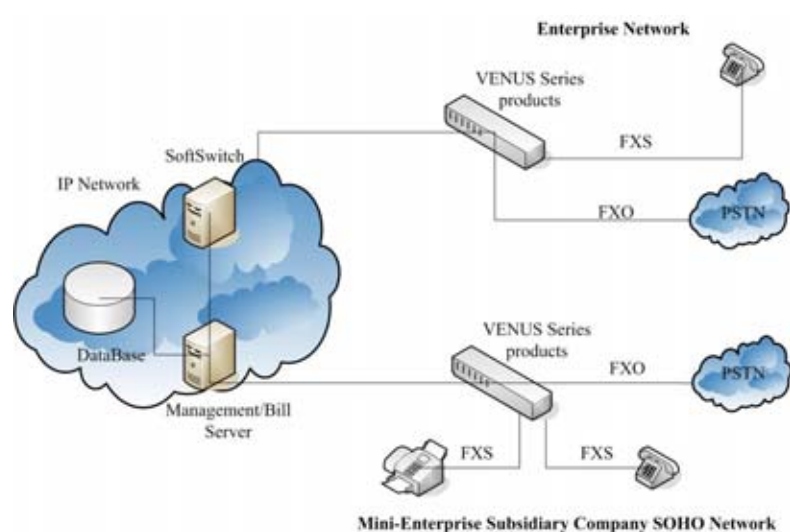
Figure 1-2 - Enterprise VoIP Intranet Application

For the Multi-Tenants Units (MTU) or Multi-Dwelling Units (MDU) markets, such as a hotel or campus, VENUS Series performs as a voice access platform to accommodate the voice-over-IP traffics from all the users. Thanks to the convenience of adding new Ethernet nodes, new VENUS Series units can be installed easily to extend the amount of users. To support more VENUS Series media gateway allows service providers to provide cost effective and quality voice services with minimum capital investment and maintenance cost.
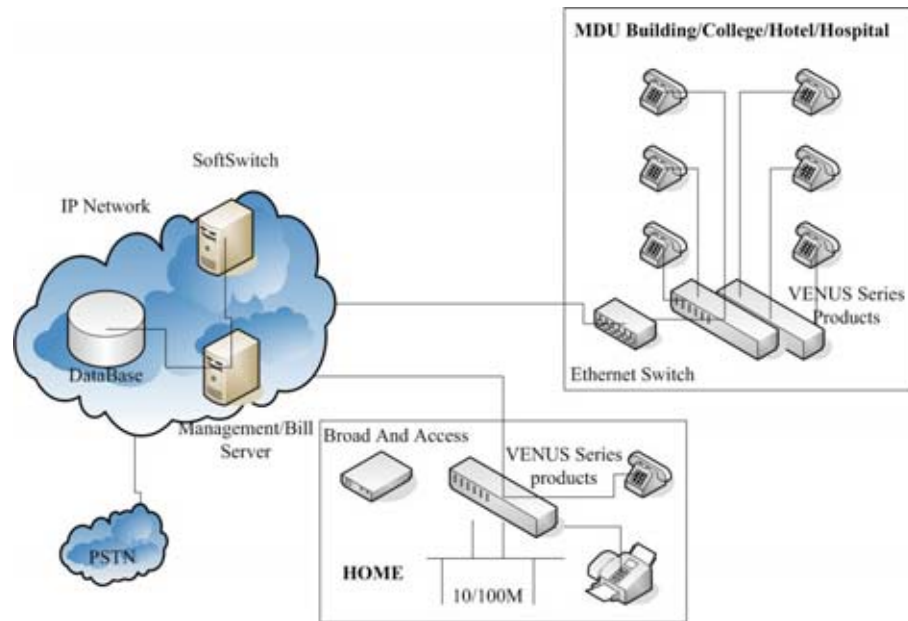
Figure 1-3 - MTU/MDU Application

The advantages of using VENUS Series, the high port density CPE (Customer Premise Equipment) Media Gateway, are

■   Lower installation effort

■   Easier maintenance

■   Competitive per port price

■   High voice quality

■   Available feature extension

■   Consuming less public IP addresses which are valuable resources

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1.3   Product Description

1.3.1   Hardware Architecture

VENUS 2832 Series is a compact sized, 1U high desktop VoIP Gateway, and is installable onto a standard 19" Rack. Sub-series letter "A" is for 100~230V AC power and "D" for -36~ -72V DC power. Installation guide can be found in Chapter 3.

VENUS 2832A/D has two I/O slots for Voice Modules (Support up to 32 Voice ports); there is single Ethernet I/F on front panel.

Figure 1-4 - The Front View of VENUS 2832A and 2832D

Figure 1-5 - The Rear View of VENUS 2832A

Figure 1-6 - The Rear View of VENUS 2832D

VENUS 2832A+/D+ has three I/O slots on the back panel, two for Voice Modules (Support up to 32 Voice ports) and one for Ethernet I/F module.

Figure 1-7 - The Front View of VENUS 2832A+ and 2832D+
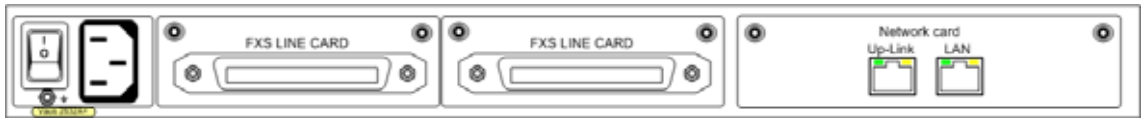
Figure 1-8 - The Rear View of VENUS 2832A+
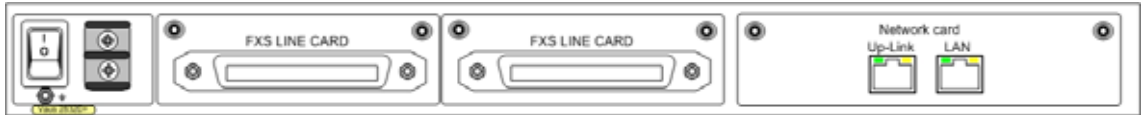
Figure 1-9 - The Rear View of VENUS 2832D+

VENUS 2832AE+/DE+ is an elite base unit that has three I/O Slots on the back panel, only one is for Voice Modules (Support up to 16 Voice ports) and one for Ethernet I/F module. The slot three is unused.
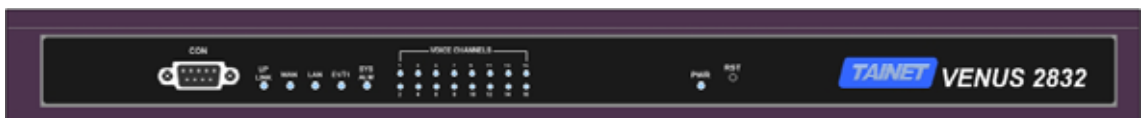
Figure 1-10 - The Front View of VENUS 2832AE+ and 2832SDE+
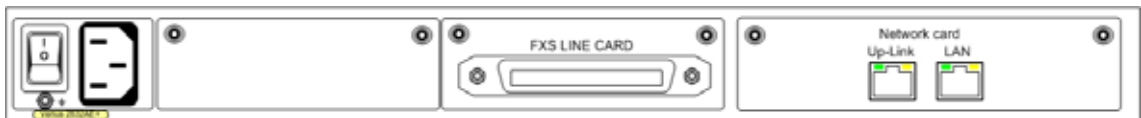
Figure 1-11 - The Rear View of VENUS 2832AE+
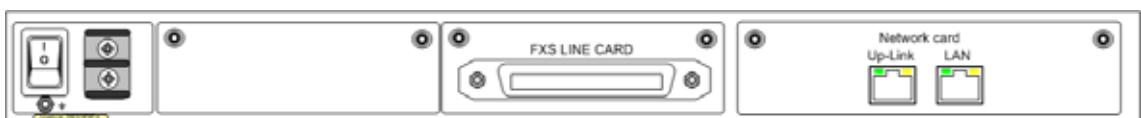
Figure 1-12 - The Rear View of VENUS 2832DE+

VENUS 2816 is an economical VoIP Gateway with AC power; build-in 16 channels Voice Processing capacity.

Figure 1-13 – The Front View of VENUS 2816

Figure 1-14 – The Rear View of VENUS 2816

VENUS 2808/2808+ is a compact standalone VoIP Gateway with AC power; built-in 8 channels Voice Processing capacity and 1 PSTN port for dial-line backup.

Figure 1-15 - The Front and Rear View of VENUS 2808/2808+

VENUS 2804+ is a SOHO VoIP Gateway with AC-DC power adaptor; built-in 4 channels Voice Processing capacity and 1 PSTN port for dial-line backup.

Figure 1-16 - The Front and Rear View of VENUS 2804+

1.3.1.1   VENUS Series Base Unit

- VENUS 2832A / 2832A+ / 2832AE+ /2816 / 2808+ / 2808: Base Unit with AC power supply

- VENUS 2832D+/2832DE+/2804+: Base Unit with DC power supply

1.3.1.2   Voice Modules

- FXS-8：8-port FXS analog voice module with 50-pin RJ-21 Telecom Connector

- FXS-8A：8-port FXS analog voice Add-On module

- FXO-8：8-port FXO analog voice module with 50-pin RJ-21 Telecom Connector

- FXO-8A：8-port FXO analog voice Add-On module

The analog telephone interface is supported by VENUS Series. Figure 1-17 shows the FXS-8 Voice Module which provides 8 FXS ports for connecting to the telephone handsets. Additional FXS-8A add-on Module can be mounted on to the FXS-8 Voice Module for capacity extension to provide total of 16 FXS ports, as illustrated in Figure 1-18.

Figure 1-19 shows the FXO-8 Voice Module which provides 8 FXO ports for connecting to the telephone handsets. Additional FXO-8A or FXS-8A add-on Module can be mounted on to the FXO-8 Voice Module

Remark：

The FXS-8A / FXO-8A Add-on module is the capacity extension module to be mounted onto the FXS-8 / FXO-8 voice module for increasing voice capacity to 16 FXS / FXO interface. With 2 sets of FXS-8 / FXO-8 plus FXS-8A / FXO-8A card installed in slot#3 and slot#4, total of 32 POTS ports can be provided.

FXO-8 module can carry FXO-8A or FXS-8A add-on module, but FXS-8 module can carry FXS-8A module only. The FXS-8 cannot carry FXO-8A module
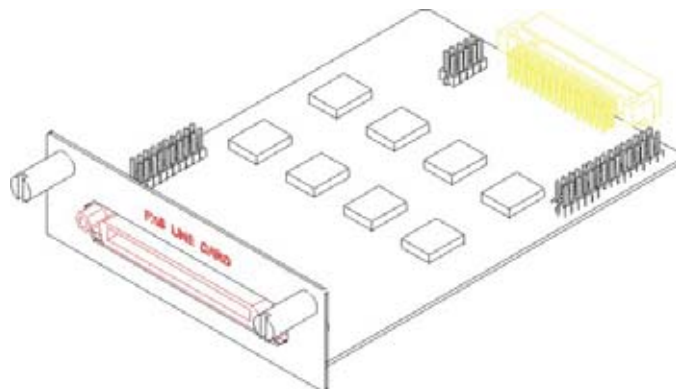
Figure 1-17 - The 8-port FXS Module (FXS-8)
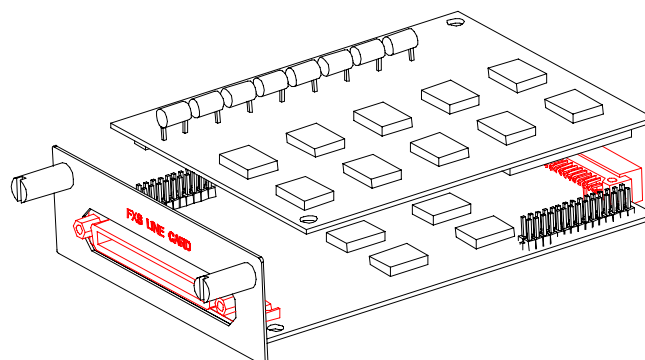
Figure 1-18 - The FXS-8 with a FXS-8A Add-on Module Mounted on the Top
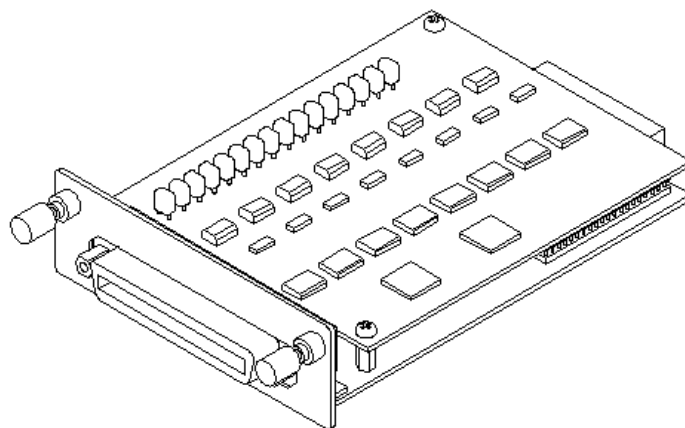
Figure 1-19 - The FXO-8 Module with an Add-on Module Mounted on the Top

1.3.1.3   Ethernet Switch Modules

■   UTP-1：Single port Fast Ethernet (10/100BaseTX) card

■   UTP-2：Dual-port Fast Ethernet (10/100BaseTX) Switch card, with QoS and VLAN support

■   UTP-2F：Single Fiber Optical Fast Ethernet and single 10/100BaseTX Ethernet Port
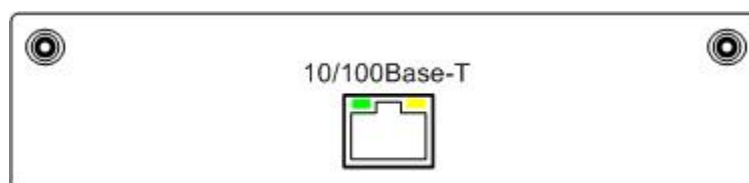
Figure 1-20 - UTP-1 Module
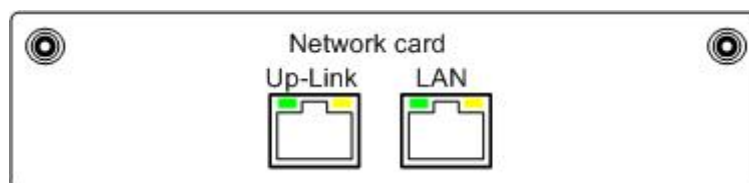
Figure 1-21 - UTP-2 Module
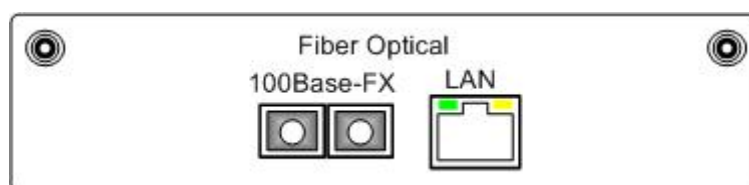
Figure 1-22 - UTP-2F Module

1.3.1.4   Accessories (Refer to 2.5.2 for detailed description)

- Copper Wire Cable（RJ-21 Male connector convert to 50 copper wires）

- Fan-Out cable（RJ-21 Male connector convert to 16 x RJ-11 connectors）

- RJ-21 to RJ-11 Adapter panel

- RJ-21 to RJ-11 conversion (2 x RJ-21 connectors convert to 32 x RJ-11 connectors)

- 50-pin Extension Cable (RJ-21 Male connector convert to RJ-21 Female connector)

1.3.2   Software Architecture

Applying advanced VoIP technology; VENUS Series uses powerful DSP (Digital Signal Processor) and CPU (Central Processing Unit) to build up a high performance Media Gateway platform. Running over an embedded Multi-tasking Real-Time Operating System, network protocols can be handled efficiently. Architecture of multiple DSPs for performing voice processing concurrently guarantees highest voice quality. Both the DSP and CPU software can be remotely upgrade for feature enhancement.

VENUS Series provides several different ways for equipment management:

- Terminal User Interface via the Console port for local management

- Terminal User Interface via Tenet for remote management

- Web-based management

- Centralized Authentication Server management

- SNMP Management

1.3.2.1   Console Port

By using the VT-100/ANSI compatible terminal emulation software, such as Microsoft HyperTerminal, user is able to configure VENUS Series via the Console port at the front panel. Refer to Chapter 3 for detailed Terminal UI

description.

1.3.2.2   Telnet

VENUS Series can be managed through a Telnet connection. The User Interface format and the management functions provided by TELNET are exactly the same as the console port. To maintain the consistency of configuration, only one single user is allowed to login the terminal user interface via the console port or Telnet at the same time.

1.3.2.3   Web-based Management

The web-based management allows users to manage VENUS Series from a remote Web browser. The embedded web server in the VENUS Series provides a user-friendly interface. Refer to Chapter 1 for the detailed web pages description.

1.3.2.4   Centralized Authentication Sever Management

VENUS Series supports proprietary authentication protocols for device identification and service security. Locating at the central office, the Authentication Management Server validates the device authentication requests sent from a media gateway to identify the validity of the device and to perform remote configuration. Once when the device identification is passed, the media gateway needs to request the service authentication from the SoftSwitch before starting the voice service.

1.3.2.5   SNMP Management

The embedded SNMP agent in VENUS Series allows the device to be managed by the SNMP management system.

1.4 Technical Specifications

Table 1-1 - VENUS Series Technical Specification

Items	Specification
Base Unit	• Number of slots for voice module per unit: VENUS 2832A: 2 voice slots VENUS 2832A+/D+: 2 voice slots VENUS 2832AE+/DE+: 1 voice slot VENUS 2816:built-in 16 voice channels, no voice slot VENUS 2808: 1 on-board voice slot VENUS 2808+: built-in 8 voice channel, no voice slot VENUS 2804+: built-in 4 voice channels, no voice slot
	• Number of slots for Ethernet switch module per unit: VENUS 2832A: built-in 1 Ethernet port VENUS 2832A+/D+: 1 Ethernet switch module slot VENUS 2832AE+/DE+: 1 Ethernet switch module slot VENUS 2816: built-in 2Eyhernet ports VENUS 2808: built-in 2 Ethernet ports VENUS 2808+: built-in 2 Ethernet ports VENUS 2804+: built-in 2 Ethernet ports
	• Maximum Number of VoIP Channels supported: VENUS 2832A: 32 voice channels VENUS 2832A+/D+: 32 voice channels VENUS 2832AE+/DE+: 16 voice channels VENUS 2816: 16 FXS voice channel VENUS 2808: 8 voice channels VENUS 2808+: 8 FXS voice channel VENUS 2804+: 4 FXS voice channels.
	• Console Port: - Type: RS-232, DCE mode - Connector: DB-9 Female - Format: 115,200bps, no parity, 8 data bits, 1 stop bit
	• WAN Interfaces: IEEE 802.3u 10/100BaseT Fast Ethernet port with auto-negotiation

Items	Specification
	• Indicators: - PWR LED: Power Status - SYS ALM LED: System Status and Diagnosis Indication - 10/100BT LED: Link Status of the 10/100BT Ethernet port - UP LINK LED: Link Status - LAN LED: Network Card interface status - WAN LED: Network Card interface status - E1/T1 LED: E1/T1 interface status (reserved) - VOICE CHANNEL 1~32 LED: Hook and Ring status of the voice channels
	• RST Push Button: RESET (for 2832 series & 2816 only)
	• Power Supply - AC power model: 100V ~ 230VAC, 50~60 Hz - DC power model: -36V ~ -72 VDC
FXS Telephone Interface channel -FXSFXS-8 and FXS-8A)	• Signaling Type: FXS loop start driving 2-wire analog telephone handsets or G3 FAX machines
	• Number of Ports per Card: 8 FXS ports per card with optional add-on card for 8 more FXS ports (Combine FXS-8 and FXS-8A to support 16 FXS interfaces)
	• Input Impedance: 600-ohm termination mode
	• Return Loss: > 20dB from 200Hz to 3.4KHz
	• Attenuation/Frequency Distortion: ITU-T G.712 Compliant
	• Group Delay: ITU-T G.712 Compliant
	• Total Distortion: ITU-T G.712 Compliant
	• Longitudinal balance: <45 dB from 200Hz to 3.4K Hz
	• Gain: - A/D: -3 +- 0.2dB at 1KHz - D/A: -3 +- 0.2dB at 1KHz
	• DC Feed Current: 25mA current limited
	• Line Current Detection: <10mA
	• Ringer Frequency: 20Hz (17~40Hz selectable)
	• Ringer Output Voltage: >40Vrms, 3 REN
	• Ringing Current Limit: 100mA current limited
	• Signaling Format: DTMF or pulse dial
	• Idle State Voltage: Vtip-ring < 48V, and Vring<Vtip < 0V
	• 50-pin female RJ-21 Telco connector

Items	Specification
	• Optional fan-out cable (50-pin connector to RJ-11 plugs) for wiring or testing
	• Long haul (up to 3,000m of 24 AWG lines) design
FXO Telephone Interface channel (FXO-8 and FXO-8A)	• Electronic Spec
	• Signaling Type: FXO Loop Start
	• Number of Ports per Card: 8 FXO ports per card with optional add-on card for 8 more FXO ports (Combining FXO-8 and FXO-8A to support 16 FXO interfaces)
	• Line Impedance: 600-ohm termination mode
	• Return Loss: > 20dB from 200Hz to 3.4KHz
	• Attenuation/Frequency Distortion: ITU-T G.712 Compliant
	• Group Delay: ITU-T G.712 Compliant
	• Total Distortion: ITU-T G.712 Compliant
	• Longitudinal balance: <45 dB from 200Hz to 3.4K Hz

	• Gain:
	  - A/D: -3 +- 0.2dB at 1KHz
	  - D/A: -3 +- 0.2dB at 1KHz

	• Leakage Current < 10uA
	• On-hook Resistance > 10Mohm
	• DC Current Limit: 133mA
	• Caller ID Detection
	• Signaling Format: DTMF
	• 50-pin female RJ-21 Telco connector
	• Ring Detection
	• Ring Detection Frequency: 17~40Hz (configurable)
	• Ring Debounce: < 200ms (configurable)

	• Ring Cadence:
	  - Inter-Pulse < 550ms (Configurable)
	  - Inter-Cycle < 5000ms (Configurable)

	• Auto Answer after Ring: 1 ring (Configurable)
	• Line Disconnection

	• Detection of the Disconnection Tones: (User Configurable)
	  - Busy Tone
	  - Reorder Tone
	  - Congestion Tone

	• Long Dial Tone without Dialing: 10 seconds

Items	Specification

	• Disconnect by MGC
	  - "S: L/HU" signal
	  - "DLCX" message

	• Line Reversal Detection
Voice Codec	• ITU-T G.711 µ-Law (64Kbps)
	• ITU-T G.711 A-Law (64Kbps)
	• ITU-T G.723.1 (6.3K/5.3Kbps) Optional
	• ITU-T G.729A (8Kbps) Optional
	• ITU-T G.726 (16K/24K/32K/40Kbps)
Tone Generation and Detection	• DTMF, Call Progress tones (Dial tone, Busy tone, Ring back tone, Congestion tone, Off-hook notice tone, etc)
	• V.21/V.25/V.8 tone detection for automatic data/fax/voice switch over to G.711 voice coder
Quality Enhancement Technologies	• Voice Activity Detection (VAD)
	• Silence Suppression
	• Comfort Noise Generation (CNG)
	• Adaptive Jitter Buffer
	• Echo Cancellation (ITU-T G.165/G.168 compliant)
	• Compensation for Loss of Packet
	• In-band or Out-band DTMF Relay
	• Selectable TX/RX Gain Controls
Call Signaling (Call Control) Protocols	• IETF RFC-2705 Media Gateway Control Protocol (MGCP) and PacketCable Network-based Call Signal protocol (NCS) compliant
Voice Packet Encapsulation	• IETF RFC-1889 Real Time Protocol (RTP)
	• IETF RFC-2833 RTP payload for DTMF Digits, Telephony Tones and Telephony Signals
Media Description Protocol	• IETF RFC-2327 Session Description Protocol (SDP)
Internet Protocols	• TCP/IP, UDP, ARP/RARP, ICMP, Telnet, HTTP Web Server, DNS Client, BootP Client, DHCP Client/Server, SNMP Client, TFTP Client, PPPoE, RIP I/II and NAT
QoS	• IEEE 802.1p
	• VLAN (ID, priority) tagging, port-based VLAN
Authentication	• Extended MGCP protocol using Diffie-Hellman & MD5 algorithms

Items	Specification
IP Address Assignment	• Static or Dynamic using DHCP or BootP client
FAX over IP	• Fax Auto-detection • T.30 Transparent FAX • FAX Relay Mode: ITU-T T.38 Real Time G3 FAX over IP protocol supporting ITU-T V.21, V.27ter, V.29 and V.17 up to 14,400bps
Management	• Console, Telnet, Web-based HTTP server, proprietary authentication and SNMP management
Remote Upgrade & Remote Provisioning	• Software download and Configuration file download via TFTP
Circumstance	• Operating Temperature: 0°C ~ 50°C • Storage Temperature: -10°C ~ 70°C • Relative Humidity: 10% ~ 90% (non-condensing)
Physical Dimension	• 437 W x 44 H x 286 D mm
EMC Compliant	• EN 50081-2, EN 50081-2 • FCC Part 15 Class A • CE mark
Safety Compliant	• EN-60950 • FCC Part 68 • UL/CSA

1.5　　　Standard Compliance

VENUS Series complies with the following standards and protocols:

ITU-T Codec Standard

ITU-T V.21/V.25/V8 – FAX / Modem Answer Tone

ITU-T G.168/G.165 Digital network echo cancellers

IETF RFC 2705 – MGCP (Media Gateway Control Protocol)

PacketCable Network-Based Call Signal (NCS) Protocol

IETF RFC 1889 – RTP (Real Time Protocol)

IETF RFC 2327 – SDP (Session Description Protocol)

TETF RFC 2833 payload for DTMF Digits, Telephony Tones and Telephony Signals

IP Protocols: TCP/IP, UDP, ARP/RARP, ICMP, Telnet, HTTP Web Server, DNS Client, BootP Client, DHCP Client, DHCP Server, TFTP Client, SNMP MIB II, PPPoE, NAT/NAPT and RIP I/II

Chapter 2. Hardware Installation

2.1 Unpacking

This chapter provides the information for installation of the VENUS Series. Before unpacking, make a preliminary inspection of the container. Evidence of damage should be noted and reported immediately. Unpack the equipment as follows:

■ Place the container on a flat surface and open the container.

■ Carefully take the VENUS Series out of the container and place it securely on a flat, clean surface.

■ Inspect the unit for signs of damage. Immediately report any damage found.

■ Check the packing list against your order to ensure that the supplied modules match your order. If modules have been pre-installed in accordance with your order, check that all the modules are in their proper slots and are secure. Immediately report any deviations.

■ Check that all the necessary items have been included, following items are shipped with your VENUS Series:

    □ One VENUS Series Manual (this one)

    □ One AC power cable (For VENUS 2832A / 2832A+ / 2832AE+ / 2816 / 2808 / 2808+ only)

    □ One AC to DC power adaptor (For VENUS 2804+ only)

    □ One DB-9 to DB-9 serial cable

    □ One Category-5 Ethernet cable

2.2   Site Requirements

2.2.1   Site Selection

Install the device in a clean area that is free from environmental extremes. Allow at least 6 inch (15.24 cm) in front of the device for access to the front panel, and at least 4-inch (10.2 cm) in back for cable clearance. Position the device so you can easily see the front panel.

2.2.2   Hardware installation

Install the 2832 or 2816 on the shelf by use the M5 screw to secure the device to the framework as the diagram shows below.

VENUS-2832

M5 SCREW

RACK
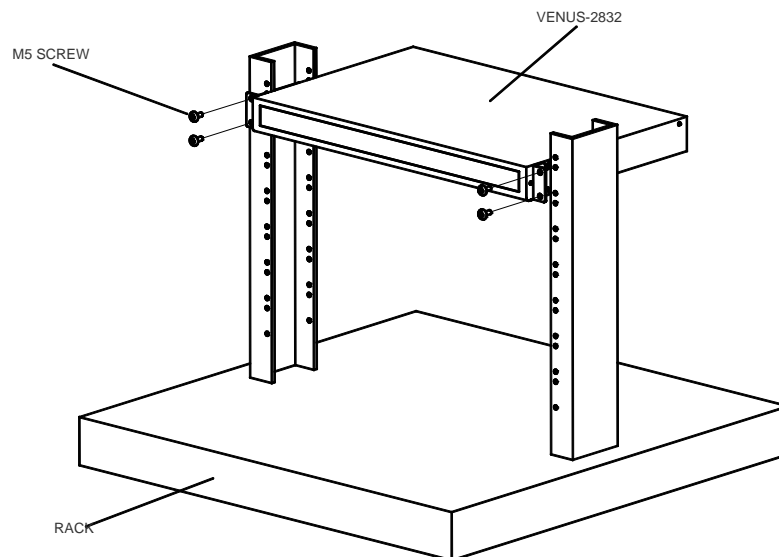
2.2.3   AC Electrical Outlet Connection

VENUS 2832A / 2832A+ / 2832AE+ / 2816 /2808 / 2808+ / 2804+ with AC power input should be installed within 1.83m (6 feet) of an easily accessible grounded AC outlet capable of furnishing the required supply

voltage, in the range of 100 to 230V AC.

2.2.4   DC Power Source Connection

VENUS 2832D+/DE+ with DC power input requires a –36~-72VDC power source.

> **Caution:**
>
> Do use correct AC or DC power voltage, otherwise wrong power voltage may cause damage to the device.

2.2.5   Grounding

The FCC requires telecommunications equipment to withstand electrical surges that may result from lightning strikes; the VENUS Series device meets the requirements set forth by the FCC. The following procedure outlines some common practices that can minimize the risk of damage to computer equipment from electrical surges.

■   Make sure the electric service in your building is properly grounded as described in article 250 of the National Electrical Code (NEC) handbook.

■   Verify that a good copper wire of the appropriate gauge, as described in Tables 250-94/95 of the NEC Handbook, is permanently connected between the electric service panel in the building and a proper grounding device such as:
A ground rod buried outside the building at least 8 feet (2.44 meters) deep in the earth.
Several ground rods, connected together, buried outside the building at least 8 feet (2.44 meters) deep in the earth.
A wire (see tables 250-94/95 of the NEC handbook for gauge) that surrounds the outside of the building and is buried at least 2.5 feet (0.76 meters) deep in the earth.

> **Note:**
>
> The three grounding devices described above should be firmly placed in the earth. Soil conditions should not be dry where the device is buried.

- ■ If you are unsure whether the electric service in your building is properly grounded, have it examined by your municipal electrical inspector.

- ■ Install a surge protector between the device and Ground point. Any additional computer equipment you have connected to the device (directly or through another device), such as a terminal or printer should also be plugged into the same surge protector. Make sure that the surge protector is properly rated for the devices you have connected to it.

- ■ Call your telephone company and ask them if your telephone line is equipped with a circuit surge protector.

- ■ If you are operating the device in an area where the risk of electrical surges form lightning is high, disconnect the device from the telephone line at the rear panel when it is not in use.

2.3 LED Indicators

Table 2-1 - LED Description

Label	Function Description	Colors
PWR	Power Status	Off (Power is Off)
		Green (Power is ON)
SYS ALM	System Status	Green (Normal Operation)
		Yellow (Performing Diagnosis)
		Red (System Failure)
10/100BT (For VENUS 2832A only)	10/100Base-T Status	Off (10/100BT Link is Down)
		Green (10/100BT Link is Up)
CHANNEL LED 1 – 32	Voice Channel Status	Off (On-Hook State of the Telephone Handset)
		Green (Off-Hook State of the Telephone Handset)
		Blinking (Ringing the Telephone Handset)
UPLINK	UPLINK Status	Off (10/100BT Link is Down)
		Green (10/100BT Link is Up)
LAN	LAN Status	Off (Network Card is unplug)
		Green ((Network Card is plug in)
		Blinking (packet transmitting or receiving)
WAN	WAN Status	Off (Network Card is unplug)
		Green ((Network Card is plug in)
		Blinking (packet transmitting or receiving)
E1/T1	E1/T1 Status	(Reserved)

LAN and WAN LED do not blink on 2804+

2.4 Front Panel Connections

2.4.1 Connecting the IP Network via Ethernet

On the base unit of VENUS Series, the embedded 10/100Base-T Ethernet port is provided as the standard interface to the IP network. The pin layout of the RJ-45 connector for IEEE 802.3 standard 10/100Base-T Ethernet ports are defined as following:

Table 2-2 -10/100Base-T Connection

Pin #.	Pin Function
1	TD+
2	TD-
3	RD+
4	N/C
5	N/C
6	RD-
7	N/C
8	N/C

For connecting the 10/100Base-T Fast Ethernet, a Category 5 unshielded twisted-pair (UTP) cable or shielded twisted-pair cable is used. Two pairs of the twisted wires are used for separated Rx (reception) and Tx (transmission). The Fast Ethernet port is backward compatible with traditional 10Base-T Ethernet. VENUS Series can automatically detect whether it is connected to a 10Base-T or 100Base-T Network.

2.4.2 Connecting the Terminal

The Console port connector labeled "CRAFT" on the front panel is provided for connection to an external ANSI or VT-100 compatible terminal for quick and easy, local configuration of the VENUS Series.

Speed and Data format: 115,200bps, none parity, 8 data bits, 1 stop bit, and no flow control.
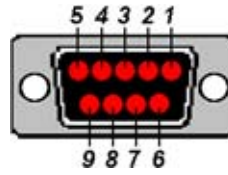
Figure 2-1 - DB-9F Console Interface

The console interface designed on VENUS Series is a female, DCE type RS-232 port. A straight DB-9 to DB-9 or DB-9 to DB-25 serial cable can be used to connect VENUS Series directly to a PC's serial port for terminal operation. The PIN definition of the DB-9 is:

Table 2-3 - Pin definition of the Console Port Connector

Pin #	Signal	Source
2	TXD (Transmit Data)	DCE
3	RXD (Receive Data)	DTE
5	Signal Ground	
7	CTS (Clear To Send)	DTE
8	RTS (Request To Send)	DCE

Note:

The serial UART port on some of the PCs may not support or guarantee the speed of 115,200bps. Try another PC if the terminal program is not responding or is displaying incorrect characters.

2.5   Rear Panel Connections

Caution:

While installing the interface cards, make sure the power switch is turned off to prevent VENUS Series from possible damage caused by current impact.

The figure illustrated below shows the VENUS 2832 Series rear panel connection.

Power Inlet (AC or DC)	Analog Telephony Cards (FXS /FXO) with 50-pin Telco Connector for Channel 17~32	Analog Telephony Cards (FXS /FXO) with 50-pin Telco Connector for Channel 1~16	Network Card (UTP-1, UTP-2, UTP-2F)

Figure 2-2 - VENUS 2832 Series Rear Panel Connections

2.5.1   Connecting the Power Source

Two models are available for different power source supply. The AC model (VENUS 2832A+ / 2832AE+ / 2816 / 2808 / 2808+ / 2804+) accepts 100V~230VAC/50~60Hz (Auto-range) power source. The DC model (VENUS 2832D+ / 2832DE+) accepts –36V~-72VDC power source. Connect the device with a power cord of the correct voltage and rating to your power system.

> **Note:**
>
> It is strongly recommended to use an AC power cord with Grounding pin or connect the Grounding Screw on the rear panel to the grounded supply of correct power system at the site.

2.5.2   Connecting the Telephony Devices

The pin assignment for the female-type, RJ-21 Telco connector (shown in Figure 2-3) on the FXS-8 /FXO-8 card is defined in Table 2-4:
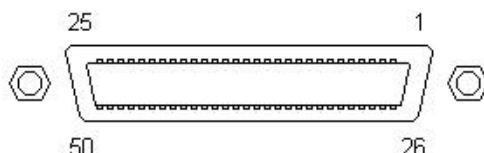
Figure 2-3 - RJ-21 Female-Type Telcom Connector

Table 2-4 - Pin Assignment of the RJ-21 Telco Connector

Pin #	Definition
1, 26	Port 1
2, 27	Port 2
3, 28	Port 3
4, 29	Port 4
5, 30	Port 5
6, 31	Port 6
7, 32	Port 7
8, 33	Port 8
9, 34	Port 9
10, 35	Port 10
11, 36	Port 11
12, 37	Port 12
13, 38	Port 13
14, 39	Port 14
15, 40	Port 15

Pin #	Definition
16, 41	Port 16
17 ~ 25	Reserved
42 ~ 50	Reserved

Several cables or accessories are available for wiring requirements of the telephone cables:

■ Copper Wire Cable（RJ-21 Male connector convert to 50 copper wires）

■ Fan-Out cable（RJ-21 Male connector convert to 16 x RJ-11 connectors）

■ RJ-21 to RJ-11 Adapter panel

■ RJ-21 to RJ-11 conversion (2 x RJ-21 connectors convert to 32 x RJ-11 connectors)

■ 50-pin Extension Cable (RJ-21 Male connector convert to RJ-21 Female connector)

Copper Wire Cable: Male RJ-21 connector to 50 copper wires (see Figure 2-4). This cable is convenient for directly wiring the copper wires on to a telecomm wiring panel, Please following the mark that pasted up on the line, Table 2-5 shows the ports information of each pair of the copper wires.
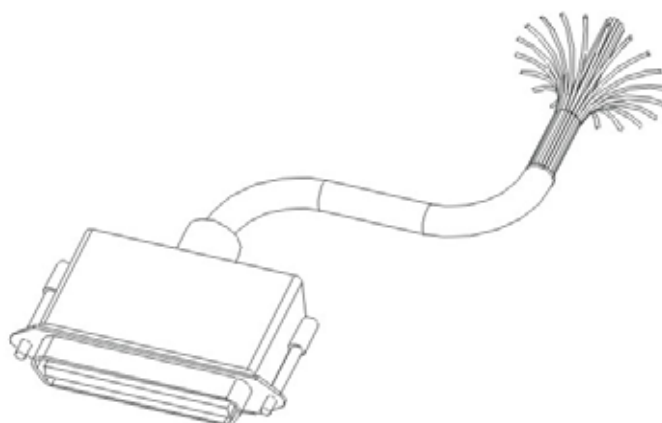
Figure 2-4 - The Copper Wire Cable

Table 2-5 - Pin Assignment of the Copper Wire Cable

RJ-21 Pin #	Mark of the Copper Wires	Channel (a pair)
1 & 26	Port 1 / Port 26	Port 1
2 & 27	Port 2 / Port 27	Port 2
3 & 28	Port 3 / Port 28	Port 3
4 & 29	Port 4 / Port 29	Port 4
5 & 30	Port 5 / Port30	Port 5
6 & 31	Port 6 / Port 31	Port 6
7 & 32	Port 7 / Port32	Port 7
8 & 33	Port 8 / Port 33	Port 8
9 & 34	Port 9 / Port34	Port 9
10 & 35	Port 10 / Port 35	Port 10
11 & 36	Port 11 / Port 36	Port 11
12 & 37	Port 12 / Port 37	Port 12
13 & 38	Port 13 / Port 38	Port 13
14 & 39	Port 14 / Port 39	Port 14
15 & 40	Port 15 / Port 40	Port 15
16 & 41	Port 16 / Port 41	Port 16
17 ~ 25	--	Reserved
42 ~ 50	--	Reserved

Fan-out Cable: Male RJ-21 to 16-pair copper wires with RJ-11 phone jack plugs (see Figure 2-5). This cable is used for connection to the RJ-11 type connector provided by POTS equipment like a common telephone handset.
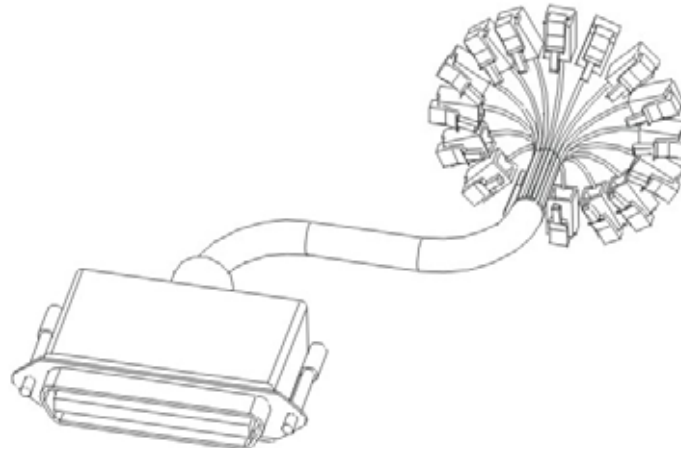
Figure 2-5 - The Fan-out Cable

Extension Telco Cable: Male RJ-21 to female RJ-21 connector (see Figure 2-6). This cable is used for length extension.

RJ-21 to RJ-11 Adapter Panel: This panel has 2 male RJ-21 connectors on the back and 32 RJ-11 phone jack connectors in the front (shown in Figure 2-6). Customer can use an Extension Telco Cable to connect the gateway to this adapter panel for providing RJ-11 connection to telephone handset directly. This panel can be screwed up to a 19-inch rack shelf.
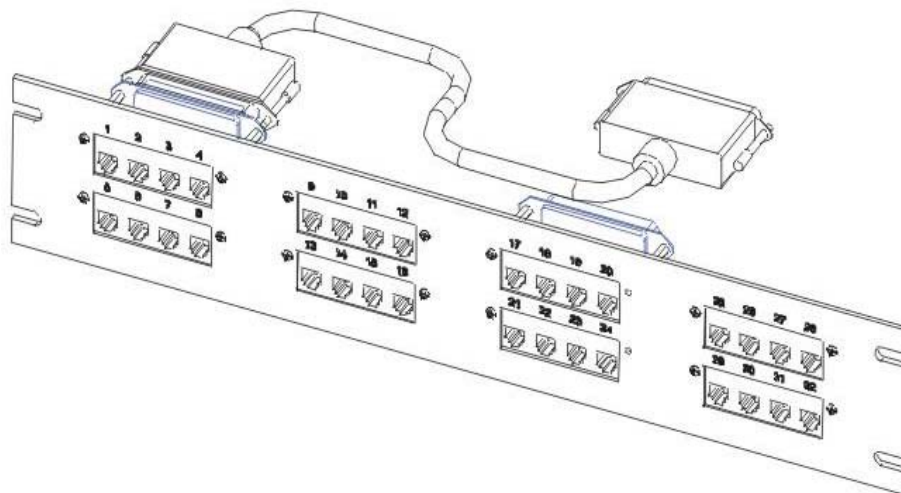
Figure 2-6 - The Adapter Panel with the Extension Cable

2.6   Hardware Diagnosis

When the connections are all done, turn on the power of the device to boot up the software. VENUS Series will perform hardware detection, initialization and diagnosis. The LED indicators at the front panel show the progress of the hardware diagnosis. If it passed all the hardware diagnosis, the "SYS ALM" LED will display GREEN color; whereas, the RED color indicates hardware failure. The diagnosis result can be observed via the User Interface (UI) provided by VENUS Series.

2.7 Basic Configuration

Once when the VENUS Series is successfully started up, two other things must be done before we configure the device:

The device is registered and provisioned on the SoftSwitch server in advance. Get the information of the registration including the telephone numbers assigned for the device.

The connection to the IP network is properly installed.

Very few parameters are required for configuring the VENUS Series to bring up basic VoIP service:

Configure the device with the pre-registered "Box Name" for device identification.

Setup the IP configuration assigned for the device: the **IP address,** the **Sub-net Mask** and the **Default Gateway.**

Setup the **SoftSwitch IP address** to allocate the MGCP Call Manager for call control.

The above configuration can be found in the Terminal User Interface provided via the Console port (115200bps, 8N1) and other management interface as well. Now, try to make a phone call and feel the quality of voice the VENUS Series can provide.

Detailed UI for software configuration can be found in the following Chapters. Read through the next Chapter to learn the detailed software configuration for the VENUS Series. Refer to Section 3.8.2 for the Troubleshooting Guide.

Chapter 3.   Configuration and Management

This Chapter describes the Terminal User Interface provided by VENUS Series. There are two methods to access to the Terminal User Interface: the Craft port and the Telnet, both present the exactly same format of terminal management. The Craft port is used primarily when the device is installed for the first time and the IP configuration is not yet provisioned. Once when the IP connection is provisioned, user may login to the Terminal User Interface using the Telnet software to remotely control or maintain the device from anywhere in the global IP network. Here in this Chapter, Section 3.1 describes the Craft port connection. Detailed operation guide to the Terminal User Interface is described in the following sections.

3.1   Connecting the Terminal

3.1.1   Setup PC
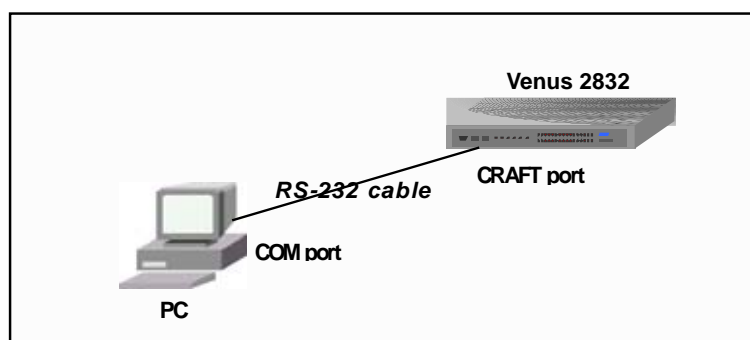
Figure 3-1 - Connecting to the PC

If you are configuring the VENUS Series from a PC (not a dumb terminal), you need software called *Terminal Emulation Program* to emulate a Terminal via the RS-232 communication port on the PC. Table 5-1 lists some commonly used software, based on the type of PC platform you are using.

Table 3-1 - Terminal Emulation Software

Operation System	Software
Windows 95 / 98 / ME / XP / NT / 2000	HyperTerm (included with Windows software)
Windows 3.1	Terminal (included with Windows software)
Macintosh	ProComm, VersaTerm (supplied separately)

Select the COM port used and setup the following settings:

- Speed: **115200 bps** (bit per second)
- Data Length: **8 bit**s
- Parity Bit: **None**
- Stop Bit: **1 bit**
- Flow Control: **None**

3.1.2   **Power ON VENUS Series**

Power on your VENUS Series after the Craft port is connected. It takes several seconds to perform the initialization and diagnosis. Press any key on the terminal. VENUS Series will prompt the following messages:

```
Idle timer expired, or forced logout by another valid user.

**********************************************************************
TAINET Venus 2804: 0090bbef8940
Version 4.77b compiled on Aug 22 2006 at 16:30:20
**********************************************************************
 AP checksum is: 1879048262
 AP checksum correct, running AP.
 100BaseT Port MAC Address  - 00:90:bb:ef:89:40
Login:
```

Figure 3-2 - Initial Screen

The version and the checksum value of the software and the MAC address of

the Ethernet port are displayed. Verify the checksum result of the software is correct. There are two pieces of software accommodating in the device: the Boot Code and the Application Program. Improper software upgrade procedure may destroy the AP image stored in the flash memory. The embedded Boot code can always be executed and allows re-programming of the AP software to recovery the problem.

3.1.3　　**Login**

Username and Password are required to login the Terminal UI (User Interface) for protection from unauthorized access to the device. *The default root Username is "**user**" with no password.* Once when the security check is passed, the terminal UI displays the Main Menu as shown in the following Figure:

```
MAIN                        TAINET Venus 2804       Version 4.77b - Bld 7.0
=============================================================================
[Configuration]   Monitoring    Device Control    Diagnosis
 System    Interface    Routing Table    Security















 ENTER:select   TAB:next   '<':left   '>':right   ESC:previous menu
```

Figure 3-3 - The Main Menu

3.2 Navigation the Terminal User Interface

The following Figure shows the style of the Terminal UI. Indications point out the layout of the UI and help user to navigating through the User Interface. Table 3-2 lists the function keys supported for operating the menu selection.
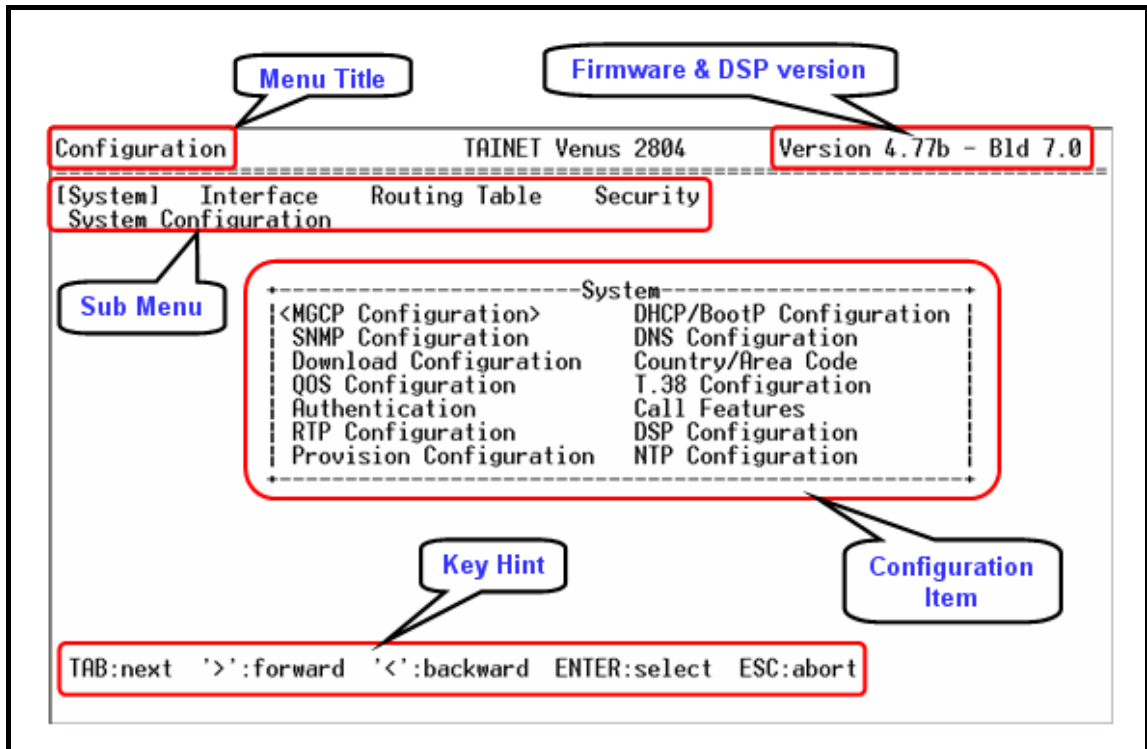
Figure 3-4 - Navigating User Menu

Table 3-2 - Function Keys used in the Terminal UI

Operation	Key	Description
Moving the Cursor	[<], [>], [TAB]	Use [<] and [>] to move the cursor left and right, or up and down. Press [TAB] to move the cursor to the next item.
Selecting a sub-menu	[ENTER]	To access into a submenu.
Moving up to the previous menu	[ESC]	Press the [ESC] key to move back to the previous menu of the upper level.
Editing the information	Type in the content, or press the [SPACE BAR] key to toggle the selection.	You need to fill in two types of fields. The First requires you to type in the appropriate information (string or digits).

Operation	Key	Description
		The second allows you to cycle through the available choices by pressing the [SPACE BAR].
Deleting the information	[BACKSPACE] or [SPACE BAR]	Use these two keys to erase the entered information
Canceling the Process	[Ctrl-C]	Press [Ctrl-C] during some menu processing (for example during the TFTP download state) can cancel the process.
Saving your Configuration	[ENTER]	Pressing [Enter] Save your configuration by selecting "YES" at the pop up "Confirm?" message. In most cases it will go to the previous menu.
Exiting the Terminal UI	[ESC]	To exit the Terminal UI, press [ESC] at the Main Menu prompt, then enter "Y" to the pop up message "Logout?" to logout.

```
Idle timer expired, or forced logout by another valid user.
_
```
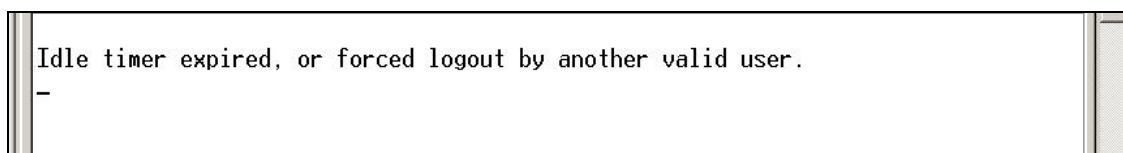
Figure 3-5 - Logout the Terminal UI

VENUS Series keeps an Idle Timer, in case the user stop operating the Terminal UI for certain duration of time, the Terminal UI forces logout automatically. To maintain the consistency of configuration, *only one user is allowed to login and to use the Terminal UI at the same time from either the Craft port or Telnet*. A valid new user will mutual-exclusively force the logout of the current user.

3.3   Organization of the Terminal Menu Tree

The Terminal UI is organized as a menu tree structure. On the top of the menu tree is the Main Menu. All menu items are categorized into different group of submenus for convenient and quick access.

3.4 Main Menu

There are four categories in the Main Menu:

Table 3-3 - The Main Menu Items
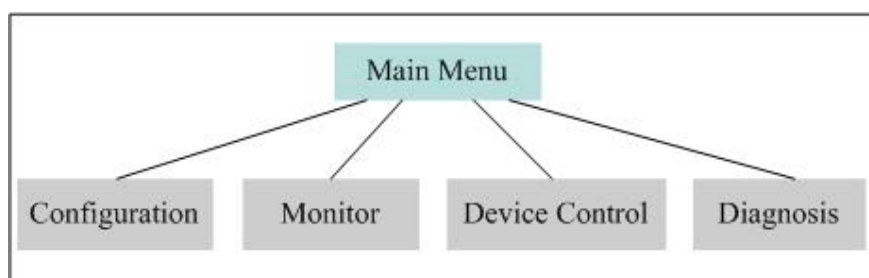
3.4.1 Configuration Menu

This menu includes MGCP configuration, IP configuration, DHCP, BootP, DNS and SNMP configuration, country selection, RTP configuration, Call feature, Authentication configuration, and security configuration. Menu to activate the downloading of the configuration file is also provided. Detailed description for every configuration menu is given in Section 3.5.

3.4.2 Monitoring Menu

The Monitoring menu is used to view the system status: the hardware report and the diagnosis result, the routing table, the packet statistics … etc can be found. Detailed description for the Monitoring menu is given in Section 3.6.

3.4.3 Device Control Menu

The Device Control menu allows you to maintain the device, such as upgrading the software, resetting the device or restoring the configuration to the factory defaults. Detailed description for the Device Control menu is given in Section 3.7.

3.4.4   Diagnosis Menu

In the Diagnosis menu, the "Ping" command is provided for verification of the IP network connection. "Trouble Shooting Menu" is provided for technical support engineers to troubleshooting the operation of the device. Detailed description for the Diagnosis menu is given in Section 3.8.

3.5 Configuration

The Configuration menu is divided into four groups:

Table 3-4 - The Configuration Menu Items
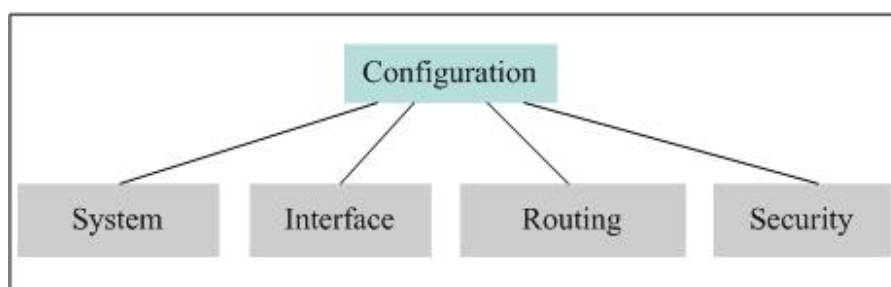
3.5.1 System Configuration

Table 3-5 - The System Configuration Menu Items
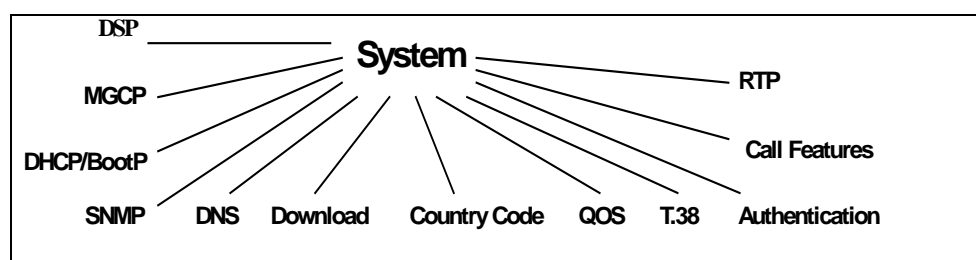
3.5.1.1 MGCP Configuration

The Access Path: *Configuration* Menu **->** *System* **->** *MGCP Configuration*.

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
=============================================================================
[System]   Interface    Routing Table    Security
 System Configuration


           MGCP Configuration

           Box Name               [0090bbef8940                              ]
           Call Manager IP        [172.16.3.60    ]
           Call Manager Domain Name [                                        ]
           Call Manager MGCP Port [2427      ]
           Gateway MGCP Port      [2427      ]
           Standard               [MGCP 1.0      ]
           Wildcarded(*) RSIP     [disable]
           Endpoint ID #          [aaln/1 to aaln/4      ]
           NAT Keep Alive (s) 0:off [0    ]
           NAT Keep Alive mode    [RSIP]
           NAT Remote IP (for SDP) [0.0.0.0      ]
           Heart beat             [disable]

Press: ASCII, SPACE, BS
TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-6 - MGCP Configuration

Table 3-6 - Description of MGCP Configuration Items

Field	Description
Box Name	For MGCP protocol, each MGCP gateway is identified with a unique logic name (or the so-called "Endpoint ID"). Select this item to name the device. This name must be registered in MGCP Call Manager (or Call Agent) in advance, where the subscriber account, the telephone numbers assigned to each POTS port of the gateway, the call routing table, the IP address of the gateway, etc are all preset and stored in a server or database. Since this is the major identification for a gateway, make sure you use the exactly same name given by your VoIP service provider. (Note: For example, the POTS ports of the VENUS Series are named from "aaln/1@BoxName" to "aaln/32@BoxName" where the "BoxName" is the logic name presented in this field)
Call Manager IP	This item tells VENUS Series what the MGCP Call Manager's IP address is. Once when the gateway is boot up, it will sends a "Restart" message to this IP address of the Call Manager. Call Manager then acts as a master to control the behaviors of the gateway based on the event notifications reported by the gateway. Call Manager's major job is to provide and maintain the information and

Field	Description
	status of the gateways and to build up and tear down the connection between the caller and the called target.
Call Manager Domain Name	This is the domain name (host name in IP network) of the MGCP Call Manager. To apply this function should enable the DNS function for host name resolution.
Call Manager MGCP Port	This item tells VENUS Series which UDP port number should be used for communicating with the MGCP Call Manager. The MGCP messages are sent to this UDP port of the Call Manager. The default port number is 2427. Some MGCP Call Managers may use a different UDP port. Normally port 2727 is used. Modify this field if this is the case.
Gateway MGCP Port	This item tells call agent which UDP port number should be communicating with the Venus gateway. The MGCP message are sent to this UDP port of the gateway, The default port number is 2427
Standard	VENUS support MGCP 0.1, MGCP 1.0, NCS 1.0 protocols
Wildcarded (*) RSIP	For register the GW to SoftSwitch it generally registers channel by channel with no "any of" wildcard should be used. But if the GW sends the wildcard ReStartInProgress (RSIP) to SoftSwitch, then it will take GW In/Out of service at a time.
Endpoint ID #	VENUS have three endpoint ID modes to support different SoftSwitch
NAT Keep Alive (s)	This is used to maintain the UDP translation entry in NAT for the MGCP protocol, when the IAD is installed behind a NAT router. When this feature is enabled, it would periodically send out a MGCP RSIP message with extended parameter "RM: X-keepalive"
NAT Keep Alive Mode	VENUS has two modes to support keep alive function.
NAT Remote IP	This item is for tunneling through a NAT device. This IP is used as the address in SDP (Session Description Protocol) message.
Heart Beat	If this item is enable, The Venus will keep send NTFY package to check the net whether it can work or not, if the net broken time exceed default setting time, The Venus will release all of the ports and stop power provide.

3.5.1.2 DHCP/BootP Configuration

Access Path: *Configuration* Menu -> *System* -> *DHCP/BootP Configuration*

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]  Interface    Routing Table    Security
 System Configuration




                    DHCP/BootP Configuration

                    DHCP Server              [disable]
                    DHCP/BootP Client        [enable ]




 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-7 - DHCP/BootP Client Configuration

3.5.1.2.1 For DHCP Server

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]  Interface    Routing Table    Security
 System Configuration
      +------------------------------DHCP Server----------------------------+
      |                                                                     |
      |    Subnet Address                   [172.16.14.0    ]               |
      |    Subnet Mask Addr                 [255.255.255.0  ]               |
      |    DNS Server                       [edit]                          |
      |    Router                           [edit]                          |
      |    Domain Name                      [tainet.net                   ] |
      |    DHCP Renew Time(sec) >= 8        [43200       ]                  |
      |    DHCP Rebind Time(sec) >= 12      [64800       ]                  |
      |    DHCP Default Lease Time(sec) >= 16 [86400     ]                  |
      |    DHCP Offered Wait Time(sec) >= 8 [43200       ]                  |
      |    DHCP Free Address                [edit]                          |
      |    DHCP Static Address              [edit]                          |
      |                                                                     |
      +---------------------------------------------------------------------+

 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-8 - DHCP Server Configuration

Table 3-7 - DHCP Server Configuration Items

Field	Description
Subnet Address	This item specifies the subnet address for assigning IP address.
Subnet mask Addr	This item specifies the subnet mask to be assigned to DHCP Clients.
DNS Server	This item specifies the IP address of DNS server(s) to be offered to Clients.
Router	This item specifies the router address(es) to be added to the DHCP Client's routing table.
Domain Name	This item specifies the Domain Name information to be assigned to DHCP Clients.
DHCP Renew Time	This item specifies the period (in seconds) that should pass before the Client attempts to renew its lease.
DHCP Rebind Time	This item specifies the period (in seconds) that should pass before the Client attempts to rebind its lease.
DHCP Default Lease Time	This item specifies the default lease time (in seconds) for the binding that client will use.
DHCP Offered Wait Time	This item specifies the time (in seconds) that the DHCP server will wait for a DHCP Request or Decline from a Client after a binding is offered. Once this period of time has elapsed, the binding can be offered to other Clients.
DHCP Free Address	This item specifies ranges of free IP addresses that can be assigned to DHCP Clients. Please see Figure 3-9.
DHCP Static Address	This item allows user to assign a particular IP address to Client with a particular MAC address.

```
Configuration                   TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration

     +--------------+  +----------DHCP Free Address-----------+  +------------+
     |              |  |                                      |  |            |
     |  Subnet Addr |  |     Low IP Address   High IP Address |  |            |
     |  Subnet Mask |  |                                      |  |            |
     |  DNS Server  |  1  [0.0.0.0         ][0.0.0.0         ]|  |            |
     |  Router      |  2   0.0.0.0           0.0.0.0          |  |            |
     |  Domain Name |  3   0.0.0.0           0.0.0.0          |  |         ]  |
     |  DHCP Renew  |  4   0.0.0.0           0.0.0.0          |  |            |
     |  DHCP Rebind |  5   0.0.0.0           0.0.0.0          |  |            |
     |  DHCP Defaul |  |                                      |  |            |
     |  DHCP Offere |  |                                      |  |            |
     |  DHCP Free A |  |                                      |  |            |
     |  DHCP Static |  |                                      |  |            |
     |              |  +--------------------------------------+  |            |
     +--------------+  +-----------------------------------------+------------+

 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-9 - DHCP Server Free Address Ranges Configuration

3.5.1.2.2   For DHCP Client

```
Configuration                   TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




              +----------------DHCP/BootP Client----------------+
              |                                                 |
              |    Use host/domain name options for box name [no ] |
              |    Use only 'trusted' DHCP server(s)         [no ] |
              |                                                 |
              +-------------------------------------------------+




 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-10 -DHCP/BootP Client Configuration

Table 3-8 - DHCP/BootP Client Configuration

Field	Description
DHCP/BootP Client	VENUS Series must be assigned with an IP address to identify the IP packet transmission and reception in the IP network. This menu item is used to enable the DHCP/BootP Client feature of VENUS Series. If the DHCP server (e.g. Microsoft Windows NT DHCP Server) or BootP server is available and is installed within the same network domain with VENUS Series, the DHCP server can automatically provide an unused IP address to VENUS Series during the boot up phase. Usually, this feature is used for installation. To manually assign static IP address to the gateway, disable this feature.
	VENUS Series is able to identify either a DHCP server or a BootP server is presented. Not only the DHCP/BootP server will provide the IP configuration for the device, it can also provide the location information of the configuration file for this device.
	Reboot the VENUS Series with this feature enabled; VENUS Series will try to discover the DHCP or BootP server. After getting the IP configuration, it will try to download the configuration file to automatically provision itself if the information is available (See Figure 3-12 – The boot up procedure with DHCP/BootP enabled). Refer to Chapter 5 for detailed description regarding the configuration file.
Use host/domain name options for box name	This option use DHCP/BootP host/domain name as box name to register to SoftSwitch.
Use only 'trusted' DHCP server(s)	This option allows user to specify up to two DHCP servers that the GW would accept response from. Please refer to Figure 3-11. When this option is enabled, any DHCP response from servers that are not in the list would be rejected.

```
Configuration               TAINET Venus 2804     Version 4.77b - Bld 7.0
==============================================================================
[System]  Interface   Routing Table    Security
 System Configuration



              +------Use only 'trusted' DHCP server(s)-------+
              |                                              |
         +- |      Trusted DHCP Servers                     | +
         | |                                                | |
         | |    Primary DHCP Server IP    [0.0.0.0      ] | |
         | |    Primary DHCP Server Mask [0.0.0.0       ] | |
         | |    Backup DHCP Server IP     [0.0.0.0      ] | |
         +- |    Backup DHCP Server Mask  [0.0.0.0       ] | +
           |                                              |
            +----------------------------------------------+




Press: '0' - '9', '.', SPACE, BS
TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-11 - DHCP Client Using 'Trusted' Server(s)

```
                        System Restart!!
Starting DHCP/BootP client procedure...
   Discovering DHCP/Boot
   DHCP offer received.
   Sending DHCP request...
   DHCP ACK received.
   DHCP/BootP Server:    172.16.0.2
   Assigned IP address:  172.16.5.69
  +-----------------------------------------------------+
  |  Netmask:             255.255.255.0                 |
  |  Default route:       172.16.5.254                  |
  |  DNS Server IP:       172.16.0.2                    |
  |  TFTP server:                                       |
  |  File name:                                         |
No file name specified. Using default name: 0090bbef8940.ini
Starting configuration file download process...
   Trying 172.16.0.2 (press ctrl-c to cancel)...
TFTP connection failure!





  |                                                     |
  |  System Initializing...                             |
  |  Initialization is done.                            |
  +-----------------------------------------------------+
```

Figure 3-12 - The Boot Up Procedure with DHCP/BootP Client Enabled

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3.5.1.3   SNMP Configuration

Access Path: *Configuration* Menu **->** *System* **->** *SNMP Configuration.*

```
Configuration                  TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 Syst +------------------------SNMP Agent------------------------+
      |                                                          |
      |   System Contact          [Iainet Communication System Corp. ] |
      |   System Name             [sales@tainet.net           ]  |
      |   System Location         [Taipei, Taiwan             ]  |
      |   SNMP Trap               [disable]                      |
      |       Call Info Trap      [enable ]                      |
      |   SNMP Get Community      [public         ]             |
      |   SNMP Set Community      [private        ]             |
      |   SNMP Trap Community     [public         ]             |
      |   SNMP Trap Destination   [0.0.0.0        ]             |
      |                           [0.0.0.0        ]             |
      |                           [0.0.0.0        ]             |
      |                           [0.0.0.0        ]             |
      |   NAT pass-through mode   [Disable    ]                 |
      |   Keep alive interval(sec) [60         ]                |
      |                                                          |
      +----------------------------------------------------------+
 Press: ASCII, SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-13 - SNMP Agent Configuration

Table 3-9 - Description of SNMP Agent Configuration Items

Field	Description
SNMP Agent	Select this item to enable SNMP agent configuration for SNMP management.
System Contact	This item is an object defined in the SNMP MIB (Management Information Base) II. This is the textual identification of the contact person for this managed node, together with information on how to contact this person.
System Name	This item is an object defined in the SNMP MIB-II. An administratively assigned name for this managed node. By convention, this is the node's fully qualified domain name.
System Location	This item is an object defined in the SNMP MIB-II. It is the physical location of this node (e.g., `telephone closet, 3rd floor').
SNMP Trap	Trap is a function defined in the SNMP and is used by the agent to inform the manager of some events like Cold Start, Warm Start, Link Down, Authentication Failure and the enterprise specific. This item is to enable the SNMP trap.
Call info Trap	This item allows more detail calling information send to Trap destination. Some billing system would like to have these information records for billing purpose.

Field	Description
SNMP Get Community	A pairing of an SNMP agent with some arbitrary set of SNMP application entities is called an SNMP community. Each SNMP community is named by a string of octets that is called the community name for said community. This item defines the community for the Get object from MIB.
SNMP Set Community	This item defines the community string for the Set object from MIB.
SNMP Trap Community	This item defines the community string for the Trap active.
Trap Destination	This item tells VENUS Series to send traps to the specified IP address of the SNMP Management Server.
NAT Pass-Through mode	This feature allows VENUS gateways to be managed behind a router with NAT.
Keep Alive Interval (sec)	Setting this field to a non-zero value will cause the system to send heartbeat trap to manager(s) on the specified interval.

3.5.1.4   DNS Configuration

Access Path: *Configuration* Menu **->** *System* **->** *DNS Configuration*.

```
Configuration                  TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




                   +----------Use DNS Server----------+
                   |                                   |
                   |                                   |
                   |   DNS server 1 IP [172.16.0.5    ] |
                   |   DNS server 2 IP [172.16.0.2    ] |
                   |                                   |
                   +-----------------------------------+



                                             |


 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-14 -DNS Client Configuration

Table 3-10 - Description of DNS Client Configuration Items

Field	Description
DNS Server IP	Setup the IP address of the Domain Name Server (DNS). The DNS server maintains a database of domain names (host names) and their corresponding IP addresses. With DNS client enabled, VENUS Series will communicate with the DNS server and look up the domain name of (1) the Call Manager, or (2) the IADMS server to find out their corresponding IP address. The discovered IP address of the Call Manager is then used for MGCP protocol. *In this case, the static IP address of the Call Manager defined in the "MGCP Configuration" menu (see Section 3.5.1.1) is not used.*

3.5.1.5   Download and Upload Configuration File

This menu is used to manually evoke the procedure of downloading or uploading the configuration file. Detailed description for the format of the configuration file shows in Chapter 5.

Access Path: *Configuration Menu -> System -> Download Configuration File*.

```
Configuration                TAINET Venus 2804       Version 4.77b - Bld 7.0
===============================================================================
[System]  Interface    Routing Table    Security
 System Configuration

          Download/upload Configuration

          Download/Upload                [download]
          TFTP server IP                 [172.16.0.2     ]
          TFTP server port               [69   ]
          file name (text)               [0090bbef8940.ini                ]
          Use encrypted file             [no ]








 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-15 - Download Configuration File

Table 3-11 - Download Configuration File

Field	Description
Download/Upload	This specifies whether to download or upload a configuration file.
TFTP Server IP	This is the IP address of the TFTP server where the configuration file is stored.
TFTP Server Port	This is the Server Port of the TFTP server where the configuration file is stored.
File Name	The file name of the configuration file.
Use encrypted file	This function use download mode only.

The Download Procedure is shown in Figure 3-16:

- Enter the IP address of the TFTP server and the file name, press Enter to start the TFTP download

- Press Ctrl-C to cancel the download process in case the TFTP server is not found

VENUS Series parses the downloaded file and processes the configuration

> **Note:**
>
> User may need to reboot the device to activate the new configuration.

```
Configuration              TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration

          Download/upload Configuration

          Download/Upload            [download]
          TFTP server IP             [172.16.5.75    ]
          TFTP server port           [69   ]
          file name (text)           [0090bbef8940.ini              ]
          Use encrypted file         [no ]


Downloading profile... Please Wait (press ctrl-c to cancel)...
Successfully download 0090bbef8940.ini from 172.16.5.75.
Processing configuration file...Done.

Press any key...


 ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-16 - Download Procedure of the Configuration File

3.5.1.6   Country Code

This menu is for selection of the pre-programmed POTS specification (the ring generation spec and the telephone tone spec) for some specific countries. For those countries not supported in the country selection list can setup the individual ring and tone spec within the Command Line Interface as well. Refer to Section 3.5.2, Section 3.8.2 and Chapter 5 for detailed information.

Countries supported are:

USA   Hong Kong   Taiwan   China

India   Sweden   Malaysia

The default setting is "**generic**".

Access Path: *Configuration* Menu -> *System* -> *Country Code.*

```
Configuration                      TAINET Venus 2804       Version 4.77b - Bld 7.0
=================================================================================
[System]   Interface      Routing Table     Security
 System Configuration




                   Select Country/Area Code

                   Country/Area Code          [generic  ]




  Press: SPACE to select
  TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-17 - Country Code Selection

3.5.1.7   QOS Configuration

Access Path: *Configuration* Menu -> *System* -> *QoS Configuration*.

```
Configuration                    TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
[System]   Interface     Routing Table     Security
 System Configuration



                +-----------------Qos mode-----------------+
                |                                          |
                |  Please Select the Priority (0 ~ 7)      |
                |                                          |
                |  Voice Priority                  [6  ]   |
                |  Signaling Priority              [6  ]   |
                |  Data Priority                   [0  ]   |
                |                                          |
                +------------------------------------------+




 Press: '0' - '7', SPACE, BS, DEL      <Must between 0 and 7>
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```
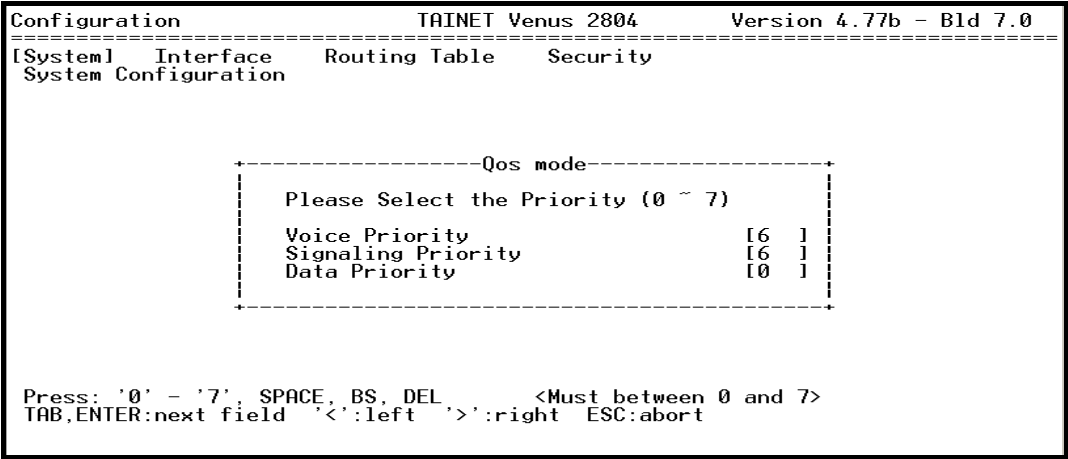
Figure 3-18 - QoS Configuration Selection

Table 3-12 - Description of QoS Configuration Selection Items

Field	Description
Voice Priority	Voice packet will add a priority value to IP header. The TOS (Type Of Service) for media stream digit 7 is highest and 0 is the lowest priority.
Signaling Priority	MGCP signaling packet will add a priority value to IP header. The digit 7 is highest and 0 is the lowest priority.
Data Priority	Data packet will add a priority value to IP header

3.5.1.8 T.38 Configuration

Access Path: Configuration Menu -> System -> T.38 Configuration.

```
Configuration              TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




                    T.38 Configuration

                    T.38 Auditing      [enable ]






 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-19 - T.38 Configuration Selection

Table 3-13 - Description of T.38 Configuration Selection

Field	Description
T.38 Auditing	The VENUS Series has T.38 function enable always. With the auditing enable can make GW to register FAX function to SoftSwitch in earlier stage. Somehow the SoftSwitch should support the receiving of T.38 Auditing first. Once the T.38 Auditing is changed to "enable", user would need to specify the control method, as shown in Figure 3-20. There are 2 control methods. The default one is 'MGC' (Media Gateway Controller) mode, and the 'MG' (Media Gateway) mode is used to communicate with other MG directly.

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```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




                      T +---------T.38 Auditing--------+
                        |                              |
                      T |    T.38 control method [MGC] |
                        |                              |
                        +------------------------------+




 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-20 - T.38 Control Method

3.5.1.9   Authentication

Access Path: *Configuration* Menu -> *System* -> Authentication.

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration

              Authentication

              Authentication    [Disable ]
              Initial Key (Ki) [                              ]
              Gateway ID (MGID) [                              ]






 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-21 - Authentication Configuration

Table 3-14 - Description of Authentication Configuration Item.

Field	Description
Authentication	The authentication "enable" can secure the connection between GW and SoftSwitch. To which GW without this authentication will never register with the SoftSwitch.
Initial key	It's a generated key provided by SoftSwitch operator or VoIP service provider.
Gateway ID (NGID)	An identification name used to register with SoftSwitch.

3.5.1.10   Call Features

Access Path: *Configuration* Menu -> *System* -> *Call Features*

```
Configuration                  TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface     Routing Table     Security
 System Configuration




              Call Features

              Hot Line                  [disable]
              Deny Second Stage Dialing [disable]
              Max Flash Hook Time (msec) [500  ]
              Caller ID Type            [FSK-Bellcore]



 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-22 - Call Features Configuration

Table 3-15 - Description of Call Features Configuration Item

Field	Description
Hot Line	When the user picks up the phone, the gateway automatically dials your assigned hotline number. When in hotline mode, other lines can not be used.
Deny Second Stage Dialing	This option is to restrict callers within 2 networks.
Max Flash Hook Time	This option specified the maximum detection period (in msec) for flash hook.
Caller ID Type	This item have four modes can be choose which include FSK-Bellcore, FSK-ETSI, DTMF, Disable.

3.5.1.11   RTP Configuration

Access Path: *Configuration* Menu -> *System* -> *RTP Configuration*

Figure 3-23 -RTP Configuration

Table 3-16 - Description of RTP Configuration Items

Field	Description
RTP Port Base	The UDP port starting number for Real-time Transport Protocol.
RTP Filter	When enabled, this feature filters out RTP packets other than those packets coming from gateways that are indicated by the SoftSwitch. This is used to avoid the interruption from other gateways in order to maintain the conversation quality. For those gateways that don't support RTP filter control and can't transmit and receive RTP using the same port, it is suggested to disable this feature. Otherwise, it may cause one-way communication.
RFC-2833	It enables the RTP Payload to carry dual-tone multi-frequency (DTMF) signaling, other tone signals and telephony events in RTP packets. On the contrary the DTMF signaling is packed as voice data when RFC-2833 is disabled.
2833 Payload Type	The payload type of RFC-2833 standard.
Send Receive before off hook	This item is used to inter-operate with certain call agents where a connection is made before "off hook" detected.
Clean RTP when CA reset	If call agent is crashing, the Venus will break the RTP package.

3.5.1.12   DSP Configuration

Access Path: Configuration Menu -> System -> DSP Configuration

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




                       DSP Configuration

                       DSP allocation method [FIFO          ]






 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```
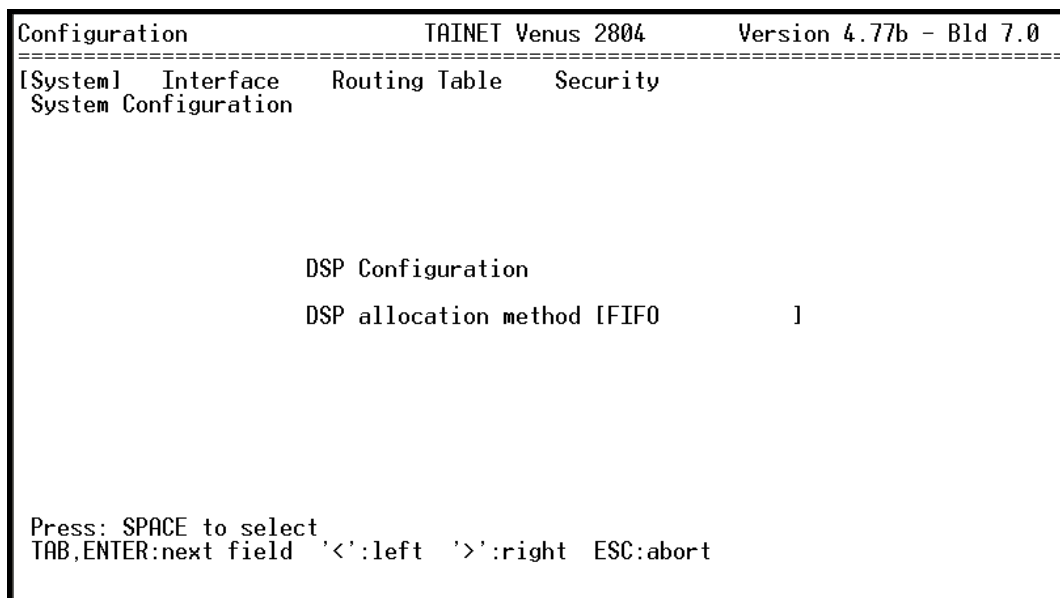
Figure 3-24 - DSP Configuration

Table 3-17 - Description of DSP Configuration Items

Field	Description
DSP Configuration	This item specifies the DSP chip channel register method.
FIFO	If the item is enabled, the first call will get the first channel of DSP chip no matter from any port in system.
Static Mapping	If the item is enabled, the first port will corresponds first channel of DSP chip, meanwhile, the second port will corresponds second channel of DSP chip.

3.5.1.13   Provision Configuration

Access Path: Configuration Menu -> System -> Provision Configuration

```
Configuration                    TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
[System]   Interface    Routing Table    Security
 System Configuration




          Provision Configuration
          <By BootP>
          TFTP server IP              172.16.0.2
          TFTP server Port          [69        ]
          File name                   0090bbef8940.ini
          Use encrypted file        [no ]




 Press: '0' - '9', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-25 - Provision Configuration

Table 3-18 - Description of Provision Configuration Items

Field	Description
TFTP Server IP	This is the IP address of the TFTP server where the configuration file is stored.
TFTP Server Port	This is the Server Port of the TFTP server where the configuration file is stored.
File Name	The file name of the configuration file.

3.5.2   Interface

Use this menu to configure the hardware interface of the device. The WAN interface is the interface for WAN IP network connection. The LAN interface is the interface for LAN local IP network connection. VENUS Series uses the 10/100BaseT Ethernet to connect to the IP network.

Table 3-19 - The Interface Menus Items
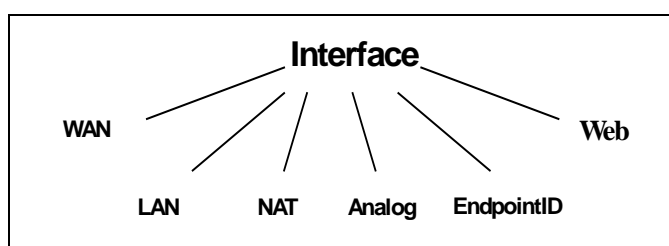
3.5.2.1   WAN

Access Path: *Configuration* Menu -> *Interface* -> *WAN*.

```
Interface                      TAINET Venus 2804      Version 4.77b - Bld 7.0
==============================================================================
[WAN ]  LAN    NAT     Analog     Life-Line    Web    EndpointID    Meter
 WAN Configuration




                     WAN

                     Ethernet Type     10/100Base-T
                     IP Address       [172.16.15.243  ]
                     Net Mask         [255.255.240.0  ]
                     Default GW       [172.16.0.254   ]
                     PPP over ethernet [disable]


                                                                             I

 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-26 - WAN Interface Configuration

Table 3-20 - Description of WAN Interface Configuration Items

Field	Description
IP Address	This is the static IP address for the WAN interface (the 10/100BaseT Fast Ethernet port) of VENUS Series. If the DHCP client feature is not enabled, VENUS Series uses this address as its own IP address. Either a public or private IP address can be assigned. Each gateway must have a unique IP and MAC address. VENUS Series supports the Address Resolution Protocol (ARP) that can help to check the IP address and MAC address of the device. In case the DHCP/BootP client feature is enabled, VENUS Series will try to obtain the IP address dynamically. The static IP address assigned in this field is unused. The terminal UI will indicate the obtained IP address instead (See Figure 3-19)
Net Mask	This IP Mask defines the domain of the local network. The destination IP address is AND with this mask to decide if it is located in the same local network. Class A (255.0.0.0) network; Class B (255.255.0.0) network, Class C (255.255.255.0) network, as well as sub-network are all supported.
PPP over Ethernet	PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as a single DSL line, wireless device or cable modem.

Access Path: Configuration Menu -> Interface -> WAN ->PPP over Ethernet.

```
Interface                   TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[WAN ]   LAN     NAT      Analog     Life-Line    Web    EndpointID    Meter
 WAN Configuration

    +----------------------------PPP over ethernet----------------------------+
    |                                                                         |
    |    User name                                 [                      ] |
    |    Password                                  [                      ] |
    |    Service name(null:accept all services) [                         ] |
    |    Use default gateway on remote network   [yes]                       |
    |    Auto reconnect while link down          [yes]                       |
    |    Connection retry interval(sec) >= 2     [2    ]                      |
    |    LCP echo request interval(sec) >= 10    [30   ]                      |
    |    Maximum LCP echo failure >= 2           [2    ]                      |
    |                                                                         |
    |    Link status: [down] Connect now?        [no ]                       |
    |                                                                         |
    +-------------------------------------------------------------------------+


 Press: ASCII, SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-27 - PPP over Ethernet Configuration

Table 3-21 - Description of PPP over Ethernet Configuration Items

Field	Description
User name	The register name that can login PPPoE RAS server to get the dynamic IP.
Password	The login password that can pass the RAS authentication.
Service name (null: accept all services)	The Service Provider's name for recognition.
Use default gateway on remote network	Enabling this feature allows the system to use the default gateway specified by the server.
Auto reconnect while link down	With this function enabled, the system would automatically re-register with the server when the link is disconnected.
Connection retry interval (sec) >=2	The waiting time between PPPoE disconnection and re-connect.
LCP echo request interval (sec) >=10	LCP includes Echo-Request and Echo-Reply Codes in order to provide a Data Link Layer loopback mechanism for use in exercising both directions of the link. This is useful as an aid in debugging, link quality determination, performance testing, and for numerous other functions. Upon reception of an Echo-Request in the LCP Opened state, an Echo-Reply MUST be transmitted. This option can be used with the lcp-echo-failure option to detect that the peer is no longer connected.
Maximum LCP echo failure >=2	If this option is given, PPP daemon will presume the peer to be dead if n LCP echo-requests are sent without receiving a valid LCP echo-reply. If this happens, PPP daemon will terminate the connection. Use of this option requires a non-zero value for the lcp-echo-interval parameter. This option can be used to enable PPP daemon to terminate after the physical connection has been broken (e.g., the modem has hung up) in situations where no hardware modem control lines are available.
Link status: [down] Connect now?	Check the link status and request to re-connect immediately.

Note:

When PPPoE is enabled, all VoIP related data, such as RTP and MGCP messages, would be sent through PPPoE.

3.5.2.2   LAN

Use this menu to configure the LAN interface of the device. LAN supports two modes: Switch and Router.

> **Note:**
>
> For 2832 series, LAN interface will only be available with UTP-2 Module is installed.

3.5.2.2.1   Switch Mode

Access Path: Configuration Menu -> Interface -> LAN -> Switch Mode

Under Switch Mode, the LAN interface use the same IP address of WAN and supports different VLAN function to enhance the QoS availability.

```
Interface                   TAINET Venus 2804      Version 4.77b - Bld 7.0
==============================================================================
 WAN    [LAN ]   NAT      Analog     Life-Line    Web    EndpointID    Meter
 LAN Configuration




                +---------------Mode:----------------+
                |                                     |
                |   Switch Mode                       |
                |                                     |
                |   VLAN Configuration [Port-based VLAN] |
                |                                     |
                +-------------------------------------+




 Press: SPACE to select , ENTER to edit
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```
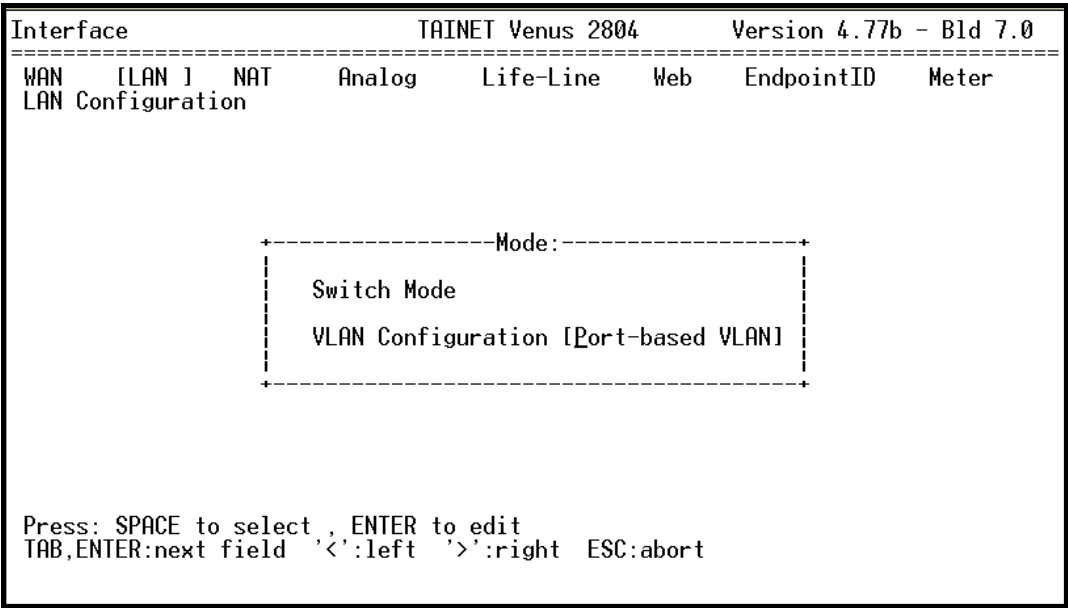
Figure 3-28 - LAN Interface Configuration

Table 3-22 - Description of LAN Interface Configuration Items

Field	Description
Port-based VLAN	To build up a virtual LAN under a group of specified Ethernet ports. There are three groups can be used.
VLAN Priority	Define the VLAN priority in different interface. "1" is the lowest priority and "4" is the highest priority.

Access Path: *Configuration* Menu -> *Interface* -> *LAN-> Switch Mode* -> Port-based VLAN

```
Interface                    TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
 WAN    [LAN ]   NAT      Analog      Life-Line     Web     EndpointID     Meter
 LAN Configuration

                     +-----------Port-based VLAN-----------+
                     |                                     |
                     |          WAN port  LAN port  Local  |
                     |                                     |
                     |  Group1    yes       yes      yes   |
                     |  Group2    yes       yes      yes   |
                     |  Group3    yes       yes      yes   |
                     |                                     |
                     |                                     |
                     |                                     |
                     |                                     |
                     |                                     |
                     +-------------------------------------+


 Press: SPACE to select , ENTER to edit
 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-29 - Port-based VLAN Configuration

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3.5.2.2.2   Router Mode

Access Path: Configuration Menu -> Interface -> LAN ->Router Mode

Under Router Mode, a different IP from WAN IP would need to be assigned.

```
Interface                      TAINET Venus 2804        Version 4.74  - Bld 7.0
================================================================================
WAN    [LAN ]   NAT     Analog      Life-Line    Web    EndpointID     Meter
LAN Configuration




                    +----------------Mode:----------------+
                    |                                     |
                    |  Router Mode                        |
                    |                                     |
                    |  LAN IP Address [0.0.0.0        ]   |
                    |  LAN Net Mask   [0.0.0.0        ]   |
                    |                                     |
                    +-------------------------------------+




Press: '0' - '9', '.', SPACE, BS
TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-30 - LAN Configuration Under Router Mode

3.5.2.3   NAT Configuration

Network Address Translation (NAT) works only when LAN is configured as router mode. VENUS NAT router allows nodes on the private network (LAN side) to transparently communicate with nodes on the external network (WAN side) and vice versa.

Access Path: Configuration Menu -> Interface -> NAT

```
Interface                      TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
WAN     LAN     [NAT ]   Analog      Life-Line    Web    EndpointID     Meter
NAT Configuration




              NAT

              Enable NAT [yes]




Press: SPACE to select
TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-31 - NAT Configuration

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When NAT is enabled, the following menu, shown in Figure 3-23 gives user the option to specify nodes on the LAN side that can be accessible by nodes on the WAN side.

```
Interface                         TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
 WAN     LAN    [NAT ]    Analog     Life-Line    Web     EndpointID    Meter
 NAT Configuration

      Internal Source IP   Internal Port No.   Protocol   External Port No.

1   [0.0.0.0       ]    [0    ]            [TCP]      [0    ]
2    0.0.0.0             0                  TCP        0
3    0.0.0.0             0                  TCP        0
4    0.0.0.0             0                  TCP        0
5    0.0.0.0             0                  TCP        0
6    0.0.0.0             0                  TCP        0
7    0.0.0.0             0                  TCP        0
8    0.0.0.0             0                  TCP        0
9    0.0.0.0             0                  TCP        0
10   0.0.0.0             0                  TCP        0
11   0.0.0.0             0                  TCP        0
12   0.0.0.0             0                  TCP        0


 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-32 - NAPT Configuration

3.5.2.4   Analog

Use this menu to configure the analog characteristics of the dial line. It includes Ring, Tones, Direct Inward Dialing, Line Reversal, and Long Loop ability.

Table 3-23 - The Analog Menu Items
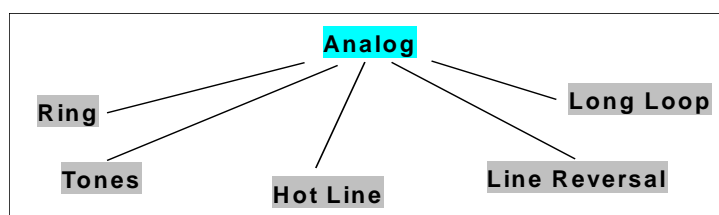
3.5.2.5   Ring

Table 3-24 - The Ring Menu Items
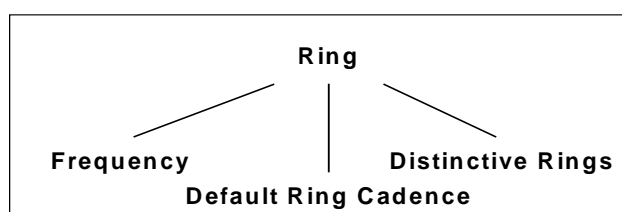
Access Path: Configuration Menu -> Interface -> Analog ->Ring

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
===============================================================================
[Ring]   Tones     Hot Line     Line Reversal     Long Loop
 Ring Configuration

                        +-------------Ring Configuration------------+
                        |<Frequency>          Default Ring Cadence  |
                        | Distinctive Rings                         |
                        +-------------------------------------------+







 TAB:next  '>':forward  '<':backward  ENTER:select  ESC:abort
```

Figure 3-33 -Ring Configuration

Table 3-25 - Description of Ring Configuration Items

Field	Description
Frequency	To adjust the Ring tone frequency from 17 ~ 40Hz.
Default Ring Cadence	To setup the different ON, OFF time and duration of Ring tone. Where the [ON]/[OFF] items is the ring cycle ON time/OFF time at 100ms based. For example, to set [ON]=10 equal to 1 second ON time. Where the [duration] item is the total ring duration at 1ms based. For example, to set [duration]=180000 equal to 3 minutes.
Distinctive Rings	To generate a sequence of different frequency ring. It does same behavior of "Default Ring Cadence" and more attractive.

Access Path: Configuration Menu -> Interface -> Analog ->Ring ->Frequency

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
===============================================================================
[Ring]   Tones     Hot Line     Line Reversal     Long Loop
 Ring Configuration




              Please Set the Frequency (17 ~ 50Hz)

              Ring Frequency                         [23 ]




 Press: '0' - '9', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-34-Ring Frequency Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Ring ->Default Ring Cadence

```
Analog                        TAINET Venus 2804      Version 4.77b - Bld 7.0
============================================================================
[Ring]   Tones    Hot Line    Line Reversal    Long Loop
 Ring Configuration

     on1  off1  on2  off2  on3  off3  duration

1    10   30    0    0     0    0      180000




        

        




 [on]/[off]  is the ring cycle ON time/OFF time (100ms based)
 [duration] is the total duration  (1ms based)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-35 -Default Ring Cadence Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Ring -> Distinctive Rings

```
Analog                        TAINET Venus 2804      Version 4.77b - Bld 7.0
============================================================================
[Ring]   Tones    Hot Line    Line Reversal    Long Loop
 Ring Configuration

     on1  off1  on2  off2  on3  off3  duration

1    20   40    0    0     0    0      180000
2    8    4     8    40    0    0      180000
3    4    2     4    2     8    40     180000
4    3    2     10   2     3    40     180000
5    5    1     0    0     0    0      600
6    5    2     3    2     5    30     180000
7    20   40    0    0     0    0      180000
8    30   50    0    0     0    0      180000
9    5    1     0    0     0    0      600



 [on]/[off]  is the ring cycle ON time/OFF time (100ms based)
 [duration] is the total duration  (1ms based)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-36-Distinctive Ring Configuration

3.5.2.6   Tones

Table 3-26 - The "Tone" menu items
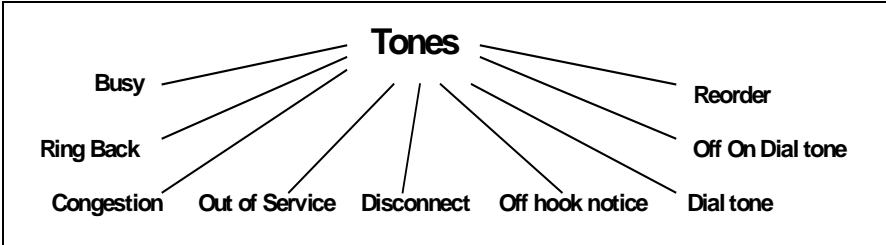
Figure 3-37-Tone Configuration

Table 3-27 - Description of Tone Configuration Items

Field	Description
Busy	All fields in Table 3-27 are used to setup the different frequency and amplitude of different tone duration. Where the "freq" is the frequency in Hertz based, "amp" is the amplitude in 0.1dB based and the "t" is the total duration of one cycle in ms based. For keeping the cycle into forever then setup "t"= -1.
Ring Back	
Congestion	
Out of Service	
Disconnect	
Off-hook Notice	
Dial Tone	The Congestion Tone will be applied to the interface when the network cannot connect the dialed call.
Off On Dial Tone	
	The Reorder tone is an audible or visual signal that indicates a called number is occupied or otherwise unavailable.
Reorder	

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Busy

```
Analog                        TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring    [Tones]   Hot Line     Line Reversal     Long Loop
 Tone Configuration

      freq1   amp1    freq2   amp2    freq3   amp3    freq4   amp4    t (ms)

1     480    -240    620    -240    0      0      0      0      500
2     0      0      0      0      0      0      0      0      500
3     0      0      0      0      0      0      0      0      0
4     0      0      0      0      0      0      0      0      0
5     0      0      0      0      0      0      0      0      0
6     0      0      0      0      0      0      0      0      0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-38 - Busy Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Ring Back

```
Analog                        TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring    [Tones]   Hot Line     Line Reversal     Long Loop
 Tone Configuration

      freq1   amp1    freq2   amp2    freq3   amp3    freq4   amp4    t (ms)

1     440    -190    480    -190    0      0      0      0      2000
2     0      0      0      0      0      0      0      0      4000
3     0      0      0      0      0      0      0      0      0
4     0      0      0      0      0      0      0      0      0
5     0      0      0      0      0      0      0      0      0
6     0      0      0      0      0      0      0      0      0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-39 - Ring Back Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Congestion

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]   Hot Line    Line Reversal    Long Loop
 Tone Configuration

        freq1   amp1     freq2  amp2     freq3  amp3     freq4   amp4     t (ms)

1       480     -240     620    -240     0      0        0       0        250
2       0       0        0      0        0      0        0       0        250
3       0       0        0      0        0      0        0       0        0
4       0       0        0      0        0      0        0       0        0
5       0       0        0      0        0      0        0       0        0
6       0       0        0      0        0      0        0       0        0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-40- Congestion Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Out of Service

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]   Hot Line    Line Reversal    Long Loop
 Tone Configuration

        freq1   amp1     freq2  amp2     freq3  amp3     freq4   amp4     t (ms)

1       950     -130     0      0        0      0        0       0        330
2       1400    -130     0      0        0      0        0       0        330
3       1800    -130     0      0        0      0        0       0        330
4       0       0        0      0        0      0        0       0        5000
5       0       0        0      0        0      0        0       0        0
6       0       0        0      0        0      0        0       0        0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-41 - Out of Service Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Disconnect

```
Analog                         TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]  Hot Line    Line Reversal    Long Loop
 Tone Configuration

      freq1  amp1    freq2  amp2    freq3  amp3    freq4  amp4    t (ms)

1     480   -240    620   -240     0      0       0      0       250
2     0      0      0      0       0      0       0      0       250
3     480   -240    620   -240     0      0       0      0       250
4     0      0      0      0       0      0       0      0       -1
5     0      0      0      0       0      0       0      0       0
6     0      0      0      0       0      0       0      0       0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-42 - Disconnect Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->off-hook Notice

```
Analog                         TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]  Hot Line    Line Reversal    Long Loop
 Tone Configuration

      freq1  amp1    freq2  amp2    freq3  amp3    freq4  amp4    t (ms)

1     1400  -130    2060  -130    2450  -130    2600  -130     100
2     0      0      0      0       0      0       0      0       100
3     0      0      0      0       0      0       0      0       0
4     0      0      0      0       0      0       0      0       0
5     0      0      0      0       0      0       0      0       0
6     0      0      0      0       0      0       0      0       0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-43 - Off-Hook Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Dial Tone

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]   Hot Line    Line Reversal    Long Loop
 Tone Configuration

      freq1  amp1    freq2  amp2    freq3  amp3    freq4  amp4    t (ms)

1    350    -130    440    -130    0      0      0      0      -1
2    0      0      0      0      0      0      0      0      0
3    0      0      0      0      0      0      0      0      0
4    0      0      0      0      0      0      0      0      0
5    0      0      0      0      0      0      0      0      0
6    0      0      0      0      0      0      0      0      0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item   ENTER:edit item   '<':page up   '>':page down   ESC:abort
```

Figure 3-44 - Dial Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Off On Dial Tone

```
Analog                          TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]   Hot Line    Line Reversal    Long Loop
 Tone Configuration

      freq1  amp1    freq2  amp2    freq3  amp3    freq4  amp4    t (ms)

1    350    -130    440    -130    0      0      0      0      100
2    0      0      0      0      0      0      0      0      100
3    0      0      0      0      0      0      0      0      0
4    0      0      0      0      0      0      0      0      0
5    0      0      0      0      0      0      0      0      0
6    0      0      0      0      0      0      0      0      0




 [freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
 [t] is the duration, in ms, of this tone element (-1:forever)

 TAB:next item   ENTER:edit item   '<':page up   '>':page down   ESC:abort
```

Figure 3-45 - Off On Dial Tone Configuration

Access Path: Configuration Menu -> Interface -> Analog ->Tones ->Reorder

```
Analog                        TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
 Ring   [Tones]  Hot Line    Line Reversal    Long Loop
 Tone Configuration

      freq1  amp1    freq2  amp2    freq3  amp3    freq4  amp4    t (ms)

1     480    -240    620    -240    0      0       0      0       250
2     0      0       0      0       0      0       0      0       250
3     0      0       0      0       0      0       0      0       0
4     0      0       0      0       0      0       0      0       0
5     0      0       0      0       0      0       0      0       0
6     0      0       0      0       0      0       0      0       0




[freq1]~[freq4] is frequency,in Hertz;[amp1]~[amp4] is the amplitude,in 1/10db
[t] is the duration, in ms, of this tone element (-1:forever)

TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-46 - Reorder Tone Configuration

3.5.2.7 Hot Line Configuration

FXS port: When the user picks up the phone, Venus Gateway automatically dials your assigned hotline number. When in hotline mode, other lines cannot be called.

FXO port: When receiving a call from an outside line, Venus Gateway will divert the call to the assigned hotline number.

■ Hot Line Code: Enter the hot line number for an automatic dialing function.

■ Hot Line Dial Wait: when the hotline function is in use, Venus Gateway will divert incoming calls from an outside line after a set wait time.

```
Analog                        TAINET Venus 2804       Version 4.77b - Bld 7.0
=============================================================================
 Ring    Tones   [Hot Line]   Line Reversal    Long Loop
 Hot Line Configuration

     Hot Line Number < The Max length of Phone Number is 32 >

1
2
3
4








 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-47 - Direct Inward Dial Configuration

3.5.2.8   Line Reversal

When the caller hangs up, this feature provides a momentary reversal of Tip and Ring that causes the switch to stop conducting and release the line. It's a polarity reversal that used to signal the phone and tell it that a call has been completed. There is 32 ports can be set individually for Venus 2832 series, 8 ports for Venus 2808 and 4 ports for Venus 2804.

```
Analog                      TAINET Venus 2804       Version 4.77b - Bld 7.0
================================================================================
 Ring    Tones   [Hot Line]   Line Reversal    Long Loop
 Hot Line Configuration

     Hot Line Number < The Max length of Phone Number is 32 >

1
2
3
4





 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-48 - Line Reversal Configuration

3.5.2.9   Long Loop

The "Long Loop" feature extends the distance for analog interfaces to be greater than 3Km.

```
Analog                        TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
 Ring    Tones   Hot Line    Line Reversal   [Long Loop]
 Long Loop Configuration



                  Long Loop Configuration

                  Long Loop                 [enable ]






 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-49- Long Loop Configuration

3.5.2.10 Life Line Configuration

User is able to configure Prefix for PSTN Line Seizure.

```
Interface                       TAINET Venus 2804      Version 4.77b - Bld 7.0
==============================================================================
 WAN     LAN     NAT     Analog    [Life-Line]   Web    EndpointID    Meter
 Life-Line Configuration




         Life-Line Configuration

         Prefix for PSTN Line Seizure:              [#*1                    ]
         PSTN max. Ring off-time (30~70, 100ms base): [40 ]
         Life-Line with ch#(1 ~ 4):                 [1  ]
         Ring Counter(0:disable, 5 ~ 20):           [0  ]




 Press: '0' - '9', '#', '*', SPACE , BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-50– Life-Line Configuration

Table 3-28 – Description of Life-Line items

Field	Description
Prefix for PSTN Line Seizure	A prefix number that user want dial out via PSTN line.
PSTN max.	MAX ring time limit for PSTN line.

3.5.2.11   Web

User is able to configure the VENUS by WEB browser.

```
Interface                    TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
 WAN     LAN     NAT     Analog     Life-Line   [Web]   EndpointID    Meter
Web UI Configuration


                   Web UI Configuration

                   Enable Web UI       [yes]
                   Web Server Port     [80  ]







 Press: SPACE to select
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-51- WEB Configuration

Table 3-29 - Description of Web Service Configuration

Field	Description
Enable Web UI	This item specifies the Web function whether to use or not.
Web Server Port	This item specifies the port of web browser.

3.5.2.12 Endpoint ID

In this item user can create Endpoint ID by self.

```
Interface                    TAINET Venus 2804      Version 4.77b - Bld 7.0
========================================================================
 WAN     LAN     NAT     Analog     Life-Line    Web   [EndpointID]   Meter
 EndpointID user-defined

     user-defined name   <max length is 32>

1
2
3
4








 TAB:next item  ENTER:edit item  '<':page up  '>':page down  ESC:abort
```

Figure 3-52- Endpoint ID Configuration

3.5.2.13 Meter

User can configure Meter settings

```
Interface                    TAINET Venus 2804      Version 4.77b - Bld 7.0
========================================================================
 WAN     LAN     NAT     Analog     Life-Line    Web    EndpointID    [Meter]
 Metering Configuration

            Metering Signal Configuration

            Voltage(0.01V) 10-230        [59       ]
            Slope(0.01mA) 10-850         [415      ]
            Duration(ms) 30-600          [150      ]
            Pause(ms)                    [100      ]
            Ramping                      [Smooth]






 Press: '0' - '9', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-53 - Endpoint ID Configuration

3.5.3   Routing Table

Table 3-30 - The Routing Table Menu Items
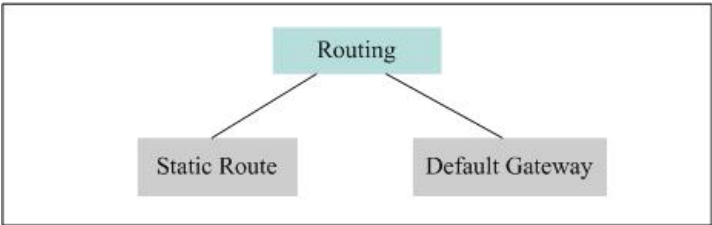
3.5.3.1   Static Routing

Access Path: Configuration Menu -> Routing Table -> Static Routing.

```
Configuration                    TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
  System     Interface   [Routing Table]    Security
  Routing Table Configuration

      Destination        NetMask           Nexthop          Metric
1     0.0.0.0            0.0.0.0           0.0.0.0          0
2     0.0.0.0            0.0.0.0           0.0.0.0          0
3     0.0.0.0            0.0.0.0           0.0.0.0          0
4     0.0.0.0            0.0.0.0           0.0.0.0          0
5     0.0.0.0            0.0.0.0           0.0.0.0          0
6     0.0.0.0            0.0.0.0           0.0.0.0          0
7     0.0.0.0            0.0.0.0           0.0.0.0          0
8     0.0.0.0            0.0.0.0           0.0.0.0          0
9     0.0.0.0            0.0.0.0           0.0.0.0          0
10    0.0.0.0            0.0.0.0           0.0.0.0          0
11    0.0.0.0            0.0.0.0           0.0.0.0          0
12    0.0.0.0            0.0.0.0           0.0.0.0          0


  TAB:next item   ENTER:edit item   '<':page up   '>':page down   ESC:abort
```

Figure 3-54 - Static Routing Configuration

Static routing are those paths manually defined by user for the VENUS Series. User may use static routes to establish some specific fixed connections. Maximum 20 static routes can be configured.

Table 3-31 - Static Routing Configuration

Field	Description
Destination	This parameter specifies the IP network address of the final destination. Routing mechanism is based on the target IP address and the network domain. If you need to specify a route to one single host, use the subnet mask of 255.255.255.255 in the subnet mask field to force the VENUS Series to route all the packets for this single host thru the designated router (the next hop).
NetMask	Enter the subnet mask for this destination. This mask defines the group of the destination nodes.
NextHop	Enter the IP address of the next hop (router). This is a neighbor node of your VENUS Series that will forward the packet to the destination node out side the subnet domain.
Metric	The metric represents the cost of transmission for routing purposes. IP routing uses hop count as the measurement of cost, where a minimum of 1 means the directly connected networks. Enter a number that approximates the cost for this link. The number need not be precise, but it must be between 1 and 15. In practice, 2 or 3 is usually a good number.

3.5.3.2   Default Gateway

Access Path: Configuration Menu -> Routing Table -> Default Gateway.

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
 System    Interface   [Routing Table]   Security
 Routing Table Configuration




                    Default Gateway [172.16.0.254   ]






 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-55 - Default Gateway Configuration

To send an IP packet to a node (for example to the MGCP Call Manager or another VoIP gateway) outside the local network domain, the IP packet is sent first to the Default Gateway (usually a router) where the packet is forwarded to the destination or the next node (another router). This item defines the IP address of the Default Gateway.

3.5.4 Security

Select these items to change the User Name and Password for Root Account and General User Account. Root account has the privilege to access every possible configuration or information for the device. As for General User Account, it has limited access privilege. For an example, General User Account cannot provision MGCP related items.

Note that both User Name and Password are case sensitive. Keep a note for the User Name and Password, in case you forget them. Contact technical support if you cannot remember the setup. User should change the password for both accounts in order to protect the VENUS Series from unauthorized access.

Access Path: *Configuration* menu -> *Security*

```
Configuration                  TAINET Venus 2804        Version 4.77b - Bld 7.0
===============================================================================
 System    Interface   Routing Table   [Security]
 Security Configuration

              +-----------------------Security-----------------------+
              |<Root Account Setup>        General User Account Setup |
              +------------------------------------------------------+




 TAB:next  '>':forward  '<':backward  ENTER:select  ESC:abort
```

Figure 3-56 - System Security Configuration

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
 System    Interface    Routing Table    [Security]
 Security Configuration



                   Root Account Setup

                       Username:           [user                      ]
                       Password:           [                          ]
                       Re-type Password:   [                          ]





 Press: ASCII, SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-57 - Root Account Configuration

```
Configuration                    TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
 System    Interface    Routing Table    [Security]
 Security Configuration



                   General User Account Setup

                       Username:           [operator                  ]
                       Password:           [                          ]
                       Re-type Password:   [                          ]





 Press: ASCII, SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```
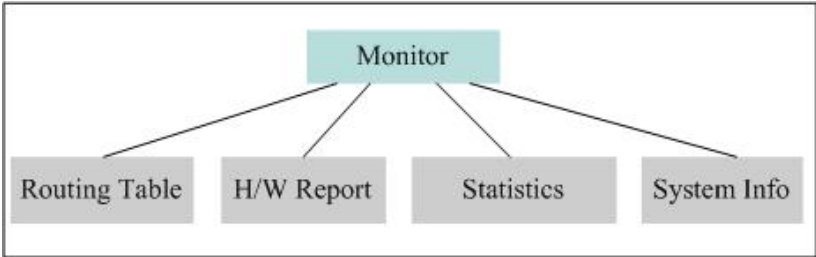
Figure 3-58 - General User Account Configuration

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3.6 Monitoring

Table 3-32 - The "System Monitoring" Menu Items

3.6.1 Routing Table Monitoring

The Routing table shows all the routing information of your VENUS Series. The internal defined loop back route, the static route and the route for the Default Gateway are all shown here.

Access Path: *Monitoring* Menu -> *Routing Table*.

```
Monitoring                    TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
[Routing Table]   H/W Report    Statistics    System Info
  View Routing Table

     Destination        NetMask            Nexthop         Iface       Type  Mtr

1    127.0.0.0          255.0.0.0          127.0.0.1       LPBK        UI    1
2    224.0.0.1          255.255.255.255    127.0.0.1       LPBK        UI    1
3    172.16.0.0         255.255.240.0      172.16.15.243   WAN         UI    1
4    172.16.15.243      255.255.255.255    127.0.0.1       LPBK        UI    1
5    0.0.0.0            0.0.0.0            172.16.0.254     WAN         US    1







     SPACE:refresh page   '<':page up   '>':page down   ESC:abort
```

Figure 3-59 - Routing Table Monitoring

Table 3-33 - Description of Routing Table Monitoring Items

Field	Description
Destination	It specifies the IP network address of the final destination. If "0.0.0.0" appears in the field, this entry specifies the "Default Gateway" of route information.
NetMask	It represents the IP netmask of the destination IP address.
NextHop	It represents the IP address of the next router for transmission of the IP datagram to the destination network segment.
Iface	Identify the IP routing to the corresponding interface LPBK: loopback interface WAN: WAN interface LAN: LAN interface
Type	The first character (Status) U: The route is valid (up) and in use. D: The route is invalid (down) and has a metric of 16 (RIP infinity) The second character (Source) I: The route is a direct connection R: the route was established from RIP information. S: The route is a static route.
Mtr	The metric represents the cost of transmission for routing purposes.

3.6.2   H/W Report Monitoring

Hardware information, such as the number and type of interface card installed, the number of total POTS ports supported, and the hardware diagnosis result, are listed in the H/W Report Monitoring menu.

Access Path: *Monitoring* Menu -> *H/W Report*.

```
Monitoring                    TAINET Venus 2804      Version 4.77b - Bld 7.0
==============================================================================
 Routing Table   [H/W Report]    Statistics    System Info
 Hardware Configuration and Diagnosis Report

             Hardware Configuration and Diagnosis Report:

               Boot code version: 1.04
               Backup MAC: 00:90:bb:ef:89:40
               Hardware Platform: 04+ duslic

               Base Unit: V4.0
               Analog FXS Loop Start port x 4
               Diagnosis Result: Pass
               No hardware failure detected

               press any key to continue...




 ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-60 - H/W Report Monitoring

3.6.3   Statistics Monitoring

The interfaces menu provides statistics information collected for monitoring the interface packet flow.

Access Path: Monitoring Menu -> Statistics -> Interfaces

```
Statistics                      TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[Interfaces]   NAT    DHCP Server
 View Interface Statistics


                        +Interface-+
                        |<All> WAN |
                        +----------+










 TAB:next  '>':forward  '<':backward  ENTER:select  ESC:abort
```

Figure 3-61 - Interface Statistics Monitoring

Access Path: Monitoring Menu -> Statistics -> Interfaces->All

```
Statistics                      TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[Interfaces]   NAT    DHCP Server
 View Interface Statistics

    Iface  RX:octets   pkts        err pkts    TX:octets   pkts        err pkts
1   WAN    771263195   522285      0           5046660     84111       0










 SPACE:refresh page  '<':page up  '>':page down  ESC:abort
```

Figure 3-62 - All Interface Statistics Monitoring

WAN shows more detailed information on each interface.

Access Path: Monitoring Menu -> Statistics -> Interfaces->WAN

```
Statistics                      TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[Interfaces]   NAT    DHCP Server
 View Interface Statistics

                      Interface Statistics: WAN

                      Tx Octets               5047260
                      Tx Packets              84121
                      Tx Broadcast Packets    0
                      Tx Discarded Packets    0

                      Rx Octets               771393950
                      Rx Packets              0
                      Rx Broadcast Packets    522395
                      Rx Discarded Packets    0
                      Rx Unknow Protocols     508675




 ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-63 - WAN Interface Statistics Monitoring

3.6.3.1.1   NAT statistics

NAT statistics provide the information of NAPT translation usage per protocol type.

Access Path: *Monitoring* Menu -> *Statistics* ->*NAT*

```
NAT                             TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[NAT Statistics]   TCP Translation    UDP Translation    ICMP Translation
 View NAT Statistics
           NAT statistics:

                  Current Peak    Max

           TCP:   0       0       400

           UDP:   0       0       150

           ICMP:  0       0       50




 Press any key to continue!
```

3.6.3.1.2   DHCP Server statistics

Access Path: Monitoring Menu -> Statistics ->DHCP Server

```
DHCP Server                  TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
[DHCP Server Statistics]   IP Binding Table
 View DHCP Server Statistics

             DHCP Server statistics:

                         Current Peak     Max

             BINDING:        0      0     101

             OFFERED:        0      0     101








Press any key to continue!
```

Figure 3-64 - DHCP Server Statistics Configuration

3.6.4   System Info Monitoring

This menu briefly summarizes the system information including the System Up Time since the device is powered on.

Access Path: *Monitoring* Menu -> *System Info*.

```
Monitoring                   TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
 Routing Table   H/W Report   Statistics   [System Info]
 View System Information

             System Information:

             SNMP agent:           disable
                  trap:            disable

             DHCP/BootP client:    disable

             PPP over ethernet:    disable

             System Up Time:       0 day 00h:02m:05s





Press any key to continue!
```
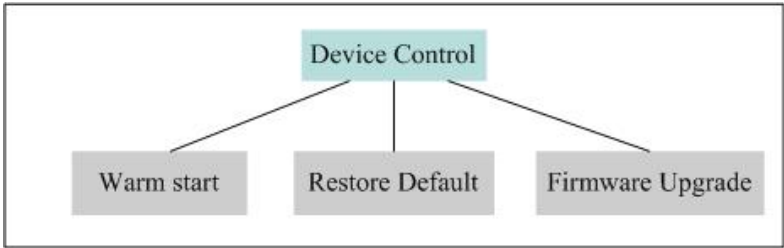
Figure 3-65 - System Information Monitoring

3.7 Device Control

3.7.1 Warm Start

After changing some configurations of the device, it may be required to restart the device to activate the new configuration. Use this menu to reset the VENUS Series.

> **Caution:**
>
> Reset the gateway only when there is no phone call in progress. Otherwise, VoIP service will be abruptly terminated.
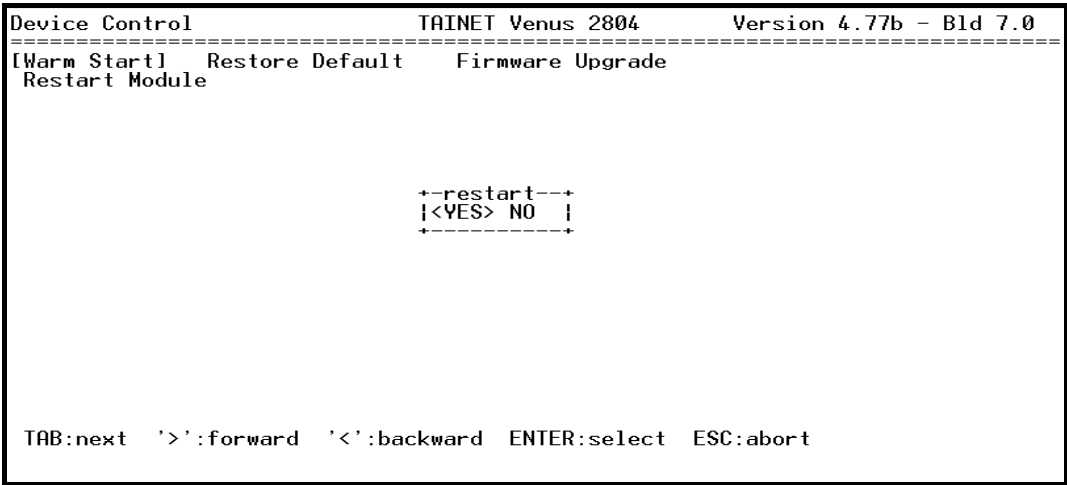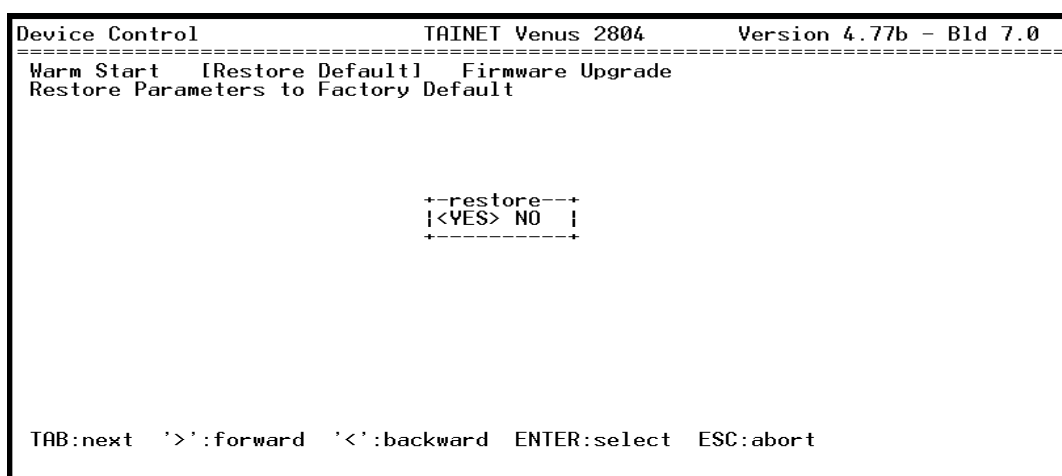
Access Path: *Device Control* Menu -> *Warm Start*.

```
Device Control              TAINET Venus 2804      Version 4.77b - Bld 7.0
==============================================================================
[Warm Start]   Restore Default    Firmware Upgrade
 Restart Module




                            +-restart--+
                            |<YES> NO  |
                            +----------+








 TAB:next  '>':forward  '<':backward  ENTER:select  ESC:abort
```

Figure 3-66 - Reset the VENUS Series

3.7.2   Restore Default

Access Path: Device Control Menu -> Restore Default.

```
Device Control                TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
Warm Start   [Restore Default]   Firmware Upgrade
Restore Parameters to Factory Default




                            +-restore--+
                            |<YES> NO  |
                            +----------+






TAB:next  '>':forward  '<':backward  ENTER:select  ESC:abort
```

Figure 3-67 - Restore Default

This feature is used to reset all the settings to the factory defaults. Selecting this menu will cause an en-forced reset to the VENUS Series. The configuration defaults are:

- No box name,

- Call Manager IP: 0.0.0.0

- MGCP Port IP: 2427

- DHCP Client: Disabled

- SNMP Agent: Disable

- SNMP System Contact: Tainet Communication System Corp.

- SNMP System Name: sales@tainet.net

- SNMP System Location: Taipei, Taiwan

- SNMP Trap: Disable

- SNMP Get Community: Public

- SNMP Get Community: Private

- SNMP Get Community: Public

- SNMP Trap Destination: 0.0.0.0

- DNS Server: Disable

- IADMS Registration: Disable

- SoftSwitch Registration: Disable

- Country Code: Generic

- WAN IP Address: 172.16.15.243

- WAN IP Mask: 255.255.0.0

- Default Gateway: 0.0.0.0

- Root Account User Name: user

- General Account User Name: operator

- No Password

Caution:

Restore the defaults only when there is no phone call in progress. Otherwise, VoIP service will be abruptly terminated.

3.7.3   Firmware Upgrade

VENUS Series allows software upgrade for feature improvement. The new firmware (the Application Program), in binary code format, can be remotely downloaded from a TFTP server and written into the internal flash memory of the VENUS Series. Check with our technical support for the availability of the latest software.

Access Path: Device Control Menu -> Firmware Upgrades.

```
Device Control              TAINET Venus 2804       Version 4.77b - Bld 7.0
==============================================================================
 Warm Start    Restore Default   [Firmware Upgrade]
 TFTP Software Download

              TFTP Software Download

              TFTP server IP        [0.0.0.0       ]
              TFTP server port      [69  ]
              file name (binary)    [                                ]




 Press: '0' - '9', '.', SPACE, BS
 TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-68 - Firmware Upgrade

Table 3-34 - Description of "Firmware Upgrade" Items

Field	Description
TFTP Server IP	This item tells VENUS Series the IP address of the TFTP server where the firmware located.
TFTP Server Port	This item tells VENUS Series the port of the TFTP server where the firmware located
File Name (Binary)	This item tells VENUS Series which file should be loaded from TFTP server. The firmware must be in binary format.

The Upgrade Procedure is listed bellow:

■   Enter the IP address of the TFTP server, then press Enter

■   Enter the port of the TFTP server, the press Enter (Default port is 69)

■   Enter the file name of the new firmware, then press Enter

■ The TFTP download process is started as shown in Figure 3-69

■ Enter "Ctrl-C" to cancel the download process

■ When download is finished, VENUS will report the size of the file, and verifies the checksum as illustrated in Figure 3-70

■ Press "Y" (Yes) to write the software into the flash memory

■ It takes a couple of minutes to write the flash memory. Once the writing procedure is completed, as illustrated in Figure 3-71, VENUS Series performs the verification and then reboot itself to apply the new firmware

Caution:

Reset the gateway only when there is no phone call in progress. Otherwise, VoIP service will be abruptly terminated.

Note:

Do not write the software with incorrect checksum and do not reset the device while performing flash write. In case the flash write is abnormally disrupted, VENUS Series can still boot up using the Boot code. Re-download the software and re-program the flash again to recovery the AP software.

```
Device Control              TAINET Venus 2804      Version 4.77b - Bld 7.0
================================================================================
Warm Start     Restore Default    [Firmware Upgrade]
TFTP Software Download

            TFTP Software Download

            TFTP server IP         [0.0.0.0         ]
            TFTP server port       [69  ]
            file name (binary)     [                              ]




Press: '0' - '9', '.', SPACE, BS
TAB,ENTER:next field  '<':left  '>':right  ESC:abort
```

Figure 3-69 - Downloading the New Software

```
Device Control                  TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
  Warm Start    Restore Default   [Firmware Upgrade]
  TFTP Software Download

                  TFTP Software Download

                  TFTP server IP         [172.16.5.75    ]
                  TFTP server port       [69   ]
                  file name (binary)     [2804Pv477b.bin                  ]

  2097152 bytes(100.00%) received.  TFTP download complete.

  Checksum is correct. (TFTP file checksum is: 1879048262)

  [4.77b] upgrade to [4.77b]

  Write to flash? (y/n)




  ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-70 - Writing to New Software into the Flash Memory

```
Device Control                  TAINET Venus 2804      Version 4.77b - Bld 7.0
===============================================================================
  Warm Start    Restore Default   [Firmware Upgrade]
  TFTP Software Download

                  TFTP Software Download

                  TFTP server IP         [172.16.5.75    ]
                  TFTP server port       [69   ]
                  file name (binary)     [2804Pv477b.bin                  ]

  2097152 bytes(100.00%) received.  TFTP download complete.

  Checksum is correct. (TFTP file checksum is: 1879048262)
                  100.00% erased.
  writing to flash:o  1.29% done.

  Write to flash? (y/n)
  erasing flash:



  ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-71 - Upgrade Completed

One option to try out the new software is to execute the downloaded trial software within the internal RAM memory without destroying the Application Program stored in the flash memory. Select "N" (No) and don't to write the software into the flash memory. Instead, execute the downloaded program immediately (See the Figure 3-72)

```
Device Control                  TAINET Venus 2804      Version 4.74  - Bld 7.0
================================================================================
Warm Start     Restore Default   [Firmware Upgrade]
TFTP Software Download

                TFTP Software Download

                TFTP server IP          [172.16.0.118   ]
                TFTP server port        [69     ]
                file name (binary)      [2804PV4.74TFTP.bin             ]

2097152 bytes(100.00%) received.  TFTP download complete.

Checksum is correct. (TFTP file checksum is: 1056964653)
                47.83% erased.
[4.74 ] upgrade to [4.74 ]

Write to flash? (y/n)
erasing flash:


ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-72 - Execute the Trial Software

If the VENUS inspected AP code has fail, the VENUS will use Boot code boot up. And the ALM led will show red light in the same time.

```
MAIN                             2804 Boot Code        Version 1.04 - Bld 7.0
================================================================================
[Configuration]   Monitoring    Device Control    Diagnosis
 System     Interface    Routing Table    Security    Administrator















ENTER:select  TAB:next  '<':left  '>':right  ESC:previous menu
```

Figure 3-73 - Boot Code

3.8 Diagnosis

The Diagnosis menu helps to troubleshooting the VoIP service.

Table 3-35 - The "Diagnosis" Menu Items
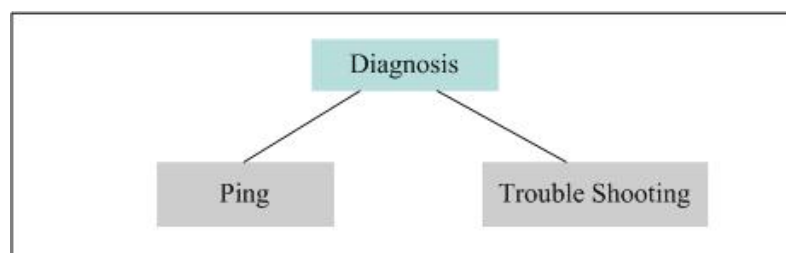
3.8.1 Ping

This feature can be used to verify the path between VENUS Series and another node. For example, check whether the Call Manager is reachable or not. Make sure you configure the correct subnet mask, and the IP address of the default gateway.

Access Path: *Diagnosis* Menu -> *Ping*.

```
Diagnosis                    TAINET Venus 2804        Version 4.77b - Bld 7.0
================================================================================
[Ping]   Trouble Shooting Menu
 IP Connectivity

             Host Reachability

             Target IP Address  [172.16.5.86    ]
             Datagram Size      [100  ]
             Timeout in Seconds [2    ]


             PING 172.16.5.86 with 100 bytes of data

             Reply from 172.16.5.86: bytes=100 time=2ms
             Reply from 172.16.5.86: bytes=100 time=2ms
             Reply from 172.16.5.86: bytes=100 time=2ms
             Reply from 172.16.5.86: bytes=100 time=2ms
             Reply from 172.16.5.86: bytes=100 time=2ms


Press any key to continue!
```

Figure 3-74 - Ping a Host

3.8.2   Trouble Shooting Menu (Command Line Interface)

The Trouble Shooting Menu is designed mostly for technical support engineers. It provides a Command Line Interface (CLI) where user can enter commands

To setup detailed configuration

To monitor detailed system status messages, and

To diagnose the device

Caution:

Activating some of the commands supported in the Command Line Interface (CLI) during run-time may affect the normal service of the device. Read through this section and Chapter 5 to learn the command sets.

The command line syntax is "command parameter …". The major commands useful are listed and described in Table 5-1 "Command Sets" in Section 5.3. Here in this section, the mostly used commands are introduced briefly. The following are some example commands:

"spy xgcp 2"

"set tcid 3 rxgain –5"

"venus card 4 fxs ring_freq 20"

By adding the command lines into a text file (refer Chapter 5 – Editing the Configuration File), user can create a configuration file for a device. The device can then be activated to download the file from a TFTP server and feed the commands into the Command Line Interface (CLI) to automatically configure the device (see Section 3.5.1). Basically, all the configuration items of the device can be setup within the CLI. This is an option for quick and easy configuration comparing to the console port interface or web-based management.

Technical support engineers can also activate the display for all kind of debugging messages and capture the messages for further analysis. This includes the trace of the MGCP messages that are useful for analyzing the

MGCP compatibility between the device and the MGCP Call Manager.

To access the Command Line Interface (CLI), select the "Diagnosis" menu, then "Trouble Shooting Menu". The device will prompt "dbg>", where user can enter the command lines (Figure 3-75).

To quit from this interface back to the menu tree of the terminal UI, type "Q" then press the "Enter" key.

```
Diagnosis                     TAINET Venus 2804      Version 4.77b - Bld 7.0
--------------------------------------------------------------------------------
 Ping    [Trouble Shooting Menu]
 View System Debug Messages

dbg>












 Type 'Q' to Quit
```

Figure 3-75- Entering the Command Line Interface

Within the CLI, enter "?" or "help", the device will display all the commands available (Figure 3-76).

```
Diagnosis                     2804 Boot Code         Version 1.0 - Bld 7.0
================================================================================
 Ping    [Trouble Shooting Menu]
 View System Debug Messages

MXP Debug Application Command List
             Command Description
                   ? Displays Command Help Table
                help Displays Command Help Table
              dbgcmd Handles dbgcmd "command arg arg ..." syntax
dbg>






 Type 'Q' to Quit
```

Figure 3-76 - The "help" Command

The basic command used for major configuration is "venus". Enter "venus" to display the syntax. All configuration items provided in the terminal UI can be found here (Figure 3-77)

```
 venus web <1=enable | 0=disable> <port number default is 80>
 venus provision <server ip address> <port number> <file name>
venus country_code <generic|usa|china|taiwan|hk|india|sweden|malaysia|french|cze
ch|slovakia>
 venus auth < disable | method1 | method2 | show | ki <str> | mg_id <str> >
 venus life_line <prefix> <max_ring_offtime ,30~70,100ms base> <port> <ring_coun
t ,0=disable,5~20>
 venus hotline_num <tcid> [phone number] [n]
 venus user_endpointid <tcid> [endpointName] [n]
 venus reset
 venus user_name    <str>
 venus password     <str>
 venus basic_user_name   <str>
 venus basic_password    <str>
 venus ping <target ip address> <datasize> <timeout sec>
 venus write_config
 venus default
 venus show
 venus pstn show
 venus upgrade_firmware <version> <tftpServerIP> <tftpServerPort> <fileName>
 venus dsp_allocation <type(0:FIFO,1:Static mapping)>
 venus metering

dbg>_
```

Figure 3-77 - The "venus" Command

The "spy" command is used to select the "spy-level" for monitoring the behavior of a software task. The command format is "spy [key] [level]", where the key is the task number (from 1 to 15) and the level is the monitor level (from 0 to 5).

This command enables the display of debugging message of different monitoring level for a specific task (Figure 3-78). A lower level will display more information, while a higher level may show only the critical or fatal messages. Users can apply this command to monitor the device and, if necessary, capture the detailed messages and send it to the Technical Support for further study and diagnosis.

The default spy level for all tasks is 3. It filters out the normal event messages and displays only the Minor Unexpected Event, the Major Unexpected Event, and the Fatal Error messages.

A commonly used spy feature is to monitor the MGCP communication for diagnosing the compatibility of inter-operation. Enter "spy xgcp 2" to enable the display of MGCP signaling packets (in text format) sent/received by the device

(Figure 3-79).
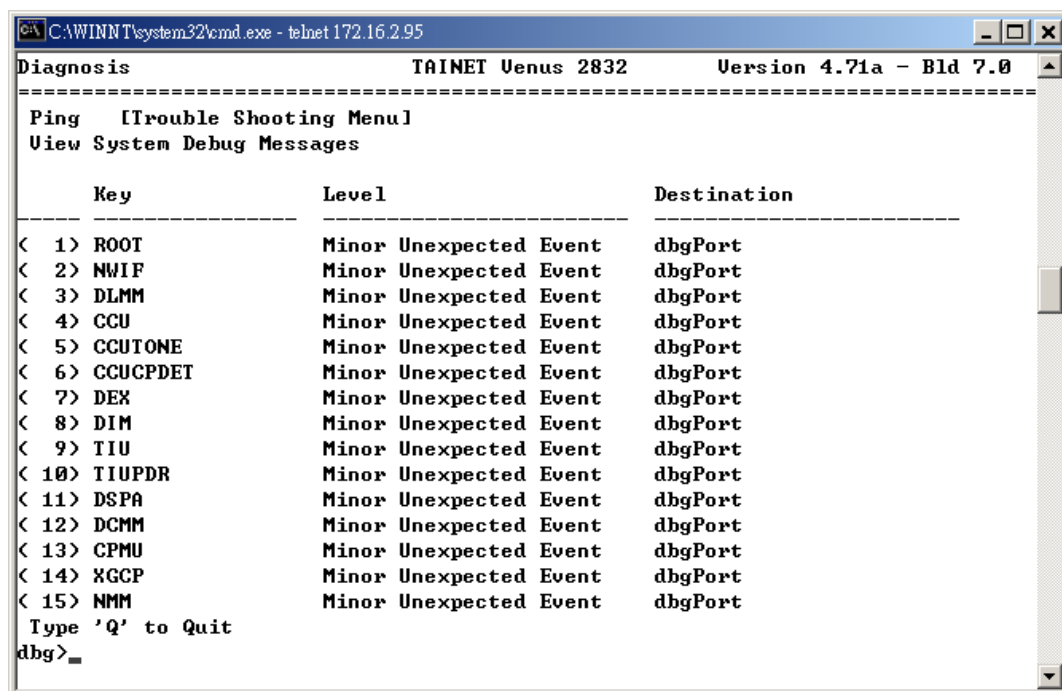
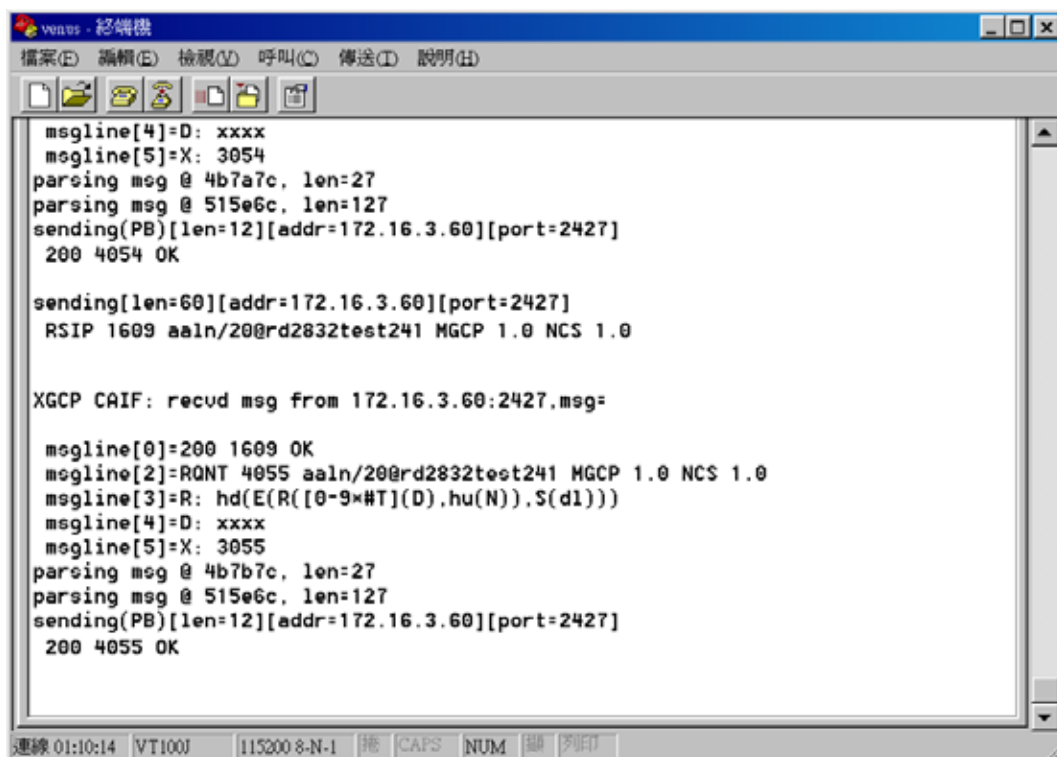**Figure 3-78 - The Spy Command**

Figure 3-79 - Spying the MGCP protocol

Chapter 4.   Web Base Management

This chapter describes the Web-based User-Interface. Features provided by the Web-based UI is almost the same as those described in Chapter 3. All the web pages are illustrated in this chapter with brief introduction. Cross-refer to Chapter 3 for the corresponding features description.

4.1   Index Home Page

To access to the web server of the gateway, simply enter the IP address of the target gateway ("http://xxx.xxx.xxx.xxx") within the Web browser. Figure 4-1 illustrates the example of using Microsoft Internet Explorer. The authentication dialog box will be popped up for user to login. Enter the corrective User Name and Password (The same User Name and Password are used for the Terminal User Interface). The default user name is "user" with no default password.
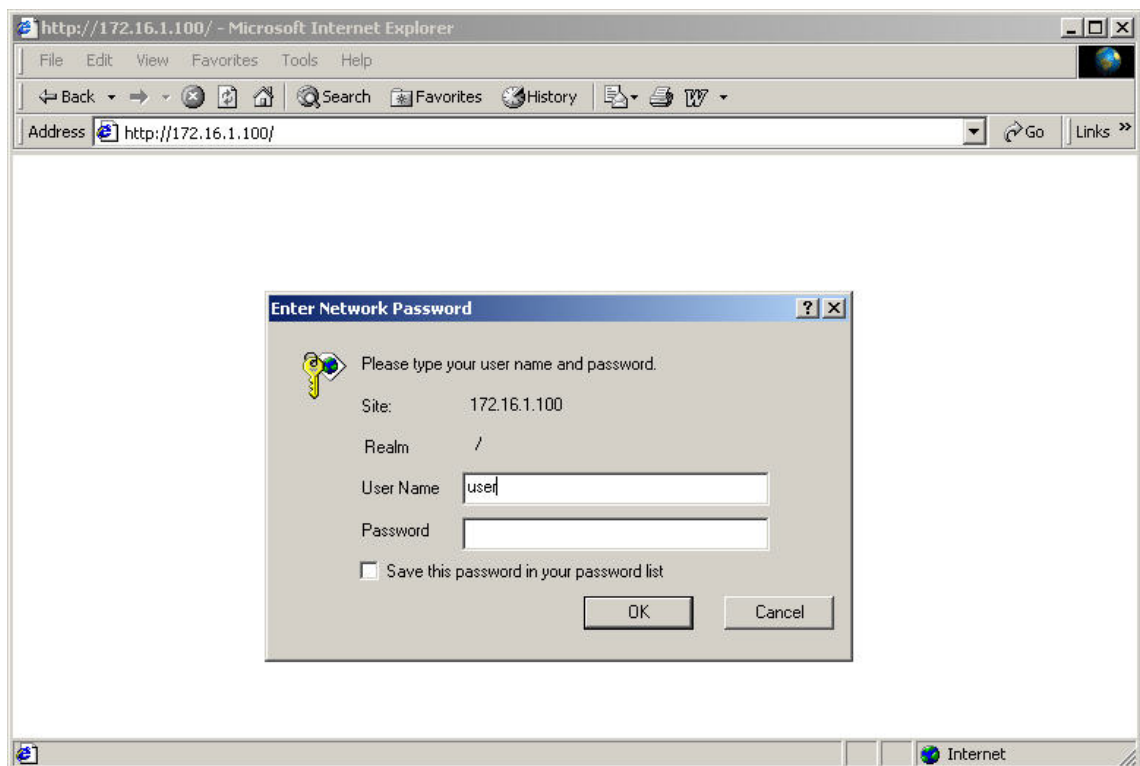
Figure 4-1 - Web Server Authentication

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After passing the login security check, the default Home page is displayed as illustrated in Figure 4-2 where the selection index items are listed at the left hand side of the Web page. Click at the index to expand the sub-menu items. The complete menu tree of the index is listed as following:

■   Configuration

    □   System Configuration

        • MGCP Configuration

        • DHCP/BootP Configuration

        • SNMP Configuration

        • DNS Configuration

        • Download Configuration

        • Country Code

        • QOS Configuration

        • T.38 Configuration

        • Authentication

        • Call Feature

        • RTP Configuration

        • DSP Configuration

    □   Interface

        • WAN

        • LAN

        • NAT

        • Endpoint ID

    □   Routing Table

        • Static Routing

        • Default Gateway

    □   -Security

- ■ Monitoring

  - □ H/W Report Monitoring

  - □ System Info Monitoring

- ■ Device Control

  - □ Warm Start

  - □ Restore Default

  - □ Firmware Upgrade
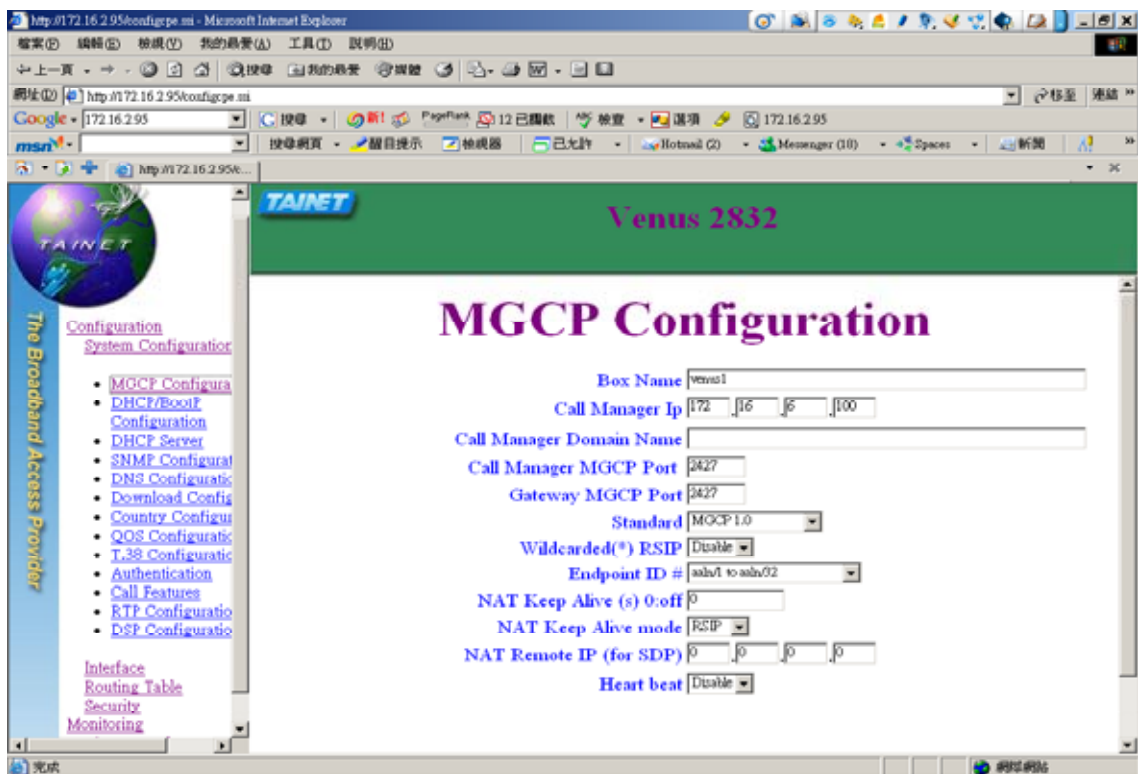
Figure 4-2 - Home Page

4.2 Configuration

4.2.1 System Configuration
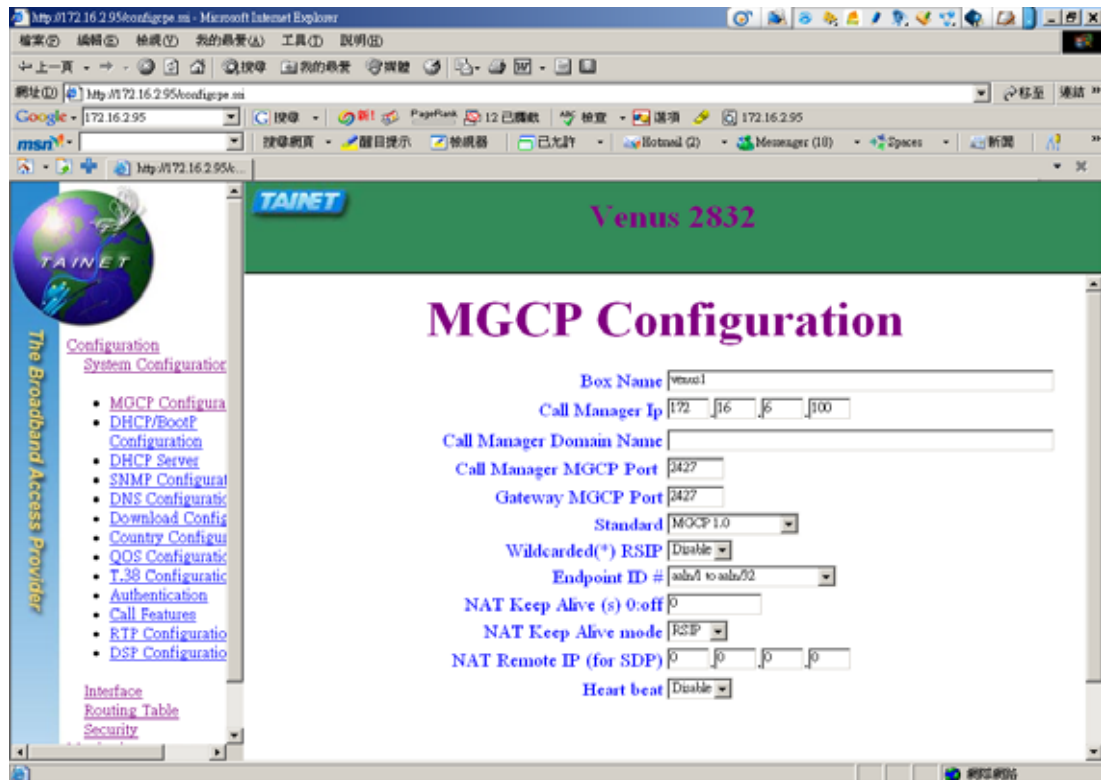
Figure 4-3 - System Configuration

4.2.1.1 MGCP Configuration
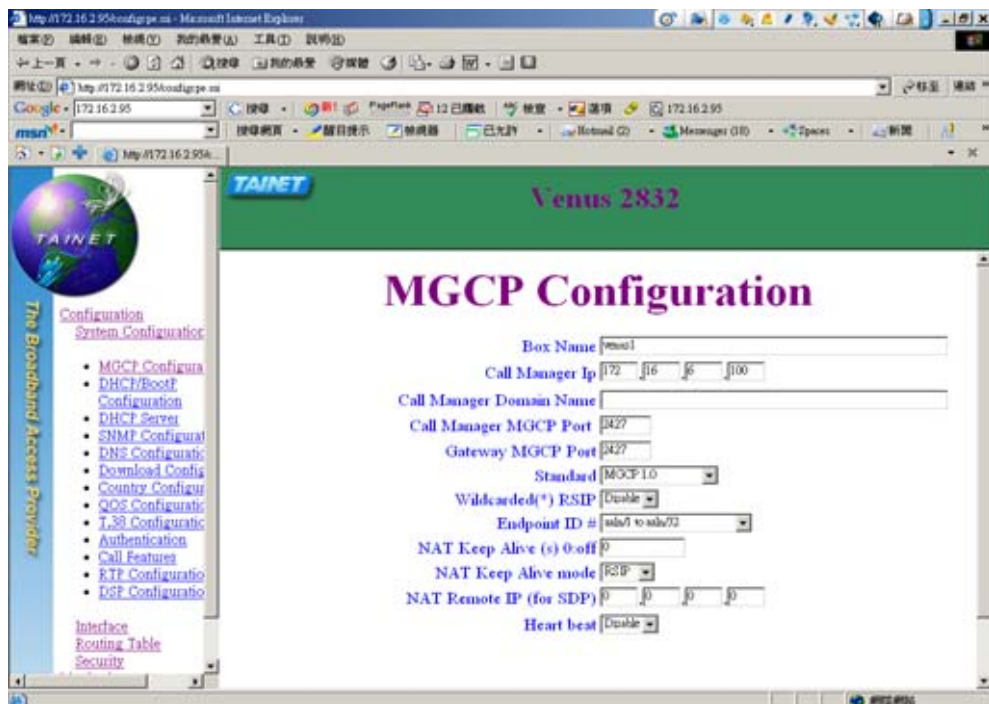
Figure 4-4 - MGCP Configuration

4.2.1.2 DHCP/BooTP Configuration
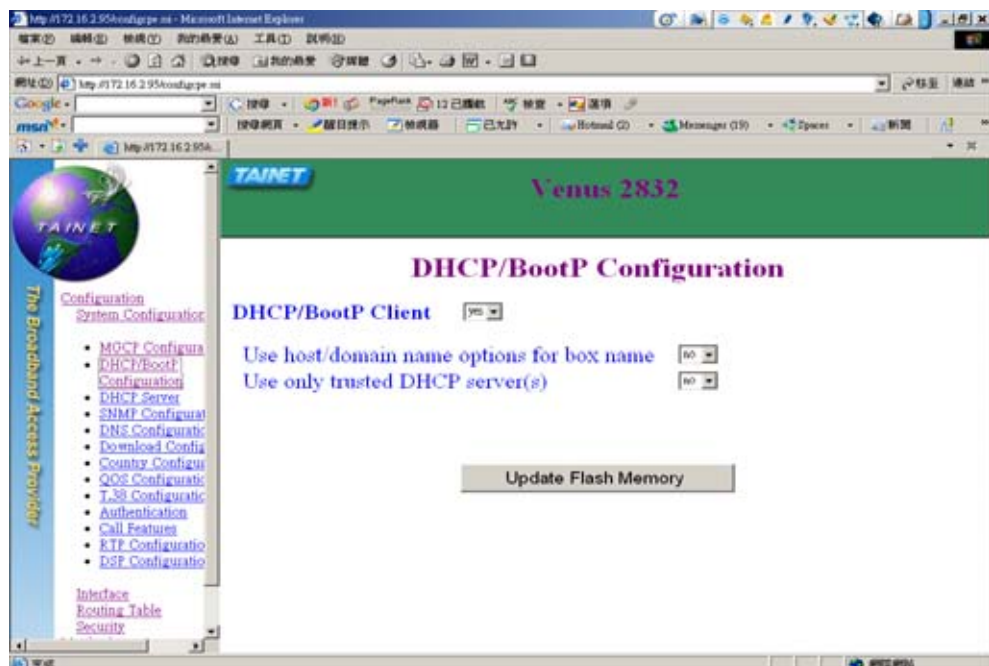
Figure 4-5 - DHCP/BOOT Configuration

4.2.1.3 DHCP Server

Figure 4-6 - DHCP Server Basic

4.2.1.4 SNMP Configuration

Enabling SNMP agent will pop up the detailed SNMP settings as next Figure.
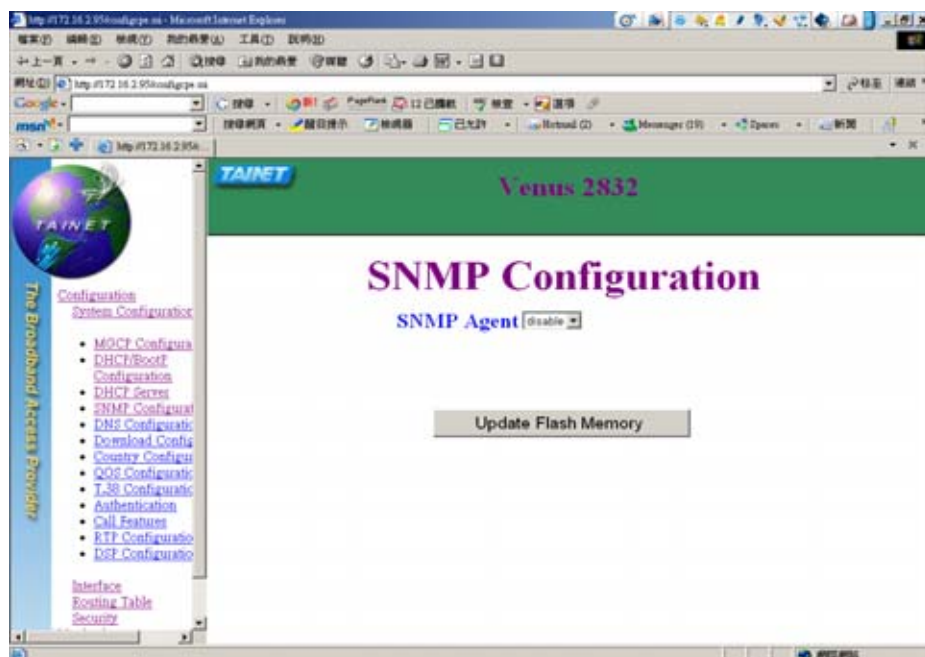
Figure 4-7 - The SNMP Configuration

4.2.1.5   DNS Configuration
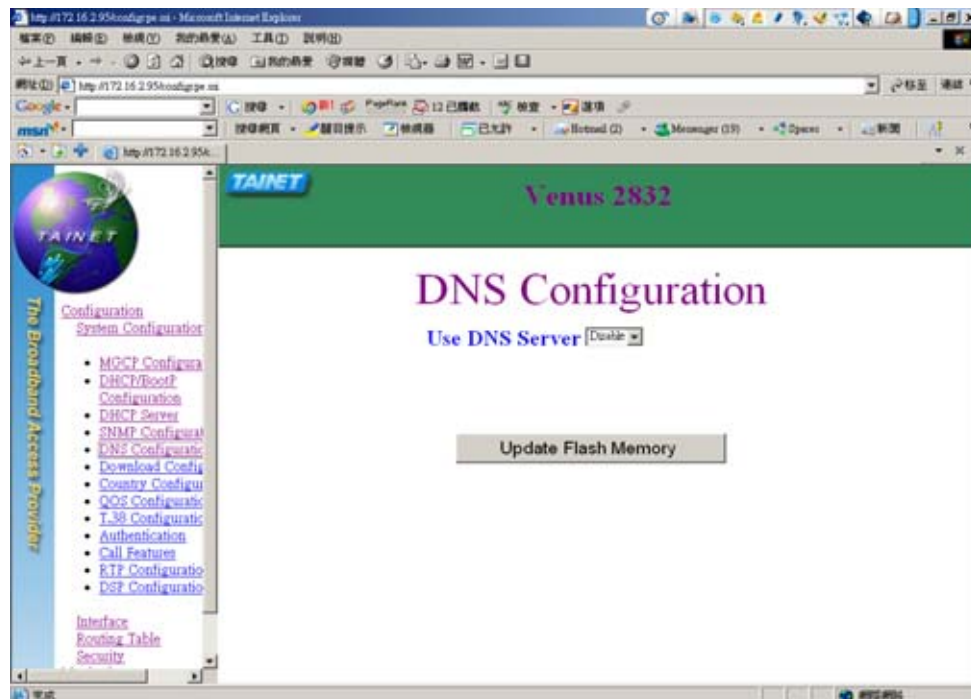
Figure 4-8 - Enable DNS

Enabling the DNS client will pop up the detailed DNS settings as illustrated in the next Figure.
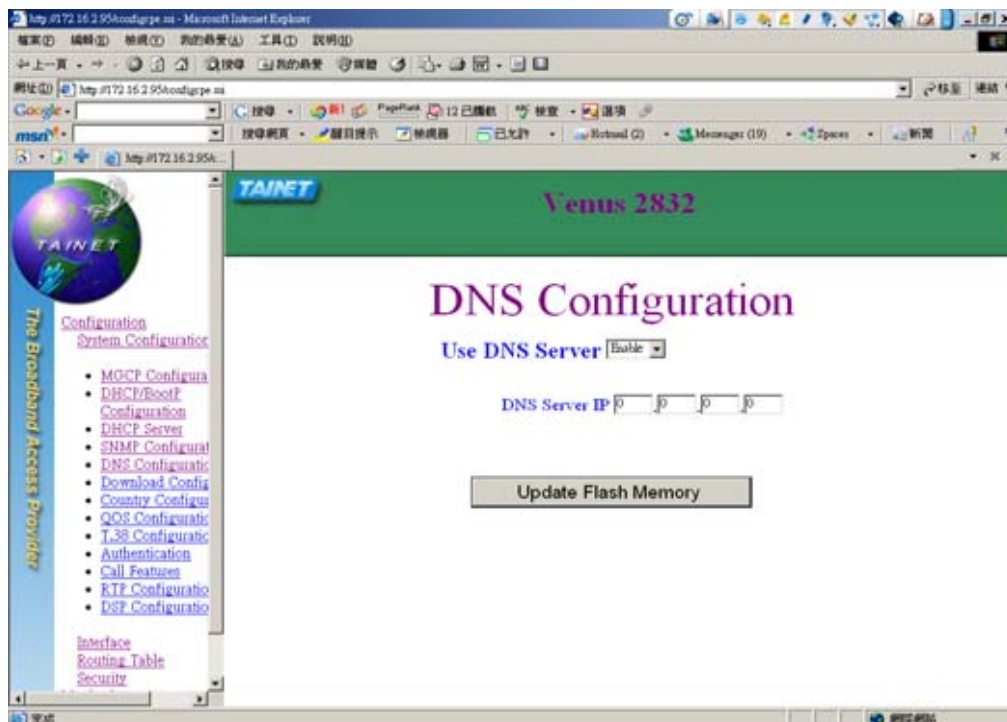
Figure 4-9 - DNS Configuration

4.2.1.6   Download Configuration
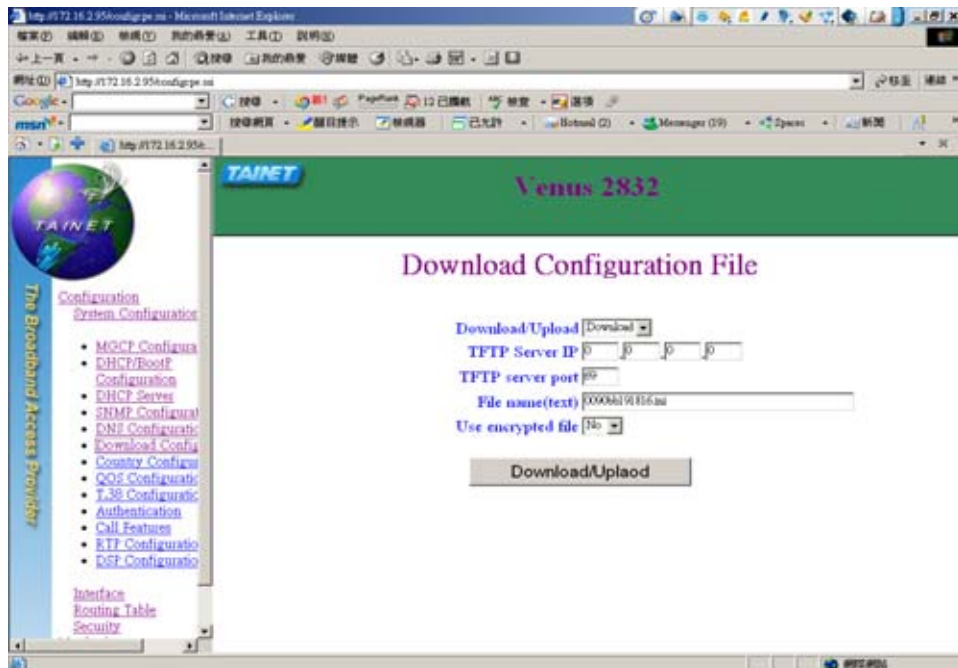
Figure 4-10 - Download Configuration

4.2.1.7   Country Configuration
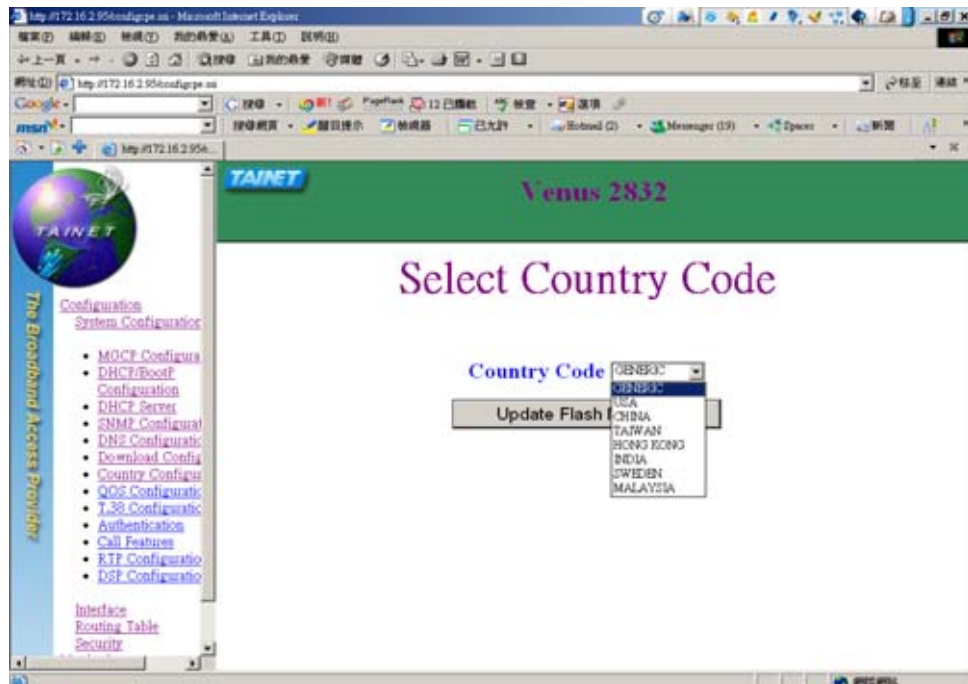
Figure 4-11 - Select the Country Specification

4.2.1.8   QOS Configuration
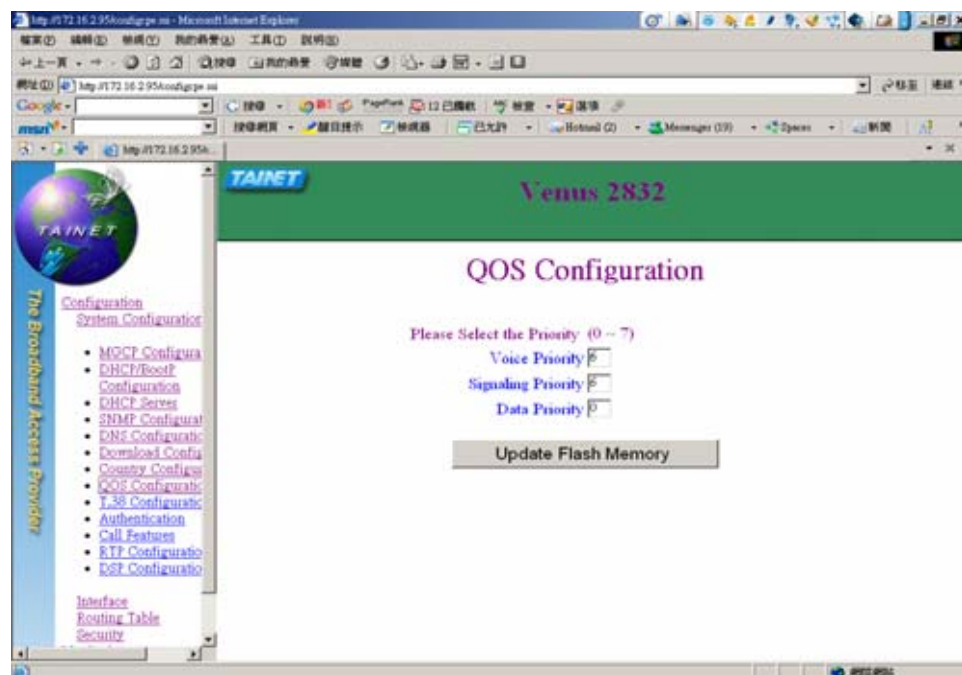
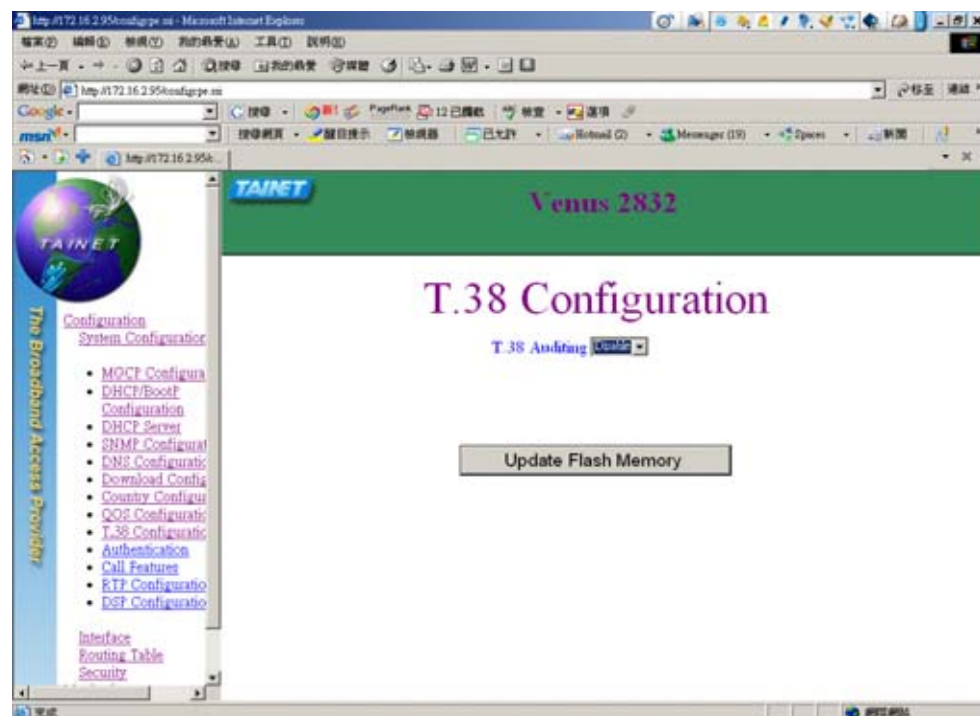**Figure 4-12 - QOS Configuration**

4.2.1.9   T.38 Configuration

Figure 4-13 - T.38 Configuration
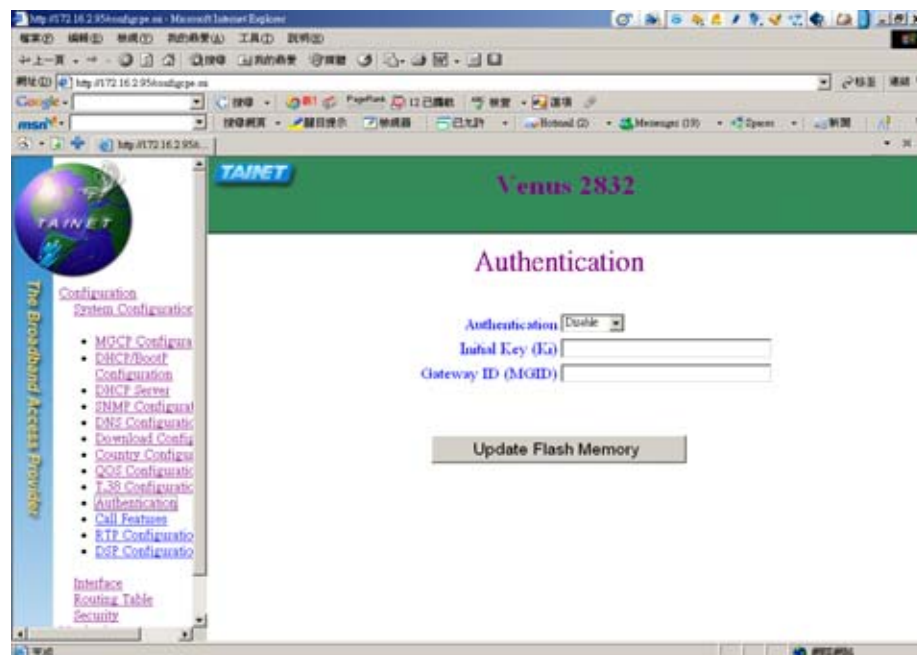
4.2.1.10   Authentication

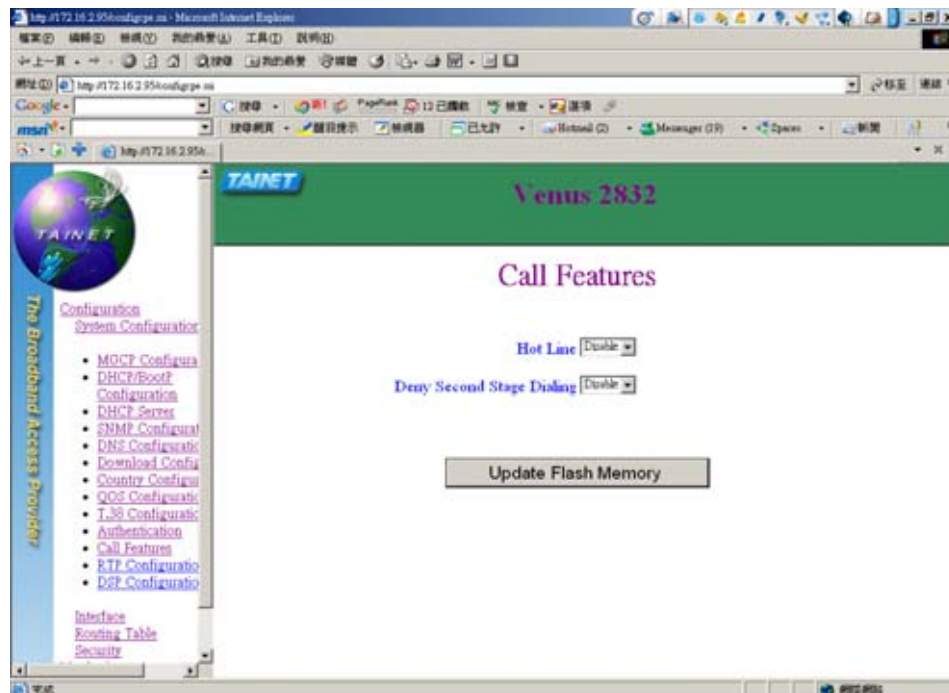**Figure 4-14 - Authentication**

4.2.1.11   Call Feature

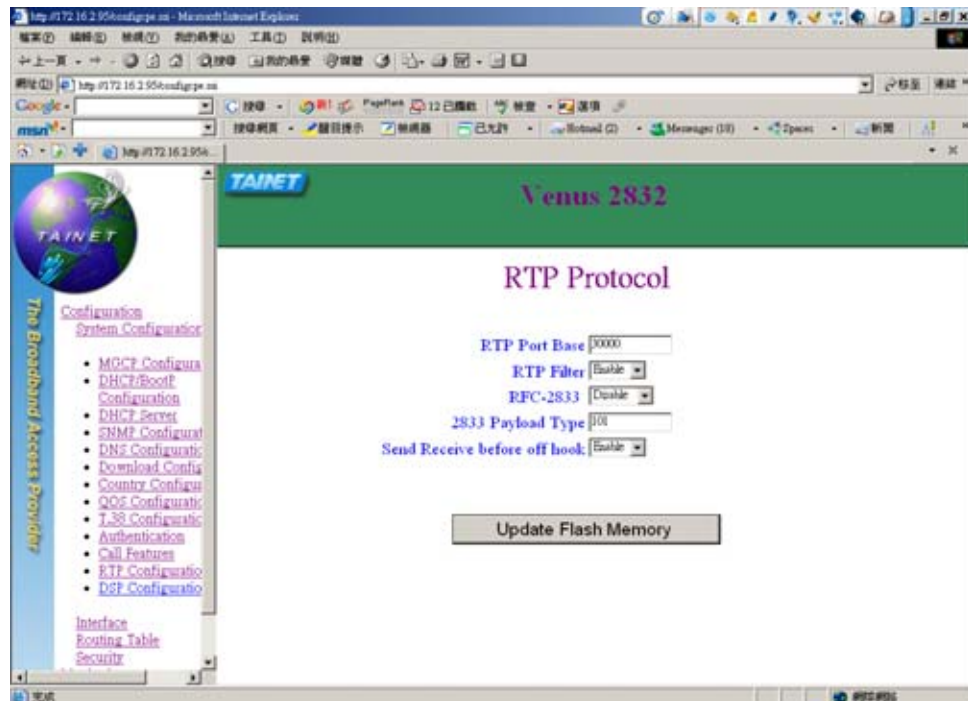**Figure 4-15 - Call Feature**

4.2.1.12   RTP Protocol

Figure 4-16 - RTP Protocol
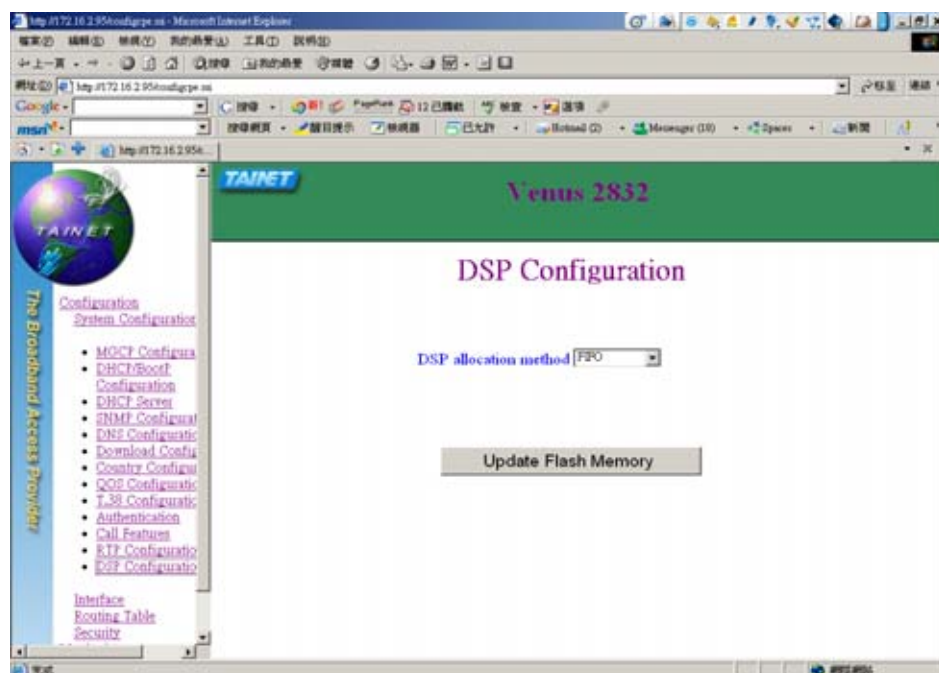
4.2.1.13   DSP Configuration

Figure 4-17 - DSP Configuration

4.2.2   Interface
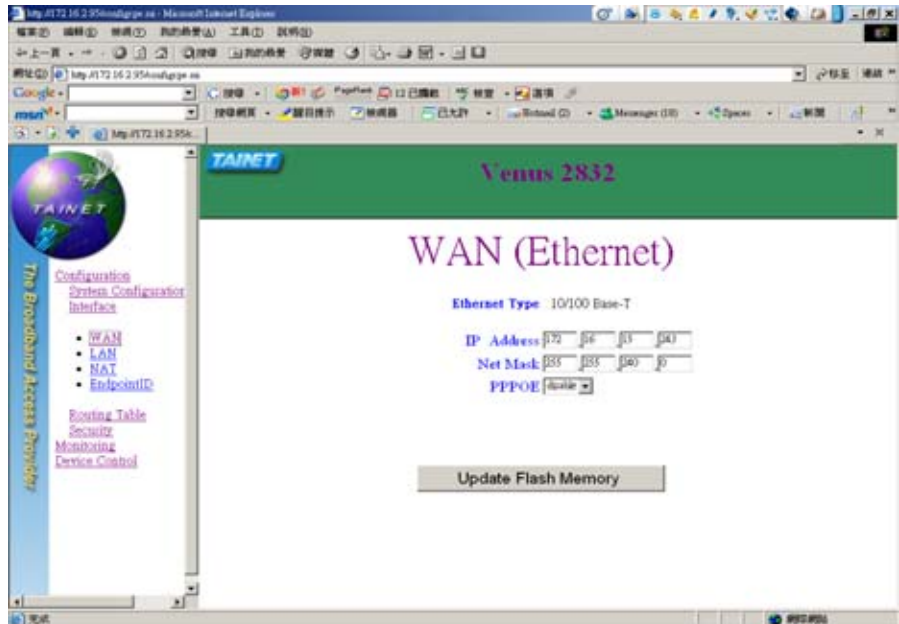
4.2.2.1   WAN Configuration

Figure 4-18 -Setup WAN Interface

4.2.2.2   LAN Configuration
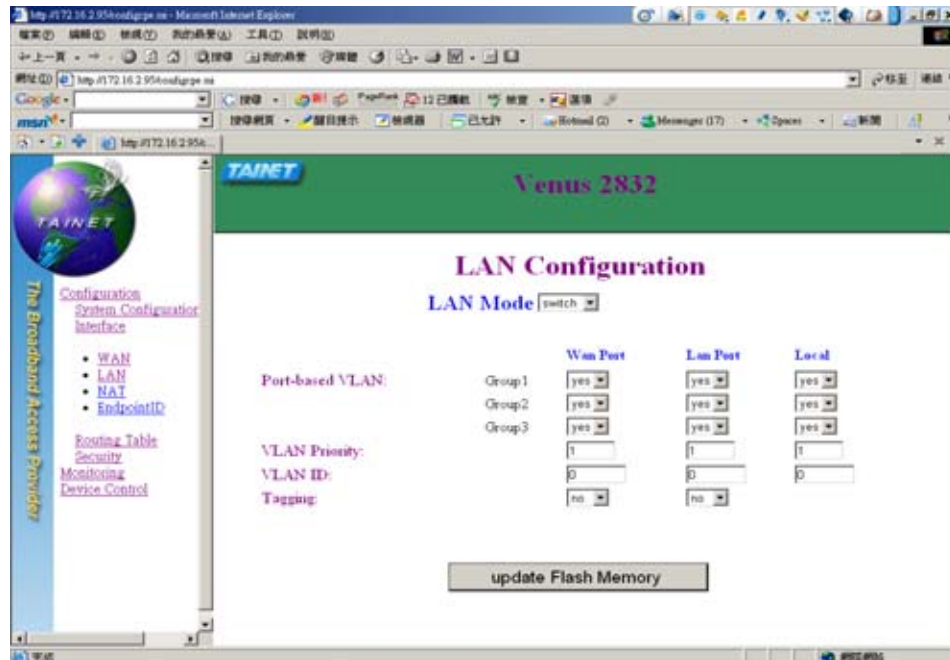

■   Switch

Figure 4-19 - LAN Configuration (Switch Mode)
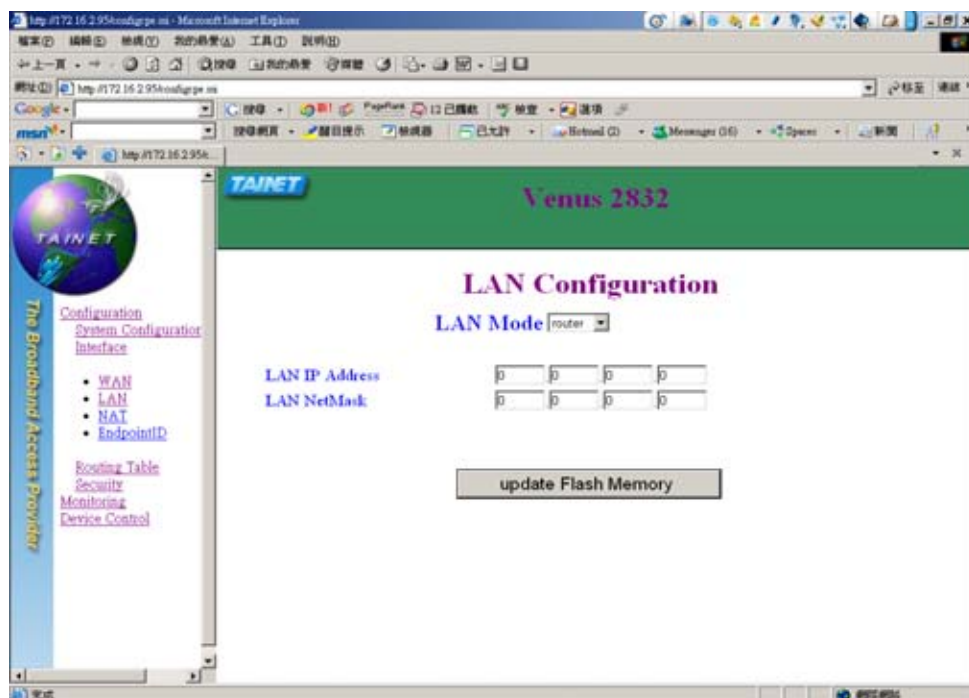

■   Router

Figure 4-20 - LAN Configuration (Router Mode)

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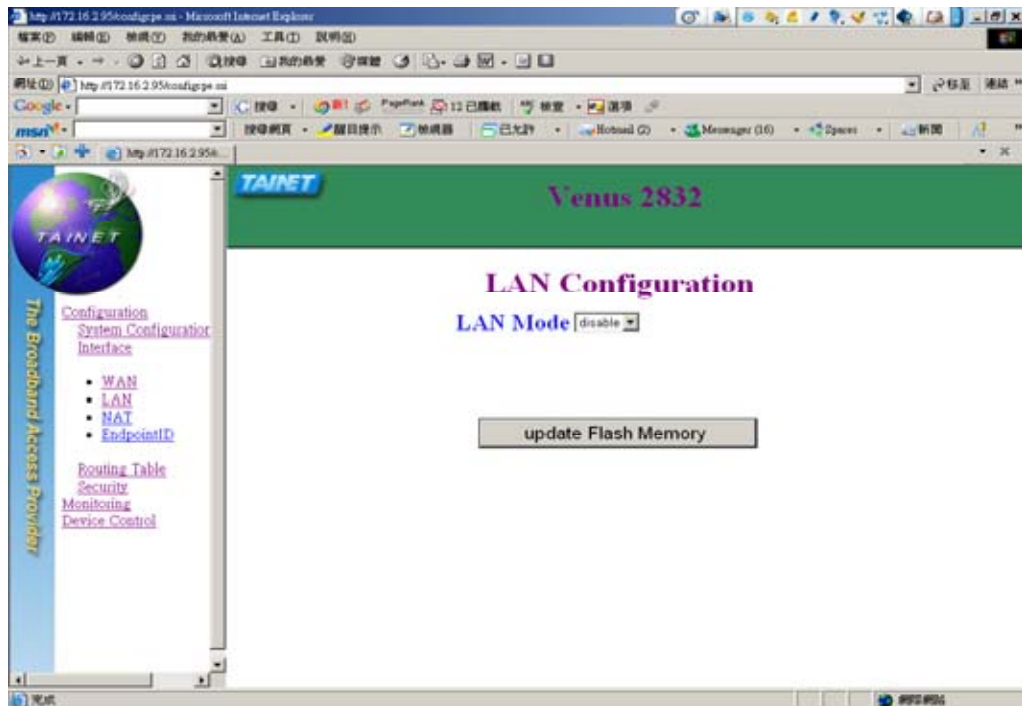
■ Disable

Figure 4-21 - LAN Configuration (Disable Mode)

4.2.2.3 NAT Configuration
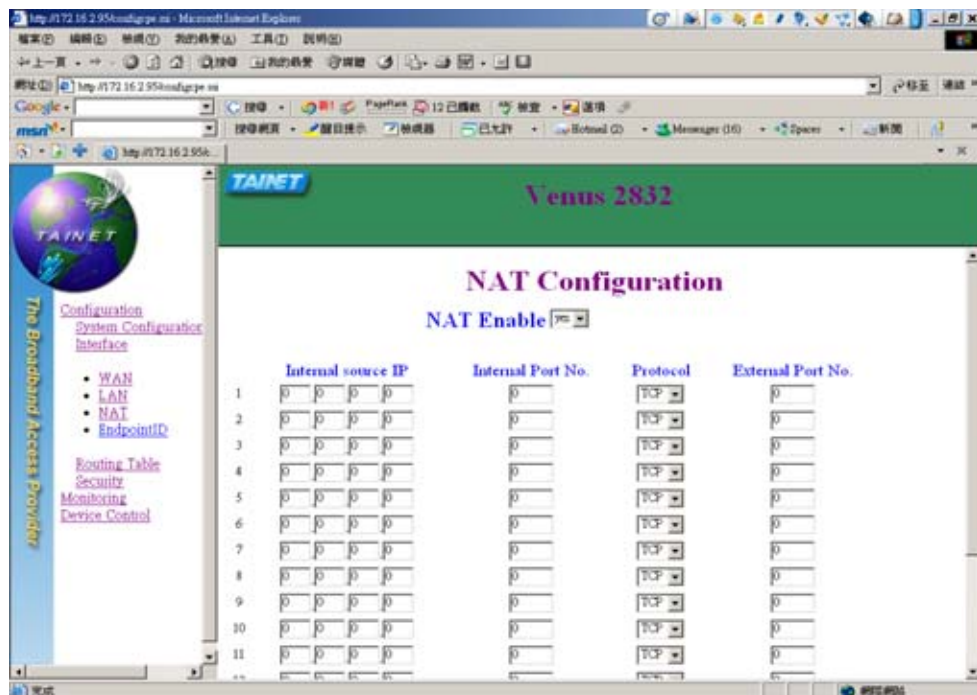
Figure 4-22 - NAT Configuration

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4.2.2.4   EndpointID Configuration
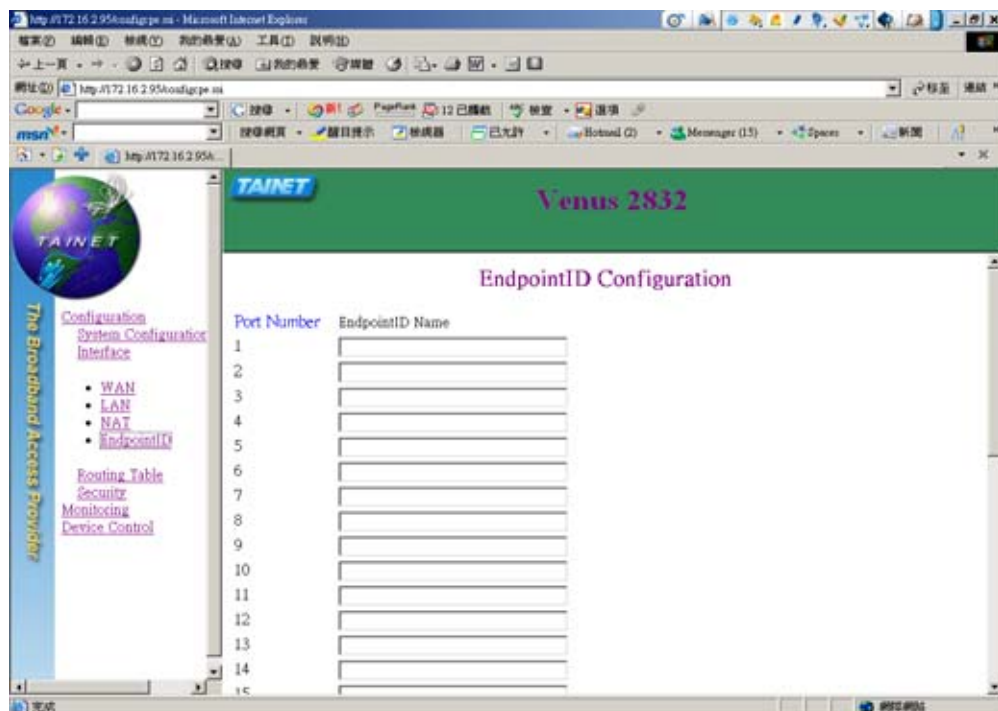
Figure 4-23 - EndpointID Configuration

4.2.3   Routing Table

4.2.3.1   Static Routing
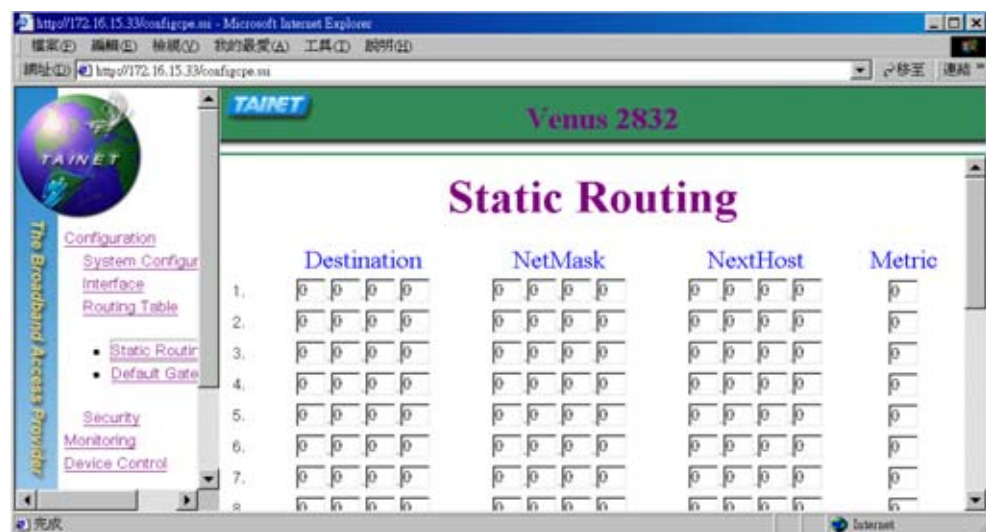
Figure 4-24 - Static Route

4.2.3.2   Default Gateway
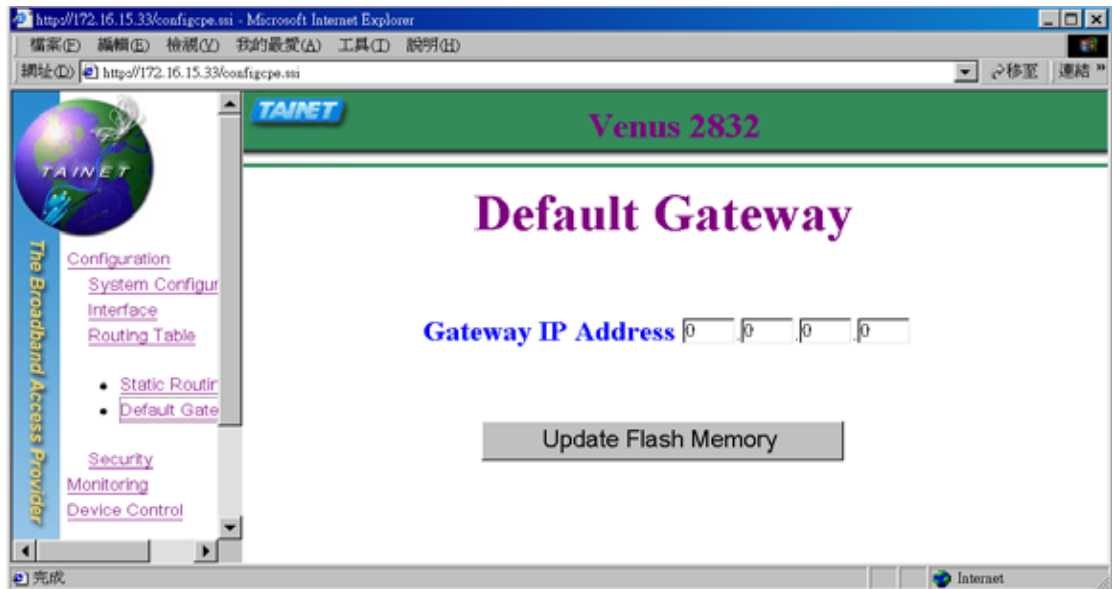
Figure 4-25 - Default Gateway

4.2.4   Security
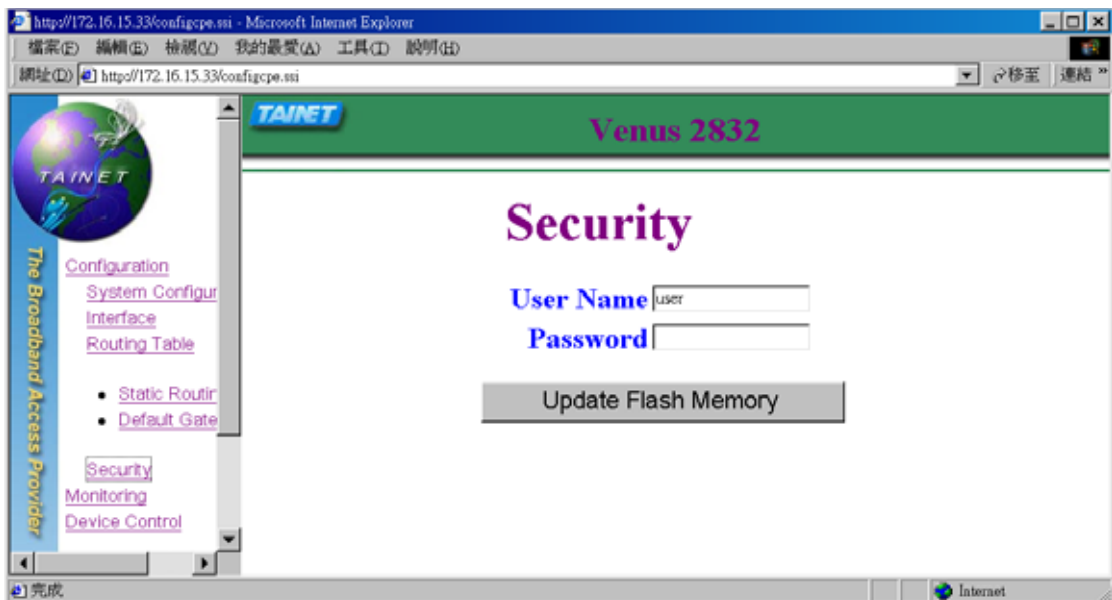
Figure 4-26 - Security Configuration

4.3 System Monitoring

4.3.1 H/W Report Monitoring
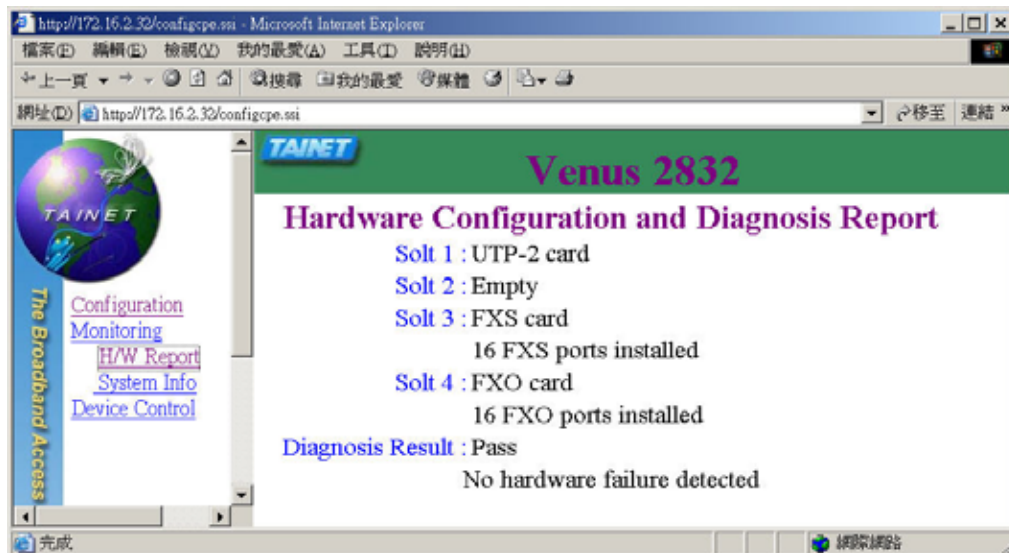
Figure 4-27 - Hardware Report

4.3.2 System Info Monitoring
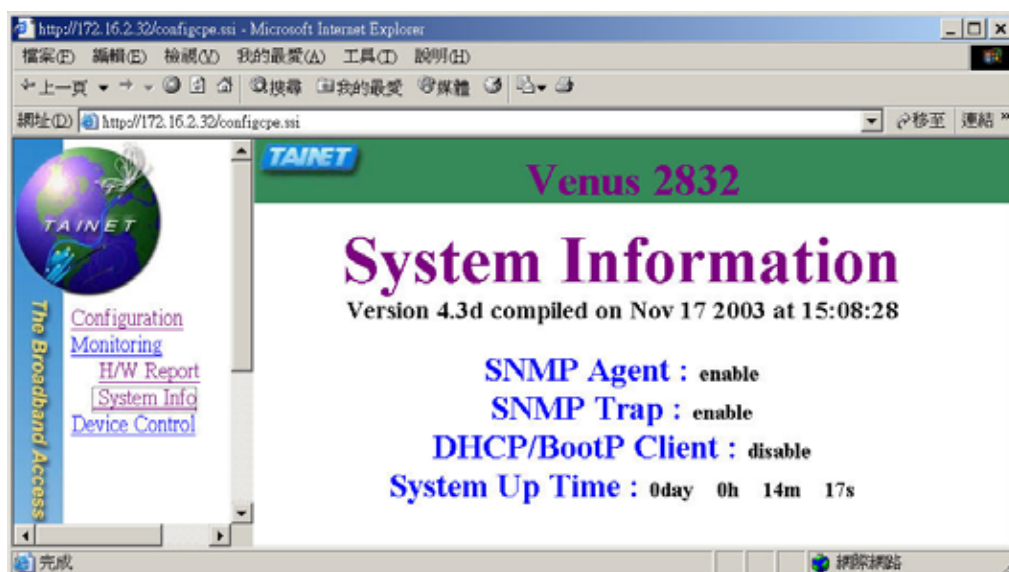
Figure 4-28 - System Information

4.4   Maintenance

4.4.1   Warm Start
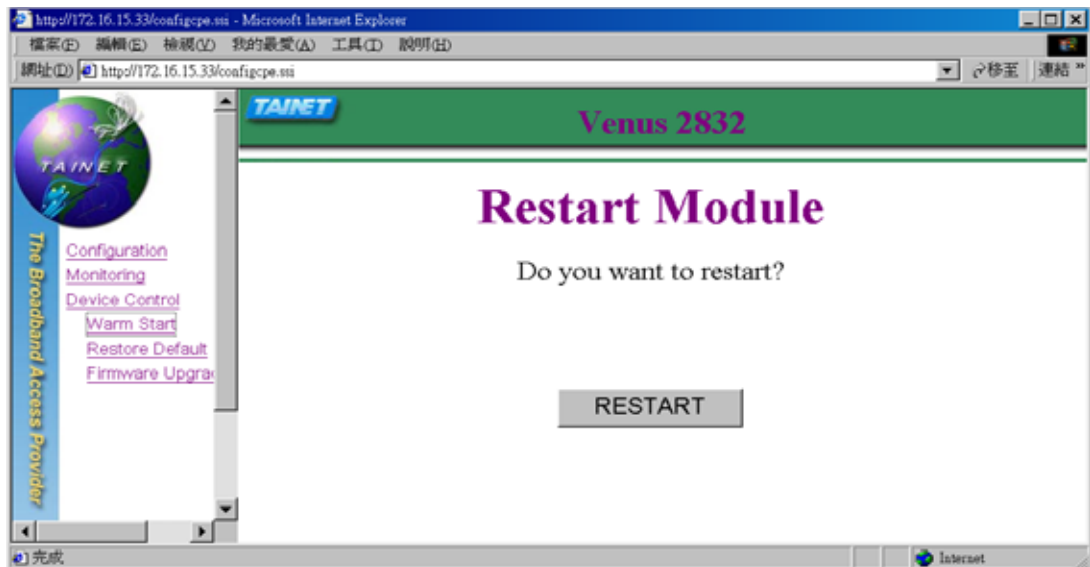
Figure 4-29 - Restart the Device

4.4.2   Restore Defaults
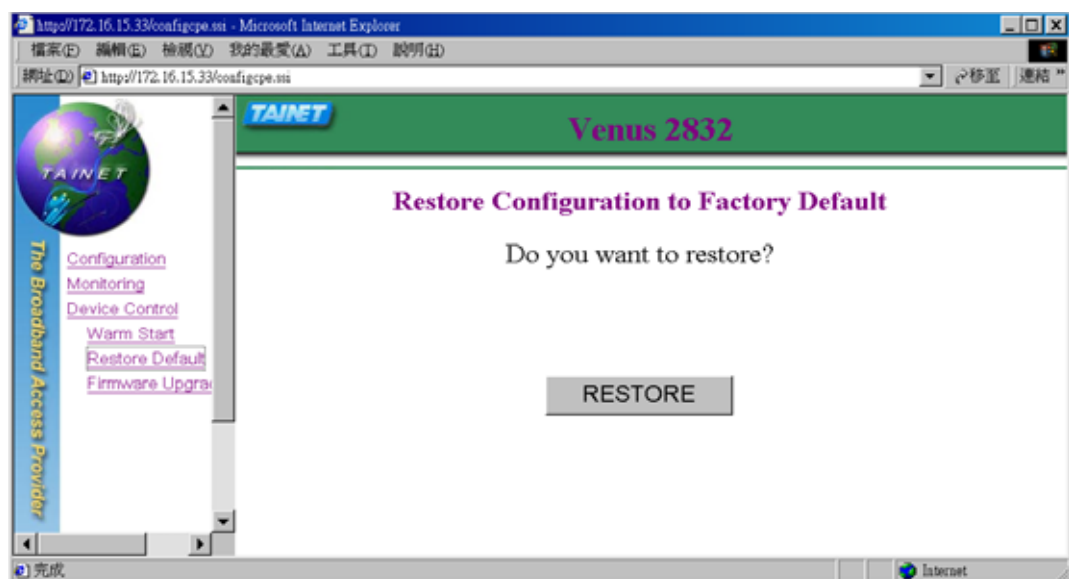
Figure 4-30 - Restore Factory Defaults

4.4.3 Firmware Upgrade

Figure 4-31 - Software Upgrade

Chapter 5. Edit Configuration File

This Chapter describes the format of the VENUS Series configuration file. The configuration file is actually composed of VENUS Series command lines. Users are allowed to edit this file for their own need. By downloading the configuration file from a TFTP server to the device, user can easily perform the system configuration and don't have to go through the step by step configuration items provided by the terminal interface or web-based interface.

5.1   Download The Configuration File

Store this configuration onto a TFTP server where the VENUS Series device can reach. There are two methods to enable the device to download the configuration file:

- Manually activating via the terminal interface or web-based interface (refer Section 3.5.1 and Section 4.2.1). Simply enter the IP address of the TFTP server, and the file name of the configuration file. The device will download the file and provision itself.

- Automatically activating via DHCP/BootP client (refer Section 3.5.1.2). In case the DHCP/BootP client is enabled, the device will request the dynamic IP address configuration from the DHCP/BootP server, and obtain the location of the TFTP server and the file name as well if the information is provided.

The DHCP server on the Windows NT platform is one of the popular DHCP server software. To setup the configuration file information on Windows NT DHCP server, launch the DHCP Manager; select the "DHCP Options" menu (see Figure 5-1).
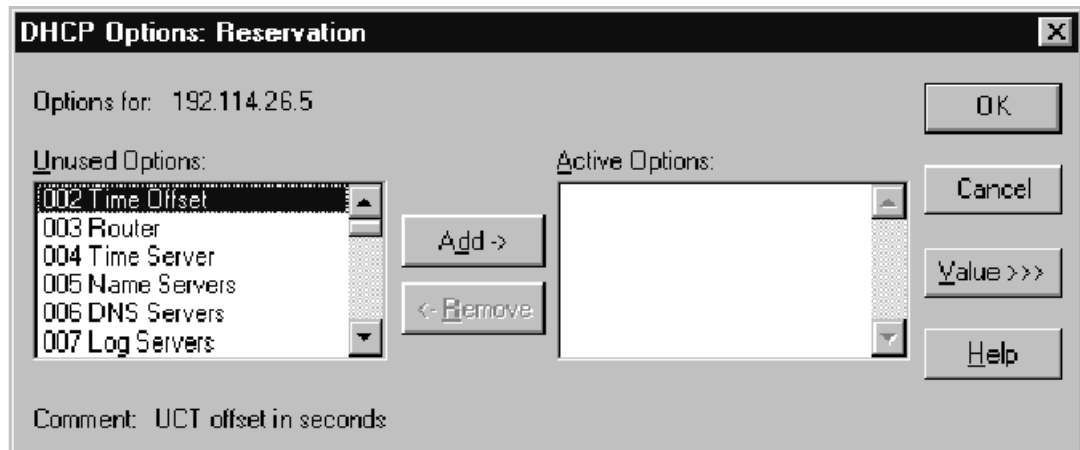
Figure 5-1 - DHCP Manager of the Windows NT Server

Add the following extension fields from the left-hand table (see Figure 5-2):

066 Boot Server Host Name (Domain name or IP address of the TFTP server)

067 Bootfile Name   (the configuration file name)
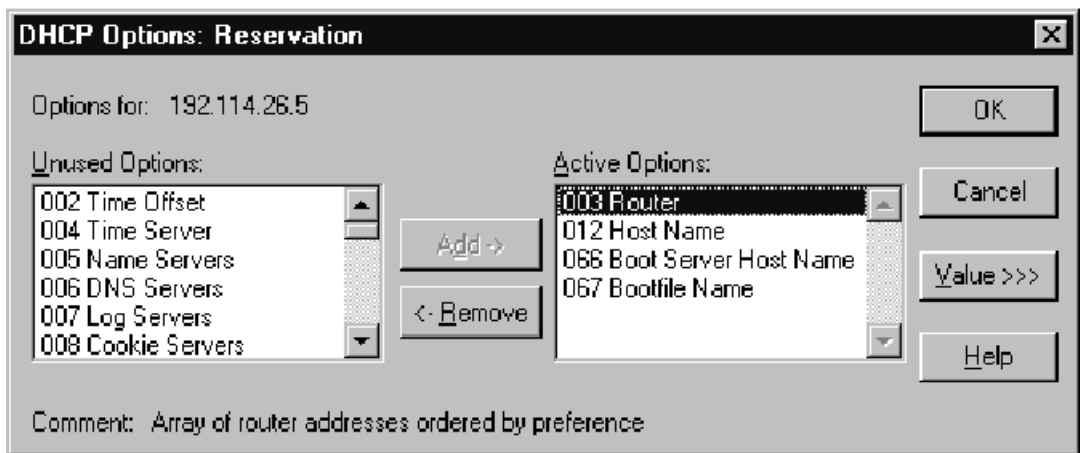
Figure 5-2 - DHCP Options – Adding the Reservation Fields

Click at "066 Boot Server Host Name" on the right-hand table. Click at the "value" button. Now enter the domain name or the IP address of the TFTP server, and then click OK (Figure 5-3).
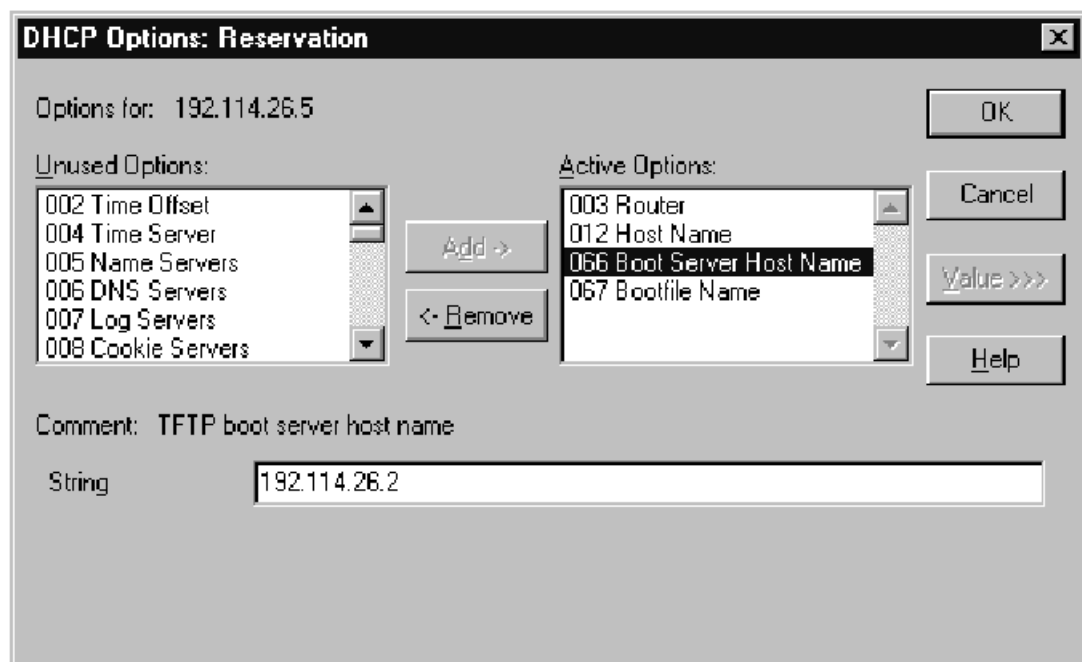
Figure 5-3 - Setup the TFTP Boot Server Host Name

Click at "067 Bootfile Name" on the right-hand table. Click at the "value" button. Now enter the configuration file name, and then click OK (Figure 5-4).
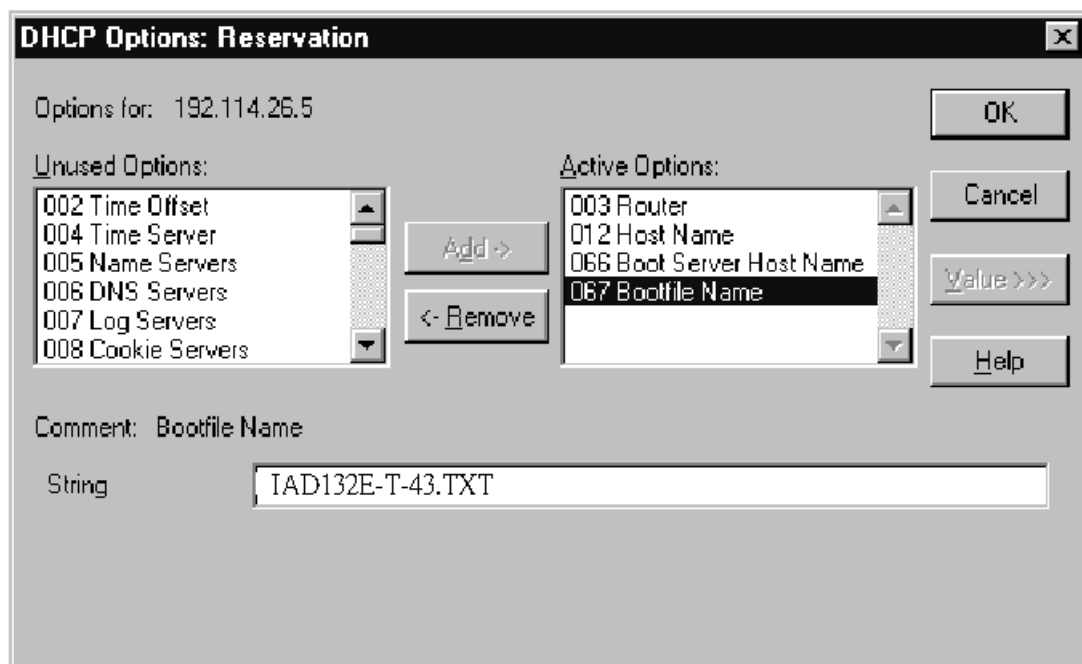
Figure 5-4 - Setup the Configuration File Name

User may configure the DHCP server to provide different configuration files for each VENUS Series device. Refer to the user's manual of the DHCP/BootP server you are using to configure the server.

5.2   File Format

The configuration file must be in ASCII text format, use the text mode editor like Microsoft NotePad, or Microsoft WordPad to edit the file. The rules of the file are:

■   The file must start with the string "VENUS Series Configuration File" at the 1st line (case sensitive). This is the identification header.

■   A line started with a "#" or ";" symbol is a comment line.

■   Each line must be ended with a "0x0D" or "0x0A" (the Line-Feed or Carriage-Return code).

■   This file must be ended with a "0x00" (the End of File code).

■   All of the characters (except the 1st line) in the file must in lower cases.

■   The command lines are processed in sequential order, so arrange the commands in a proper order.

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5.3 Command Sets

The following table lists the major commands and includes a brief function description for each command. Some of the most useful commands can cross-refer to the detailed description in the corresponding sections in Chapter 3.

The command syntax is "command parameter1 parameter2 …". The parameter included in the "[ ]" symbols must be provided, while a parameter included in the "< >" symbols is optional. A "|" symbol separates all the parameters allowed.

Table 5-1 - VENUS Series Command Sets

Command Set	Function Description	Cross Reference
venus box_name [string]	Setup the logic name of the device Example: venus box_name 000.M003 This example names the device "000.M003"	3.5.1.1
venus ca_ip [IP address] <Port number of Call Manager>	Setup the IP address of the MGCP Call Manager and the UDP port for MGCP communication Example: venus ca_ip 212.16.4.5 2727 This example targets the location of the MGCP Call Manager. The MGCP messages will be sent to the UDP port of 2727 at 212.16.4.5. Defaults: Without entering the port number, the UDP port defaults 2427.	3.5.1.1
venus mgcp_version [0=MGCP 0.1 | 1=MGCP1.0 | 2=NCS 1.0 | 3= MGCP 1.0 NCS 1.0]	Select MGCP version (reserved)	3.5.1.1
venus mgcp_wildcard [on | off]	Enable / Disable the wildcarded (*) MGCP message. This command helps to reduce the amount of MGCP messages.	3.5.1.1

Command Set	Function Description	Cross Reference
	Defaults: The default wildcarding is disabled. (Note: Some MGCP Call Managers do not support wildcarding)	
venus dhcp_client [on | off]	Enable / Disable the DHCP/BootP. This command enables the device to request a dynamic IP address and to obtain the net mask and default gateway IP address from a DHCP or BootP server during device boot-up state. Defaults: off	3.5.1.2
venus dhcp_client name [string]	To specify client's host name	3.5.1.2
venus dhcp_client restrict [on|off]	Enable / Disable 'trusted' DHCP server(s) feature. When this feature is enabled, only responses from the severs, specified by the next command, will be accepted.	3.5.1.2
venus dhcp_client server[n]	IP address of 'trusted' server(s).	3.5.1.2
venus snmp agent [on | off]	Enable / Disable the SNMP agent Defaults: off	3.5.1.3
venus snmp sys_contact [string]	Contact person for this SNMP managed device.	3.5.1.3
venus snmp sys_name [string]	Domain name for this SNMP managed device.	3.5.1.3
venus snmp sys_loc [string]	Physical location of this SNMP managed device	3.5.1.3
venus snmp trap [on | off]	Enable / Disable the SNMP trap Defaults: off	3.5.1.3
venus snmp get_com [string]	The community string for Get object from SNMP MIB	3.5.1.3
venus snmp set_com [string]	The community string for Set object from SNMP MIB	3.5.1.3
venus snmp trap_com [string]	The community string for trap active	3.5.1.3
venus snmp trap_dest_[n] [IP address]	IP address of the SNMP manager	3.5.1.3
venus dns [on | off]	Enable / Disable DNS lookup	3.5.1.4

Command Set	Function Description	Cross Reference
	Defaults: off	
venus dns ip [IP address]	Setup the IP address of the Domain Name Server	3.5.1.4
venus dns ca_name [string]	Setup the domain name of the MGCP Call Manager. This command enables the device to communicate with the domain name server to look up the IP address of the Call Manager	3.5.1.4
venus dns iadms_name [string]	Setup the domain name of the IADMS. This command enables the device to communicate with the domain name server to look up the IP address of the IADMS.	3.5.1.4
venus rtp filter [on|off]	Enable / Disable RTP filtering.	3.5.1.11
venus rtp 2833 [on|off]	Enable / Disable RFC 2833 feature.	3.5.1.11
venus t38 [[on|off] | [method [mgc|mg]]]	Enable / Disable T.38 feature and specify the method.	0
venus country_code [generic | usa | china | ndia | hk | ndia …]	Country selection of the telephony specification (ring and tone spec) Defaults: generic	3.5.1.6
venus wan static_ip [IP address]	Setup the static IP address of the WAN interface (the Ethernet port) for the device. (Note: The static IP address is active when the DHCP/BootP function is disabled)	3.5.2.1
venus wan net_mask [IP network]	Setup the Sub-net Mask. (Note: The net mask is active when the DHCP/BootP function is disabled)	3.5.2.1
venus wan default_gw [IP address]	Set up the IP address of the default gateway (Note: The default gateway IP address is active when the DHCP/BootP function is disabled)	3.5.3.2
venus card [3-4] fxs tone [tone type] [ne] [nf] [f1] [a1] [f2] [a2] [f3] [a3] [f4] [a4] [t]	Setup the spec of a call progress tone for a specific voice module card, where [tone type] can be	3.5.2.6

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Command Set	Function Description	Cross Reference
	busy	
	ring_back	
	congestion	
	dial_tone	
	dial_tone2	
	out_of_service	
	disconnect	
	offhook_notice	
	offhook_alert	
	dial_tone3	
	off_on_dial_tone	
	call_wait	
	reorder	
	rmt_disconnect	
	[ne] is the number of tone elements composing this tone (1~6)	
	[nf] is the number of frequency for this tone element (1~4)	
	[f1]~[f4] is the 1st, 2nd, 3rd and 4th frequency of the tone element, in Hertz	
	[a1]~[a4] is the 1st, 2nd, 3rd and 4th amplitude of the tone element, in 1/10db	
	[t] is the duration, in ms, of this tone element (-1: forever)	
	Example:	
	venus card 3 fxs tone dial_tone3 1 1 450 −100 0 0 0 0 0 0 −1	
	This example sets the dial tone spec. The dial tone has only one tone element: 450Hz, -10db, and is played continuously.	
	Example:	
	venus card 3 fxs tone busy 1 2 480 −240 620 −240 0 0 0 0 500	

Command Set	Function Description	Cross Reference
	venus card 3 fxs tone busy 2 0 0 0 0 0 0 0 0 0 500 This example sets the busy tone spec. The busy tone has dual tone elements: (1) 480Hz, -24db, and (2) 620Hz, -24db. The tone pattern is 500ms on and 500ms off.	
venus card [3-4] fxs ring_freq [17~40(Hz)]	Setup the ring frequency of a voice module. Example: venus card 3 fxs ring_freq 20 This example sets the ring frequency of 20Hz	3.5.2.5
venus card [1-4] fxs ring_cadence [on1] [off1] [on2] [off2] [on3] [off3] [duration]	Setup the default ring cadence of a voice module, where [on] is the ring cycle ON time (100ms based) [off] is the ring cycle OFF time (100ms based) [duration] is the total duration of the ring generation (1ms based) Example: venus card 3 fxs ring_cadence 10 40 0 0 0 0 180000 This example sets the ring cadency with 1-second On, 4-second Off cycle. The ring will last for total of 180 seconds.	3.5.2.5
venus card [1-4] fxs distinctive_ring [1-9] [on1] [off1] [on2] [off2] [on3] [duration]	Setup the ring cadence for a distinctive ring pattern, where [1-9] is the distinctive ring pattern (Note: 9 is for setting the spec of the "splash ring") [on] is the ring cycle ON time (100ms based) [off] is the ring cycle OFF time (100ms based) [duration] is the total duration (100ms based)	3.5.2.5

Command Set	Function Description	Cross Reference
	Example: venus card 3 fxs distinctive_ring 2 5 10 20 10 0 0 180000 This example sets the ring pattern for the 2nd distinctive ring with 0.5-second On, 1-second Off, 2-second On, 1-second Off cycle. The ring will last for total of 180 seconds. Defaults: r1: 2 sec on / 4 sec off r2: 0.8 sec on / 0.4 sec off, 0.8 sec on / 4 sec off r3: 0.4 sec on / 0.2 sec off, 0.4 sec on / 0.2 sec off, 0.8 sec on / 4 sec off r4: 0.3 sec on / 0.2 sec off, 1 sec on / 0.2 sec off, 0.3 sec on / 4 sec off r5: 0.5 sec on / 0.1 sec off r6: 0.5 sec on / 0.2 sec off, 0.3 sec on / 0.2 sec off, 0.5 sec on / 3 sec off r7: 2 sec on / 4 sec off r8: reserved r9 (splash ring): 0.5 sec on	
venus longloop [on|off]	Enable / Disable long loop feature for longer distance transmission.	3.5.2.9
venus lan router_mode [lanIp] [lanMask]	Specify LAN IP and mask under router mode.	3.5.2.2
venus nat [on|off]	Enable / Disable NAT .	3.5.2.3
venus qos [voice priority] [signaling priority] [data priority]	Setup different priority for different type of service.	3.5.1.7
venus auth [disable | method1 | method2 | show | ki [string] | mg_id [string]]	Enable / Disable authentication.	3.5.1.9
Venus call_feature did [on|off]	Enable / Disable Direct Inward Dialing feature.	3.5.1.10
venus user_name [string]	Setup the user name Defaults: "user"	3.5.4

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Command Set	Function Description	Cross Reference
venus password [string]	Setup the user password <u>Defaults:</u> no password	3.5.4
venus write_config	Write the configuration into the flash memory	N/A
venus default	Reset the configuration to factory default <u>Defaults:</u> see section 3.7.2	3.7.2
venus reset	Reset the device	3.7.1
venus show	Display current configuration	3.6
flash clean	Clean the configuration stored in the flash memory. Once this is done, user should reboot the device, and the device will set the configuration to factory defaults.	3.7.2
spy	Display the spy level of each software task.	N/A
spy [key#] [level#]	Set the spy level (from 0 to 5) of a specific software task. This command enables the display of debugging message of different monitoring level. A lower level will display more messages, while a higher level shows only critical or fatal messages. Spy levels: 0: General Information 1: Function Entry 2: Normal Event 3: Minor Unexpected Event 4: Major Unexpected Event 5: Fatal Error <u>Defaults:</u> The default spy level is 3. (Note: Enabling a spy level lower than level 3 during heavy service loading may exhaust the device to produce too many messages to crash the device) Example: spy xgcp 2	N/A

Command Set	Function Description	Cross Reference
	This example enable the display of MGCP messages sent and received by the device.	
show	Display system status. Enter "show" to see detailed command description.	N/A
show coding	Display the configuration of the coding profile for this application	N/A
set coding	Setup the coding profile. Enter this command to display detailed setup items.	N/A
show tcid [0 to 31]	Display the configuration of each voice telephony channel	N/A
set tcid [0 to 31]	Setup the detailed configuration for a specific voice channel. Enter this command to display detailed setup items.	N/A
show xgcp	Display the MGCP configuration.	N/A
set xgcp	Setup the detailed MGCP configuration. Enter this command to display detailed setup items.	N/A
xgcp	Setup the detailed MGCP configuration. Enter this command to display detailed setup items.	N/A
activate	Activate the new configuration following the above "set" command	N/A
commit	Write the current active configuration into the flash memory.	N/A
dump [start address] <# of words>	Dump memory content	N/A
mod [start address] [byte 0] .. <byte n>	Modify memory content	N/A
memstat	Monitor memory buffer usage	N/A
dcm	MGCP digit map test command. Enter this command to display detailed control items.	N/A
dlm	DNS testing command. Enter this command to display detailed control items.	N/A
dim	DSP interface testing command. Enter this command to display detailed control items.	N/A

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Command Set	Function Description	Cross Reference
dsp	DSP Runtime Control command. Enter this command to display detailed control items.	N/A
da usage [0 .. 8]	Monitor the DSP usage status	N/A

5.4   Example File

The following is an example configuration file with embedded comments started with "#" for explanation.

VENUS Series Configuration File

This is an example of the configuration file

The 1st line "VENUS Series Configuration File" is the id header of a valid configuration file

This example file will configure the device to

- use "customer132" as the box name (endpoint name).

- talk to the MGCP Call Manager at "212.161.54.100"

- setup the static IP address as "172.16.3.233"

- setup the net mask as "255.255.240.0"

- setup the IP address of the default gateway as "172.16.0.254"

- select country code "china"

- then write the configuration into flash

venus box_name customer132

venus ca_ip 212.161.54.100

venus wan static_ip 172.16.3.233

venus wan net_mask 255.255.240.0

venus wan default_gw 172.16.0.254

venus country_code china

venus write_config

end of configuration file

Chapter 6.   Maintenance and Troubleshooting

6.1   Instruments

The following instruments may help to allocate the problem:

A multi-meter: *to identify the line condition, the power condition, etc.*

A PC: *with a LAN card installed and the IP setup configured properly*

A network scope: *to identify the network status and the traffic load over the network.*

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6.2　　Troubleshooting

Turn off the power first. Follow the procedures below to allocate the problem:

1) Cable Connections

Make sure all the cables are connected correctly and firmly. Check if you provide a correct power source.

2) The Power Source

The LED indicators offer some helpful information for users to check the hardware status of VENUS Series. Check if the PWR LED is ON. Use the multi-meter to measure the power supply.

3) Boot up Diagnosis

Observe the boot up sequence of the gateway. During the boot up phase, VENUS Series performs the hardware initialization, run-time AP software verification, interface module detection and then the hardware diagnosis procedure. Check if all the LED indicators can display correctly.

The SYS ALM LED indicates the diagnosis state: while it is Yellow, the device is performing diagnosis. A Red SYS ALM LED indicates a hardware failure. A Green SYS LED indicates no hardware failure.

Login to the Craft port Interface, and select the "Hardware Configuration and Diagnosis Report" menu to see if the device reports correct hardware configuration, type of interface cards installed, number of voice channel detected, and the diagnosis results.

In case of hardware failures, record the indication of LED indicators during the boot up phase, and report the diagnosis result generated by VENUS Series to our customer service.

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4) IP Network Interface Connection

Check the indicator for the WAN interface indicating normal condition. If the 10/100Base-T Fast Ethernet port is used, check if the 10/100BT LED is on. Verify if a correct Ethernet cable is used. To connect VENUS Series directly to another Ethernet port of a network node (for example a router), a cross cable, instead of a straight cable, may be used.

5) IP Address Configuration

Check if the IP address was assigned statically or obtained dynamically from a DHCP server.

If the DHCP client mode is enabled, look at the DHCP server for the exact IP address assigned to the gateway or monitor the display message of the DHCP server discovery status from the Terminal User Interface via the Console port. Remember that the DHCP server must be located in the local network where the DHCP server can receive the broadcast packets sent from the gateway. Make sure there is unused IP address available on the DHCP server.

If static IP address is enabled, make sure the net mask and the default Gateway are set correctly. Use the PC to perform a PING test to the gateway, or activate the PING feature from within the Craft port Interface to verify the IP packet transmission between the gateway and some other nodes. Try to PING the default gateway first, then the MGCP Call Manager. Check with your access service provider for a well-maintained WAN link.

VENUS Series must be pre-registered on the MGCP Call Manager for identification and call routing. MGCP Call Manager may use the IP address only to identify a Media Gateway. Use the correct IP address assigned to the VENUS Series. A non-registered IP address may be rejected by the Call Manager.

Use the Network Scope (or the Protocol Analyzer) to monitor the packets sent received by the VENUS Series. Another convenient method is using the "spy" feature provided by the VENUS Series Terminal User Interface to monitor the exchanging MGCP messages. Refer to Section 3.8.2 for detailed description.

6) Firewall and NAT

Normally, a public IP address should be used for VENUS Series. In case the VENUS Series is located in the local network behind the firewall or router, Make sure the IP packets is not blocked or modified.

For the security purpose, a firewall server or VPN is usually installed to filter out unauthorized accesses from the outside world. Make sure the traffic to/from the VoIP gateway is not blocked.

The NAT server may cause problem as well. The NAT server performs the Network Address Translation between the public IP address and the private IP address. It may not recognize some Text-based protocols (like MGCP) used by the VoIP gateway and may cause incorrect IP address or port translation for a packet.

7) MGCP Call Manager's IP Address and the UDP port used

Setup the correct Call Manager IP address and the UDP port used for MGCP. The Media Gateway and the MGCP Call Manager must talk to the correct UDP port for exchanging the MGCP messages. Modify the MGCP port to match the setup (See Section 3.5.1.1).

When restarted, VENUS Series will send the MGCP message "RSIP" (Restart In Progress") to the Call Manager to report the Restart status of each POTS port. If Call Manager acknowledge to this report, the Voice Channel LED of the corresponding POTS port will turn OFF. Check if any of the Voice Channel LED remains ON, which means the Call Manager is not pre-configured with correct registration for this channel.

8) The Box Name

The Box Name is a logic name for identifying a Media Gateway. Some Call Managers may dependent on this, instead of the IP address of the Gateway, to accept or reject a MGCP message. This will release the limitation of using fixed IP address for a Media Gateway.

Check if the Box Name of VENUS Series corresponds with the name registered at the MGCP Call Manager. This box name may be case sensitive depending on the design of Call Manager.

The POTS ports of the VENUS Series are named from "aaln/1@BoxName" to "aaln/32@BoxName" as the Endpoint Id (per MGCP protocol) where the "BoxName" is the logic name of the gateway. These identifications must match the registration at the Call Manager

9) Off-hook the Telephone Handset

Pick-up the phone and hear to the response. Check if the LED of the telephone port is turned ON. If no tone is heard, check the transmission between the Call Manager and the gateway again. If busy tone is heard, contact with your VoIP service provider for correct and valid user account.

10) Make a Local Call

The Telephone number is setup by your service provider. Each voice port on the VoIP gateway has a unique Telephone number and each port must be registered in advance at the Call Manager. If the dial tone can be heard, try to dial a local number to another port on the same gateway. See it the ring back tone is heard and the called party are ringing. See if the Channel LED flashes while the phone rings. Answer the phone, and start conversation. Hear the voice quality.

If the call cannot be made, check with the service provider for valid telephone numbers that this gateway can call.

The "Digit MAP", as defined in MGCP protocol, is used by VENUS Series to filter out un-defined telephone numbers. The "Digit Map" pattern is provided by the Call Manager. An improper Digit Map pattern may cause problem.

1) Make an On-Net Call

Try to make a call to another VoIP gateway somewhere located in the IP network. If the ring back tone is heard, but no voice can be heard after the called party answers the phone, the voice packets sent by these two gateways may be blocked somehow (reason like firewall, VPN, etc). Contact your service provider to check the setup of the routing path.

The voice waves are converted to digital voice coding (such as G.711,

G.726 …etc) and encapsulated in RTP packets. RTP is a transport protocol running on the top of UDP. To make a VoIP phone call, a RTP connection is created for the caller and the called gateway. The UDP port used for RTP is not fixed. VENUS Series uses the UDP number started from 30000.

12) Hear the Voice Quality

If the voice quality is not good, possible reasons include

Low WAN link throughput *not able to support enough bandwidth for voice traffic (see the following table for calculation of maximum bandwidth required)*

Network congestion: *a well maintained network flow control policy or protocol help to control the traffic and prioritize the service for different type of media*

Type of voice codec

Network device delay: *firewall, router, switch, access device, … etc all contribute latency to the traffic. A good network configuration in advance is very important.*

Type of the Voice Codec selected is a big factor and tradeoff to the voice quality. The PCM type codec (G.711 u-law or A-law) provide excellent voice quality, but consume large amount of network bandwidth. A higher compression rate codec provide fair voice quality and consumes less network bandwidth, however requires more CPU/DSP power which increase the voice latency. The Call Manager may apply the dynamic voice codec selection algorithm based on the network traffic analysis to efficiently control the VoIP traffic consumption.

Table 6-1 - Voice Codec Bandwidth

Codec Types	Bit Rate
ITU-T G.711 A-Law PCM	64K
ITU-T G.711 μ-Law PCM	64K
ITU-T G.723.1	6.3K/5.3K
ITU-T G.729A	8K
ITU-T G.726.	16/24/32/40K

Appendix A Supplemental Telephone Features

A.1   Supplemental Telephone Features

Powered by the MGCP call control protocol, VENUS Series together with the MGCP Controller (MGC) or MGCP Call Manager from the Soft Switch vendors can easily provide some additional enhanced telephony features. For the traditional PSTN service providers, they used to invest on extra equipment or technology for those services and may charge extra to their customers.

The supplemental telephone features like Call Forwarding, Call Waiting, Caller ID Display, Caller ID Blocking, Speed Dial, Call Return and 3-way Conference can be provided. Check with the VoIP service provider for available features opened.

The following Table describes some example procedures for VENUS Series to enable or disable several example supplemental features

Table A-1 - Supplemental Telephony Features

Features	Description	Examples
Call Forward All (CFA)	Forward all the incoming calls to a designated telephone number	- To enable Call Forwarding All Pick up the phone and press 72# Hear the Dial Tone Enter the telephone number to which the incoming calls will be forwarded Hear the Confirm Tone - To disable Call Forwarding All Pickup the phone Press 73# Hear the Confirm Tone
Call Forward Busy (CFB)	Forward all the incoming calls while the local phone is busy	- To enable Call Forwarding Busy Pick up the phone and press 74#

Features	Description	Examples
		Hear the Dial Tone
		Enter the telephone number to which the incoming calls will be forwarded to
		Hear the Confirm Tone
		- To disable Call Forwarding Busy
		Pickup the phone
		Press 75#
		Hear the Confirm Tone
Call Forward No Answer (CFNA)	Forward the incoming calls to a preset telephone number if the call is not answered after several rings	- To enable Call Forwarding No Answer
		Pick up the phone and press 76#
		Hear the Dial Tone
		Enter the telephone number to which the incoming calls will be forwarded to
		Hear the Confirm Tone
		- To disable Call Forwarding No Answer
		Pickup the phone
		Press 77#
		Hear the Confirm Tone
Caller ID Blocking	The Caller ID (telephone number) and the registered Name of the local phone will not be displayed on the Called phone for privacy.	- To enable Caller ID Blocking
		Pickup the phone
		Press 86#
		Hear the Confirm tone
		- To disable Caller ID Blocking
		Pickup the phone
		Press 82#
		Hear the Confirm tone
Selective Caller ID Blocking	The Caller ID (telephone number) and the registered Name of the local phone will not be displayed on the Called phone for a signal phone call.	- To block Caller ID for an individual call
		Pickup the phone
		Press 67#
		Hear the Dial tone
		Dial the telephone number to make the call
Call Return	To call back to the caller of the last incoming call. This feature works even if last incoming call was not answered.	- To make a return call
		Pickup the phone
		Press *69
Call Waiting	This feature allows interruption of a 3rd party to a call in progress.	- Call Waiting example
		While one call is in progress (say A is talking to B)

Features	Description	Examples
	Make the coming in call to wait until current conversation finished. The talking person will be informed by short tone	to B) C dial the phone number of A A hear the Call Waiting tone indicating an interruption A press the "Flash" button on the handset A can now talk to C while put B on hold To finish the conversation, A press the "Flash" button to switch back to B and continue the conversation - To disable Call Waiting for an individual call not to be interrupted Pickup the phone Press 70# Hear the Dial tone Dial the telephone number to make a call which will not be interrupted
Speed Dial	This feature allows users to store telephone numbers to the telephone book located in the database of the service provider. User can press fewer digits to automatically dial the stored number. The total numbers that the telephone book can store is depending on the service provider	- Example of storing a telephone number to position 4 in the telephone book Pickup the phone Press 74* Hear the Dial tone Press 4 (the 4th position in the phone book) Enter the telephone number to store Hear the Confirm tone - To dial a stored telephone number Pickup the phone Press 4# (the 4th telephone number)

Note:

All of the access codes (e.g. 72#) and procedures listed above may vary according to the configuration of the MGCP Call Manager. Please check with your VoIP service provider.

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Appendix B Abbreviation

Abbreviation	Stands for
ARP	Address Resolution Protocol
BootP	Bootstrap Protocol
CLI	Command Line Interface
CPU	Central Processing Unit
DDN	Digital Data Network
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System or Domain Name Server
DSP	Digital Signal Processor
FXS	Foreign Exchange Station
HTTP	Hyper Text Transfer Protocol
IAD	Integrated Access Device
IADMS	IAD Management Server
ICMP	Internet Control Message Protocol
IETF	Internet Engineering Task Force
ITU-T	International Telecommunication Union - Telecommunication
MDU	Multi-Dwellings Units
MG	Media Gateway
MGC	Media Gateway Controller
MGCP	Media Gateway Control Protocol
MIB	Management Information Base
MTU	Multi-Tenants Units
NAT	Network Address Translation
NCS	Network-based Call Signal protocol
NGN	Next Generation Network
PING	Packet Internet Gopher
POTS	Plain Old Telephone System
PPPoE	Point-to-Point Protocol over Ethernet
PSTN	Public Switched Telephone Network
RARP	Reverse Address Resolution Protocol

RFC	Request for Comments
RTP	Real Time Protocol
SDP	Session Description Protocol
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
TELNET	Telecommunication Network Protocol
TFTP	Trivial File Transfer Protocol
UI	User Interface
UDP	User Datagram Protocol
VAD	Voice Activity Detection
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network

Appendix C Venus Series Power Consumption

	All Idle	Full Loading
Venus 2804+	*9.9W*	*12.9W*
Venus 2808	*41.8W*	*53.8W*
Venus 2816	*35.2W*	*54.4W*
Venus 2832A+	*46.2W*	*94.2W*