Air Live®

www.airlive.com

VOIP-211RS/210RS/220RS/440S

SIP VoIP Router

User's Guide

Trademarks

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FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause radio interference in which case the user will be required to correct the interference at his or her own expense.

CE-mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Revision

USER'S GUIDE

Part No.:

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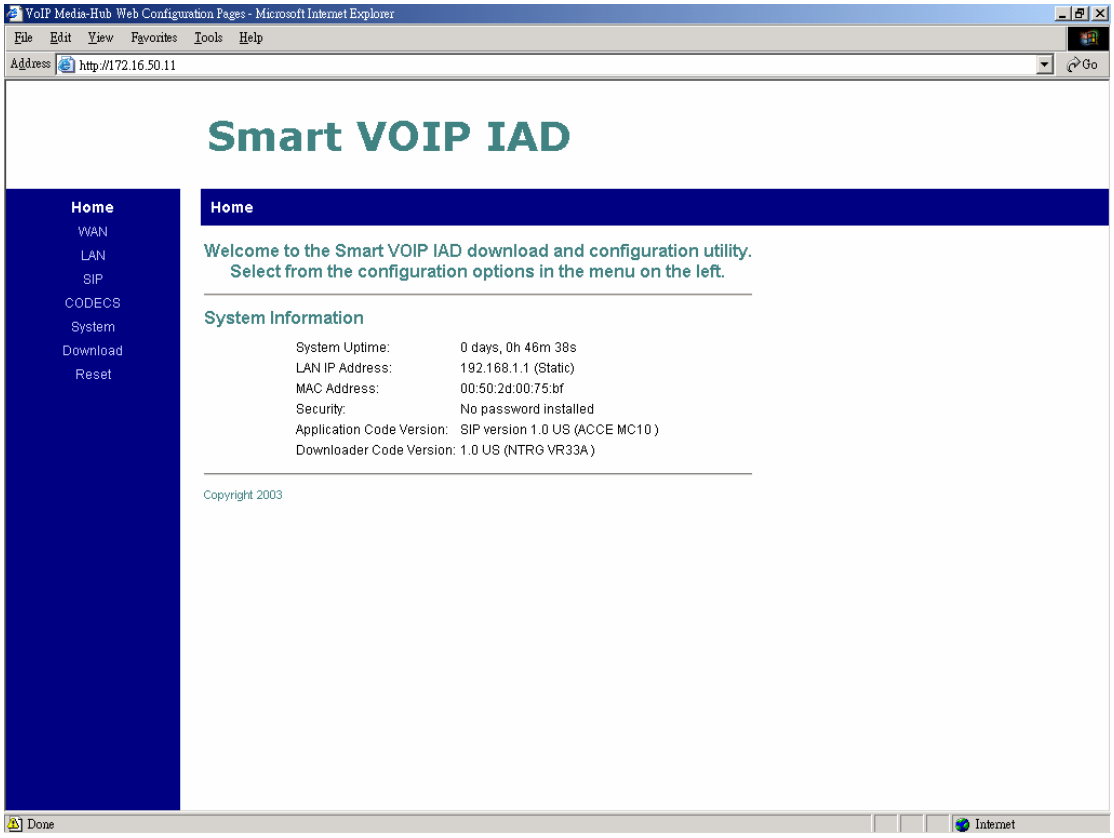
Home



System Uptime: specifies the amount of time, which the system has been up. This time is reset every time the system is reset.

LAN IP Address: indicates the IP Address of your LAN.

MAC address: MAC address is the address of your MAC.

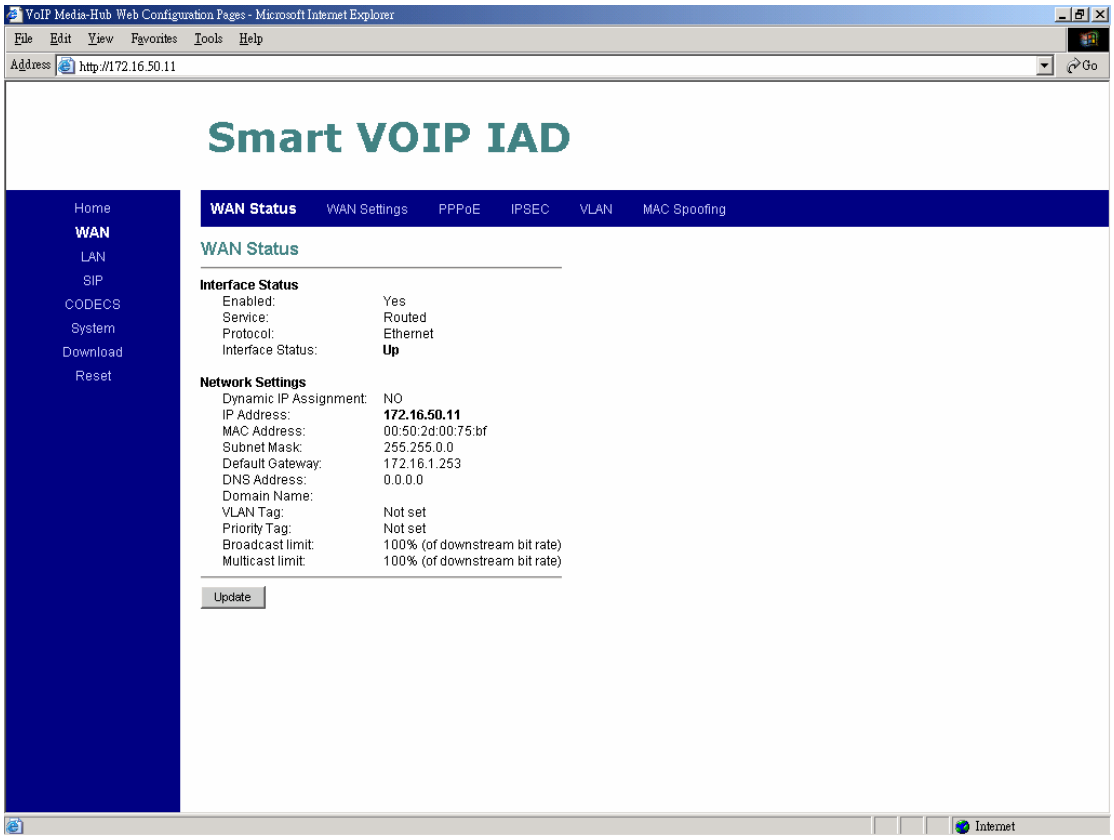
Security: for your password, which is configured in the “System” section.

Application Code Version: tells the version of the application code which you are using.

Download Code Version: tells the version of the download code which you are using.

WAN

WAN status



Interface Status: these are the details of your interface's status.

Enabled: "Yes", lets you know that your interface is enabled and ready to be used.

Service: either "Routed or Bridged", tells you the level of your interface's connection.

Protocol: refers to how you are transmitting data. (i.e. Ethernet)

Interface Status: either "Up" or "Down".

Under Network Settings: these are the details of your network settings.

Dynamic IP Assignment: “Yes” or “No”, depending on whether or not you are using a dynamic IP.

IP address: your specified IP.

MAC address: Your specified MAC address.

Subnet Mask: indicates the IP address of your mask.

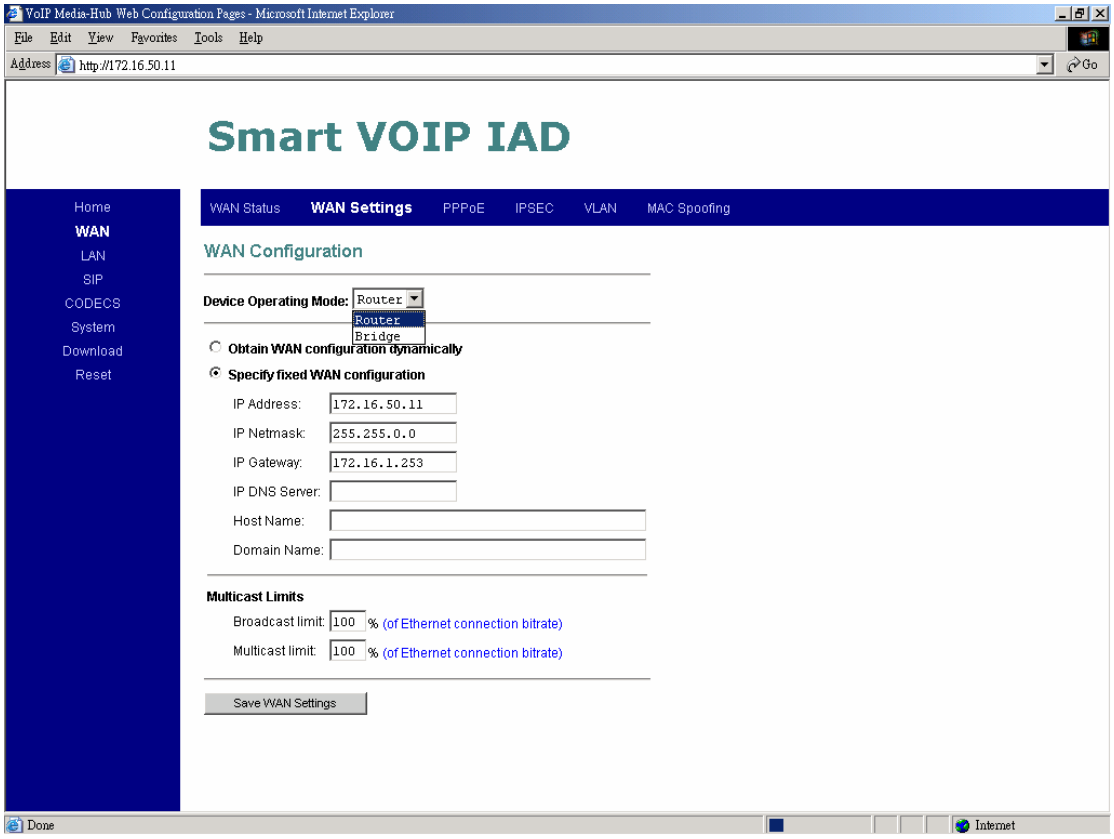
Default Gateway: is the IP address of the gateway. The gateway IP could be retrieved from DHCP offer in DHCP mode, or be set up manually in fixed IP mode.

DNS address: refers to the address of your dynamic name server, if applicable.

VLAN: VLAN tag value encoded in the Ethernet header in all outgoing packets

Priority Tag: Priority Tag value encoded in the Ethernet header in outgoing packets.

WAN Configuration



1. Device Operating Mode: you choose either “Router” or “Bridged” depending on your operation.

2. You will check either “**Obtain WAN configuration dynamically**” or “**Specify fixed WAN configuration**”.

When you choose “**Obtain WAN configuration dynamically**”, the information is detected automatically through DHCP.

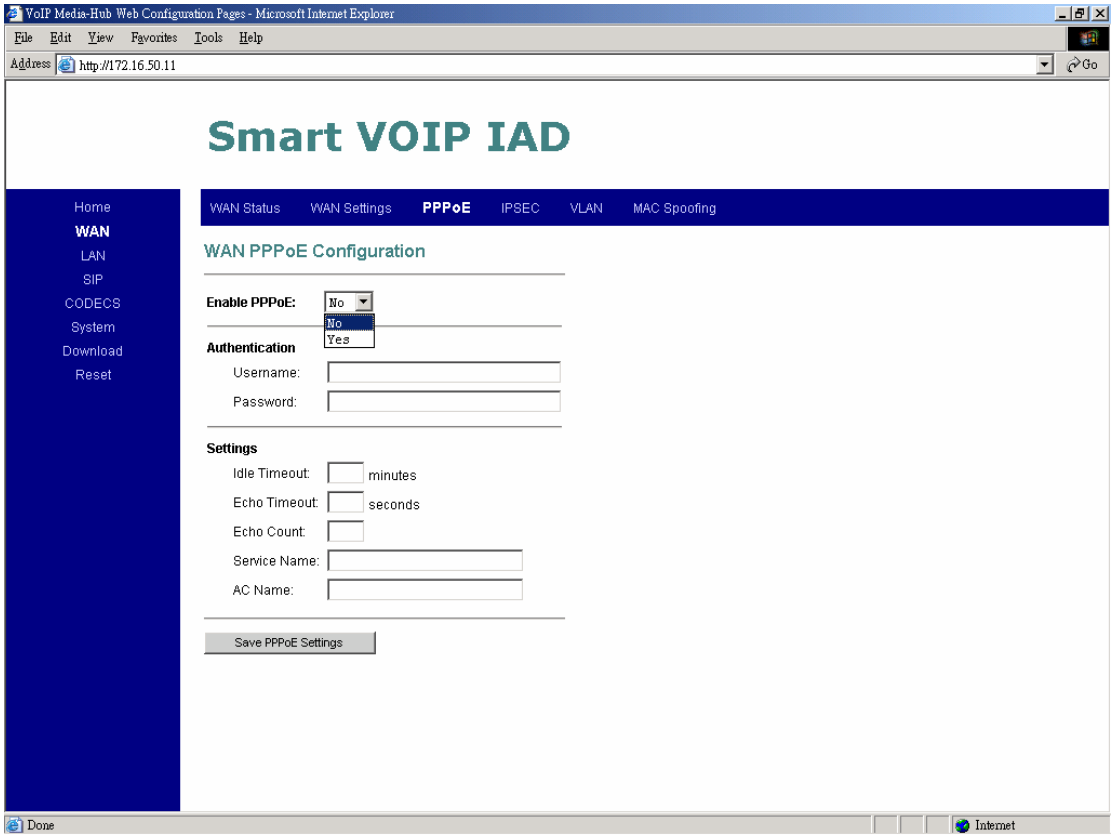
If you choose “**Specify fixed WAN configuration**”, you are required to enter the IP address, IP of the Sub mask, IP of the Gateway, and IP of the DNS Server, if applicable.

3. Multicast Limits:

Broadcast Limit: the value specifies the maximum limit on the percentage of broadcast packets which will be bridged to the destination interface (as a percentage of the source side bandwidth)

Multicast Limit: the value specifies the maximum limit on the percentage of multicast packets which will be bridged to the destination interface (as a percentage of the source side bandwidth)

WAN PPPoE Configuration



1. Enable PPPoE: "Yes" or "No", to enable/disable PPPoE

2. Under "**Authentication**", you enter the username and password given by your ISP.

3. Settings:

Idle Timeout: Idle timeout before PPP connection is closed due to inactivity

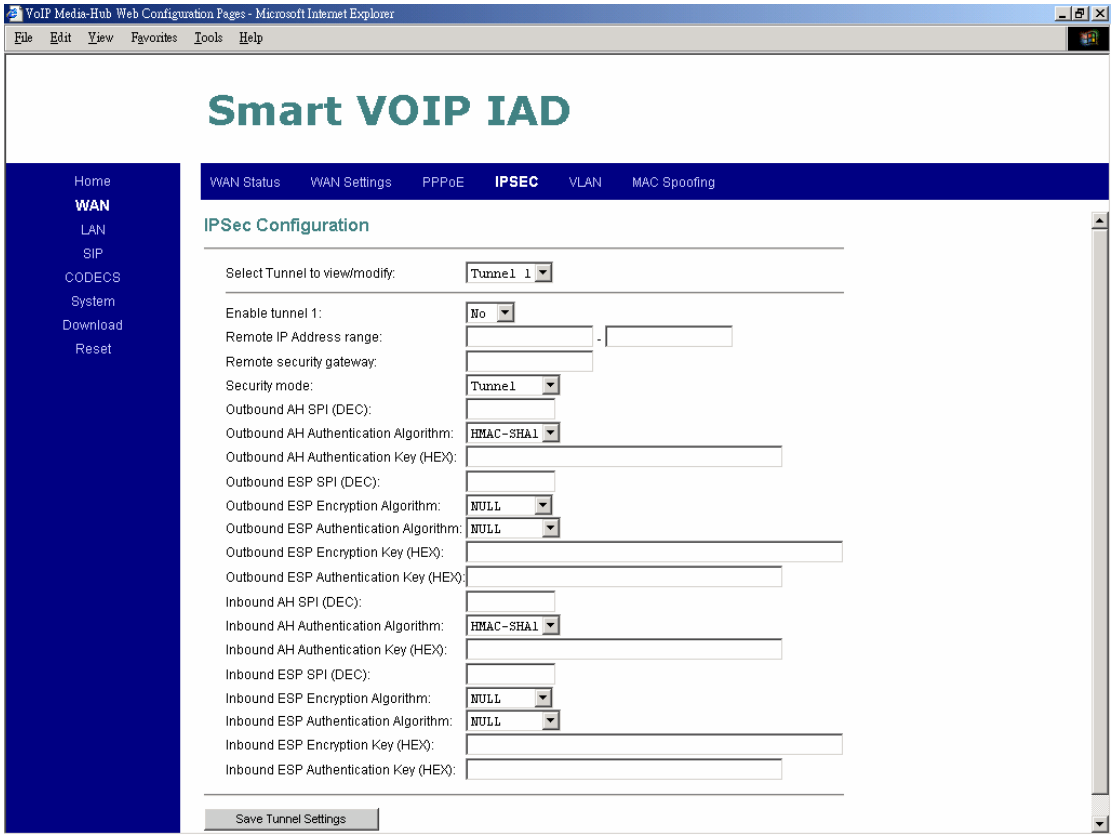
Echo Timeout: the duration between PPP echo requests sending to server.

Echo Count: the number of unanswered PPP echo requests before PPP connection is closed.

Service Name: PPPoE Service name

AC Name: PPPoE AC name

IPSec Configuration



This page allows configuration of the device's IPSec (IP Security) settings.

Enable tunnel 1: Enable/disable tunnel 1 IP sec
Remote IP Address range: start and end of remote IP address range.
Remote security gateway: Remote security gateway IP address
Security Mode: IPSec mode (tunneling/transport)
Outbound AH SPI (DEC): Outbound AH security parameter index number.
Outbound AH Authentication Algorithm: in HMAC-MD5 or HMAC-SHA1
Outbound AH Authentication Key (HEX): hex number up to 40 nibbles
Outbound ESP SPI (DEC): Outbound ESP security parameter index number
Outbound ESP Encryption Algorithm: in 3DES-CBC or DES-CBC
Outbound ESP Authentication Algorithm: in HMAC-MD5 or HMAC-SHA1
Outbound ESP Encryption Key (HEX): hex number up to 48 nibbles
Outbound ESP Authentication Key (HEX): hex number up to 40 nibbles
Inbound AH SPI (DEC): Inbound AH security parameter index number
Inbound AH Authentication Algorithm: in HMAC-MD5 or HMAC-SHA1

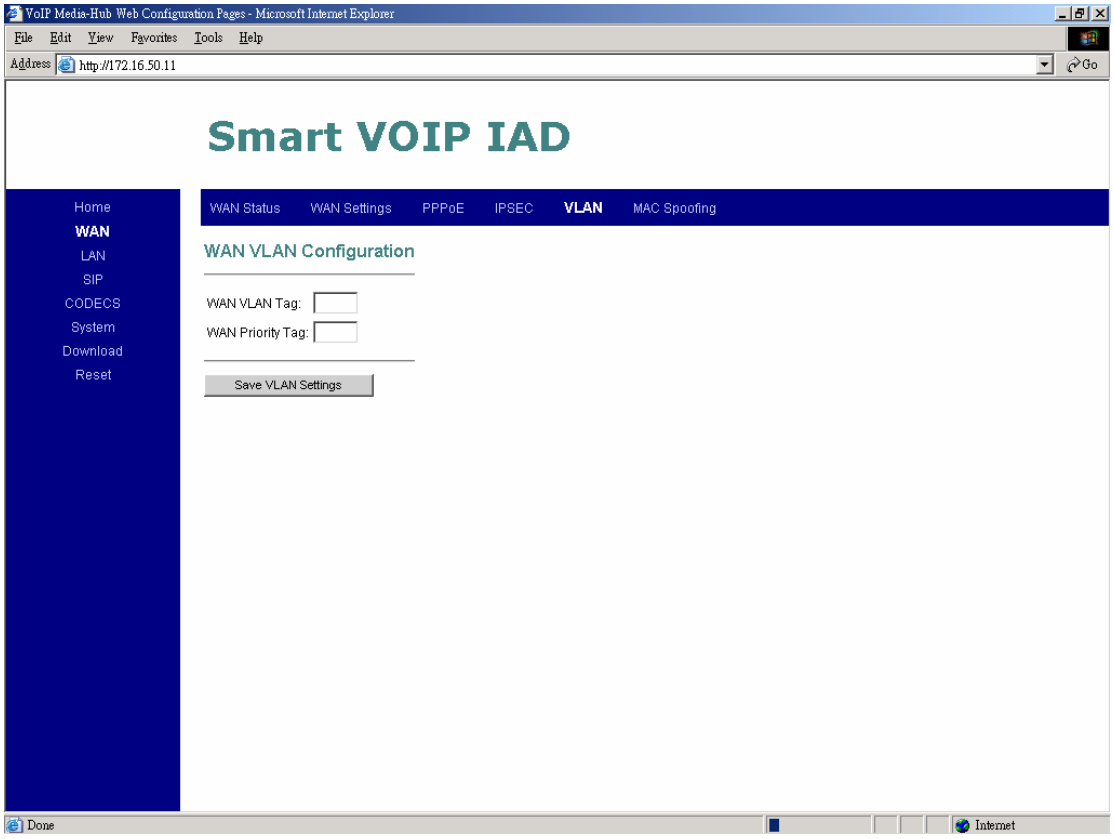
Inbound AH Authentication Key (HEX): hex number up to 40 nibbles
Inbound ESP SPI (DEC): Inbound ESP security parameter index number
Inbound ESP Encryption Algorithm: 3DES-CBC or DES-CBC

Inbound ESP Authentication Algorithm: in HMAC-MD5 or HMAC-SHA1

Inbound ESP Encryption Key (HEX): hex number up to 48 nibbles

Inbound ESP Authentication Key (HEX): hex number up to 40 nibbles

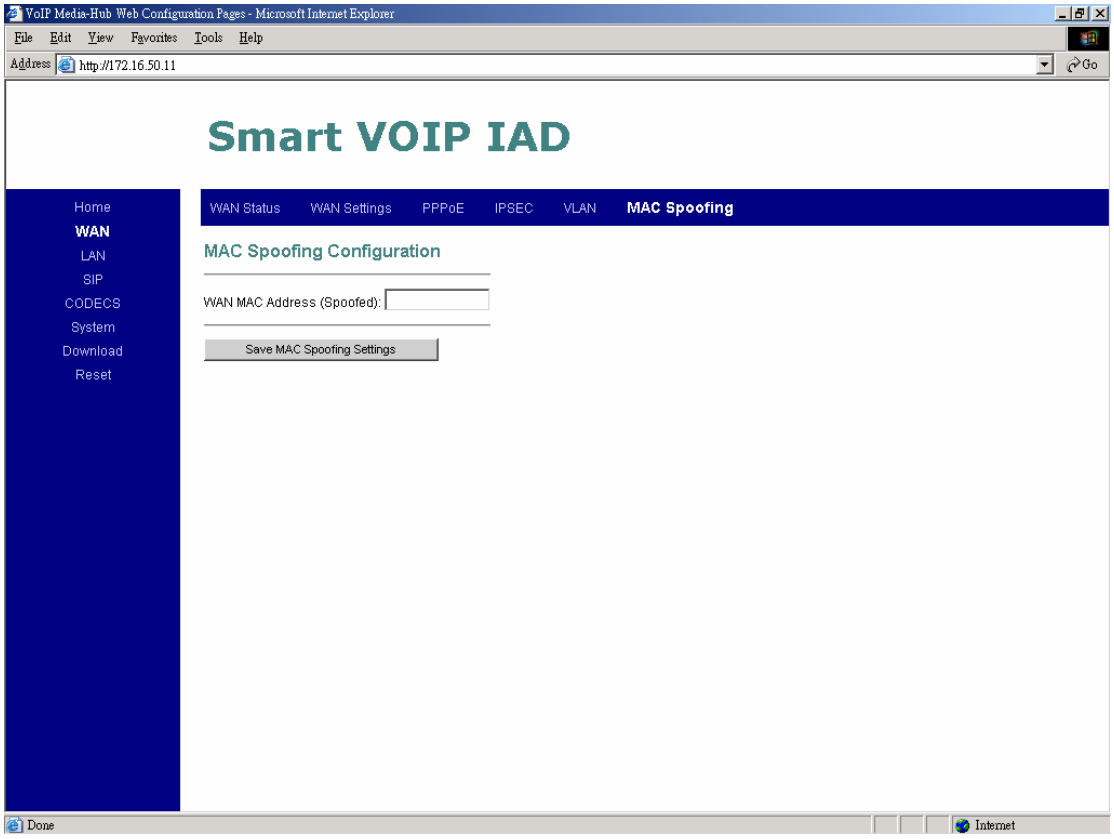
WAN VLAN Configuration



WAN VLAN Tag: VLAN tag for all outgoing packets on interface. The value should be between 0 and 4094

WAN Priority Tag: Priority tag for all outgoing packets on interface. The value should be between 0 and 7

MAC Spoofing Configuration

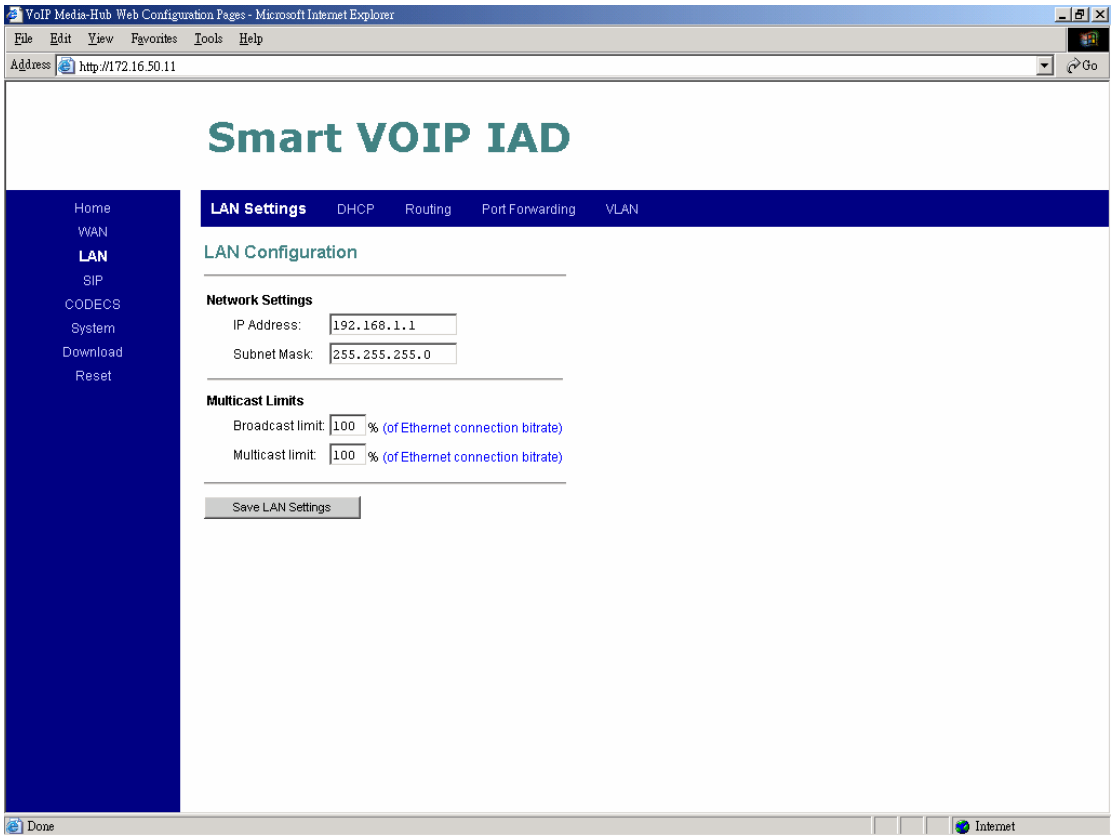


WAN MAC Address (Spoofed):

Only available when devices under the router mode. The spoofed MAC address to be used by the device's WAN interfaces, the Ethernet address of the outgoing packets from the WAN interface would be replaced with this address. If blank, the WAN interfaces will use the value of MAC

LAN

LAN Configuration



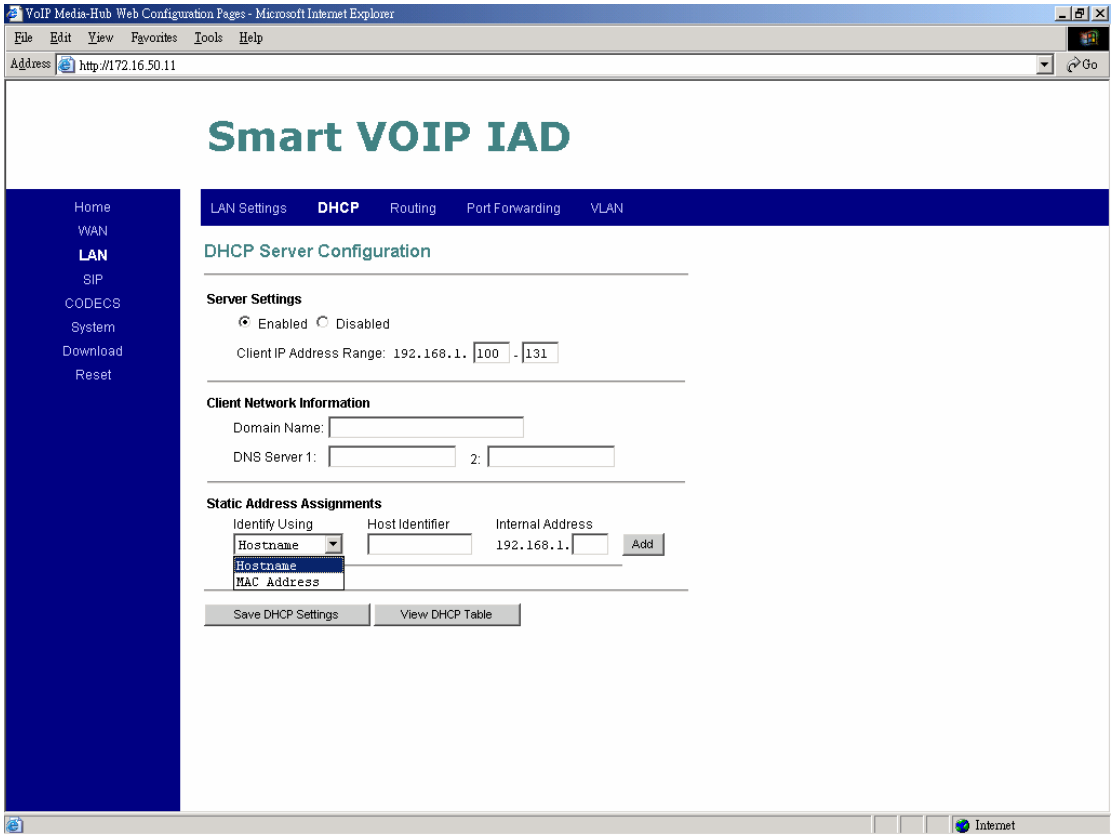
1. Under "**Network Settings**", you enter the **IP address** and **subnet mask** of your network.

2. Multicast Limits:

Broadcast Limit: the value specifies the maximum limit on the percentage of broadcast packets which will be bridged to the destination interface (as a percentage of the source side bandwidth)

Multicast Limit: the value specifies the maximum limit on the percentage of multicast packets which will be bridged to the destination interface (as a percentage of the source side bandwidth)

DHCP Server Configuration



These configuration parameters are for the device's internal DHCP server.

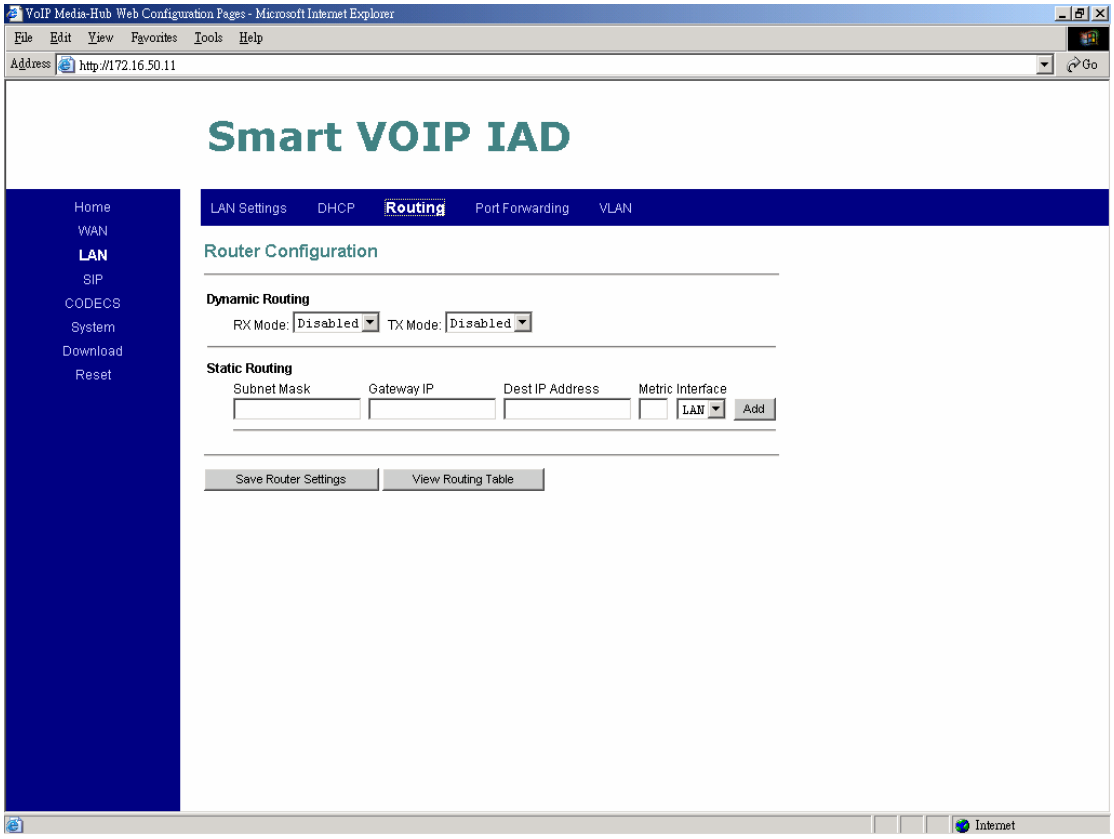
1. **Server Setting:** "Yes" or "No", to enable/disable DHCP
   Client IP Address Range: Minimum and Maximum limit on the DHCP IP address pool

2. **Client Network Information**
   Domain Name: LAN domain name provided to DHCP clients during the OFFER process.
   DNS Server: This statically assigned DNS server IP address will be provided to clients during the OFFER process.

3. **Static Address Assignment**

Up to eight static DHCP address assignments can be configured. To add a static IP assignment, enter the LAN device's **host name** (must be unique in the private network) and/or **MAC address**. Specify the **Internal address** to be assigned and press the "Add" button.

Router Configuration



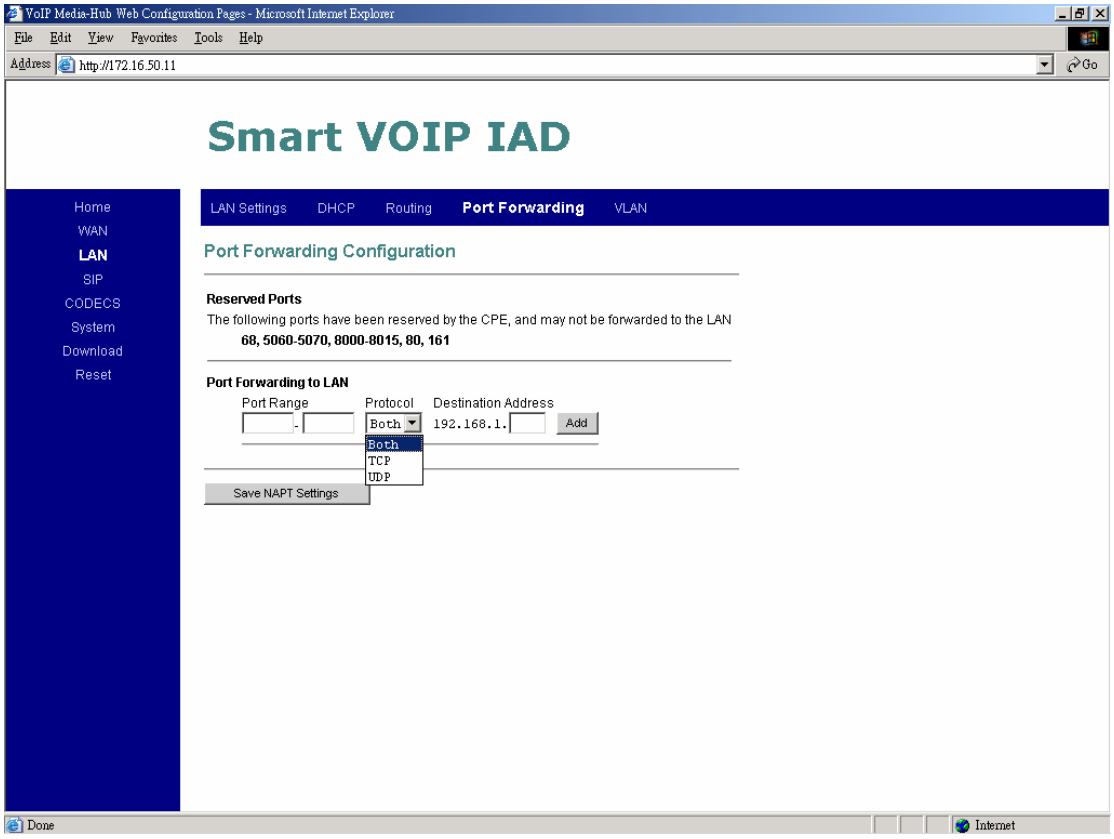
These configuration parameters are for the device's internal router.

1. Dynamic Routing: Whether or not dynamic routing on **TX/RX** interfaces is enabled/disabled.

2. Static Routing

Under "**Static Routing**", you can specify your routing path of your internal network.

Port Forwarding Configuration

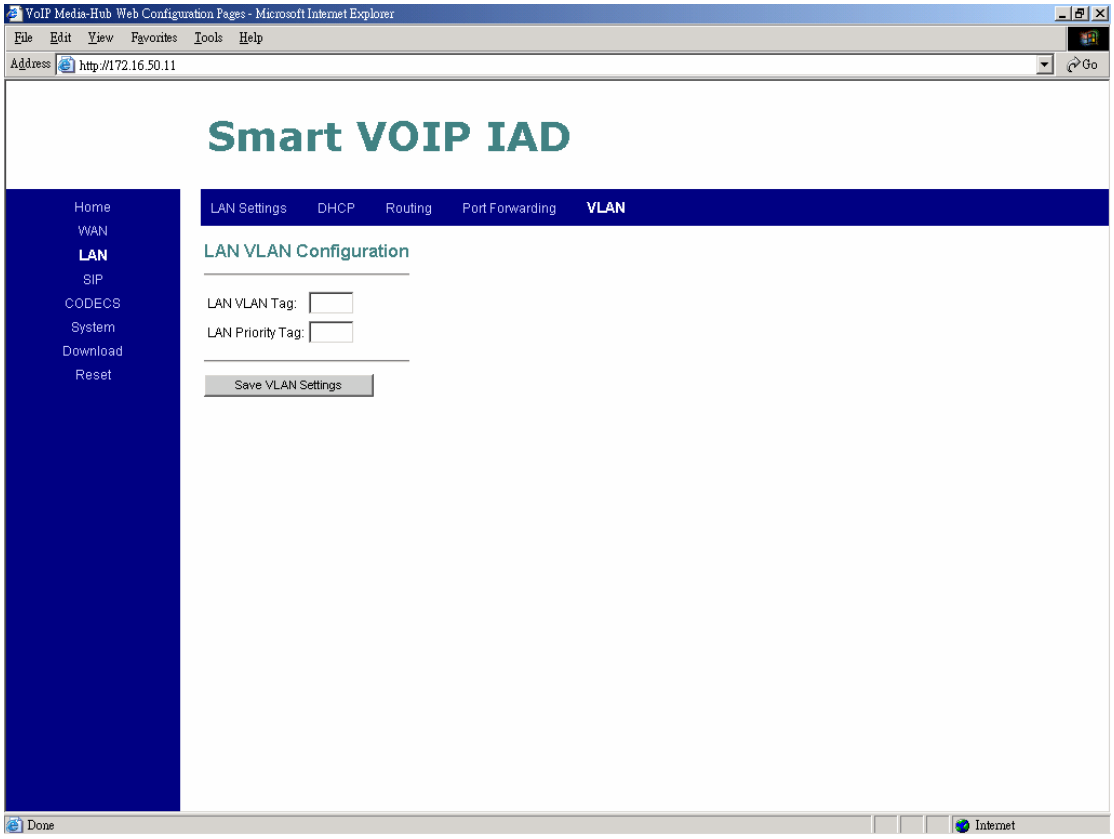


1. Under "**Reserved Ports**", specified are the ports, which cannot be forwarded to the LAN.

2. Under "**Port Forwarding to LAN**", you enter the specifications, which you will be forwarding to the lan, including **port range**, **protocol**(Both, TCP or UDP), and **destination IP address**.

Click on "**Save NAPT Settings**" to save your configurations.

LAN VLAN Configuration



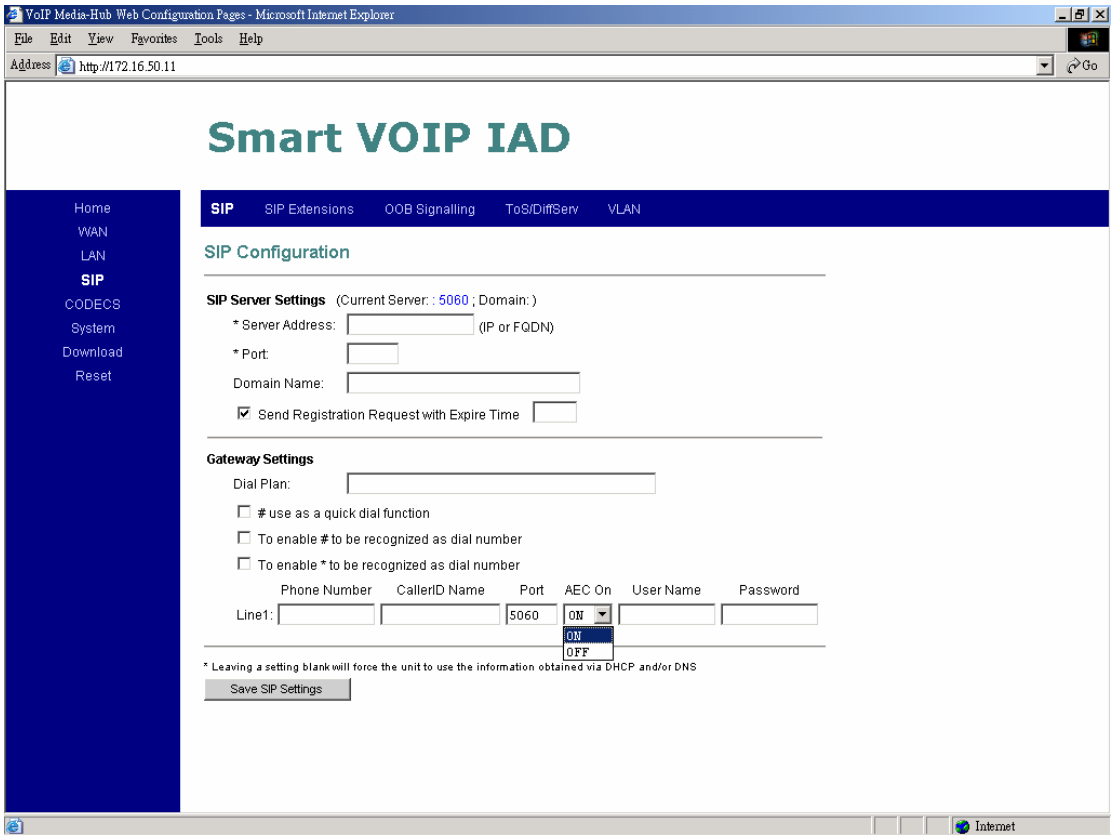
LAN VLAN Tag: VLAN tag for all outgoing packets on interface. The value should be between 0 and 4094

LAN Priority Tag: Priority tag for all outgoing packets on interface. The value should be between 0 and 7

Click on "**Save VLAN Settings**", to save your configurations.

SIP

SIP Configuration

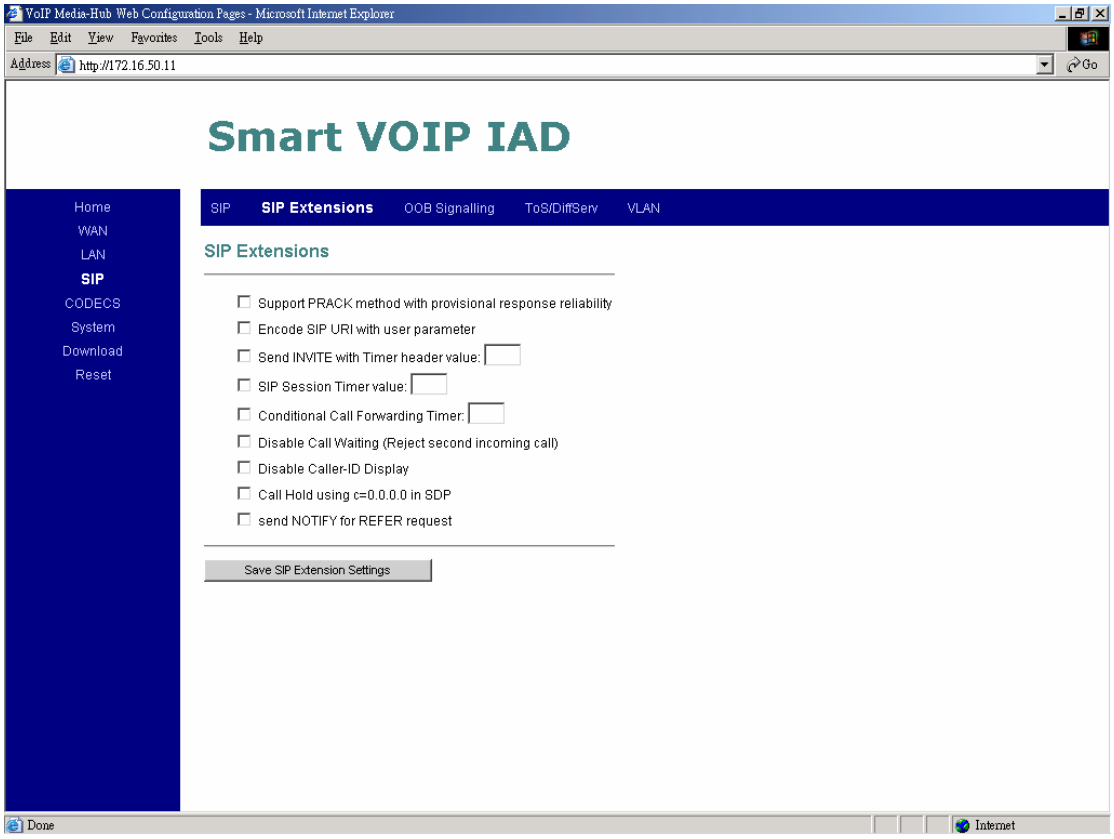


1. Under "**SIP Server Settings**", you enter the **server address**, **port**, **domain name**, and **expiration time** unit, if you choose to send registration request with an expiration time.

2. Gateway Settings

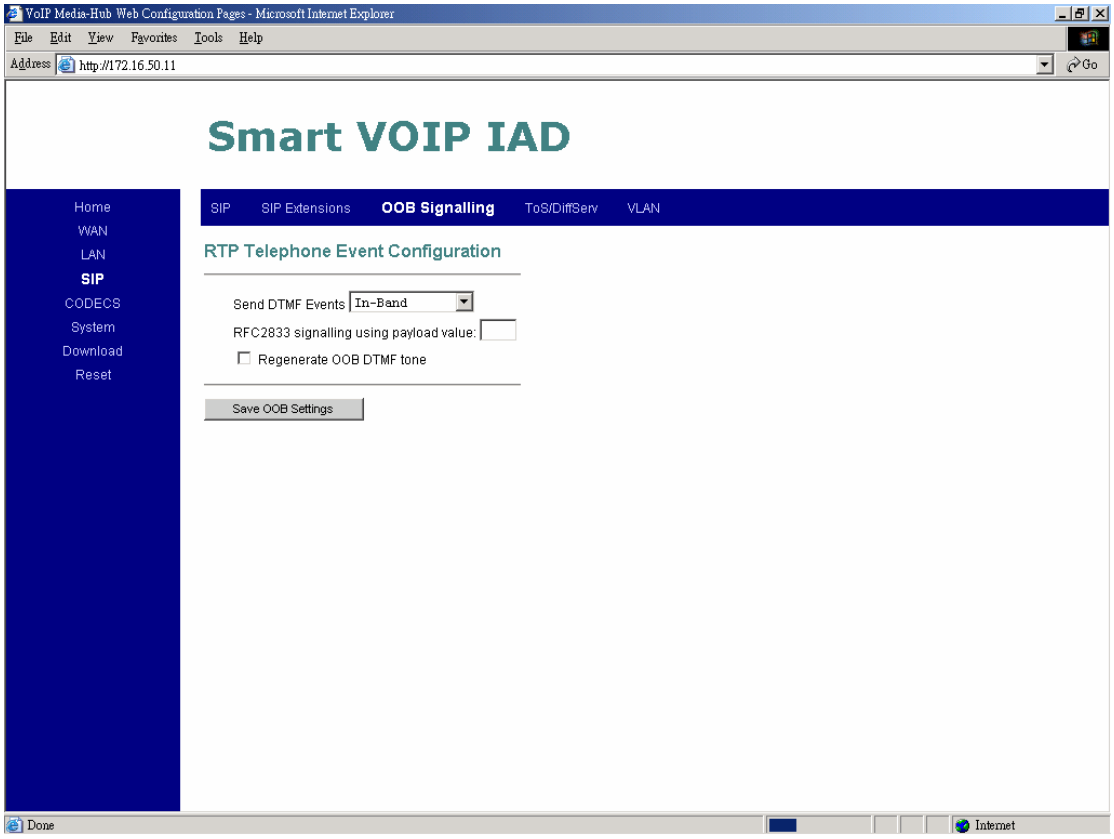
- **Dial Plan:** refer to appendix D of this guide
- **# use as a quick dial function:** If this box is checked, the dialed digits would be sent out when '#' key is pressed.
- **Enable # to be recognized as dial number:** allow '#' key to be appeared in the INVITE request URI
- **Enable * to be recognized as dial number:** allow '*' key to be appeared in the INVITE request URI
- For the line on the endpoint, enter the **Line Phone Number**, **Caller-ID Name**, **signaling port value**, **authentication Username and Password**, and select if **AEC** is to be performed on this line.

SIP Extensions



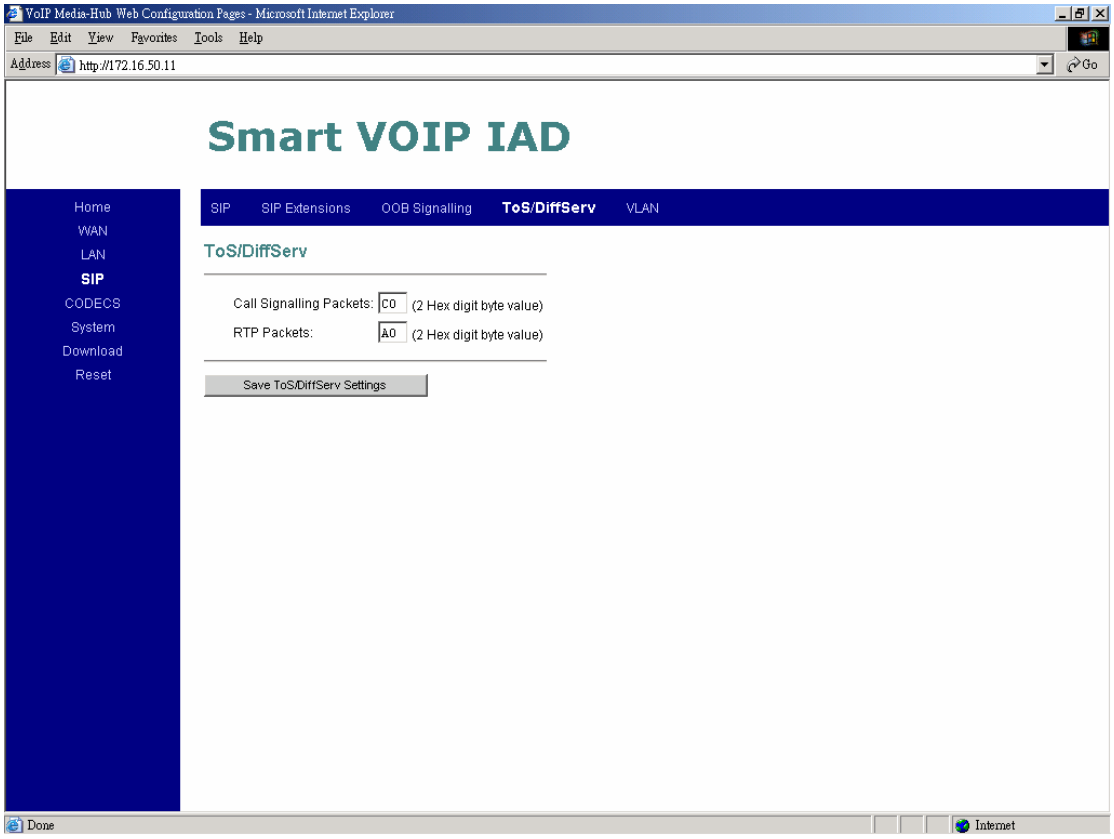
1. **Support PRACK method:** enable SIP PRACK support.
2. **Encode SIP URI with user parameter:** encode user=phone parameter in SIP URI.
3. **Send INVITE with Timer header:** encode Timer header in all INVITE requests for ringing timeout
4. **SIP session timer:** enable SIP session timer function.
5. **Conditional Call Forwarding Timer:** Forward the call to the pre-configured number if the phone does not pick up within the timer.
6. **Disable Call Waiting:** don't play call waiting tone.
7. **Disable Caller-ID display:** don't send out caller-id display for incoming calls.
8. **Call Hold using C=0.0.0.0:** using the call hold method described in rfc 2543. If unchecked, the call hold would follow rfc 3263 method
9. **Send NOTIFY :** send out NOTIFY request to transferer for unattended and attended call transfer.

RTP Telephone Event Configuration



This sub-page allows configuration of the out-of-band signaling options for SIP. Select whether OOB telephone event signaling is to be done using the SIP INFO message, or to be done via RFC2833 RTP signaling. For additional information please refer RFC2833.

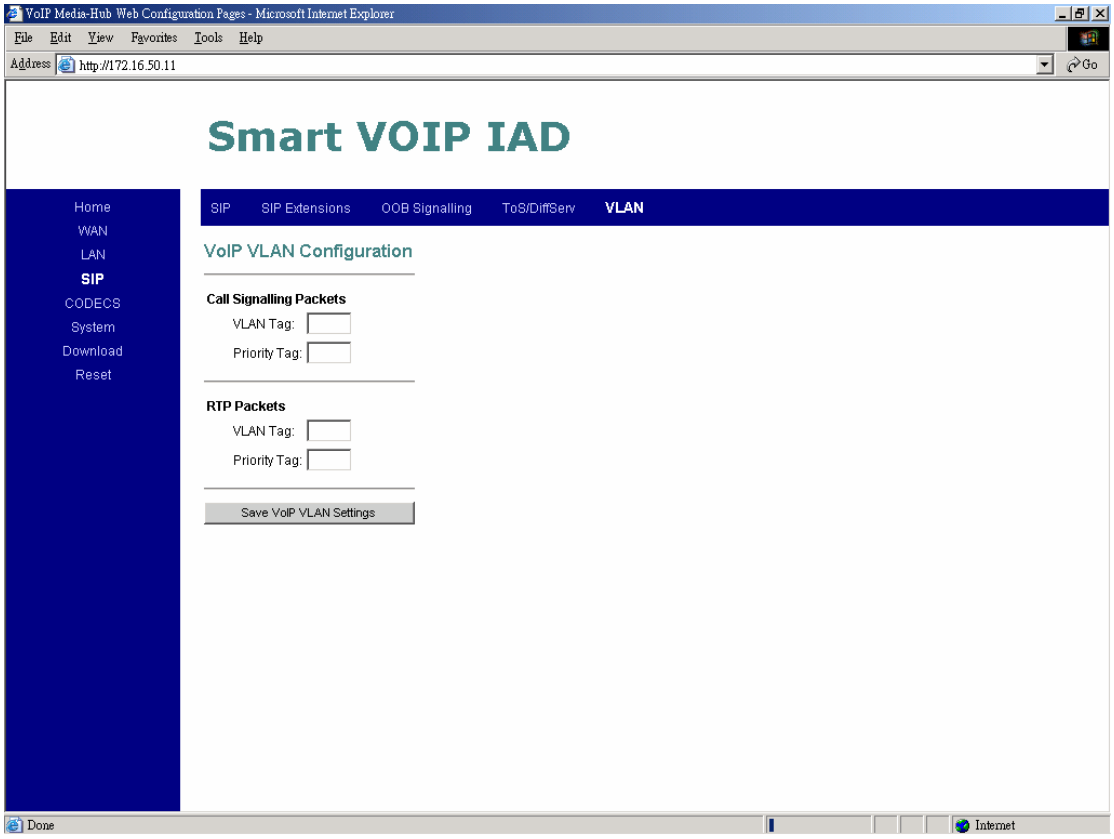
ToS/DiffServ



This sub-page is used to configure the Type-of-Service/Diffserv byte values which are to be used in the IP header of all transmitted SIP signaling packets and RTP packets. The ToS/DiffServ byte values are entered as two-digit hexadecimal values. If no special ToS/DiffServ value is to be used for a particular traffic type, enter “00” or leave the setting empty.

Press “**Save ToS/DiffServ Settings**” to save these new settings.

VoIP VLAN Configuration

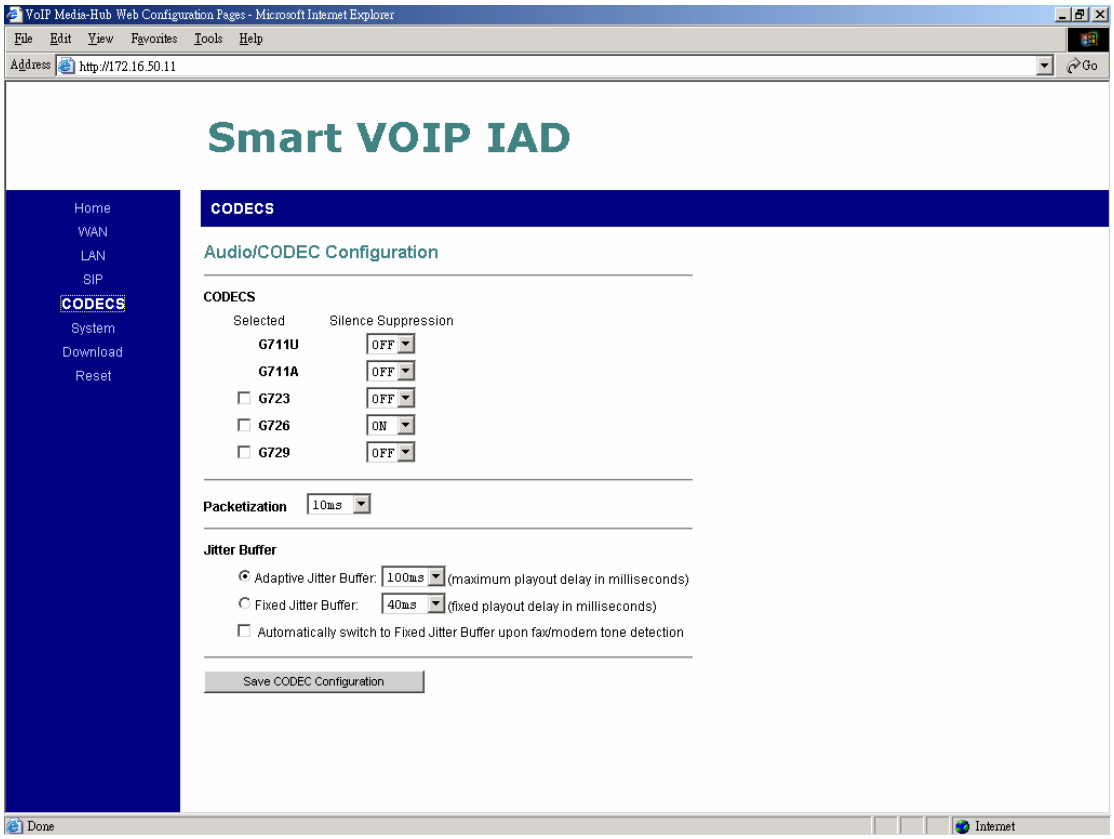


This sub-page allows configuration of specific VLAN tags that are to be applied to all SIP signaling and RTP packets used for VoIP calls. These VLAN settings will override any general VLAN settings applied to the interface

Press "**Save VoIP VLAN Settings**" to save the settings.

CODEC

Audio/CODEC Configuration



1. CODECS: configure the silence suppression to your desired settings.

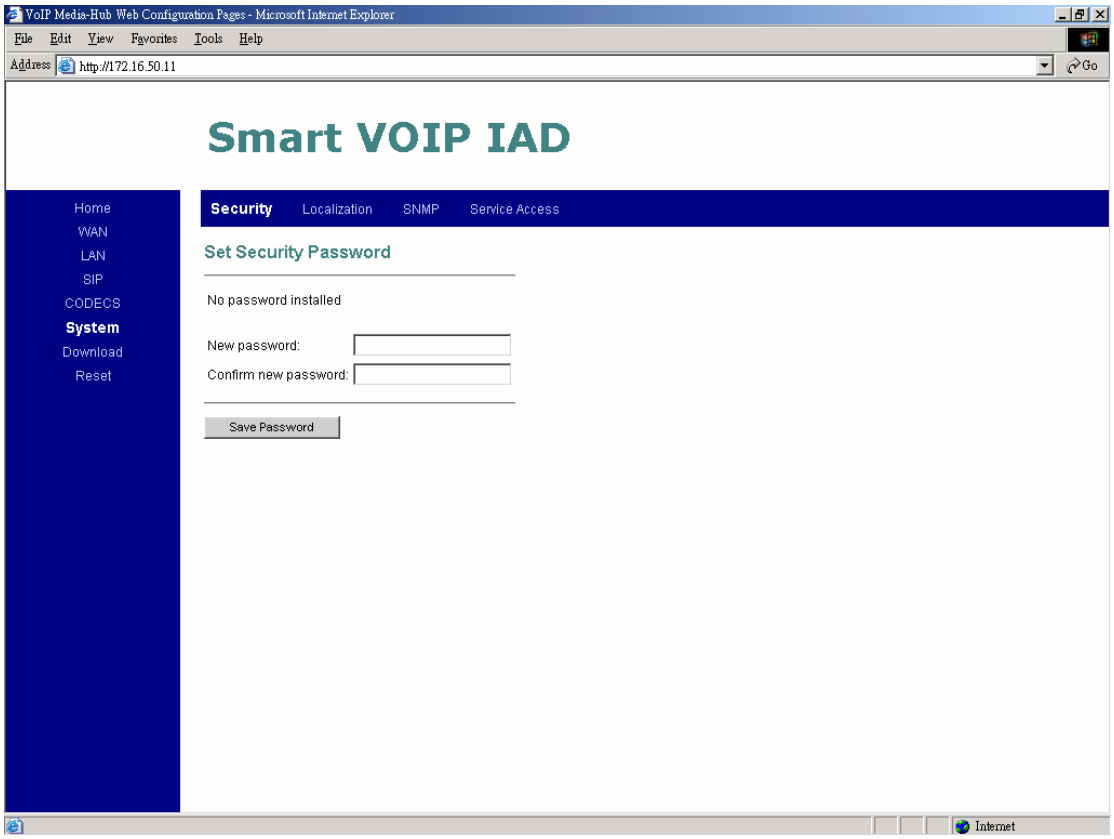
2. Packetization: configure the packet sending increments.

3. Jitter Buffer: configure the timing of the voice buffering.
Selection between adaptive or fixed jitter buffer. Default = ADAPTIVE
Set the adaptive jitter buffer maximum playout delay. Default = 100ms
or Fixed jitter buffer playout delay. Default = 40ms
Whether or not to automatically switch from an adaptive jitter buffer to a fixed jitter buffer upon fax/modem tone detection

Click on "**Save CODEC Configuration**" to save the configurations made.

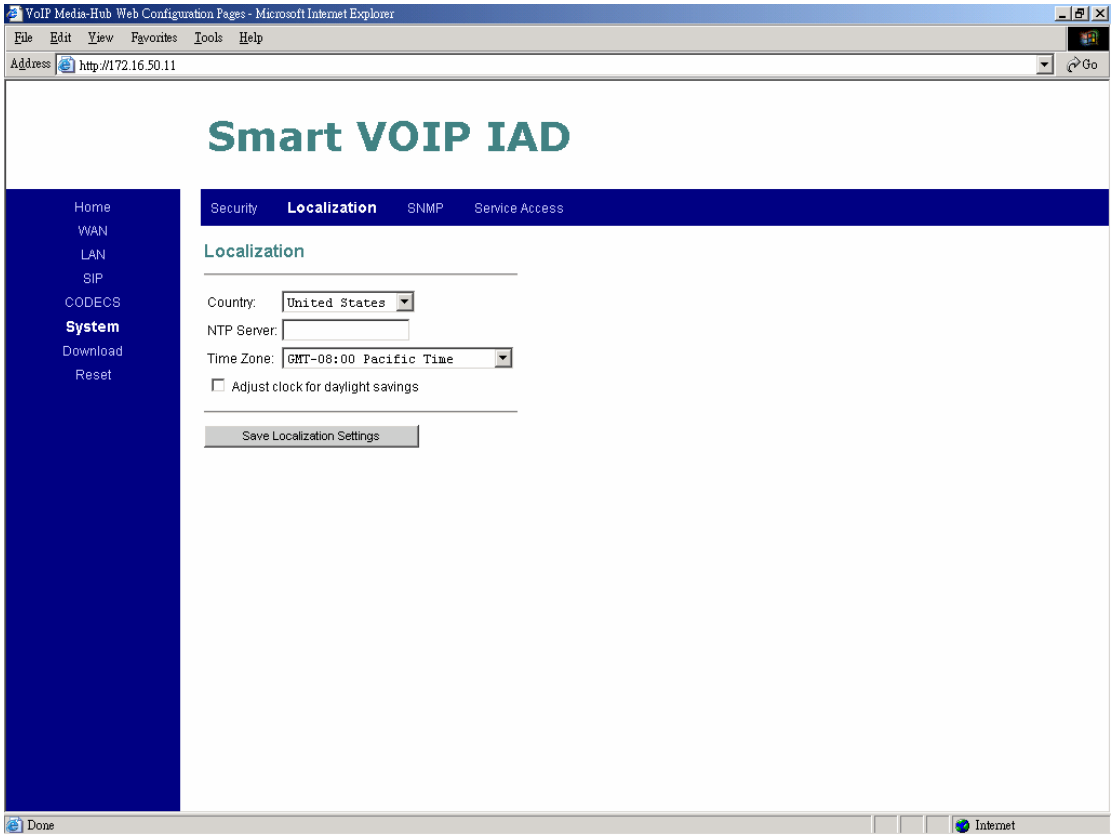
SYSTEM

Set Security Password



Configure a **password** for the system.

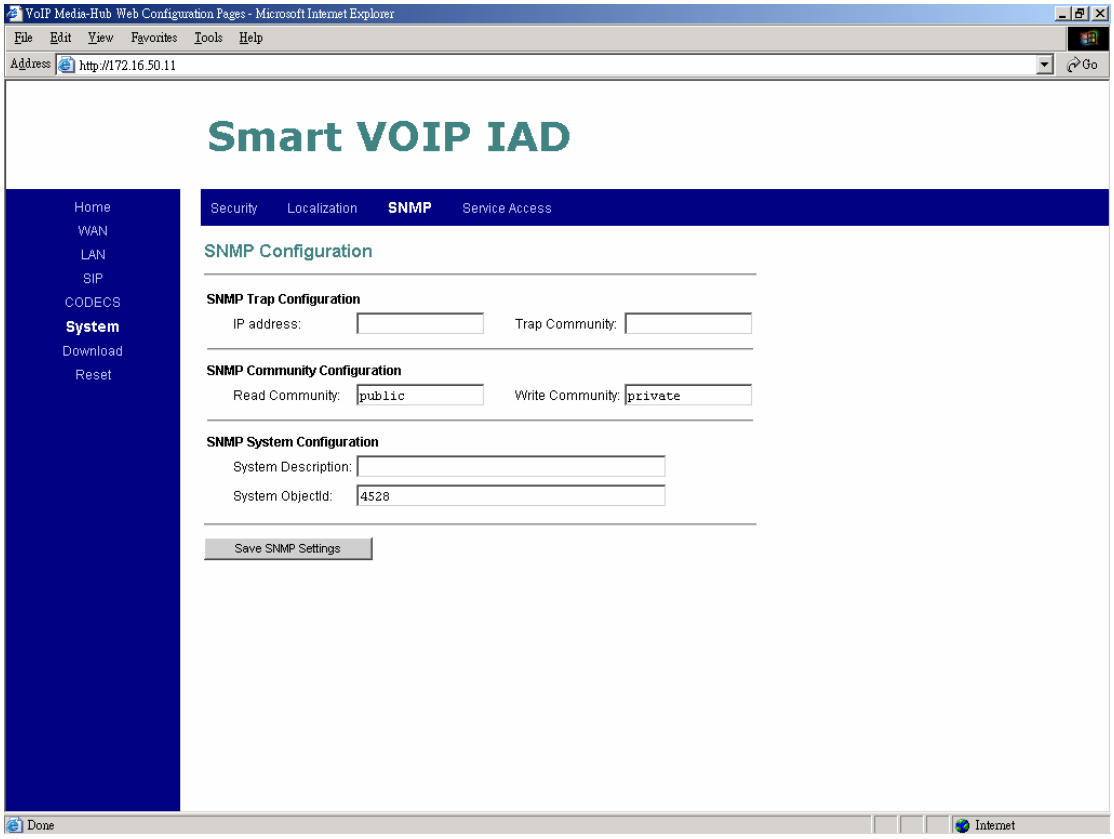
Localization



Choose the correct country for a proper impedance match, as well as the NTP Server, and Time Zone. Check the "**Adjust clock for daylight savings**", when applicable.

Click on "**Save Localization Settings**", to save your configurations.

SNMP Configuration



1. SNMP Trap Configuration

IP address: Trap host IP address

Trap Community: The community name used by the SNMP manager to verify traps. The default value is 'public'

2. SNMP Community Configuration

Read Community: The community name used by the SNMP manager when reading SNMP data items from a client MIB. The default value is 'public'

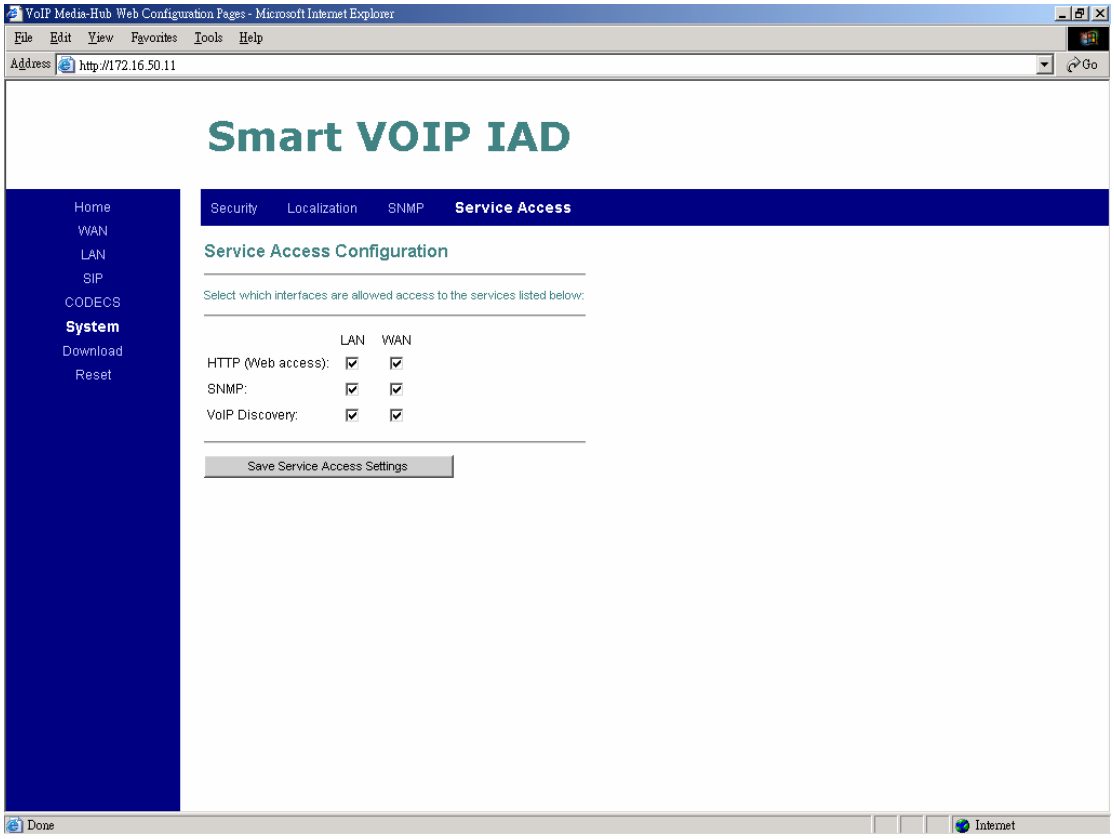
Write Community: The community name used by the SNMP manager when setting SNMP data items in a client's MIB. The default value is 'public'

3. SNMP System Configuration

System Description: Description of the unit (e.g. "John's phone")

System Object Id: A vendor's enterprise ID

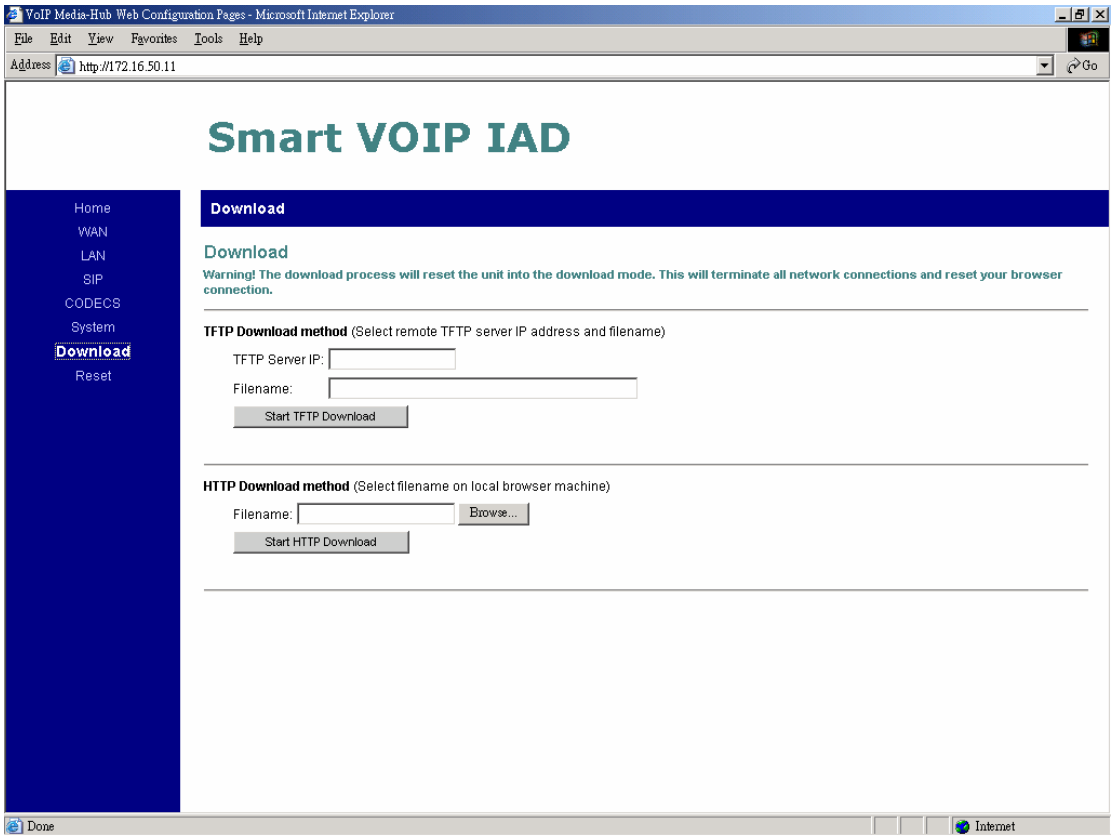
Service Access Configuration



Check the proper boxes enabling LAN and WAN for the **HTTP, SNMP,** and **VoIP Discovery.**

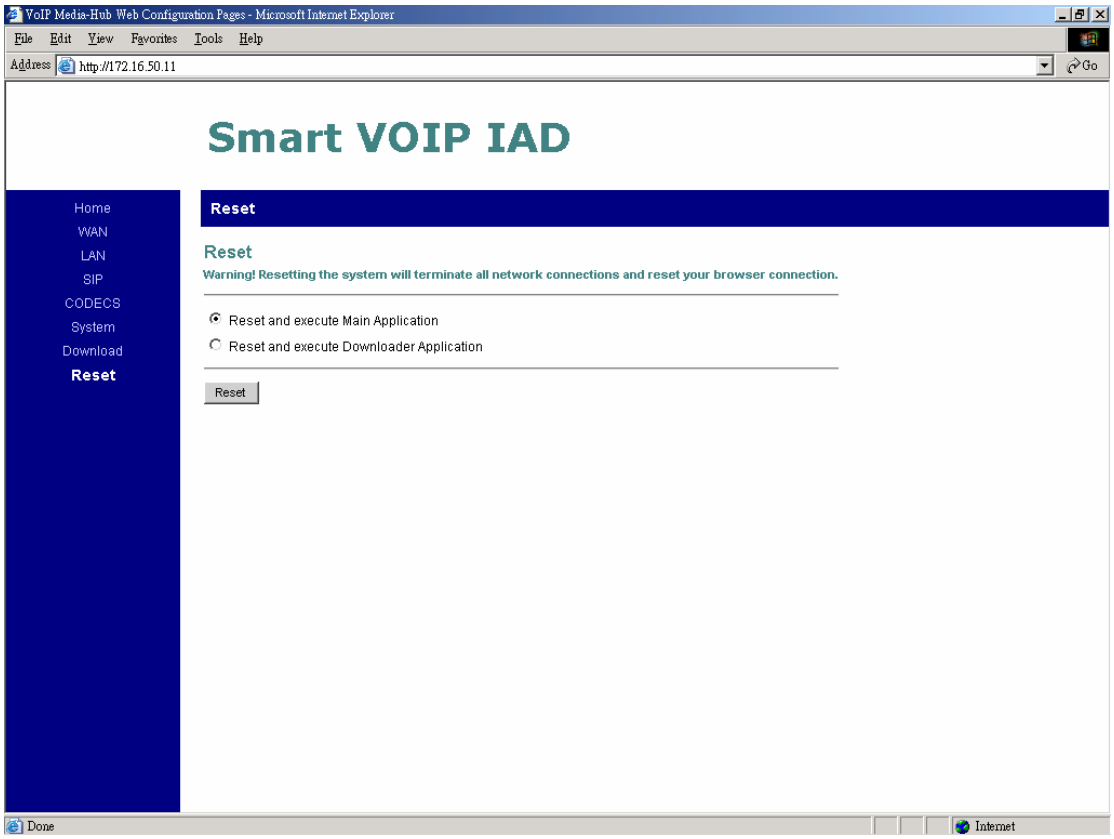
Click on "**Save Service Access Settings**", to save the configurations.

Download



For both **HTTP and TFTP methods**, the device will reboot itself into the downloader mode if the main application is executing, and proceed with the ROM file download and permanent write of the application to the device's flash memory. After the download is completed, the download status page will be displayed.

Reset



Chose the "**Reset and execute Main Application**" option, for execution of the main application which you have configure, once you reset the system.

Chose the "**Reset and execute Downloader Application**" option, to being downloading, once you reset the system.

Appendix. Dial Plans

The H.323 and SIP code will allow provisioning (via web browser) of the dial plan. A dial plan gives the unit a map to determine when a complete number has been entered and should be passed to the gatekeeper for resolution into an IP address. Dial plans are expressed using the same syntax as used by MGCP NCS specification.

The formal syntax of the dial plan is described by the following notation:

Digit ::= "0" | "1" | "2" | "3" | "4" | "5" | "6" | "7" | "8" | "9"

Timer ::= "T" | "t"

Letter ::= Digit | Timer | "#" | "*" | "A" | "a" | "B" | "b" | "C" | "c"| "D" | "d"

Range ::= "X" | "x" -- matches any digit

| "[" Letters "]" -- matches any of the specified letters

Letters::= Subrange | Subrange Letters

Subrange::= Letter -- matches the specified letter

| Digit "-" Digit -- matches any digit between first and last

Position::= Letter | Range

StringElement::= Position -- matches any occurrence of the position

| Position "." -- matches an arbitrary number of occurrences

including 0

String ::= StringElement | StringElement String

StringList::= String | String "|" StringList

DialPlan::= String | "(" StringList ")"

A dial plan, according to this syntax, is defined either by a (case insensitive) string or by a list of strings. Regardless of the above syntax a timer is only allowed if it appears in the last position in a string (12T3 is not valid). Each string is an alternate numbering scheme. The unit will process the dial plan by comparing the current dial string against the dial plan, if the result is underqualified (partial matches at least one entry) then it will do nothing further. If the result matches or is over-qualified (no further digits could possibly produce a match) then send the string to the gatekeeper and clear the dial string. The Timer T is activated when it is all that is required to produce a match. The period of timer T is 4 seconds. For example a dial plan of (xxxT|xxxxx) will match immediately if 5 digits are entered, it will also match after a 4 second pause when 3 digits are entered.

Sample Dial Plans

Simple Dial Plan

Allows dialing of 7 digit numbers (e.g. 5551234) or an operator on 0. Dial plan is (0T|xxxxxxx)

Non-dialed Line Dial Plan

As soon as handset is lifted the unit contacts the gatekeeper (used for systems where dtmf detection is done in-call). Dial plan is (x.) i.e. match against 0 (or more) digits. Note: the dot '.'

Complex Dial Plan

Local operator on 0, long distance operator on 00, four digit local extension number starting with 3,4 or 5, seven digit local numbers are prefixed by an 8, two digit star services (e.g. 69), ten digit long distance prefixed by 91, and international numbers starting with 9011+variable number of digits.

Dial plan for this is:

(0T|00T|[3-5]xxx|8xxxxxxx|*xx|91xxxxxxxxxx|9011x.T)