

Grandstream Networks, Inc.

HT80x - User Guide



The HT801/HT802 analog telephone adaptors provide transparent connectivity for analog phones and faxes to the world of internet voice. Connecting to any analog phone, fax or PBX, the HT801/HT802 are an effective and flexible solution for accessing internet-based telephone services and corporate intranet systems across established LAN and internet connections. The Grandstream handy tones HT801/HT802 are new additions to the popular handy tone ATA product family. This manual will help you learn how to operate and manage your HT801/HT802 analog telephone adaptor and make the best use of its many upgraded features including simple and quick installation, 3-way conferencing, direct IP-IP Calling, and new provisioning support among other features. The HT801/HT802 are very easy to manage and configure and are specifically designed to be an easy-to-use and affordable VoIP solution for both the residential user and the teleworker.

PRODUCT OVERVIEW

The HT801 is a one-port analog telephone adapter (ATA) while the HT802 is a 2-port analog telephone adapter (ATA) that allows users to create a high-quality and manageable IP telephony solution for residential and office environments. Its ultra-compact size, voice quality, advanced VoIP functionality, security protection and auto provisioning options enable users to take advantage of VoIP on analog phones and enables service providers to offer high quality IP service. The HT801/HT802 are an ideal ATA for individual use and for large scale commercial IP voice deployments.

Feature Highlights

The following table contains major features of HT801 and HT802:

 HT801  HT802	• 1 SIP profile through 1 FXS port on HT801, 2 SIP profiles through 2 FXS ports on HT802, single 10/100Mbps port on both models. • Support 3-way voice conferencing. • Wide range of caller ID formats. Advanced telephony features, including call transfer, call forward, call-waiting, do not disturb, message waiting indication, multi-language prompts, flexible dial plan, and more. • T.38 Fax for creating Fax-over-IP and GR-909 Line Testing Functionalities. • TLS and SRTP security encryption technology to protect calls and accounts. • Automated provisioning options include TR-069 and XML config files. • Failover SIP server automatically switches to secondary server if main server loses connection. • Use with Grandstream's UCM series of IP PBXs for Zero Configuration provisioning.
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HT801/HT802 Features at a Glance

HT80x Technical Specifications

The following table resume all the technical specifications including the protocols / standards supported, voice codecs, telephony features, languages and Upgrade/ Provisioning settings for the HT801/HT802.

	HT801	HT802
<i>Interfaces</i>		
Telephone Interfaces	One (1) RJ11 FXS port	Two (2) RJ11 FXS ports
Network Interface	One (1) 10/100Mbps auto-sensing Ethernet port (RJ45)	

LED Indicators	POWER, INTERNET, PHONE	POWER, INTERNET, PHONE1, PHONE2
Factory Reset Button	Yes	
Voice, Fax, Modem		
Telephony Features	Caller ID display or block, call waiting, flash, blind or attended transfer, forward, hold, do not disturb, 3-way conference.	
Voice Codecs	G.711 with Annex I (PLC) and Annex II (VAD/CNG), G.722, G.723.1, G.729A/B, G.726-32, iLBC, OPUS, dynamic jitter buffer, advanced line echo cancellation	
Fax over IP	T.38 compliant Group 3 Fax Relay up to 14.4kbps and auto-switch to G.711 for Fax Pass-through.	
Short/Long Haul Ring Load	5 REN: Up to 1km on 24 AWG	2 REN: Up to 1km on 24 AWG
Caller ID	Bellcore Type 1 & 2, ETSI, BT, NTT, and DTMF-based CID.	
Dial Methods	DTMF, Pulse	
Disconnect Methods	Busy Tone, Polarity Reversal/Wink, Loop Current	
Signalling		
Network Protocols	TCP/IP/UDP, RTP/RTCP (RFC1889, 1890), HTTP/HTTPS, ARP/RARP, ICMP, DNS, DHCP, NTP, TFTP, SSH, Telnet, STUN (RFC3489, 5389), SIP (RFC3261), SIP over TCP/TLS, SRTP, SNMP, TR-069, IMS/3GPP, IPoE	
QoS	Layer 2 (802.1Q VLAN, SIP/RTP 802.1p) and Layer 3 (ToS, DiffServ, MPLS)	
DTMF Methods	In-audio, RFC2833 and/or SIP INFO	
Provisioning and Control	HTTP, HTTPS, FTP, FTPS, SSH, Telnet, TFTP, TR-069, secure and automated provisioning using AES encryption, syslog	
Security		
Media	SRTP	
Control	TLS/SIPS/HTTPS/SSH/Telnet	
Management	Syslog support, SSH, Telnet remote management using web browser	
Physical		
Universal Power Supply	Input: 100-240VAC, 50-60Hz. Output: 5.0VDC/1.0A	

Environmental	Operational: 32o – 104oF or 0° – 40°C. Storage: 14o – 140oF or -10° – 60°C. Humidity: 10 – 90% Non-condensing	
Dimensions and Weight	• 100mm x 100mm x 29.5mm • 102g (without package)	• 100mm x 100mm x 29.5mm • 114g (without package).
<i>Compliance</i>		
Compliance	FCC Part15B EN55032, EN55024, EN61000-3-2, EN61000-3-3, EN60950-1, AS/NZS CISPR22, AS/NZS60950.1, S003	FCC 15B, AS/NZS CISPR22, AS/NZS60950, EN55022, EN55024, EN60950, EN61000-3-2, EN61000-3-3, UL (Power supply).

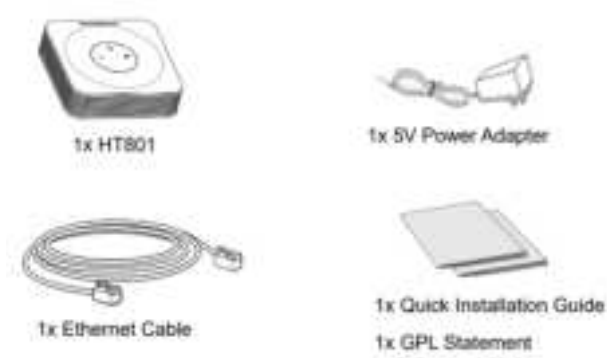
Table 2: HT801/HT802 FXS Analog Telephone Adapter Technical Specifications

GETTING STARTED

This chapter provides basic installation instructions including the list of the packaging contents and information for obtaining the best performance with the HT801/HT802.

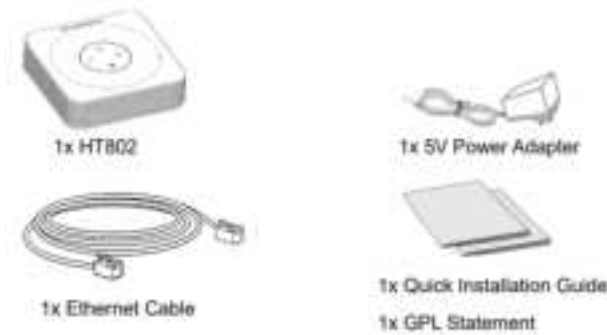
Equipment Packaging

The HT801 ATA package contains:



HT801 Package Contents

The HT802 ATA package contains:



HT802 Package Contents

Check the package before installation. If you find anything missing, contact your system administrator.

HT80x Ports Description

The following figure describes the different ports on the back panel of the HT801.



HT801 Back Panel

The following figure describes the different ports on the back panel of the HT802.



HT802 Back Panel

Phone for HT801 Phone 1 & 2 for HT802	Connects the analog phones/fax machines to the phone adapter using an RJ-11 telephone cable.
Internet port	Connects the phone adapter to your router or gateway using an Ethernet RJ45 network cable.
DC Power	Connects the phone adapter to PSU (5V – 1A).
Reset	Factory reset button. Press for 7 seconds to reset factory default settings.

Definition of the HT801/HT802 Connectors

Connecting HT80x

The HT801 and HT802 are designed for easy configuration and easy installation, to connect your HT801 or HT802, please follow the steps above:

1. Insert a standard RJ11 telephone cable into the phone port and connect the other end of the telephone cable to a standard touch-tone analog telephone.
2. Insert the Ethernet cable into the internet or LAN port of the HT801/ht802 and connect the other end of the Ethernet cable to an uplink port (a router or a modem, etc.)
3. Insert the power adapter into the HT801/HT802 and connect it to a wall outlet.

Power, Ethernet and Phone LEDs will be solidly lit when the HT801/HT802 is ready for use.



Connecting the HT801/HT802

HT80x LEDs Pattern

There are 3 LED buttons on HT801 and 4 LED buttons on HT802 that help you manage the status of your Handy Tone.



HT801/HT802 LEDs Pattern

LED Lights	Status
Power LED	The Power LED lights up when the HT801/HT802 is powered on, and it flashes when the HT802 is booting up
WAN LED	The Ethernet LED lights up when the HT801/HT802 is connected to your network through the Ethernet port, and it flashes when there is data being sent or received.
Phone LED for HT801 Phone LED 1&2 for HT802	The phone LEDs 1 & 2 indicate the status of the respective FXS port-phone on the back panel OFF - Unregistered ON (Solid Blue) - Registered and Available Blinking every second - Off-Hook / Busy Slow blinking - FXS LEDs indicates voicemail

HT801/HT802 LEDs Pattern Description

CONFIGURATION GUIDE

The HT801/HT802 can be configured via one of two ways:

- The IVR voice prompt menu.
- The Web GUI embedded on the HT801/HT802 using PC's web browser.

Obtain HT80x IP Address via Connected Analog Phone

HT801/HT802 is by default configured to obtain the IP address from DHCP server where the unit is located. To know which IP address is assigned to your HT801/HT802, you should access to the "[Interactive Voice Response Menu](#)" of your adapter via the connected phone and check its IP address mode.

Please refer to the steps below to access the interactive voice response menu:

1. Use a telephone connected to phone for the HT801 or phone 1 or phone 2 ports of your HT802.
2. Press *** (press the star key three times) to access the IVR menu and wait until you hear "Enter the menu option ".
3. Press 02 and the current IP address will be announced.

Understanding HT80x Interactive Voice Prompt Response Menu

The HT801/HT802 has a built-in voice prompt menu for simple device configuration which lists actions, commands, menu choices, and descriptions. The IVR menu work with any phone connected to the HT801/HT802. Pick up the handset and dial “***” to use the IVR menu.

Menu	Voice Prompt	Options
Main Menu	“Enter a Menu Option”	Press “*” for the next menu option Press “#” to return to the main menu Enter 01-05, 07,10, 12-17,47 or 99 menu options
01	“DHCP Mode”, “Static IP Mode” “PPPoE Mode”	Press “9” to toggle the selection If using “Static IP Mode”, configure the IP address information using menus 02 to 05. If using “Dynamic IP Mode”, all IP address information comes from the DHCP server automatically after reboot. If using “PPPoE Mode”, configure PPPoE Username and Password from web GUI to get IP from your ISP.
02	“IP Address “ + IP address	The current WAN IP address is announced If using “Static IP Mode”, enter 12-digit new IP address. You need to reboot your HT812/HT814 for the new IP address to take Effect.
03	“Subnet “ + IP address	Same as menu 02
04	“Gateway “ + IP address	Same as menu 02
05	“DNS Server “ + IP address	Same as menu 02
07	Preferred Vocoder	Press “9” to move to the next selection in the list: PCM U / PCM A iLBC G-726 G-723 G-729 OPUS G722
10	“MAC Address”	Announces the MAC address of the unit. Note: The device has two MAC addresses. One for the WAN port and one for the LAN port. The device MAC address announced is the address of LAN port.
12	WAN Port Web Access	Press “9” to toggle between enable / disable. Default is disabled.
13	Firmware Server IP Address	Announces current Firmware Server IP address. Enter 12-digit new IP address.

14	Configuration Server IP Address	Announces current Config Server Path IP address. Enter 12-digit new IP address.
15	Upgrade Protocol	Upgrade protocol for firmware and configuration update. Press “9” to toggle between TFTP/HTTP/HTTP /FTP/FTPS
16	Firmware Version	Announces Firmware version information.
17	Firmware Upgrade	Firmware upgrade mode. Press “9” to toggle among the following three options: Always check Check when pre/suffix changes Never upgrade
47	“Direct IP Calling”	Enter the target IP address to make a direct IP call, after dial tone.
86	Voice Mail	Access to your voice mails messages.
99	“RESET”	Press “9” to reboot the device Enter MAC address to restore factory default setting (See Restore Factory Default Setting section)
	“Invalid Entry”	Automatically returns to main menu
	“Device not registered”	This prompt will be played immediately after off hook If the device is not registered and the option “Outgoing Call without Registration” is in NO

Five success tips when using the voice prompt

- “*” shifts down to the next menu option and “#” returns to the main menu.
- “9” functions as the ENTER key in many cases to confirm or toggle an option.
- All entered digit sequences have known lengths – 2 digits for menu option and 12 digits for IP address. For IP address, add 0 before the digits if the digits are less than 3 (i.e. – 192.168.0.26 should be key in like 192168000026. No decimal is needed).
- Key entry cannot be deleted but the phone may prompt error once it is detected.
- Dial *98 to announce the extension number of the port.

Configuration via Web Browser

The HT801/HT802 embedded Web server responds to HTTP GET/POST requests. Embedded HTML pages allow a user to configure the HT801/HT802 through a web browser such as Google Chrome, Mozilla Firefox and Microsoft’s IE.

Accessing the Web UI

1. Connect the computer to the same network as your HT801/HT802.
2. Make sure the HT801/HT802 is booted up.
3. You may check your HT801/HT802 IP address using the IVR on the connected phone. Please see [Obtain HT802 IP Address Via Connected Analogue Phone.](#)

4. Open Web browser on your computer.
5. Enter the HT801/HT802's IP address in the address bar of the browser.
6. Enter the administrator's password to access the Web Configuration Menu.

Notes:

- The computer must be connected to the same sub-network as the HT801/HT802. This can be easily done by connecting the computer to the same hub or switch as the HT801/HT802.
- Recommended Web browsers:
 - **Microsoft Internet Explorer:** version 10 or higher.
 - **Google Chrome:** version 58.0.3 or higher.
 - **Mozilla Firefox:** version 53.0.2 or higher.
 - **Safari:** version 5.1.4 or higher.
 - **Opera:** version 44.0.2 or higher.

Web UI Access Level Management

There are two default passwords for the login page:

User Level	User	Password	Web Pages Allowed
End User Level	user	123	Only Status and Basic Settings
Administrator Level	admin	admin	Browse all pages
Viewer Level	viewer	viewer	View all pages. No changes allowed.

Note

- The password is case-sensitive and must contain 8-20 characters, at least one number, one uppercase, and one lowercase letter. When changing any settings, always submit them by pressing the Update or Apply button on the bottom of the page. After submitting the changes in all the Web GUI pages, reboot HT801/HT802 to have the changes take effect if necessary; most of the options under the Advanced Settings and FXS Port (x) pages require a reboot.
- The user and viewer level access is disabled by default, to enable it, go under **Advanced Settings**.
- After initial login using the default admin password, the user will be prompted to change the password immediately.

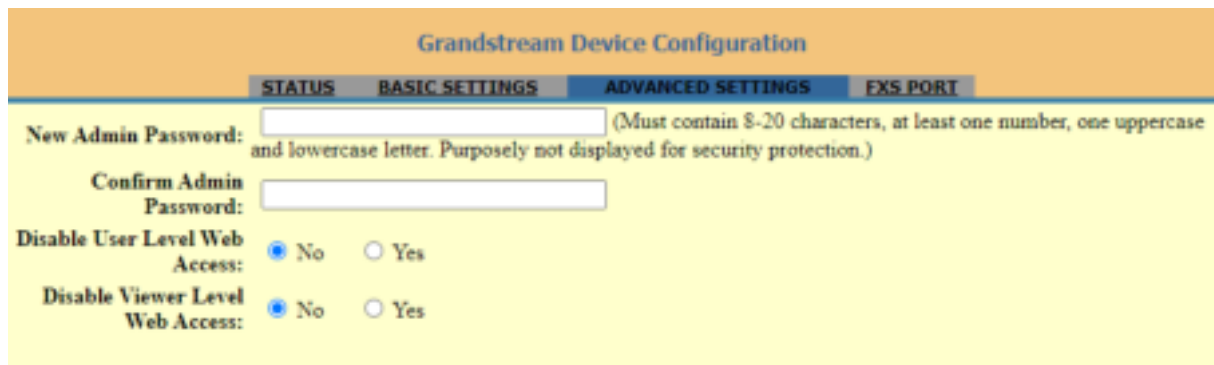
Saving the Configuration Changes

After users make changes to the configuration, pressing the **Update** button will save but not apply the changes until the **Apply** button is clicked. Users can instead directly press the **Apply** button. We recommend rebooting or powering cycle the phone after applying all the changes.

Changing Admin Level Password

1. Access your HT801/HT802 web UI by entering its IP address in your favorite browser (screenshots below are from HT801 but the same applies to HT802).
2. Enter your admin password (default: admin).
3. Press **Login** to access your settings and navigate to **Advanced Settings > Admin Password**.

4. Enter the new admin password. (Must contain 8-20 characters, at least one number, one uppercase, and one lowercase letter.)
5. Confirm the new admin password.
6. Press **Apply** at the bottom of the page to save your new settings.

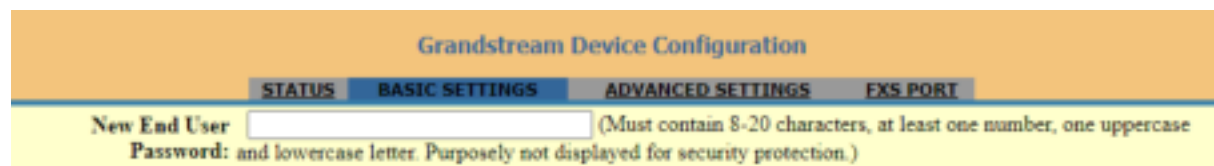


The screenshot shows the 'Grandstream Device Configuration' interface with the 'BASIC SETTINGS' tab selected. The 'New Admin Password' field is highlighted with a red box. Below it is the 'Confirm Admin Password' field. There are two radio button options: 'Disable User Level Web Access' (set to 'No') and 'Disable Viewer Level Web Access' (set to 'No').

Admin Level Password

Changing User Level Password

1. Access your HT801/HT802 web UI by entering its IP address in your favorite browser.
2. Enter your admin password (default: admin).
3. Press **Login** to access your settings.
4. Go to **Basic Settings** → **New End User Password** and enter the new end-user password. (Must contain 8-20 characters, at least one number, one uppercase, and one lowercase letter.)
5. Confirm the new end-user password.
6. Press **Apply** at the bottom of the page to save your new settings.

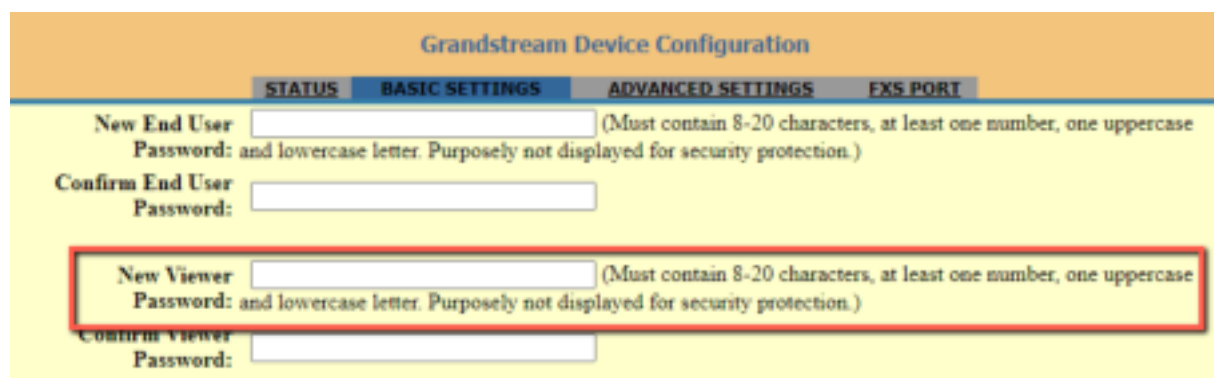


The screenshot shows the 'Grandstream Device Configuration' interface with the 'BASIC SETTINGS' tab selected. The 'New End User Password' field is highlighted with a red box. Below it is the 'Confirm End User Password' field.

User Level Password

Changing Viewer Password

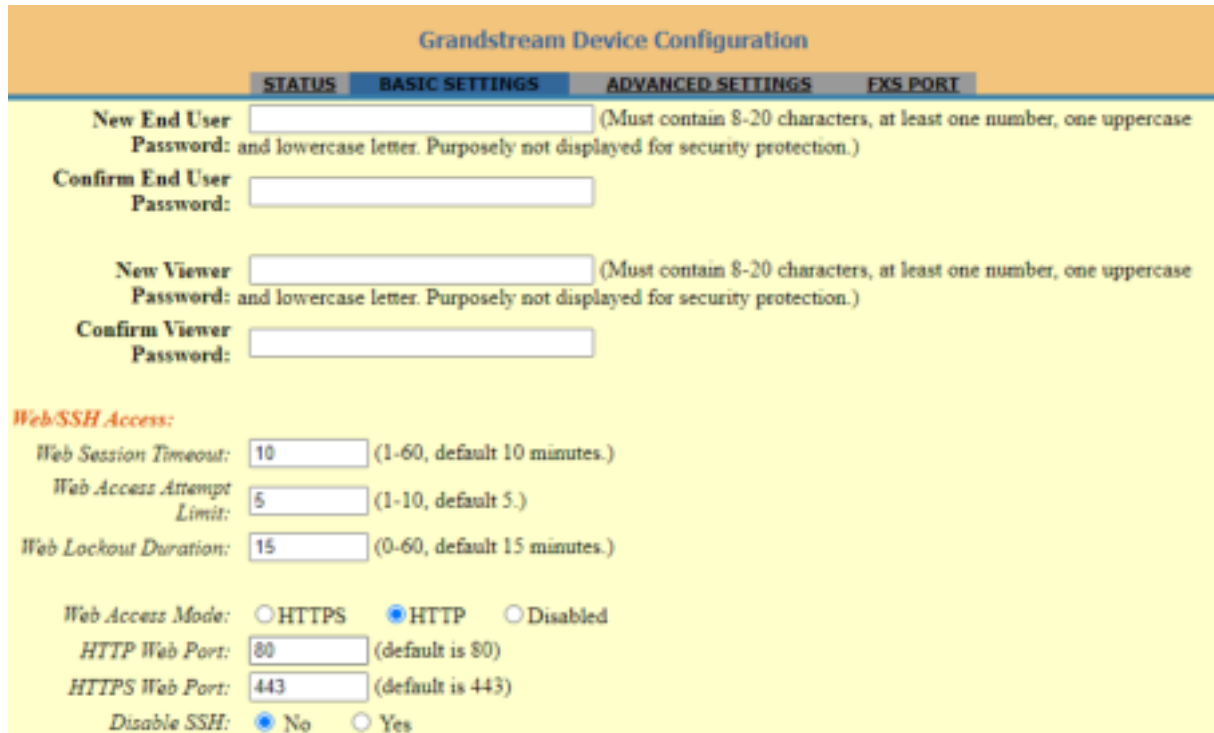
1. Access your HT801/HT802 web UI by entering its IP address in your favorite browser.
2. Enter your admin password (default: admin).
3. Press **Login** to access your settings.
4. Go to **Basic Settings** → **New Viewer Password** and enter the new viewer password. (Must contain 8-20 characters, at least one number, one uppercase, and one lowercase letter.)
5. Confirm the new viewer password.
6. Press **Apply** at the bottom of the page to save your new settings.



The screenshot shows the 'Grandstream Device Configuration' interface with the 'BASIC SETTINGS' tab selected. The 'New End User Password' field is highlighted with a red box. Below it is the 'Confirm End User Password' field. The 'New Viewer Password' field is highlighted with a red box. Below it is the 'Confirm Viewer Password' field.

Changing HTTP Web Port

1. Access your HT801/HT802 web UI by entering its IP address in your favorite browser.
2. Enter your admin password (default: admin).
3. Press **Login** to access your settings and navigate to **Basic Settings > Web Port**.
4. Change the current port to your desired/new HTTP port. Ports accepted are in range [1-65535].
5. Press **Apply** at the bottom of the page to save your new settings.



Grandstream Device Configuration

STATUS BASIC SETTINGS ADVANCED SETTINGS FXS PORT

New End User Password: (Must contain 8-20 characters, at least one number, one uppercase and lowercase letter. Purposely not displayed for security protection.)

Confirm End User Password:

New Viewer Password: (Must contain 8-20 characters, at least one number, one uppercase and lowercase letter. Purposely not displayed for security protection.)

Confirm Viewer Password:

Web/SSH Access:

Web Session Timeout: (1-60, default 10 minutes.)

Web Access Attempt Limit: (1-10, default 5.)

Web Lockout Duration: (0-60, default 15 minutes.)

Web Access Mode: ☐ HTTPS ☒ HTTP ☐ Disabled

HTTP Web Port: (default is 80)

HTTPS Web Port: (default is 443)

Disable SSH: ☒ No ☐ Yes

Web HTTP Port

NAT Settings

If you plan to keep the Handy Tone within a private network behind a firewall, we recommend using STUN Server. The following three settings are useful in the STUN Server scenario:

1. STUN Server (under advanced settings webpage) Enter a STUN server IP (or FQDN) that you may have or look up a free public STUN Server on the internet and enter it on this field. If using Public IP, keep this field blank.
2. Use Random SIP/RTP Ports (under advanced settings webpage) This setting depends on your network settings. Generally, if you have multiple IP devices under the same network, it should be set to Yes. If using a public IP address, set this parameter to No.
3. NAT traversal (under the FXS web page) Set this to Yes when gateway is behind firewall on a private network.

DTMF Methods

The HT801/HT802 support the following DTMF mode:

- DTMF in-audio
- DTMF via RTP (RFC2833)
- DTMF via SIP INFO

Set priority of DTMF methods according to your preference. This setting should be based on your server DTMF setting.

Preferred Vocoder (Codec)

The HT801/HT802 supports following voice codecs. On FXS ports pages, choose the order of your favorite codecs:

- PCMU/A (or G711μ/a)
- G729 A/B
- G723.1
- G726
- iLBC
- OPUS
- G722

Configuring the HT80x through Voice Prompts

As mentioned previously, The HT801/HT802 has a built-in voice prompt menu for simple device configuration. Please refer to ["Understanding HT801/HT802 Interactive Voice Prompt Response Menu"](#) for more information about IVR and how to access its menu.

- **DHCP MODE**

Select voice menu option 01 to allow the HT801/HT802 to use DHCP.

- **STATIC IP MODE**

Select voice menu option 01 to allow the HT801/HT802 to enable the STATIC IP mode, then use option 02, 03, 04, 05 to set up IP address, Subnet Mask, Gateway and DNS server respectively.

- **FIRMWARE SERVER IP ADDRESS**

Select voice menu option 13 to configure the IP address of the firmware server.

- **CONFIGURATION SERVER IP ADDRESS**

Select voice menu option 14 to configure the IP address of the configuration server.

- **UPGRADE PROTOCOL**

Select the menu option 15 to choose firmware and configuration upgrade protocol between TFTP, HTTP and HTTPS, FTP and FTPS. Default is HTTPS.

- **FIRMWARE UPGRADE MODE**

Select voice menu option 17 to choose firmware upgrade mode among the following three options:

"Always check, check when pre/suffix changes, and never upgrade".

Register a SIP Account

The HT801 supports 1 FXS port which can be configured with 1 SIP account, while HT802 supports 2 FXS ports which can be configured with 2 SIP accounts. Please refer to the following steps to register your accounts via web user interface.

1. Access your HT801/HT802 web UI by entering its IP address in your favorite browser.
2. Enter your admin password (default: admin) and press **Login** to access your settings.
3. Go to **FXS Port (1 or 2)** pages.
4. In **FXS Port** tab, set the following:
 1. **Account Active** to **Yes**.
 2. **Primary SIP Server** field with your SIP server IP address or FQDN.

3. **Failover SIP Server** with your Failover SIP Server IP address or FQDN. Leave empty if not available.
 4. **Prefer Primary SIP Server** to **No** or **Yes** depending on your configuration. Set to **No** if no Failover SIP Server is defined. If "**Yes**", account will register to Primary SIP Server when failover registration expires.
 5. **Outbound Proxy**: Set your Outbound Proxy IP Address or FQDN. Leave empty if not available.
 6. **SIP User ID**: User account information, provided by VoIP service provider (ITSP). Usually in the form of digit like phone number or a phone number.
 7. **Authenticate ID**: SIP service subscriber's Authenticate ID used for authentication. Can be identical to or different from SIP User ID.
 8. **Authenticate Password**: SIP service subscriber's account password to register to SIP server of ITSP. For security reasons, the password will field will be shown as empty.
 9. **Name**: Any name to identify this specific user.
5. Press **Apply** at the bottom of the page to save your configuration.

Grandstream Device Configuration

STATUS BASIC SETTINGS ADVANCED SETTINGS FXS PORT1 FXS PORT2

Account Active: ☐ No ☒ Yes

Primary SIP Server: (e.g., sip.mycompany.com, or IP address)

Failover SIP Server: (Optional, used when primary server no response)

Prefer Primary SIP Server: ☒ No ☐ Yes (yes - will register to Primary Server if Failover registration expires)

Outbound Proxy: (e.g., proxy.myprovider.com, or IP address, if any)

Backup Outbound Proxy: (e.g., proxy.myprovider.com, or IP address, if any)

Prefer Primary Outbound Proxy: ☒ No ☐ Yes (yes - will reregister via Primary Outbound Proxy if registration expires)

Allow DHCP Option 120(override SIP server): ☒ No ☐ Yes

SIP Transport: ☒ UDP ☐ TCP ☐ TLS (default is UDP)

SIP URI Scheme When Using TLS: ☐ sip ☒ sips

Use Actual Ephemeral Port in Contact with TCP/TLS: ☒ No ☐ Yes

NAT Traversal: ☒ No ☐ Keep-Alive ☐ STUN ☐ UPnP

SIP User ID: (the user part of an SIP address)

Authenticate ID: (can be identical to or different from SIP User ID)

Authenticate Password: (purposely not displayed for security protection)

Name: (optional, e.g., John Doe)

SIP Accounts Settings

After applying your configuration, your account will register to your SIP Server, you can verify if it has been correctly registered with your SIP server or from your HT801/HT802 web interface under **Status > Port Status > Registration** (If it displays **Registered**, it means that your account is fully registered, otherwise it will display **Not Registered** so in this case you must double check the settings or contact your provider).

Grandstream Device Configuration					
STATUS	BASIC SETTINGS	ADVANCED SETTINGS	FXS PORT1	FXS PORT2	
MAC Address: 00:0B:82:83:62:0A					
IPv4 Address: 192.168.6.160					
IPv6 Address:					
Product Model: HT802					
Hardware Version: V1.5A Part Number -- 9610003715A					
Software Version: Program -- 1.0.5.11 Bootloader -- 1.0.5.3 Core -- 1.0.5.3 Base -- 1.0.5.11 CPE -- 1.0.1.67					
Software Status: Running Mem: 18472					
System Up Time: 08:29:09 up 27 min					
PPPoE Link Up: Disabled					
NAT: Unknown NAT					
Port Status:	Port	Hook	User ID	Registration	
	FXS 1	On Hook	001	Registered	
	FXS 2	On Hook		Not Registered	
Port Options:	Port	DND	Forward	Busy Forward	Delayed Forward
	FXS 1	No			
	FXS 2	No			
Provision: Not running, Last status : Downloading file from url.					
Core Dump: Clean					
GR909: Test Page					
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Account Status

When all the FXS ports are registered (for HT802), the simultaneous ring will have one second delay between each ring on each phone.

Rebooting the HT80x from Remote

Press the "Reboot" button at the bottom of the configuration menu to reboot the ATA remotely. The web browser will then display a message window to confirm that reboot is underway. Wait 30 seconds to log in again.

CALL FEATURES

The HT801/HT802 support all the traditional and advanced telephony features.

Key	Call Features
*02	Forcing a Codec (per call) *027110 (PCMU), *027111 (PCMA), *02723 (G723), *02729 (G729), *027201 (iLBC), *02722 (G722).
*03	Disable LEC (per call) Dial "*03" + "number". No dial tone is played in the middle.
*16	Enable SRTP
*17	Disable SRTP
*30	Block Caller ID (for all subsequent calls)
*31	Send Caller ID (for all subsequent calls)
*47	Direct IP Calling. Dial "***47" + "IP address". No dial tone is played in the middle.

*50	Disable Call Waiting (for all subsequent calls)
*51	Enable Call Waiting (for all subsequent calls)
*67	Block Caller ID (per call). Dial “*67” +” number”. No dial tone is played in the middle.
*82	Send Caller ID (per call). Dial “*82” +” number”. No dial tone is played in the middle.
*69	Call Return Service: Dial *69 and the phone will dial the last incoming phone number received.
*70	Disable Call Waiting (per call). Dial “*70” +” number”. No dial tone is played in the middle.
*71	Enable Call Waiting (per call). Dial “*71” +” number”. No dial tone is played in the middle
*72	Unconditional Call Forward: Dial “*72” and then the forwarding number followed by “#”. Wait for dial tone and hang up. (dial tone indicates successful forward)
*73	Cancel Unconditional Call Forward. To cancel “Unconditional Call Forward”, dial “*73”, wait for dial tone, then hang up.
*74	Enable Paging Call: Dial “*74” and then the destination phone number you want to page.
*78	Enable Do Not Disturb (DND): When enabled all incoming calls are rejected.
*79	Disable Do Not Disturb (DND): When disabled, incoming calls are accepted.
*87	Blind Transfer.
*90	Busy Call Forward: Dial “*90” and then the forwarding number followed by “#”. Wait for dial tone then hang up.
*91	Cancel Busy Call Forward. To cancel “Busy Call Forward”, dial “*91”, wait for dial tone, then hang up.
*92	Delayed Call Forward. Dial “*92” and then the forwarding number followed by “#”. Wait for dial tone then hang up.
*93	Cancel Delayed Call Forward. To cancel Delayed Call Forward, dial “*93”, wait for dial tone, then hang up
Flash/Hook	Toggles between active call and incoming call (call waiting tone). If not in conversation, flash/hook will switch to a new channel for a new call.
#	Pressing pound sign will serve as Re-Dial key.

HT801/HT802 Call Features

CALL OPERATIONS

Placing a phone call

To make the outgoing calls using your HT801/HT802:

1. Pick up the handset of the connected phone;

2. Dial the number directly and wait for 4 seconds (Default "No Key Entry Timeout"); or
3. Dial the number directly and press # (Use # as dial key" must be configured in web configuration).

Examples:

1. Dial an extension directly on the same proxy, (e.g. 1008), and then press the # or wait for 4 seconds;
2. Dial an outside number (e.g. (626) 666-7890), first enter the prefix number (usually 1+ or international code) followed by the phone number. Press # or wait for 4 seconds. Check with your VoIP service provider for further details on prefix numbers.

Notes:

When placing the analog phone that is connected to the FXS port off hook, the dial tone will be played even if the sip account is not registered. If users prefer the busy tone to be played instead, the following configuration should be made:

- Set **"Play Busy Tone When Account is unregistered"** to **YES** under Advanced Settings.
- Set **"Outgoing call without registration"** to **NO** under FXS Port (1,2).

Direct IP call

Direct IP calling allows two parties, that is, a FXS Port with an analog phone and another VoIP Device, to talk to each other in an ad hoc fashion without a SIP proxy.

Elements necessary to completing a Direct IP Call:

- Both HT801/HT802 and other VoIP Device, have public IP addresses, or
- Both HT801/HT802 and other VoIP Device are on the same LAN using private IP addresses, or
- Both HT801/HT802 and other VoIP Device can be connected through a router using public or private IP addresses (with necessary port forwarding or DMZ).

The HT801/HT802 supports two ways to make Direct IP Calling:

Using IVR

1. Pick up the analog phone then access the voice menu prompt by dialing **"***"**;
2. Dial **"47"** to access the direct IP call menu;
3. Enter the IP address after the dial tone and voice prompt **"Direct IP Calling"**.

Using Star Code

1. Pick up the analog phone then dial **"*47"**;
2. Enter the target IP address.

No dial tone will be played between step 1 and 2 and destination ports can be specified using **"*"** (encoding for **":"**) followed by the port number.

Examples of Direct IP Calls:

- a) If the target IP address is 192.168.0.160, the dialing convention is ***47 or Voice Prompt with option 47, then 192*168*0*160**, followed by pressing the **"#"** key if it is configured as a send key or wait 4 seconds. In this case, the default destination port 5060 is used if no port is specified;
- b) If the target IP address/port is 192.168.1.20:5062, then the dialing convention would be: ***47 or Voice Prompt with option 47, then 192*168*0*160*5062** followed by pressing the **"#"** key if it is configured as a send key or wait 4 seconds.

When completing direct IP call, the **"Use Random SIP/RTP Port"** should be set to **"NO"**.

Call Hold

You can place a call on hold by pressing the “flash” button on the analog phone (if the phone has that button).

Press the “flash” button again to release the previously held Caller and resume conversation. If no “flash” button is available, use “hook flash” (toggle on-off hook quickly). You may drop a call using hook flash.

Call Waiting

The call waiting tone (3 short beeps) indicates an incoming call, if the call waiting feature is enabled.

To toggle between incoming call and current call, you need to press the “flash” button the first call is placed on hold.

Press the “flash” button to toggle between the active calls.

Call Transfer

Blind Transfer

Assume that the call is established between phone A and B are in conversation. The phone A wants to *blind transfer* phone B to phone C:

1. On the phone A presses FLASH to hear the dial tone.
2. The phone A dials *87 then dials caller C’s number, and then # (or wait for 4 seconds).
3. The phone A will hear the dial tone. Then, A can hang up.

“Enable Call Feature” must be set to “Yes” in web configuration page.

Attended Transfer

Assume that the call is established between phone A and B are in conversation. The phone A wants to *attend transfer* phone B to phone C:

1. On the phone A presses FLASH to hear the dial tone.
2. Phone A dials the phone C’s number followed by # (or wait for 4 seconds).
3. If phone C answers the call, phones A and C are in conversation. Then A can hang up to complete transfer.
4. If phone C does not answer the call, phone A can press “flash” to resume call with phone B.

When attended transfer fails and A hangs up, the HT801/HT802 will ring back user A to remind A that B is still on the call. A can pick up the phone to resume conversation with B.

3-way Conferencing

The HT801/HT802 supports Bellcore style 3-way Conference. To perform the 3-way conference, we assume that the call is established between phone A and B are in conversation. Phone A(HT801/HT802) wants to bring third phone C into conference:

1. Phone A presses FLASH (on the analog phone, or Hook Flash for old model phones) to get a dial tone.
2. Phone A dials C’s number then # (or wait for 4 seconds).
3. If phone C answers the call, then A presses FLASH to bring B, C in the conference.
4. If phone C does not answer the call, phone A can press FLASH back to talk to phone B.

5. If phone A presses FLASH during conference, the phone C will be dropped out.
6. If phone A hangs up, the conference will be terminated for all three parties when configuration "Transfer on Conference Hang up" is set to "No". If the configuration is set to "Yes", A will transfer B to C so that B and C can continue the conversation.

Call Return

To call back to the latest incoming number.

1. Pick up the handset of the connected phone (Off-hook).
2. After hearing the dial tone, input "*69".
3. Your phone will automatically call back to the latest incoming number.

All star code (*XX) related features mentioned above are supported by ATA default settings. If your service provider provides different feature codes, please contact them for instructions.

Inter-Port Calling

In some cases, a user may want to make phone calls between the phones connected to the ports of the same HT802 when it is used as a standalone unit, without the use of a SIP server. In such cases, users still will be able to make inter-port calls by using the IVR feature.

On the HT802 inter-port calling is achieved by dialing ***7X (X is the port number). For example, the user connected to port 1 can be reached by dialing *** and 71.

Flash Digit Control

If the option "Flash Digit Control" is enabled on web UI, call operation will require different steps as follows:

◦ Call Hold:

Assume that the call is established between phone A and B.

The phone A received a call from C, then it held B to answer C.

Press the "Flash + 1" to hang up the current call (A – C) and resume call on hold (B).

Or press "Flash + 2" to hold current call (A – C) and resume call on hold (B).

◦ Attended transfer:

Assume that the call is established between phone A and B. The phone A wants to *attend transfer* phone B to phone C:

1. On the phone A presses FLASH to hear the dial tone.
2. Phone A dials the phone C's number followed by # (or wait for 4 seconds).
3. If phone C answers the call, phones A and C are in conversation. Then A can press "Flash + 4" to complete transfer.

◦ 3-Way Conferencing:

Assume that the call is established, and phone A and B are in conversation. Phone A(HT801/HT802) wants to bring third phone C into conference:

1. Phone A presses Flash (on the analog phone, or Hook Flash for old model phones) to get a dial tone.
2. Phone A dials C's number then # (or wait for 4 seconds).
3. When phone C answers the call, then A can press "Flash +3" to bring B, C in the conference.

UPGRADING AND PROVISIONING

The HT801/HT802 can be upgraded via TFTP/HTTP/HTTPS/FTP/FTPS by configuring the URL/IP Address for the TFTP/HTTP/HTTPS/FTP/FTPS server and selecting a download method. Configure a valid URL for TFTP or FTP/FTPS or HTTP/HTTPS (default is HTTPS); the server's name can be FQDN or IP address.

Examples of valid URLs:

firmware.grandstream.com

fw.ipvideotalk.com/gs

Firmware Upgrade procedure

Please follow the below steps to upgrade the firmware version of your HT801/HT802:

1. Access your HT801/HT802 UI by entering its IP address in your favorite browser.
2. Enter your admin password (default: admin).
3. Press **Login** to access your settings.
4. Go to **Advanced Settings**→**Firmware Upgrade and Provisioning** page and enter the IP address or the FQDN for the upgrade server in the "**Firmware Server Path**" field and choose to upgrade via **TFTP, FTP/FTPS, or HTTP/HTTPS**.
5. Make sure to check "**Always Check for New Firmware**".
6. Update the change by clicking the "**Apply**" button at the bottom of the page. Then "**Reboot**" or power cycle the HT802 to update the new firmware.

Firmware Upgrade and Provisioning: ☒ Upgrade Via ☐ TFTP ☒ HTTP ☐ HTTPS ☐ FTP ☐ FTPS

Firmware Server Path:

Config Server Path:

XML Config File Password:

HTTP/HTTPS/FTP/FTPS User Name:

HTTP/HTTPS/FTP/FTPS Password:

Firmware File Prefix: Firmware File Postfix:

Config File Prefix: Config File Postfix:

Allow DHCP Option 66 or 160 to override server:
☐ No ☒ Yes

3CX Auto Provision:
☐ No ☒ Yes

Automatic Upgrade:
☒ No
☐ Yes, every minutes(30-5256000).
☐ Yes, daily at start hour (0-23), at end hour (0-23).
☐ Yes, weekly on day (0-6).

Randomized Automatic Upgrade: ☒ No ☐ Yes

☒ Always Check for New Firmware at Boot up
☐ Check New Firmware only when F/W pre/suffix changes
☐ Always Skip the Firmware Check

Firmware Upgrade Page

Upgrading via Local Directory

1. Download the firmware file from the Grandstream website;

2. Unzip it and copy the file into a folder on your PC;
3. From the HT801/HT802 web interface (Advanced Settings page) you can browse your hard drive and select the folder you previously saved the file (HT802fw.bin);
4. Click "Upload Firmware" and wait a few minutes until the new program is loaded.

Always check the status page to see that the program version has changed.

the filename in URL for the firmware upgrade has been disabled on the latest firmware upgrade 1.0.43.11.

Upgrading via Local TFTP/HTTP/HTTPS/FTP/FTPS Servers

For users that would like to use remote upgrading without a local TFTP/HTTP/HTTPS/FTP/FTPS server, Grandstream offers a NAT-friendly HTTP server. This enables users to download the latest software upgrades for their devices via this server. Please refer to the webpage:

<https://www.grandstream.com/support/firmware>

Alternatively, users can download, for example, a free TFTP or HTTP server and conduct a local firmware upgrade. A free window version TFTP server is available for download from:

http://www.solarwinds.com/products/freetools/free_tftp_server.aspx

<http://tftpd32.jounin.net/>.

Instructions for local firmware upgrade via TFTP:

1. Unzip the firmware files and put all of them in the root directory of the TFTP server.
2. Connect the PC running the TFTP server and the phone to the same LAN segment.
3. Launch the TFTP server and go to the File menu→Configure→Security to change the TFTP server's default setting from "Receive Only" to "Transmit Only" for the firmware upgrade.
4. Start the TFTP server and configure the TFTP server in the phone's web configuration interface.
5. Configure the Firmware Server Path to the IP address of the PC.
6. Save and Apply the changes and reboot the HT801/HT802.

End users can also choose to download a free HTTP server from <http://httpd.apache.org/> or use the Microsoft IIS web server.

Firmware and Configuration File Prefix and Postfix

Firmware Prefix and Postfix allow the device to download the firmware name with the matching Prefix and Postfix. This makes it possible to store all of the firmware with different versions in one single directory. Similarly, Config File Prefix and Postfix allow the device to download the configuration file with the matching Prefix and Postfix. Thus, multiple configuration files for the same device can be stored in one directory.

In addition, when the field "Check New Firmware only when F/W pre/suffix changes" is set to "Yes", the device will only issue a firmware upgrade request if there are changes in the firmware Prefix or Postfix.

Managing Firmware and Configuration File Download

When "Automatic Upgrade" is set "Yes, every" the auto check will be done in the minute specified in this field. If set to "daily at hour (0-23)", Service Provider can use P193 (Auto Check Interval) to have the devices do a daily check at the hour set in this field with either Firmware Server or Config Server. If set to "weekly on day (0-6)" the auto check will be done on the day specified in this field. This allows the device periodically to check if there are any new changes that need to be taken at a scheduled time. By defining different intervals in P193 for different devices, the Server Provider can spread the Firmware or Configuration File download in minutes to reduce the Firmware or Provisioning Server load at any given time.

Managing Device using GDMS Cloud

The GDMS Device Management System is a cloud solution from Grandstream that facilitates the provisioning and management of Grandstream devices, including the HT8xx ATAs.

The platform enables users to centralize the control and management of multiple HT8xx devices, deployed across various locations, on a single interface. It provides functionalities to upgrade, add, configure, and monitor HT8xx devices from one centralized dashboard, streamlining the overall management process.

For more details on the supported HT8xx models and their deployment to the GDMS platform, refer to the following guide: [GDMS Unified Communications – User Guide](#).

If you don't have a GDMS account yet, visit the following website to create one: [GDMS.Cloud](#).

Configuration File Download

Grandstream SIP Devices can be configured via the Web Interface as well as via a Configuration File (binary or XML) through TFTP, FTP/FTPS, or HTTP/HTTPS. The Config Server Path is the TFTP, FTP/FTPS, or HTTP/HTTPS server path for the configuration file. It needs to be set to a valid URL, either in FQDN or IP address format. The **Config Server Path** can be the same or different from the **Firmware Server Path**.

A configuration parameter is associated with each particular field on the web configuration page.

A parameter consists of a Capital letter P and 2 to 3 (Could be extended to 4 in the future) digit numeric numbers. i.e., P2 is associated with the "New Password" in the Web GUI→**Maintenance**→**Web/SSH Access page**→**Admin Password**. For a detailed parameter list, please refer to the corresponding firmware release configuration template.

When the HT801/HT802 boots up or reboots, it will send a request to download the xml file named "cfgxxxxxxxxxxxx.xml" followed by the binary file named "cfgxxxxxxxxxxxx", where "xxxxxxxxxxxx" is the MAC address of the phone, i.e., "cfg000b820102ab" and "cfg000b820102ab.xml". If the download of "cfgxxxxxxxxxxxx.xml" file is not successful, the provision program will download a generic cfg<MODEL>.xml file and then download cfg.xml. The configuration file name should be in lower case letters.

HT8xx supports DHCP option 67 allowing to provide custom name for the provisioning file. If DHCP option 67 is used, the following file download sequence will be applied:

Step 1: <option 67 bootfile>

Step 2: cfg<MAC>.xml →cfg<MAC>→cfg<Model>.xml →cfg.xml

Notes:

1. The Only acceptable Config file formats to be used when provisioning are XML or binary.
2. Make sure the MAC header on the Config file is the provisioned device's MAC address or you can remove the header completely.
3. When the <option 67 bootfile> is downloaded from the server, the cfg<MAC>.xml is not requested.

For more details on XML provisioning, please refer to:

<https://documentation.grandstream.com/knowledge-base/sip-device-provisioning-guide/>

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- HT802 XML Provisioning Configuration -->
<gs_provision version="1">
  <mac>000B82B04B4E</mac>
  - <config version="2">
    <P855>0</P855>
    <P28107>0</P28107>
    <P730>0</P730>
    <P694>97</P694>
```

XML Config File – MAC Header

- The filename in URL for config provision has been disabled on the latest firmware upgrade 1.0.43.11.
- The following parameters were added in firmware 1.0.55.5 and are only present on the config file (not on the Web UI) :
[P28834/28835] **Initial line polarity** (0 – Forward, 1 – Reverse. The default is 1) and [P82307] **Syslog Setting and Internal Logs Protection** (0- No, 1- Yes. The default is 0).

Configuration and Firmware Upgrade through Resync SIP NOTIFY

HT80x supports triggering firmware and configuration upgrade using Resync SIP NOTIFY. The event:resync NOTIFY allows the device to re-synchronize its configuration by checking the provisioning server to download any updates.

Below is an example of a resync SIP NOTIFY:

```
NOTIFY sip:device@domain.com SIP/2.0
Via: SIP/2.0/UDP 10.0.0.5:5060;branch=z9hG4bK-d4f2-9a75
Max-Forwards: 70
From: "Provisioning Server" <sip:provisioning@domain.com>;tag=prov-server
To: <sip:device@domain.com>;tag=device-987654
Call-ID: 987654xyz321
CSeq: 12345 NOTIFY
Event: resync
Content-Type: application/simple-message-summary
Content-Length: 45
```

RESTORE FACTORY DEFAULT SETTINGS

Warning:

Restoring the Factory Default Settings will delete all configuration information on the phone. Please backup or print all the settings before you restore to the factory default settings. Grandstream is not responsible for restoring lost parameters and cannot connect your device to your VoIP service provider.

There are three (3) methods for resetting your unit:

Using the Reset Button

To reset default factory settings using the reset button please follow the steps above:

1. Unplug the Ethernet cable.
2. Locate the reset hole on the back panel of your HT801/HT802.
3. Insert a pin in this hole, and press for about 7 seconds.
4. Take out the pin. All unit settings are restored to factory settings.

Using the IVR Command

Reset default factory settings using the IVR prompt:

1. Dial "***" for voice prompt.
2. Enter "99" and wait for "reset" voice prompt.
3. Enter the encoded MAC address (Look below on how to encode MAC address).
4. Wait 15 seconds and device will automatically reboot and restore factory settings.

Encode the MAC Address

1. Locate the MAC address of the device. It is the 12-digit HEX number on the bottom of the unit.
2. Key in the MAC address. Use the following mapping:

Key	Mapping
0-9	0-9
A	22 (press the “2” key twice, “A” will show on the LCD)
B	222
C	2222
D	33 (press the “3” key twice, “D” will show on the LCD)
E	333
F	3333

MAC Address Key Mapping

For example: if the MAC address is 000b8200e395, it should be keyed in as “0002228200333395”.

CHANGE LOG

This section documents significant changes from previous versions of the user guide for HT801/HT802. Only major new features or major document updates are listed here. Minor updates for corrections or editing are not documented here.

Firmware Version 1.0.59.3

- Added support for firmware upgrade via Resync SIP Notify. [[Configuration and Firmware Upgrade through Resync SIP NOTIFY](#)]

Firmware Version 1.0.57.1

- No Major Changes.

Firmware Version 1.0.55.5

- No Major Changes.

Firmware Version 1.0.53.3

- Force user to change the password upon first login using the default password to the Admin/User/Viewer Account. [[Web UI Access Level Management](#)]

Firmware Version 1.0.53.2

- No Major Changes.

Firmware Version 1.0.51.1

- No Major Changes.

Firmware Version 1.0.49.2

- No Major Changes.

Firmware Version 1.0.47.4

- Added IVR support to check Device Individual Certificate Information. [[Interactive Voice Prompt Response Menu](#)]

Firmware Version 1.0.45.2

- No Major Changes.

Firmware Version 1.0.43.11

- Added Charter CA to the approved certificate list.
- Optimized Syslog makes it more user-friendly.
- Added additional Flash Digit events. [[Flash Digit Control](#)]
- GUI enhancement to display correctly port status.

Firmware Version 1.0.41.5

- No Major Changes.

Firmware Version 1.0.41.2

- Updated Time Zone option "GMT+01:00 (Paris, Vienna, Warsaw)" to "GMT+01:00 (Paris, Vienna, Warsaw, Brussels).

Firmware Version 1.0.39.4

- Added Local IVR option that announces extension number of the port. [[Understanding HT801/HT802 Interactive Voice Prompt Response Menu](#)]

Firmware Version 1.0.37.1

- No major changes.

Firmware Version 1.0.35.4

- No major changes.

Firmware Version 1.0.33.4

- No major changes.

Firmware Version 1.0.31.1

- No major changes.

Firmware Version 1.0.29.8

- No major changes.

Firmware Version 1.0.27.2

- No major changes.

Firmware Version 1.0.25.5

- No major changes.

Firmware Version 1.0.23.5

- No major changes.

Firmware Version 1.0.21.4

- Added support for "Play Busy Tone When Account is unregistered". [Placing a phone call]

Firmware Version 1.0.19.11

- No major changes.

Firmware Version 1.0.17.5

- No major changes.

Firmware Version 1.0.15.4

- No major changes.

Firmware Version 1.0.13.7

- Added the support to verify if configured Gateway is on the same subnet as the configured IP address.

Firmware Version 1.0.11.6

- No major changes.

Firmware Version 1.0.10.6

- Add support for codec G722. [HT801/HT802 Technical Specifications]

Firmware Version 1.0.9.3

- No major changes.

Firmware Version 1.0.8.7

- Added support for upgrade device via [FTP/FTPS] server. [Upgrade Protocol] [UPGRADE PROTOCOL]

Firmware Version 1.0.5.11

- Changed default "Upgrade Via" from HTTP to HTTPS. [Upgrade Protocol] [UPGRADE PROTOCOL]
- Added support for 3 level access through RADIUS authorization (Admin, User and viewer).

Firmware Version 1.0.3.7

- No major changes.

Firmware Version 1.0.2.7

- No major changes.

Firmware Version 1.0.2.3

- No major changes.

Firmware Version 1.0.1.9

- This is the initial version.